



RFQ No. W912DW-04-Q-0018

**US Army Corps  
of Engineers®**  
Seattle District

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**Project: AERATION BASIN EFFLUENT TANK**

**Location: WYCKOFF GROUNDWATER TREATMENT PLANT  
BAINBRIDGE ISLAND, WASHINGTON**

**SERVICE AND SUPPLY SOLICITATION  
AND STATEMENT OF WORK**

**Closing Date: 12 DECEMBER 2003**

**Closing Time: 10:00 AM LOCAL TIME**

**REMARKS: Quotes may be faxed to (206) 764-6817, Attention: Sue Valenzuela, or mailed to US Army, Corps of Engineers, Seattle District, Attention: Sue Valenzuela, P.O. Box 3755, Seattle, WA 98124-3755.**

<b>REQUEST FOR QUOTATIONS</b> <i>(THIS IS NOT AN ORDER)</i>		THIS RFQ <input checked="" type="checkbox"/> IS <input type="checkbox"/> IS NOT A SMALL BUSINESS SET-ASIDE			PAGE	OF PAGES
					1	68
1. REQUEST NO. W912DW-04-Q-0018	2. DATE ISSUED 03-Dec-2003	3. REQUISITION/PURCHASE REQUEST NO. W68MD9-3323-5801	4. CERT. FOR NAT. DEF. UNDER BDSA REG. 2 AND/OR DMS REG. 1		RATING	
5a. ISSUED BY USA ENGINEER DISTRICT, SEATTLE ATTN: CENWS-CT 4735 EAST MARGINAL WAY SOUTH SEATTLE WA 98134-2329			6. DELIVER BY (Date) <b>SEE SCHEDULE</b>			
			7. DELIVERY <input checked="" type="checkbox"/> FOB DESTINATION <input type="checkbox"/> OTHER (See Schedule)			
5b. FOR INFORMATION CALL: (Name and Telephone no.) (No collect calls) SUSAN M VALENZUELA 206-764-6691						
8. TO: NAME AND ADDRESS, INCLUDING ZIP CODE			9. DESTINATION (Consignee and address, including ZIP Code) SUPPLY & FACILITIES MGMT BR. 4735 E. MARGINAL WAY S. SEATTLE WA 98134-2385 TEL: FAX:			
10. PLEASE FURNISH QUOTATIONS TO THE ISSUING OFFICE IN BLOCK 5a ON OR BEFORE CLOSE OF BUSINESS: (Date) 12-Dec-2003						
<b>IMPORTANT:</b> This is a request for information, and quotations furnished are not offers. If you are unable to quote, please so indicate on this form and return it to the address in Block 5a. This request does not commit the Government to pay any costs incurred in the preparation of the submission of this quotation or to contract for supplies or services. Supplies are of domestic origin unless otherwise indicated by quoter. Any representations and/or certifications attached to this Request for Quotations must be completed by the quoter.						
11. SCHEDULE (Include applicable Federal, State, and local taxes)						
ITEM NO. (a)	SUPPLIES/ SERVICES (b)		QUANTITY (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)
<b>SEE SCHEDULE</b>						
12. DISCOUNT FOR PROMPT PAYMENT		a. 10 CALENDAR DAYS %	b. 20 CALENDAR DAYS %	c. 30 CALENDAR DAYS %	d. CALENDAR DAYS No. %	
<b>NOTE: Additional provisions and representations <input type="checkbox"/> are <input type="checkbox"/> are not attached.</b>						
13. NAME AND ADDRESS OF QUOTER (Street, City, County, State, and ZIP Code)			14. SIGNATURE OF PERSON AUTHORIZED TO SIGN QUOTATION		15. DATE OF QUOTATION	
			16. NAME AND TITLE OF SIGNER (Type or print)		TELEPHONE NO. (Include area code)	

Aeration Basin Effluent Tank, Wyckoff/Eagle Harbor Superfund Site

Section Supplies or Services and Price

NOTES:

The North American Industry Classification System (NAICS) code for this acquisition is **332420**.  
The small business size standard is **500 employees**.

1. **SITE VISIT:** It Is Highly Recommended that all prospective bidders attend the site visit scheduled for Monday, 8 December 2003 at 10:00 AM at the job site. No other site visits will be made available.

2. Marking of Quote Envelopes:

Envelopes shall be plainly marked as follows:

QUOTE FOR:                   AERATION BASIN EFFLUENT TANK  
                                      WYCKOFF GROUNDWATER TREATMENT PLANT  
                                      BAINBRIDGE ISLAND, WASHINGTON

Request for Quote No.       W912DW-04-Q-0018

CLOSING DATE AND TIME: 12 DECEMBER 2003, 10:00 A.M. LOCAL TIME

AMENDMENTS NUMBERED \_\_\_\_\_ HAVE BEEN RECEIVED

3. **PROSPECTIVE OFFERORS:** The Director of Defense Procurement has issued a final rule amending the Defense Federal Acquisition Regulations Supplement (DFARS) to require contractors to be registered in the DOD Central Contractor Registration (CCR) for awards resulting from solicitations issued after May 31, 1998.

This rule more efficiently implements the Debt Collection Improvement Act of 1996, as it requires contractors to be registered in CCR for consideration of future solicitations, awards, and payment. Registration is required prior to award of any contract, basic agreement, basic ordering agreement, or blanket purchase agreement from a solicitation issued after May 31, 1998. **LACK OF REGISTRATION IN THE CCR DATABASE WILL MAKE AN OFFER INELIGIBLE FOR AWARD.**

The web site may be accessed at <http://ccr2000.com>. You may call 1-888-227-2423 to obtain a Registration Packet or to register On Line at [www.acq.osd.mil/ec](http://www.acq.osd.mil/ec).

4. Responses may be faxed until the date and time set for closing. Attention Faxes to Susan Valenzuela, (206) 764-6817.
5. Award shall be made to the responsive and responsible offer with the lowest offer inclusive of base and all options.
6. ELECTRONIC FUNDS TRANSFER (EFT): Effective 99 Jun 01, the Government will make all payments by EFT (unless the Government VISA credit card is accepted). The only exceptions are: 1) Foreign Vendors; 2) Government Agencies, and 3) One time payments. The EFT forms and instructions are on the USACE Finance Center (UFC) Web Page; [www.fc.usace.army.mil](http://www.fc.usace.army.mil) The UFC points of contact for this action are Ms. Nita Clower, 901/874-8542 and Mr. Michael Rye, 901/874-8543.

7. Please provide the following **required** information:

Federal Taxpayer's ID Number: \_\_\_\_\_

DUNS Number: \_\_\_\_\_

CCR Cage Code Number \_\_\_\_\_

Remit to Address:

Company Name: \_\_\_\_\_

Address: \_\_\_\_\_

City/State/Zip: \_\_\_\_\_

[Web Invoicing System \(WInS\)](#)

WInS is an optional online invoicing system providing Department of Defense vendors an electronic means of submitting invoices for payment. Vendor registration for WinS is accomplished through the following DFAS website: <https://ecweb.dfas.mil> At the website click on NEW Account to register and select "USACE" as the payment system name. The payment office code and location is "TO-UFC Millington". To establish an account in WInS, vendors must be registered with the Central Contractor Registration (CCR).

ANNOUNCEMENT TO BIDDERS/OFFERORS

Due to recent national events Seattle District US Army Corps of Engineers shall be conducting business under heightened security for the foreseeable future.

Access to Federal Center South, 4735 E Marginal Way S, Seattle WA 98124 will be through the front Lobby only. The building is under Federal Protective Service , which means that persons entering the facility are subject to inspection; including purses, packages, etc. All deliveries shall be thoroughly inspected. In addition, visitors may be required to be escorted by Corps personnel while in the building.

Please allow sufficient time to deliver your bid/proposal so that it reaches the Contract Specialist by the required date and time..

For any questions please contact the Contract Specialist assigned to your project or check our website at [www.nws.usace.army.mil](http://www.nws.usace.army.mil) for up-to-date information.

Aeration Basin Effluent Tank, Wyckoff/Eagle Harbor Superfund Site

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	AERATION BASIN EFFLUENT TANK FFP FOR WYCKOFF GROUNDWATER TREATMENT PLANT IN ACCORDANCE WITH THE SPECIFICATIONS INCORPORATED HEREIN. PURCHASE REQUEST NUMBER: W68MD9-3323-5801	1	Lump Sum		

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NET AMT

FOB: Destination

Aeration Basin Effluent Tank, Wyckoff/Eagle Harbor Superfund Site

Section DD1155 - Continuation Sheet

BID SCHEDULE

**BID SCHEDULE**

<u>Item No.</u>	<u>Description of Item</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Price</u>	<u>Amount</u>
BASE ITEM					
0001	All Work for tank fabrication, coating, packaging, and delivery to the site	1	LS	*****	\$_____
OPTIONAL ITEMS					
0002	All Work for field assembly of the tank on the treatment plant concrete pad where designated by the COR	1	LS	*****	\$_____
0003	All Work for fabrication and field installation of the metal access grating platform, walkways and handrails	1	LS	*****	\$_____
<b>TOTAL OPTIONAL ITEMS</b>					\$_____
<b>TOTAL ALL ITEMS</b>					\$_____

Abbreviations

SPECIFICATIONS

**STATEMENT OF WORK**

**TABLE OF CONTENTS**

1. GENERAL REQUIREMENTS
2. DELIVERY LOCATION
3. SITE BACKGROUND
4. SYSTEM DESCRIPTION
5. SITE SAFETY CONSIDERATIONS
6. SPECIFICATIONS AND DETAIL DRAWINGS.
7. QUALITY CONTROL
8. COMPLETION AND SUBMITTAL SCHEDULE

## STATEMENT OF WORK

### 1. GENERAL REQUIREMENTS

#### 1.1 Scope

The Contractor shall provide a new aeration basin effluent wet well/clarifier tank including all appurtenances, fittings, penetrations and all specified features to allow for future use as the API oil/water separator. The Contractor shall include a one-year warranty on all equipment and work completed, and provide as-built drawings and any O&M manuals.

The new tank will replace an existing 7500 gallon tank used for an effluent wet well/clarifier. The existing tank will be removed from the Groundwater Treatment Plant pad by a separate contractor and is not part of this work.

The Contractor is responsible for all fabrication, packaging and transportation costs and delivery of the aeration basin effluent tank to Wyckoff Superfund Site on Bainbridge Island, Washington under CLIN 0001. The fabrication contractor is responsible for installing proper lifting points on the tank with directions and loading requirements to be provided to the ENGINEER prior to delivery on site. Final placement of the tank on the Groundwater Treatment Plant pad is optional to this contract and may be done by a separate contractor. If placement of the tank is awarded, it will be paid for under CLIN 0002. The fabrication, painting, delivery and installation of the access platforms, grating, handrails, and support beams may be awarded as optional CLIN 0003. Piping and plumbing connections to the existing equipment at the Groundwater Treatment Plant facility will be made by the Pilot Plant O&M Contractor, SCS Engineers/OMI.

The work covered in this section is outlined as statement of work requirements and is common to all the work defined by the detailed drawings and specifications in the remainder of this solicitation for the location and items of work involved.

### 2. DELIVERY LOCATION

All work and materials supplied under this contract shall be delivered to the Wyckoff/Eagle Harbor Superfund site located on Bainbridge Island, Washington on the south side of Eagle Harbor.

Information on the Wyckoff/Eagle Harbor Superfund project is available on the Internet at:

<http://www.wyckoffsuperfund.com>

The site's address is:

Wyckoff/Eagle Harbor Superfund Site  
U.S. Army Corps of Engineers  
5350 Creosote Place

Aeration Basin Effluent Tank, Wyckoff/Eagle Harbor Superfund Site

City of Bainbridge Island, Washington 98110

Ms. Kathy LeProwse is the Corps of Engineers Project Manager of the Wyckoff/Eagle Harbor Project, telephone on site is (206) 855-4178, and Mr. Cliff Leeper is the SCS/OMI Operations & Maintenance Manager, telephone (206) 855-8236, for existing contract operations at the Groundwater Treatment Plant. Contractor shall contact Ms. LeProwse to coordinate and schedule the delivery of the finished tank.

Point of contact for technical information is Ms. Kathy LeProwse at the Seattle District Office, telephone number 206-764-3505. The fax number for Ms. LeProwse is 206-764-3706.

### 3. SITE BACKGROUND.

#### 3.1 Site History

The Wyckoff property is situated on the southeast side of Eagle Harbor. From the early 1900's through 1988, a succession of companies treated wood at the Wyckoff property for use as railroad ties and trestles, telephone poles, pilings, docks and piers. Over this period of operation, the soil and groundwater at Wyckoff became severely contaminated with wood-treatment chemicals, including primarily polynuclear aromatic hydrocarbons (PAHs), pentachlorophenol (PCP), and dioxins/furans.

#### 3.2 Current Land Use

A pilot study was started in 2002 to perform in-situ treatment on a central location on the site, approximately 44,400 ft<sup>2</sup> in areal extent with a total of approximately 35,300 yd<sup>3</sup> of contaminated soil in the vadose and saturated zones using a thermal technology system to distribute and inject steam through a well field within the pilot O&M area from a boiler plant. The heated vapor and residual liquid were collected and transport to a groundwater treatment facility located on the site.

### 4 SYSTEM DESCRIPTION

The aeration basin effluent tank collects discharge from the aeration basin/clarifier of the Groundwater Treatment Plant where it is pumped to one of the multi-media sand filters before the polishing phase in the carbon units on site.

### 5.0 SAFETY CONSIDERATIONS

There are strict Health & Safety requirements identified in the Site-Wide Management Plan for the Operation & Maintenance contract which covers all work performed at the Groundwater Treatment Plant. No special considerations are required for equipment deliveries (without installation). All deliveries will occur within a clean safe zone at the site. If either the option to install the new aeration basin effluent tank on the treatment plant pad (CLIN 0002) or the option for the fabrication, delivery and installation of the platform, stairs and handrails (CLIN 0003) is awarded, all employees who work on the installation will be required to have certification of HAZWOPER training (a minimum of 24 hours with a current 8-hour Refresher) which meets the overall requirements of the site-wide Health & Safety Plan in the overall site-

wide Management Plan.(A copy of this Management Plan will be provided to the successful low bidder.) Health & Safety submittals for individual employees will need to be submitted , such as copies of HAZWOPER certification and the signature page from the H&S Plan acknowledging that the Contractor has read and understood the site-wide management plan, along with detailed Hazard Activity Analyses for each proposed installation activity in compliance with the Corps of Engineers Health & Safety Manual EM 385-1-1, Health & Safety Manual. (A copy will be provided to the successful low bidder.) For example, if the plan involves work at elevations greater than 6 feet , such as on top of a tank, then a site-specific fall protection plan would be needed.

## 6. SPECIFICATIONS AND DETAIL DRAWINGS.

6.1 All specifications listed in Attachment A are attached to and form a part of this SOW in their entirety. The Contractor shall comply with the specifications requirements listed in Attachment A.

### 6.2 Detail Drawings

The work shall conform to the detail drawings identified in the index of drawings under Attachment B.

## 7. QUALITY CONTROL

### 7.1 General

The Contractor is responsible for quality control. Workmanship shall be of the highest in accordance with the best modern practices to conform to the specification for the materials and products being supplied. The contractor shall have a corporate Quality Assurance program in place and operational for their employees. The Contractor shall include a one-year warranty on equipment and work completed, and also submit as-built drawings and any pertinent O&M Manuals.

### 7.2 Materials and Workmanship

Materials used in the manufacturing of equipment furnished, and other materials used in the assembly and installation of the system shall conform to the materials as specified herein or shown on the drawings. Material and equipment shall be the standard products of a manufacturer regularly engaged in the manufacturing of such products and shall essentially duplicate equipment that has been in satisfactory service at least 10 years prior to bid opening. Materials not particularly specified shall be of the best quality commercial products suitable for the intended use and as approved. Items of the same classification shall be identical, including equipment, assemblies, parts, and components.

8 COMPLETION AND SUBMITTAL SCHEDULE. The Contractor shall complete all work in accordance with the schedule below (CD=Calendar Days, NTP=Notice to Proceed/Award). Overall completion time for the contract is Not to Exceed 120 CD after NTP/Award (based on 14 day government review periods).

<b>Task</b>	<b>Description</b>	<b>Completion Time</b>
1	a. Shop Drawing submittals	14 CD after NTP/Award
2	a. Government Review of Shop Drawings	14 CD, with 7CD for re-submittals
3	Fabrication, Coating/painting, and Inspection	42 CD after Approval of Shop Drawings
	Delivery to the site	2 CD
5	Installation of tank (Optional)	7CD after approval from ENGINEER(after location is prepared for installation by other contractor)
6	Installation of platform walkways, stairs and handrails (Optional)	7CD after tank installation

ATTACHMENTS TO THE STATEMENT OF WORK

ATTACHMENT A

The work shall conform to the following specifications which accompany and form a part of the Statement of Work:

Section No.	Title
Schedule B	Payment Contract Line Items
Section 01330	Submittal Procedures
Section 05050	Welding
Section 05500	Metal Fabrications
Section 05520	Handrails
Section 05530	Metal Grating
Section 09902	Painting

ATTACHMENT B

**INDEX OF DRAWINGS**

Aeration Basin Effluent Tank,  
Wyckoff Superfund Site,  
Bainbridge Island, Washington

SHEET NO.	PLATE NO.	TITLE	REVISION NO.	DATE
1	S-1	Bottom Plan, Elevation and Sections		SEP 03
2	S-2	Grating Plan, Sections and Details		SEP 03
3	S-3	Miscellaneous Details		SEP 03

## SECTION 01330

### SUBMITTAL PROCEDURES

#### PART 1 GENERAL

##### 1.1 CONTRACT SUBMITTALS AND DATA

The Contractor shall submit all items required by the technical specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Proposed deviations from the contract requirements shall be clearly identified. Submittals required in the CONTRACT CLAUSES are in addition to those required in the specifications.

##### 1.2 DEFINITIONS

###### 1.2.1 Submittal

Items including product data and administrative submittals presented for review and approval (GA) or for information (FIO). Contract Clauses "FAR 52.236-5, Material and Workmanship," paragraph (b) apply to all "submittals." Shop drawing submittals from the technical specifications shall be submitted within 14 calendar days of award of this contract.

##### 1.3 PREPARATION

###### 1.3.1 Marking

Permanent marking shall be provided on each submittal to identify it by contract number; transmittal date; Contractor's, Subcontractor's, and supplier's name, address(es) and telephone number(s); submittal name; specification or drawing reference; and similar information to distinguish it from other submittals. Submittal identification shall include space to receive the review action by the Contracting Officer.

###### 1.3.2 Data Format

Required data submittals for each specific material, product, unit of work, or system shall be collected into a single submittal and marked for choices, options, and portions applicable to the submittal. Marking of each copy of product data submitted shall be identical. Partial submittals will not be accepted for expedition of the work effort unless previously requested by COR.

###### 1.3.3 Drawing Format

- a. Detail drawings shall not be less than 8 1/2 by 11 inches nor more than 28 x 40 inches.
- b. 11 x 17 to 28 x 40 inches Drawing Size.

Include on each drawing a title block in lower right hand corner with a 3- by 4-inch clear area adjacent. Title block shall contain subcontractor's or fabricator's name, Contract number, drawing title, number, date, bid item number, and a revision block. Contractor shall submit the required number of prints of any type. Provide a blank margin of 3/4 inch at bottom, 2 inches at left, and 1/2 inch at top and right.

- c. Less than 11 x 17 inches Drawing Size.

Include on each drawing a title block with a 1-1/2 by 4-inch clear area adjacent. Title block shall contain subcontractor's or fabricator's name, Contract number, drawing title, number, date, bid item number, and a revision block. Contractor shall submit the required number of copies of any type. Provide a blank margin of 3/4 inch at all sides.

- d. Dimension all drawings, except diagrams and schematic drawings; prepare drawings demonstrating interface with other trades to scale. Identify materials and products for work shown.

- e. Where drawings are submitted for assemblies of more than one piece of equipment or systems of components dependent on each other for compatible characteristics, complete information shall be submitted on all such related components at the same time. Contractor shall insure that information is complete and that sequence of drawing submittal is such that all information is available for reviewing each drawing. Drawings for all items and equipment, of special manufacture or fabrication, shall consist of complete assembly and detail drawings.

- f. All revisions after initial submittal shall be shown by number, date, and subject in revision block.

## 1.4 SUBMISSION REQUIREMENTS

### 1.4.1 Transmittal Form

Transmittal Form 4025 (sample at end of this section) shall be used for submitting both GA and FIO submittals in accordance with the instructions on the reverse side of the form. Transmittal numbers shall be assigned sequentially. Electronic generated 4025 forms shall be printed on carbonless paper and be a reasonable facsimile of the original 4025. These forms shall be filled in completely prior to submittal. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item. Each submittal item shall be listed separately on the form, naming subcontractor, supplier, or manufacturer, applicable specification paragraph number(s), drawing/sheet number, pay item number, and any other information needed to identify the item, define its use, and locate it in the work.

### 1.4.2 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025 shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent

Aeration Basin Effluent Tank, Wyckoff/Eagle Harbor Superfund Site

approval of submittals containing unnoted deviations.

### 1.4.3 Data and Drawing Submittals

Submit five complete sets of data and drawings. One set, marked with review notations by the Contracting Officer, will be returned to the Contractor. Send all submittal items to:

ATTN: Environmental Management Branch (P.O.C.: Kathy LeProwse )  
CENWS-PM-EM  
Department of the Army  
Seattle District, Corps of Engineers  
P.O. Box 3755  
Seattle, WA 98124-3755

Telephone (206) 764-3505

Fax (206) 764-3706

## 1.5 REVIEW PROCEDURES

### 1.5.1 Review Notations

Submittals will be returned to the Contractor with the following notations:

a. Action Code A (Approved as Submitted). Drawings which can be approved without correction will be stamped "Approved", two copies of catalog and other printed data, will be returned to the Contractor.

b. Action Code B (Approved, Except as Noted, Resubmission Not Required). Drawings which have only minor discrepancies will be corrected and stamped "Approved as Corrected" or "Except as Noted." Corrections will be identified. Distribution will be same as for "Approved" drawings.

c. Action Code C (Approved, Except as Noted, Resubmission Required). Two prints of drawings which are incomplete or require more than minor corrections will be marked in red to indicate necessary corrections. One marked copy will be returned to the Contractor stamped "Returned for Correction."

d. Action Code E (Disapproved). One print of drawings which are fundamentally in error, cover wrong equipment or construction, or require extensive corrections will be returned to the Contractor stamped "Disapproved." An explanation will be furnished on the print or on ENG Form 4025 indicating reason for disapproval.

### 1.5.2 Re-Submittal

Re-submittal will not be required for drawings with Action Code A or B unless subsequent changes are made by the Contractor or by a contract modification. For drawings with Action Code C or E, corrections required shall be made, any changes shall be noted by dating the revisions to correspond with the change request date, and the drawings shall be promptly resubmitted for review.

### 1.5.3 Contractor Responsibilities Upon Receiving Government Annotated Submittals

1.5.3.1 An A, B, or C Action Code will authorize the Contractor to proceed with the fabrication of the equipment covered by such drawings, subject to the corrections, if any, indicated thereon or described in the letter of transmittal. Required revisions shall be resubmitted by the same procedure as previously described. Every revision made during the life of the contract shall be shown by number, date, and subject in a revision block and a notation shall be made in the drawing margin to permit rapid location of the revision. The time consumed by the Contractor in submitting and obtaining approval of assembly and shop drawings shall be included in the time allowed for completion of the contract.

### 1.5.3.2 Submittal of Corrected Drawings

Upon receipt of prints which have Action Codes C or E the Contractor shall, within 7 calendar days after receipt, submit corrected (reproducibles and) prints of each drawing to the address(s) listed under Paragraph 1.4.3. If revisions are made after a drawing has been assigned an A or B code, the Contractor shall furnish corrected reproducibles and prints subsequent to each revision.

## 1.6 SUBMITTALS FOR GOVERNMENT APPROVAL

Any manufacturing work performed prior to the approval of drawings shall be at the responsibility of the Contractor. No claim for additional costs will be allowed for changes required due to manufacturing work prior to approval of a required submittal.

### 1.6.1 Approved Submittals

The approval of submittals by the Contracting Officer shall not be construed as a complete check, but will indicate only that the general method of work is satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor is responsible for the satisfactory performance of the work in accordance with the contract documents, including all applicable regulations.

### 1.6.2 Changes To Approved Submittals

If changes are necessary to approved submittals, the Contractor shall make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change shall be accomplished until the changed submittals are approved. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting alternate methods or work procedures will be given consideration unless accompanied by an explanation as to why a substitution is necessary.

## 1.7 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies required for Government approval. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, notice as required under the Contract Clause entitled "Changes" shall be given promptly to the Contracting Officer.

## 1.8 SCHEDULING

Adequate time shall be allowed for Government review and approval. Items requiring Government approval shall allow for a minimum 14 calendar day period for Government review and approval of the initial submittal and a 7 calendar day period for Government review and approval for subsequent submittals, if required. Review periods are exclusive of mailing time, but items may be hand delivered to the office.

## 1.9 OTHER SUBMITTALS

### 1.9.1 Bill Of Materials

One reproducible and two prints of a bill of materials listing each item necessary to complete each major equipment assembly shall be furnished at least 14 days prior to the first delivery of the equipment. This is in addition to the materials schedules required and any list of materials shown on the drawings. This bill of materials shall be complete enough to check each item by quantity, size, and other description as required to assure all material required under the contract has been delivered.

### 1.9.2 Purchase Orders

Two copies of all purchase orders for other than stock materials showing the firm(s) name and address and lists of material shall be submitted as soon as issued, and immediate notice shall be given of the receipt of any material for the work together with detailed lists of same. Orders shall be so worded and marked that each item may be identified in the plans for the work.

## 1.10 WITHHOLDING OF PAYMENT

Payment for materials and equipment incorporated or installed in the facility and not in compliance with the contract documents or if required approvals have not been obtained will not be made.

## 1.11 PAYMENT

Separate payment, except as identified in the Section B, SCHEDULE for SUPPLIES OR SERVICES AND PRICES/COSTS will not be made for submittals of contract data, and all costs associated therein shall be included in the applicable unit prices or lump sum prices contained in the schedule.

PART 2 PRODUCTS (Not Applicable)

PART 3 EXECUTION (Not Applicable)

Attachments follow

1. Form 4025

END OF SECTION



**INSTRUCTIONS**

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

- |      |  |       |  |
|------|--|-------|--|
| A -- | Approved as submitted.   | E --  | Disapproved (See attached).  |
| B -- | Approved, except as noted on drawings.   | F --  | Receipt acknowledged.  |
| C -- | Approved, except as noted on drawings.<br>Refer to attached sheet resubmission required. | FX -- | Receipt acknowledged, does not comply as noted with contract requirements. |
| D -- | Will be returned by separate correspondence.   | G --  | Other (Specify)  |

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

(Reverse of ENG Form 4025-R)

**SECTION 05050  
WELDING**

**part 1 general  
REFERENCES**

**The following is a list of standards which may be referenced in this section:**

**American Society of Mechanical Engineers (ASME):**

BPVC SEC V, Nondestructive Examination.

BPVC SEC IX, Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators.

**American Society of Nondestructive Testing (ASNT): SNT-TC-IA, Personnel Qualification and Certification in Nondestructive Testing.**

**American Welding Society (AWS):**

A2.4, Standard Symbols for Welding, Brazing, and Nondestructive Examination.

A3.0, Standard Welding Terms and Definitions.

D1.1, Structural Welding Code - Steel.

D1.6, Structural Welding Code - Stainless Steel.

QC 1, Standard for AWS Certification of Welding Inspectors.

**ASTM International (ASTM): A370, Standard Test Methods and Definitions for Mechanical Testing of Steel Products.**

**NACE International Corrosion Society: NACE Standard RPO178-95, Fabrication Details, Surface Requirements, and Proper Design Considerations for Tanks and Vessels to Be Lined for Immersion Services.**

### **DEFINITIONS**

**CJP: Complete Joint Penetration.**

**CWI: Certified Welding Inspector.**

**MT: Magnetic Particle Testing.**

**NDE: Nondestructive Examination.**

**NDT: Nondestructive Testing.**

**PJP: Partial Joint Penetration.**

**PQR: Procedure Qualification Record.**

**PT: Liquid Penetrant Testing.**

**RT: Radiographic Testing.**

**UT: Ultrasonic Testing.**

**VT: Visual Testing.**

**WPQ: Welder/Welding Operator Performance Qualification.**

**WPS: Welding Procedure Specification.**

### **SUBMITTALS**

**Shop Drawings:**

**Shop and field WPSs and PQRs.**

**NDT procedure specifications prepared in accordance with ASME BPVC SEC V.**

#### **Welding Data (Shop and Field Welding):**

Show location, type, size, and extent of welds with reference called out for WPS and NDT procedure specification numbers.

Distinguish between shop and field welds.

All field welding shall be in accordance with AWS D1.1.

Indicate, by welding symbols or sketches, details of welded joints and preparation of base metal.

Welding and NDE symbols shall be in accordance with AWS A2.4.

Welding terms and definitions shall be in accordance with AWS A3.0.

**Information Submittals:**

**WPQs.**

**CWI credentials.**

**Testing agency personnel credentials.**

**CWI reports.**

**Welding Documentation: Submit on appropriate forms in referenced welding codes.**

**WPSs and WPQs as required by the “welding and nondestructive Testing Table” included as an attachment to this specification section.**

**QUALIFICATIONS**

**WPSs: In accordance with AWS D1.1 (Annex E) or ASME BPVC SEC IX (Forms QW-482 and QW-483).**

**WPQs: In accordance with AWS D1.1 (Annex E), or ASME BPVC SEC IX (Form QW-484).**

**CWI: Certified in accordance with AWS QC1, and having prior experience with the welding codes specified.**

**Testing Agency: Personnel performing tests shall be NDT Level II Certified in accordance with ASNT SNT-TC-1A.**

**SEQUENCING AND SCHEDULING**

**Unless otherwise specified, all Submittals required in this section shall be submitted and approved prior to commencement of welding operations.**

**part 2 products**

**SOURCE QUALITY CONTROL**

**The CWI shall be present whenever shop welding is performed. The CWI shall perform inspection prior to assembly, during assembly, during welding, and after welding. CWI duties include:**

**Verifying conformance of specified job material and proper storage.**

**Monitoring conformance with approved WPS.**

**Monitoring conformance of WPQ.**

**Inspecting weld joint fit-up and in-process inspection.**

**Providing 100 percent visual inspection of all welds.**

**Supervising nondestructive testing personnel and evaluating test results.**

**Maintaining records and preparing reports confirming that the results of inspection and testing comply with the Work.**

**Fabrication of tank interior shall meet the surface finish requirements of NACE RPO178-95.**

**part 3 execution**  
**GENERAL**

**Welding and Fabrication by Welding: Conform to governing welding codes referenced in the attached Welding and Nondestructive Testing Table.**

**NONDESTRUCTIVE WELD TESTING REQUIREMENTS**

**Weld Inspection Criteria:**

**Selection of Welds to be Tested: As agreed upon between ENGINEER and CONTRACTOR.**

**Unless otherwise specified, perform NDT of welds at a spot testing frequency as shown below or in the attached table in accordance with the referenced welding codes. Perform UT on CJP groove welds that cannot be readily radiographed. In case there is a conflict, the higher frequency level of NDT shall apply:**

CJP Butt Joint Welds: 10 percent random RT.

CJP Groove Welds: 10 percent random UT.

Fillet Welds and PJP Groove Welds: 10 percent random PT or MT

All Welds: 100 percent VT.

**Weld Acceptance:**

VT:

Structural Pipe and Tubing: AWS D1.1, paragraph 6.9, Visual Inspection, Tubular Connections.

All Other Structural Steel: AWS D1.1, paragraph 6.9, Visual Inspection, Statically Loaded Nontubular Connections.

Stud Connections: AWS D1.1, paragraph 7.8.1.

UT: Perform UT of CJP groove welds in accordance with AWS D1.1, paragraph 6.13.3, Class R Indications.

RT: Perform RT of CJP butt joint welds in accordance with AWS D1.1, paragraph 6.12.1.

PT or MT:

Perform on fillet and PJP groove welds in accordance with AWS D1.1, paragraph 6.10.

Acceptance shall be in accordance with VT standards specified above.

### **FIELD QUALITY CONTROL**

**The CWI shall be present whenever field welding is performed. The CWI shall perform inspection prior to assembly, during assembly, during welding, and after welding. CWI duties include:**

**Verifying conformance of specified job material and proper storage.**

**Monitoring conformance with approved WPS.**

**Monitoring conformance of WPQ.**

**Inspecting weld joint fit-up and in-process inspection.**

**Providing 100 percent visual inspection of all welds.**

**Supervising nondestructive testing personnel and evaluating test results.**

**Maintaining records and preparing reports confirming that the results of inspection and testing comply with the Work.**

### **WELD DEFECT REPAIR**

**Repair and retest rejectable weld defects until sound weld metal has been deposited in accordance with appropriate welding codes.**

### **SUPPLEMENTS**

**The supplement listed below, following “END OF SECTION,” is a part of this Specification.**

**Welding and Nondestructive Testing Table.**

**END OF SECTION**

<b>WELDING AND NONDESTRUCTIVE TESTING</b>						
<b>Specification Section</b>	<b>Governing Welding Codes or Standards</b>	<b>Submit WPS</b>	<b>Submit WPQ</b>	<b>Onsite CWI Req'd</b>	<b>Submit Written NDT Procedure Specifications</b>	<b>NDT Requirements</b>
05500 METAL FABRICATI ONS	AWS D1.1, Structural Welding Code– Steel or AWS D1.6, Structural Welding Code– Stainless Steel	Yes	Yes	Yes	Yes	10% UT <sup>(1)</sup> or RT <sup>(2)</sup> of all groove-and-butt joint welds; 10% MT <sup>(3)</sup> of all fillet welds; also see Section 05500
05520 HANDRAIL S	AWS D1.1, Structural Welding Code– Steel	Yes	Yes	Yes	No	100% VT <sup>(4)</sup> ; see Section 05520
05530 METAL GRATING	AWS D1.1, Structural Welding Code– Steel	Yes	Yes	Yes	No	100% VT <sup>(4)</sup> ; see Section 05530
<sup>(1)</sup> UT–Ultrasonic Testing. <sup>(2)</sup> RT–Radiographic Testing. <sup>(3)</sup> MT–Magnetic Particle Testing. <sup>(4)</sup> VT–Visual Testing.						

**SECTION 05500  
METAL FABRICATIONS**

**PART 1 GENERAL  
REFERENCES**

**The following is a list of standards which may be referenced in this section:**

**American Galvanizers Association (AGA): Inspection of Products Hot-Dip Galvanized After Fabrication.**

**American Institute of Steel Construction (AISC): S329, Allowable Stress Design Specification for Structural Joints using ASTM A325 or A490 Bolts.**

**American Iron and Steel Institute (AISI): Stainless Steel Types.**

**American National Standards Institute (ANSI):**

A14.3, Ladders - Fixed - Safety Requirements.

B1.1, Unified-inch Screw Threads (UN and UNR Thread Form).

**American Welding Society (AWS): D1.1, Structural Welding Code - Steel.**

**ASTM International (ASTM):**

A36/A36M, Specification for Carbon Structural Steel.

A108, Specification for Steel Bars, Carbon, Cold-Finished, Standard Quality.

A123/A123M, Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

A143, Practice for Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.

A153/A153M, Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

A193/A193M, Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.

A276, Specification for Stainless Steel Bars and Shapes.

A283/A283M, Specification for Low and Intermediate Tensile Strength Carbon Steel Plates.

A384, Practice for Safeguarding Against Warpage and Distortion During Hot-Dip Galvanizing of Steel Assemblies.

A385, Practice for Providing High-Quality Zinc Coatings (Hot-Dip).

A489, Specification for Carbon Steel Lifting Eyes.

A500, Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.

A653, Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

A780, Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

A992/A992M, Specification for Steel for Structural Shapes for Use in Building Framing

F436, Specification for Hardened Steel Washers.

F593, Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.

F594, Specification for Stainless Steel Nuts.

**International Conference of Building Officials (ICBO): Evaluation Reports for Concrete and Masonry Anchors.**

**NSF International (NSF).**

**Occupational Safety and Health Administration (OSHA): 29 CFR 1910.27, Fixed Ladders.**

### **DEFINITIONS**

**Submerged:** Location at or below top of wall of open water-holding structure, such as a basin or channel, or wall, ceiling or floor surface inside a covered water-holding structure, or exterior belowgrade wall or roof surface of water-holding structure, open or covered.

**Exterior Area:** Location not protected from the weather by a building or other enclosed structure.

**Corrosive Area:** Containment area or area exposed to delivery, storage, transfer, or use of chemicals.

### **SUBMITTALS**

#### **Shop Drawings:**

#### **Provide details showing:**

Erection plans.

Members and their connections.

Anchor bolt layouts.

Hardened washer details.

Joint details for complete penetration welds.

Primer and other coatings.

**Name and address of manufacturer(s).**

**Product specifications.**

**Manufacturers' testing procedures and standards.**

#### **Informational Submittals:**

**Mill Certificates of tests made in accordance with ASTM A6.**

#### **High-Strength Bolts (Stainless Steel and Hot-Dip Galvanized):**

Certificates of Compliance that products meet chemical and mechanical requirements of standards specified.

Manufacturer's inspection test report results for production lot(s) furnished, to include:

Tensile strength.

Yield strength.

Reduction of area.

Elongation and hardness.

Certified Mill Test Reports for Bolts and Nuts:

Name and address of manufacturer.

Bolts correctly marked.

Marked bolts and nuts used in required mill tests and manufacturer's inspection tests.

**Welding Procedures, Qualifications, and Inspection Report: As specified in Section 05050, WELDING.**

**Concrete Drilled Anchors:**

Manufacturer's product description and installation procedures.

Current test data or ICBO evaluation report.

Adhesive Anchor Installer Certification.

**Ladders: Certification of load and fatigue tests.**

**Hot-Dip Galvanizing: Certificate of compliance signed by galvanizer, with description of material processed and ASTM standard used for coating.**

### **QUALITY ASSURANCE**

**Mill identification marks in accordance with ASTM A6.**

**Welding Qualifications: As specified in Section 05050, WELDING.**

**Qualifications:**

**Adhesive Anchor Installers: Trained and certified by manufacturer.**

**Galvanized Coating Applicator: Company specializing in hot-dip galvanizing after fabrication and following procedures of Quality Assurance Manual of the American Galvanizers Association.**

### **DELIVERY, STORAGE, AND HANDLING**

**Delivery: Load structural members in such a manner that they will be transported and unloaded without damage to coatings and without being excessively stressed, deformed, or otherwise damaged.**

**Storage:**

**Protect structural steel members and packaged materials from corrosion and deterioration.**

**Store in dry area and not in direct contact with ground.**

**Protect fasteners from dirt and moisture. Do not remove lubricant from bolts and nuts.**

**Handle materials to avoid distortion or damage to members or supporting structures.**

**Insofar as practical, factory assemble items specified herein. Assemblies that due to necessity have to be shipped unassembled shall be packaged and tagged in manner that will protect materials from damage and will facilitate identification and field assembly.**

**Package stainless steel items in a manner to provide protection from carbon impregnation.**

**Protect painted coatings and hot-dip galvanized finishes from damage due to metal banding and rough handling. Use padded slings and straps.**

**Store fabricated items in dry area, not in direct contact with ground.**

## **PART 2 PRODUCTS**

### **GENERAL**

**Unless otherwise indicated, meet the following requirements:**

<b>Item</b>	<b>ASTM Reference</b>
Steel Shapes and Plates	A36/A36M or ASTM A992
Steel Pipe	A501 or A53/A53M, Type E or S, Grade B

Item	ASTM Reference
Structural Steel Tubing	A500, Grade B, Fy = 46 ksi
Stainless Steel:	
Bolts, Threaded Rods, Anchor Bolts, and Anchor Studs	F593, AISI Type 316L, Condition CW
Nuts	F594, AISI Type 316L, Condition CW
Steel Bolts and Nuts:	
Carbon Steel	A307 bolts, with A563 nuts
High-Strength	A325, Type 1 bolts, with A563 nuts
Anchor Bolts and Rods	F1554, Grade 55, with weldability supplement S1.
Eyebolts	A489
Flat and Beveled Washers (Hardened)	F436
Thrust Ties for Steel Pipe:	
Threaded Rods	A193/A193M, Grade B7
Nuts	A194/A194M, Grade 2H
Plate	A283/A283M, Grade D

**Bolts, Washers, and Nuts: Use stainless steel, hot-dip galvanized steel, and zinc-plated steel material types as indicated in FASTENER SCHEDULE at end of this section.**

### CONCRETE DRILLED ANCHORS

#### General:

**AISI Type 316 stainless, hot-dip galvanized, or zinc-plated steel, as shown in FASTENER SCHEDULE at end of this section.**

**Current evaluation and acceptance reports by ICBO or other similar code organization.**

#### Wedge Anchors:

##### Manufacturers and Products:

ITW Ramset/Red Head, Wood Dale, IL; Trubolt Wedge Anchor.

Hilti, Inc., Tulsa, OK; Kwik-Bolt II Stud Anchor.

Powers Rawl, New Rochelle, NY; Power-Stud Anchor.

Simpson Strong-Tie Co., Inc., Pleasanton, CA; Wedge-All Anchor.

Unitex, Kansas City, MO; Pro-Poxy 300 and Pro-Poxy 300 Fast Epoxy Adhesive Anchors.

**Expansion Anchors:**

**Self-drilling anchors, snap-off or flush type, zinc-plated.**

**Nondrilling Anchors: Flush type for use with zinc-plated or stainless steel bolt, or stud type with projecting threaded stud.**

**Manufacturers and Products:**

ITW Ramset/Red Head, Wood Dale, IL; Multi-Set II Drop-In and Self Drill Anchor.

Hilti, Inc., Tulsa, OK; Hilti HDI Drop-In Anchor.

Powers Rawl, New Rochelle, NY; Steel Drop-In Anchor.

Simpson Strong-Tie Co., Inc., Pleasanton, CA; Drop-In Anchor.

**Adhesive Anchors:**

**Threaded Rod:**

ASTM F593 stainless steel threaded rod, diameter as shown on Drawings.

Length as required, to provide minimum depth of embedment.

Clean and free of grease, oil, or other deleterious material.

**Adhesive:**

Two-component, designed to be used in adverse freeze/thaw environments, with gray color after mixing.

Cure Temperature, Pot Life, and Workability: Compatible for intended use and environmental conditions.

Nonsag, with selected viscosity base on installation temperature and overhead application where applicable.

**Packaging and Storage:**

Disposable, self-contained cartridge system capable of dispensing both components in the proper mixing ratio and fitting into a manually or pneumatically operated caulking gun.

Store adhesive cartridges on pallets or shelving in covered storage area, in accordance with manufacturer's written instructions.

Cartridge Markings: Include manufacturer's name, product name, material type, batch or serial number, and adhesive expiration date.

Dispose of cartridges if shelf life has expired.

**Manufacturers and Products:**

ITW Ramset/Red Head, Wood Dale, IL; Epcon Ceramic 6 Epoxy or A7 Adhesive Anchor System. (Use only Epcon A7 Adhesive System for hollow masonry.)

Hilti, Inc., Tulsa, OK; HIT Doweling Anchor System, HIT HY 150 (HIT HY 20 for hollow masonry).

Powers Rawl, New Rochelle, NY; Power Fast Epoxy Injection Gel Cartridge System.

Simpson Strong-Tie Co., Inc., Pleasanton, CA; Epoxy-Tie Adhesive ET or Acrylic-Tie Adhesive.

(Use only Acrylic-Tie Adhesive for temperatures below 40 degrees F.)

Unitex, Kansas City, MO; Pro-Poxy 300 and Pro-Poxy 300 Fast Epoxy Adhesive Anchors.

**Adhesive Threaded Inserts:**

**Stainless steel, internally threaded insert.**

**Manufacturer and Product: Hilti, Inc., Tulsa, OK; HIS-R Insert with HIT HY 150 adhesive.**

**LADDERS**

**Fabricate ladders with rails, rungs, and landings to meet applicable requirements of OSHA, CFR Part 1910.27, and ANSI A14.3.**

**Concentrated load of 250 pounds plus 30 percent impact on rungs.**

**Maximum rung deflection of 1/360.**

**Concentrated load of 250 pounds plus 30 percent impact between consecutive attachments.**

**Flat Bar Ladders:**

**Punch rails, pass rungs through rails, and weld on outside.**

**Weld brackets to the ladder for fastening ladder to wall.**

**Hot-dip galvanize steel after fabrication in accordance with ASTM A123/A123M and A385.**

**FABRICATED UNITS**

**Overflow Pipe and Accessories:**

**Use stainless steel pipe and fabricate flared section at top of overflow of steel plate, weld seams, and grind smooth.**

**Flange at Base:**

Standard 150-pound steel ring flange drilled 150-pound ANSI Standard.

Flange: Parallel to upper edge of fitting so lip can be installed in horizontal plane with pipe vertical.

Grind upper lip smooth.

**Fabricate supporting brackets of structural shapes and flat bar stock, as shown.**

**Bolts: Stainless steel.**

**Coat interior as specified in Section 09902, PAINTING.**

**Valve Operator Access Box: Cast iron, 8 inches by 4 inches, as manufactured by Zurn;  
No. ZN-1930-K.**

**Weir and Baffle Plates: Fabricate plates and associated framing of stainless steel,  
AISI Type 316L, unless indicated otherwise on Drawings.**

**ACCESSORIES and ancillary materials**

**Surface Preparation and Primer: As specified in Section 09902, PAINTING.**

**Antiseizing Lubricant for Stainless Steel Threaded Connections:**

**Suitable for potable water supply.**

**Resists washout.**

**Manufacturers and Products:**

Bostik, Middleton, MA; Neverseez.

Saf-T-Eze Div., STL Corp., Lombard, IL; Anti-Seize.

**Viton Gasket: 1/4-inch thick virgin Teflon or inorganic filled Teflon ring type for raised face flanges and full type for flat face flanges; Garlock, Chesterton.**

### **FABRICATION**

#### **General:**

**Fabricate as shown and in accordance with AISC Specification For Structural Steel Buildings and AISC Code of Standard Practice for Steel Buildings and Bridges.**

**Mark and match mark materials for field assembly.**

**Complete assembly, including bolting and welding of units, before start of finishing operations.**

**Fabricate to agree with field measurements.**

**Finish exposed surfaces smooth, sharp, and to well-defined lines.**

**Furnish necessary rabbets, lugs, and brackets so work can be assembled in neat, substantial manner.**

**Conceal fastenings where practical; where exposed, flush countersink.**

**Drill metalwork and countersink holes as required for attaching hardware or other materials.**

**Grind cut edges smooth and straight. Round sharp edges to small uniform radius. Grind burrs, jagged edges, and surface defects smooth.**

**Fit and assemble in largest practical sections for delivery to site.**

#### **Connections:**

**Shop Connections: Weld or bolt, as shown.**

**Meet requirements of AISC Manual of Steel Construction tables for bolted double-angle shear connections, unless indicated otherwise.**

#### **Materials:**

**Use steel shapes, unless otherwise noted.**

**Steel to be hot-dip galvanized: Limit silicon content to less than 0.04 percent or to between 0.15 and 0.25 percent.**

#### **Welding:**

**As specified in Section 05050, WELDING.**

**Weld connections and grind exposed welds smooth. When required to be watertight, make welds continuous.**

**Welded fabrications shall be free from twisting or distortion caused by improper welding techniques.**

**Steel: Meet fabrication requirements of AWS D1.1, Section 5.**

**Complete welding before applying finish.**

**Groove and Butt Joint Welds: Complete penetration, unless otherwise indicated.**

**Painting:**

**Surface Preparation and painting as specified in Section 09902, PAINTING.**

**Do not shop prime within 2 inches of field-welded connections, unless indicated otherwise.**

**Coat surfaces of galvanized steel fabricated items to be in direct contact with concrete, grout, or dissimilar metals, as specified in Section 09902, PAINTING, unless indicated otherwise.**

**Do not apply protective coating to galvanized steel anchor bolts or galvanized steel welded anchor studs, unless indicated otherwise.**

**Galvanizing (for Grating Supports):**

**Fabricate steel to be galvanized in accordance with ASTM A143, ASTM A384, and ASTM A385. Avoid fabrication techniques that could cause distortion or embrittlement of the steel.**

**Provide venting and drain holes for tubular members and fabricated assemblies in accordance with ASTM A385.**

**Remove welding slag, splatter, burrs, grease, oil, paint, lacquer, and other deleterious material prior to delivery for galvanizing.**

**Remove by blast cleaning or other methods surface contaminants and coatings not removable by normal chemical cleaning process in the galvanizing operation.**

**Hot-dip galvanize steel members, fabrications, and assemblies after fabrication in accordance with ASTM A123/A123M.**

**Hot-dip galvanize bolts, nuts, washers, and hardware components in accordance with ASTM A153/A153M. Oversize holes to allow for zinc alloy growth. Shop assemble bolts and nuts.**

**Galvanized steel sheets in accordance with ASTM A653.**

**Galvanize components of bolted assemblies separately before assembly. Galvanizing of tapped holes is not required.**

**Watertight Seal:** Where required or shown, furnish neoprene gasket of a type that is satisfactory for use in contact with sewage. Cover full bearing surfaces.

**Fitting:** Where movement of fabrications is required or shown, cut, fit, and align items for smooth operation. Make corners square and opposite sides parallel.

**Accessories:** Furnish as required for a complete installation. Fasten by welding or with stainless steel bolts or screws.

## **SOURCE QUALITY CONTROL**

### **Welding:**

**Visually inspect all fabrication welds and correct any deficiencies. All welding shall be in conformance with AWS D1.1, Section 6 and Table 6.1, Visual Inspection Acceptance Criteria.**

**An independent testing agency shall be retained by CONTRACTOR and approved by ENGINEER to perform the following inspection and testing of fabrication welds as specified in Section 05050, WELDING.**

Groove welds:

Radiographic (RT) or ultrasonic (UT) testing for 10 percent of randomly selected welds, unless otherwise indicated.

Use RT only for butt joint groove welds.

Fillet welds larger than 5/16-inch: Liquid penetrant (PT) or magnetic particle (MT) for 10 percent of randomly selected welds, unless otherwise indicated.

All Welds: 100 percent visually inspected (VT).

**Repair and retest defective welds as specified in Section 05050, WELDING.**

**Hot-Dip Galvanizing:**

**An independent testing agency shall be retained by CONTRACTOR and approved by ENGINEER to inspect and test hot-dip galvanized fabricated items in accordance with ASTM A123/A153M and A153/A153M.**

**Visually inspect and test for thickness and adhesion of zinc coating for minimum of three test samples from each lot in accordance with ASTM A123/A123M and A153/A153M.**

**Reject and retest nonconforming articles in accordance with ASTM A123/A123M and A153/A153M.**

**PART 3 EXECUTION  
ERECTION**

**Meet requirements of AISC Specification for Structural Steel Buildings and AISC Code of Standard Practice for Steel Buildings and Bridges, with exceptions as specified.**

**Install CONTRACTOR-designed temporary construction bracing to provide necessary support until components are in place and construction is complete.**

**INSTALLATION OF METAL FABRICATIONS**

**Install metal fabrications plumb or level, accurately fitted, free from distortion or defects.**

**Install rigid, substantial, and neat in appearance.**

**Install manufactured products in accordance with manufacturer's recommendations.**

**Obtain ENGINEER approval prior to field cutting steel members or making adjustments not scheduled.**

**CONCRETE DRILLED ANCHORS**

**Install in accordance with manufacturer's instructions.**

**Provide minimum embedment, edge distance, and spacing as follows, unless indicated otherwise by anchor manufacturer's instructions or shown otherwise on Drawings:**

<b>Anchor Type</b>	<b>Min. Embedment (bolt diameters)</b>	<b>Min. Edge Distance (bolt diameters)</b>	<b>Min. Spacing (bolt diameters)</b>
Wedge	9	6	12
Expansion and Sleeve	4	6	12
Adhesive	9	9	13.5

**Use only drill type and bit type and diameter recommended by anchor manufacturer. Clean hole of debris and dust with brush and compressed air.**

**When embedded steel or rebar is encountered in the drill path, slant drill to clear obstruction. If drill must be slanted more than 10 degrees to clear obstruction, notify ENGINEER for direction on how to proceed.**

**Adhesive Anchors:**

**Do not install adhesive anchors when temperature of concrete is below 40 degrees F (25 degrees F for Simpson Strong-Tie Acrylic-Tie Adhesive) or above 100 degrees F.**

**Remove any standing water from hole with oil-free compressed air. Inside surface of hole shall be dry where required by manufacturer's instructions.**

**Do not disturb anchor during recommended curing time.**

**Do not exceed maximum torque as specified in manufacturer's instructions.**

**Welded Connections:**

**As specified in Section 05050, WELDING.**

**Groove and Butt Joint Welds: Complete penetration, unless otherwise indicated.**

**ELECTROLYTIC PROTECTION**

**Galvanized Steel:**

**Coat surfaces of galvanized steel fabricated items to be in direct contact with concrete, grout, or dissimilar metals, as specified in Section 09902, PAINTING, unless indicated otherwise.**

**Do not apply protective coating to galvanized steel anchor bolts or galvanized steel welded anchor studs, unless indicated otherwise.**

**Allow coating to dry before installation of the material.**

**Protect coated surfaces during installation.**

**Should coating become marred, prepare and touch up in accordance with paint manufacturer's written instructions.**

**Stainless Steel:**

**During handling and installation, take necessary precautions to prevent carbon impregnation of stainless steel members.**

**After installation, visually inspect stainless steel surfaces for evidence of iron rust, oil, paint, and other forms of contamination.**

**Remove contamination in accordance with requirements of ASTM A380 and A967.**

Brushes used to remove foreign substances shall utilize only stainless steel or nonmetallic bristles.

After treatment, visually inspect surfaces for compliance.

### **SETTING BASES AND BEARING PLATES**

Clean concrete and masonry bearing surfaces of bond reducing materials and roughen to improve bond to surfaces.

Clean bottom surface of base and bearing plates.

Set loose and attached baseplates and bearing plates for structural members on wedges, shims, leveling nuts, or other adjustable devices. Use leveling plates where indicated.

Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to placing grout. Weld plate washers to base plates where indicated.

Grout Under Baseplates: Nonshrink, Type II.

### **FIELD ASSEMBLY**

Set structural frames accurately to lines and elevations shown.

Clean bearing surfaces and other surfaces that will be in permanent contact before assembly.

Align and adjust various members forming a part of a complete frame or structure before permanently fastening.

Level and plumb individual members of structure within tolerances shown in AISC Code of Standard Practice for Steel Buildings and Bridges.

Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be completed and in service.

Perform necessary adjustments to compensate for minor discrepancies in elevations and alignment.

Provide additional field connection material as required by AISC Code of Standard Practice for Steel Buildings and Bridges.

Splice members only where indicated and accepted on shop drawings.

### **MISFITS AT BOLTED CONNECTIONS**

Where misfits in erection bolting are encountered, immediately notify ENGINEER for approval of one of the following methods of correction:

Ream holes that must be enlarged to admit bolts and use oversized bolts.

Plug weld misaligned holes and redrill holes to admit standard size bolts.

Drill additional holes in connection, conforming with AISC Standards for bolt spacing and end and edge distances, and add additional bolts.

Reject member containing misfit, incorrect sized, or misaligned holes and fabricate new member to ensure proper fit.

Do not enlarge incorrectly sized or misaligned holes in members by burning or by use of drift pins.

### **MISFITS AT ANCHOR BOLTS**

**Resolve misalignments between anchor bolts and bolt holes in steel members in accordance with approved submittal.**

**Do not flame cut to enlarge holes without prior approval of ENGINEER.**

**GAS CUTTING**

**Do not use gas cutting torches in field for correcting fabrication errors in structural framing. Secondary members not under stress and concealed in finished structure may be corrected by gas cutting torches, if approved by ENGINEER.**

**Finish flame-cut sections equivalent to sheared and punched appearance.**

**REPAIR AND CLEANING**

**Immediately after erection, clean field welds, bolted connections, and abraded areas of shop primer.**

**Remove and grind smooth tack welds, fit-up-lugs, and weld runoff tabs.**

**Remove weld back-up bars and grind smooth where indicated on Drawings.**

**Apply touchup paint primer by brush or spray of same thickness and material as that used in shop application and as specified in Section 09902, PAINTING.**

**PAINTING AND REPAIR OF GALVANIZED STEEL**

**Painted Galvanized Surfaces: Prepare as specified in Section 09902, PAINTING.**

**Repair of Damaged Hot-Dip Galvanized Coating:**

**Conform to ASTM A780.**

**For minor repairs at abraded areas, use sprayed zinc conforming to ASTM A780.**

**For flame cut or welded areas, use zinc-based solder, or zinc sticks, conforming to ASTM A780.**

**Use magnetic gauge to determine that thickness is equal to or greater than the base galvanized coating.**

**FASTENER SCHEDULE**

**Provide fasteners as follows:**

<b>Service Use and Location</b>	<b>Product</b>	<b>Remarks</b>
1. Drilled Anchors for Metal Components to Cast-in-Place Concrete (e.g., Ladders, Handrail Posts, Electrical Panels, and Equipment)		
Submerged, Exterior, Interior Wet, and Corrosive Areas	Adhesive stainless steel anchors	
2. Connections for Structural Steel Framing		
Exterior and Interior Wet and Dry Areas	Stainless steel fasteners	
3. All Others		
Exterior and Interior Wet and Dry Areas	Stainless steel fasteners	

**Antiseizing Lubricant: Use on all stainless steel threads.  
Do not use adhesive anchors to support fire-resistant construction or where ambient temperature will exceed 120 degrees F.**

### **FIELD QUALITY CONTROL**

#### **Welded Connections:**

**Visually inspect field welds in accordance with AWS D1.1, Section 6 and Table 6.1, Visual Inspection Acceptance Criteria.**

**An independent testing shall be retained by CONTRACTOR and approved by ENGINEER to perform the following inspection and testing of field welds as specified in Section 05050, WELDING.**

Groove Welds:

Radiographic (RT) or ultrasonic (UT) testing for 10 percent of randomly selected welds, unless otherwise indicated.

Use RT only for butt joint groove welds.

Fillet Welds Larger Than 5/16 Inch: Liquid penetrant (PT) or magnetic particle (MT) for 10 percent of randomly selected welds, unless otherwise indicated.

All Welds: 100 percent visually inspected (VT).

**Repair and retest defective welds as specified in Section 05050, WELDING.**

**END OF SECTION**

**SECTION 05520  
HANDRAILS**

**PART 1 GENERAL  
REFERENCES**

**The following is a list of standards which may be referenced in this section:**

**American Society for Testing and Materials (ASTM):**

A36, Standard Specification for Structural Steel.

A53, Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.

A123 E1, Standard Specification for Zinc (Hot-Galvanized) Coatings on Iron and Steel Products.

A501, Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing.

E985, Standard Specification for Permanent Metal Railing Systems and Rails for Buildings.

**Building Officials and Code Administrators International (BOCA): National Building Code (NBC).**

**International Conference of Building Officials (ICBO): 1997, Uniform Building Code (UBC).**

**Occupational Safety and Health Act (OSHA): 29 CFR 19.10, Code of Federal Regulations.**

**DEFINITIONS**

**Handrails: Synonymous with terms; i.e., guardrail system, railing system, ramp-rail system, and stair-rail system. Handrails are comprised of a framework of vertical, horizontal, or inclined members, grillwork or panels, accessories, or combination thereof.**

**Toeboards: Vertical barrier at floor level usually erected on handrails along exposed edges of floor or wall openings, platforms, ramps, or stairs to prevent miscellaneous items from falling through.**

**ICBO Reports: Published by ICBO for concrete anchor manufacturers.**

**Special Inspection: As governed by the ICBO UBC.**

**SUBMITTALS**

**Shop Drawings:**

**Indicate handrail profiles, sizes, connections, anchorage, size and type of fasteners, and accessories. Project-specific scale plans and elevations of handrails.**

**Manufacturer's literature and catalog data of handrail and components.**

**Design Data: Calculations or test data using design performance loads and include the following:**

Bending stress in, and deflection of, posts in accordance with ASTM E985.

Stress in post base connection.

Calculation of anchorage forces and comparison of these forces to ICBO Uniform Building Code recommendations regarding safe allowable design loads of anchorages.

### **Quality Control Submittals:**

**Manufacturer's assembly and installation instructions.**

**Special Inspection: Submit Special Inspection report in accordance with Article TESTS AND INSPECTIONS.**

**Test Reports: Test data may supplement load calculations providing data covers the complete handrail system, including anchorage:**

Test data for handrail and components showing load and deflection due to load, in enough detail to prove handrail is strong enough and satisfies national, state, local standards, regulations, code requirements, and OSHA 29 CFR 19.10, using design loads specified. Include test data for the following:

Railing and post connections.

Railing picket panel clamps and connections.

Post and base connections.

Railing expansion joint connections.

Deflection Criteria: In accordance with ASTM E985 and design loads specified.

### **QUALITY ASSURANCE**

**Qualifications: Calculations required for design data stamped and signed by a registered engineer licensed in the State of Washington.**

### **DELIVERY, STORAGE, AND HANDLING**

**Handrails adequately packaged and wrap to prevent scratching and denting during shipment, storage, and installation. Maintain protective wrapping until railing is completely installed.**

### **ENVIRONMENTAL REQUIREMENTS**

**Thermal Movements: Allow for thermal movement resulting from the following maximum range in ambient temperature in the design, fabrication, and installation of handrails to prevent buckling, opening up of joints, over stressing of components, connections and other detrimental effects. Base design calculation on actual surface temperatures of materials due to both solar heat gain and night time sky heat loss. The temperature change is the difference between high or low temperature and installation temperature.**

**Temperature Change Range: 70 degrees F, ambient; 100 degrees F, material surfaces.**

### **PART 2 PRODUCTS DESIGN PERFORMANCE**

**Structural Performance of Handrails: Design, test, fabricate, and install handrails to withstand the following structural loads without exceeding the allowable design working stress or allowable deflection. Apply each load to produce maximum stress and deflection in each of the respective components comprising handrails.**

**Top Rail of Handrails: Capable of withstanding the following load cases applied:**

Concentrated load of 200 pounds applied at any point and in any direction in accordance with ICBO UBC.

Uniform load of 50 pounds per linear foot applied horizontally in accordance with ICBO UBC.

Concentrated load need not be assumed to act concurrently with uniform loads in accordance with ICBO UBC.

**In-Fill Area of Railing Systems:**

Capable of withstanding a horizontal concentrated load of 200 pounds applied to 1 square foot at any point in the system including panels, intermediate rails, balusters, or other elements composing the in-fill area.

Horizontal concentrated load need not be assumed to act concurrently with loads on top rails of handrails.

**Mid-rails with corner returns to withstand a 300 pound concentrated vertical load applied at any point or direction without damage and loosening of pipe, fittings, or attachment hardware.**

**GALVANIZED STEEL HANDRAILS**

**Pipe:** Hot-dip galvanized carbon steel, ASTM A53, Type E or S, Grade B; or ASTM A501.

**Rails:** 1-1/2-inch NPS with 1.900-inch outside diameter and a minimum 0.145-inch wall thickness for rails and a minimum of 0.200-inch wall thickness for posts, 3/4-inch NPS with 1.050-inch outside diameter and a minimum 0.113-inch wall thickness for pickets.

**Fittings:**

**Anchor Bolts and Fasteners:** ASTM A193 and ASTM A194, Type A 316 stainless steel with minimum yield strength for bolts of 95,000 psi.

**Handrail Post Bolted Baseplate Connector:** Baseplate, carbon steel ASTM A36.

Insert: Minimum wall thickness of 0.200-inch or from solid rod in accordance with ASTM A36.

**Handrail Picket Panels and Clamps:** Solid bar steel meeting minimum requirements specified for piping.

Fasteners: Stainless steel.

**Toeboards and Accessories:** ASTM A36 steel.

Fasteners: Stainless steel.

**Concrete Embedded Metal Anchorages: In accordance with Section 05500, METAL FABRICATIONS.**

**Fasteners: Stainless steel.**

**ANCHOR BOLTS, FASTENERS, AND CONCRETE ANCHORS**

**Locknuts, Washers, and Screws:**

**Elastic Locknuts, Steel Flat Washers, RHMS Round Head Machine Screws: Type A 304 or A 316 stainless steel.**

**Flat Washers: Molded nylon.**

**Manufacturer: McMaster-Carr Supply Co., Los Angeles, CA.**

**Bolts and Nuts for Bolting Handrail to Metal Beams: ASTM A193 and ASTM A194, Type A 316 stainless steel with minimum yield strength for bolts of 95,000 psi, unless otherwise shown.**

**Concrete Anchors:**

**Stainless steel Type 304 or 316.**

**Use ICBO UBC approved service load allowable values for size, length, embedment, spacing, and edge distance to match required loads shown in calculations.**

**Epoxy Anchors: Heavy-duty 5/8-inch diameter stainless steel, for exterior use only in accordance with Section 05500, METAL FABRICATIONS, as an alternative to mechanical concrete anchors. Design and provide the number required.**

**FABRICATION OF GALVANIZED STEEL HANDRAILS**

**Shop Assembly:**

**Handrail Post Bolted to Metal:**

Field fit-up is required.

Field measure and weld post to baseplate as an alternative to field cutting.

**Remove burrs from cut edges.**

**Form elbow bends and wall returns to uniform radius, free from buckles and twists, with finished surfaces smooth.**

**Cover exposed ends of steel pipe by welding 3/16-inch thick steelplate in place or use prefabricated fittings.**

**Welding:**

Thoroughly fuse without undercutting or overlap.

Remove spatter, grind exposed welds to blend, and contour surfaces to match those adjacent.

**Furnish explosion prevention holes at closed ends of pipes.**

**Form and assemble joints exposed to weather to prevent water and moisture from penetrating.**

**Shop/Factory Finishing: Hot-dip galvanize all components in accordance with ASTM A123 and ASTM A386 after fabrication.**

**Tolerances:**

**Cut pipe square within 2 degrees and to lengths within 1/8-inch.**

**Welding: Miter and cope intersections of posts and rails within 2 degrees, fit to within 0.020-inch, and perform continuous welds around joints.**

**Repair of Defective Work: Remove stains and replace defective Work.**

### **PART 3 EXECUTION GENERAL**

**Provide railing posts longer than needed and field cut to exact dimensions required in order to satisfy vertical variations on the actual structure. Install railing with a base that provides plus or minus 1/4-inch vertical adjustment inside the base fitting. If adjustment is required in the field and exceeds plus or minus 1/4-inch, reduce post length not to exceed beyond bottom of lowest set-screw or bolt in base fitting.**

**Modification to structure not permitted where handrail is attached.**

#### **HANDRAIL INSTALLATION**

**Assembly and Installation: Perform in accordance with manufacturer's written recommendations for installation.**

**Protection from Entrapped Water:**

**Make provisions to drain water from railing system.**

**Bends and elbows occurring at low points, drill weep holes of 1/4-inch diameter at lowest possible elevations, one hole per post or rail. Drill hole in the plane of the rail.**

**Setting Posts:**

#### **Embedded:**

Clean dust and foreign matter from sleeves or blockouts.

Moisten interior of hole and surrounding surface with clean water. Fill hole with nonshrink grout prior to installing post.

Brace railing until grout sets.

Posts installed outside and exposed to freezing temperatures, drill weep hole through post approximately 1/2-inch above the level of the grout inside the post and in plane of the rail to prevent entrapment and freezing of water inside post.

#### **Surface Mounted:**

Bolt post baseplate connectors firmly in place.

Shims, wedges, grout, and similar devices for handrail post alignment not permitted.

**Posts and Rails:**

**Set posts plumb and aligned to within 1/8-inch in 12 feet.**

**Set rails horizontal or parallel to slope of steps to within 1/8-inch in 12 feet.**

**Install posts and rails in same plane. Remove projections or irregularities and provide a smooth surface for sliding hands continuously along top rail. Use offset rail for use on stairs and platforms if post is attached to web of stringers or structural platform supports.**

**Support 1-1/2-inch rails directly above stairway stringers with offset fittings.**

**Toeboard:**

**Provide along tank perimeter.**

**Accurately measure in field for correct length, after handrail post installation, cut and secure to posts.**

**Dimension between bottom of toeboard and walking surface not to exceed 1/4 inch.**

**Steel Toeboards: Between each post cut toeboard and provide slotted holes for expansion and contraction.**

**FIELD FINISHING**

**Corrosion Protection: Prevent galvanic action and other forms of corrosion caused from direct contact with concrete and dissimilar metals.**

**Treatment of Field Welds for Galvanized Steel Railings: Touch up welds by application of two coats high zinc dust content paint to dry film thickness of 2 mils.**

**TESTS AND INSPECTIONS**

**Perform Special Inspection for anchors where ICBO Reports require them for anchor strength value used.**

**Provide an independent test laboratory to perform Special Inspection.**

**CLEANING**

**Wash railing system thoroughly using clean water and soap. Rinse with clean water.**

**Do not use acid solution, steel wool, or other harsh abrasive.**

**END OF SECTION**

**SECTION 05530  
METAL GRATING**

**PART 1 GENERAL  
REFERENCES**

**The following is a list of standards which may be referenced in this section:**

**American Society for Testing and Materials (ASTM):**

A36, Standard Specification for Structural Steel.

A123, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.

A153, Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.

A307, Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength.

A525, Standard Specification for General Requirements for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process.

A569/A569M, Standard Specification for Steel, Carbon (0.15 Maximum Percent), Hot-Rolled Sheet and Strip Commercial Quality.

F844, Standard Specification for Washers, Steel, Plain (Flat), Unhardened for General Use.

**National Association of Architectural Metal Manufacturers (NAAMM):**

ANSI MBG 531, Metal Bar Grating Manual.

ANSI MBG 532, Heavy-Duty Metal Bar Grating Manual.

## **SUBMITTALS**

### **Shop Drawings:**

**Grating:** Show dimensions, weight, and size, and location of connections to adjacent grating, supports, and other Work.

**Grating Anchorage:** Show structural calculations and details of anchorage to supports to prevent displacement from traffic impact.

**Grating Supports:** Show dimensions, weight, size, location, and anchorage to supporting structure.

Catalog information and catalog cuts.

Manufacturer's specifications, to include coatings.

### **Quality Control Submittals:**

Special handling and storage requirements.

Installation instructions.

Factory test reports.

Manufacturer's Certification of Compliance for specified products.

## **PREPARATION FOR SHIPMENT**

Insofar as is practical, factory assemble items provided.

Package and clearly tag parts and assemblies that are of necessity shipped unassembled and protect the materials from damage, and facilitate identification and final assembly in the field.

### **PART 2 PRODUCTS FOOT TRAFFIC GRATING**

#### **Design:**

**Uniform Service Load:** 200 psf minimum, unless otherwise shown.

**Maximum Deflection:** 1/4 inch, unless otherwise shown.

Space bearing bars at 1-3/16-inch center-to-center.

**Banding:** 3/16-inch minimum.

#### **Material:**

**Galvanized Steel Bar Type Grating:** Press-locked, deep rectangular crossbar design, as manufactured by IKG/Borden, Clark, NJ; Type B or Type F.

## **ACCESSORIES**

**Anchor Bolts and Nuts:**

**Stainless Steel: ASTM A193 and ASTM A194, Type 316.**

**Galvanized Steel Bolts and Nuts: ASTM A153, zinc coating for ASTM A307 or A36.**

**Flat Washers (Unhardened): ASTM F844; use ASTM A153 for zinc coating.**

**Removable Fastener Clips and Bolts:**

**Removable from above grating walkway surface.**

**Hat Bracket: Type 304 stainless steel.**

**Bolt: Type 316 stainless steel.**

**Cast iron, galvanized body.**

**Manufacturer and Product: Struct-Fast, Wellesley Hills, MA; Gratefast.**

**Partially Removable Anchor:**

**Bolt: Threaded stud, Type 316 stainless steel.**

Manufacturer: Nelson Stud Welding Co., Lorain, OH.

**Hat Bracket: Type 304 stainless steel.**

Manufacturer: STRUCT-FAST, Wellesley Hills, MA.

## **FABRICATION**

### **General:**

**Exposed Surfaces: Smooth finish and sharp, well-defined lines.**

**Furnish necessary rabbets, lugs, and brackets so work can be assembled in a neat, substantial manner.**

**Conceal fastenings where practical.**

**Drill metalwork and countersink holes as required for attaching hardware or other materials.**

**Weld Connections: Not permitted on grating except at banding bars.**

### **Design:**

**Field measure areas to receive grating, verify dimensions of new fabricated supports, and fabricate to dimension required for specified clearances.**

**Section Length: Sufficient to prevent its falling down through clear opening when oriented in the span direction when one end is touching the vertical leg of grating support.**

**Minimum Bearing: ANSI/NAAMM MBG 531.**

**Metal Crossbar Spacing: 4-inch maximum, unless otherwise shown or specified.**

**Crossbars: Flush with top of main bar and extend downward a minimum of 50 percent of the main bar depth.**

**Do not use weld type crossbars.**

**Banding: Same material as grating; ANSI/NAAMM MBG 531 and ANSI/NAAMM MBG 532.**

**Furnish stainless steel Type 316 threaded anchor studs, as fasteners for grating attachment to metal supports, as manufactured by Nelson Studs Welding Co., Lorain, OH.**

### **Supports:**

**Seat angles and beams where shown:**

**Same material as rectangular bar grating.**

**Coordinate dimensions and fabrication with grating to be supported.**

**Coordinate dimensions with increased depth due to serrations.**

**Welded Frames With Anchors: Continuously welded.**

**Slip-Resistant Surface:**

**Rectangular Steel Bar Grating: As manufactured by:**

IKG/Borden, Clark, NJ; EZ Weldslip-Resistant Coating.

Seidelhuber Metal Products, Inc., Hayward, CA; Safety Grit Non-Slip System.

Ohio Gratings, Inc., Canton, OH with "Slip-Not" Safety Surface manufactured by W.S. Molnar Co., Detroit, MI.

**Foot Traffic Grating: Any single grating section, individual plank, or plank assembly shall be not less than 1 foot 6 inches or greater than 3 feet 0 inch in width or weigh more than 150 pounds.**

**PART 3 EXECUTION  
INSTALLATION**

**Install supports such that grating sections have a solid bearing on both ends, and that rock and wobble grating movement does not occur under designed traffic loading.**

**Install plumb or level as applicable.**

**Install welded frames with anchors to straight plane without offsets.**

**Anchor grating securely to supports using minimum of four fastener clips and bolts per grating section.**

**Completed installation shall be rigid and neat in appearance.**

**Commercially Manufactured Products:**

**Install in accordance with manufacturer's recommendations.**

**Secure grating to support members with fasteners.**

**Welding is not permitted.**

**Fasteners: Field locate and install.**

**Permit each grating section to be easily removed and replaced.**

**Protect painted surfaces during installation.**

**Should coating become marred, prepare and touch up surface.**

**END OF SECTION**

**SECTION 09902  
PAINTING**

**PART 1 GENERAL  
REFERENCES**

**The following is a list of standards which may be referenced in this section:**

**National Association of Corrosion Engineers (NACE): RP0188, Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates.**

**The Society for Protective Coatings (SSPC):**

PA 1, Shop, Field, and Maintenance Painting.

PA 2, Measurement of Dry Coating Thickness with Magnetic Gages.

PA 3, Guide to Safety in Paint Applications.

SP 1, Solvent Cleaning.

SP 2, Hand Tool Cleaning.

SP 3, Power Tool Cleaning.

SP 5, Joint Surface Preparation Standard White Metal Blast Cleaning.

SP 6, Joint Surface Preparation Standard Commercial Blast Cleaning.

SP 7, Joint Surface Preparation Standard Brush-Off Blast Cleaning.

SP 10, Joint Surface Preparation Standard Near-White Blast Cleaning.

SP 11, Power Tool Cleaning to Bare Metal.

## **DEFINITIONS**

### **Terms used in this section:**

**Coverage: Total minimum dry film thickness in mils or square feet per gallon.**

**FRP: Fiberglass Reinforced Plastic.**

**HCl: Hydrochloric Acid.**

**MDFT: Minimum Dry Film Thickness, mils.**

**MDFTPC: Minimum Dry Film Thickness Per Coat, mils.**

**Mil: Thousandth of an inch.**

**PSDS: Paint System Data Sheet.**

**PVC: Polyvinyl Chloride.**

**SFPG: Square Feet Per Gallon.**

**SFPGPC: Square Feet Per Gallon Per Coat.**

**SP: Surface Preparation.**

## **SUBMITTALS**

### **Action Submittals:**

#### **Shop Drawings:**

Product Data Sheets:

For each paint system, furnish Paint System Data Sheet (PSDS), manufacturer's technical data sheets, and paint colors available (where applicable). Sample PSDS form is appended to end of this section.

Submit required information on a system-by-system basis.

Furnish copies of paint system submittals to coating applicator.

Indiscriminate submittal of manufacturer's literature is not acceptable.

Detailed chemical and gradation analysis for each proposed abrasive material.

**Informational Submittals:**

**Manufacturer's written verification that submitted products are suitable for the intended use.**

**Factory Applied Coatings: Manufacturer's certification stating factory applied coating system meets or exceeds requirements specified herein.**

**If manufacturer of finish coating differs from that of shop primer, provide both manufacturers' written confirmation that materials are compatible.**

**Copy of coating applicator's quality assurance program.**

**QUALITY ASSURANCE**

**Applicator's Experience: Minimum 5 years' practical experience in application of specified products.**

**Acceptable Coating Applicators:**

**Coatings Unlimited, Kent, WA (425-251-3268).**

**Puget Sound Coatings, Seattle, WA (206-767-3800).**

**Regulatory Requirements:**

**Meet federal, state, and local requirements limiting emission of volatile organic compounds.**

**Perform surface preparation and painting in accordance with recommendations of the following:**

Paint manufacturer's instructions.

SSPC PA 3, Guide to Safety in Paint Applications.

Federal, state, and local agencies having jurisdiction.

**DELIVERY, STORAGE, AND HANDLING**

Deliver materials to Project site in unopened containers that plainly show designated name, date of manufacture, color, and manufacturer.

Store paints in a protected area that is heated or cooled to maintain temperature range recommended by paint manufacturer.

**PROJECT CONDITIONS**

Environmental Requirements:

Do not apply paint in temperatures outside of manufacturer's recommended maximum or minimum allowable, or in dust, smoke-laden atmosphere, damp or humid weather.

Do not perform abrasive blast cleaning whenever relative humidity exceeds 85 percent, or whenever surface temperature is less than 5 degrees F above dewpoint of ambient air.

Strictly adhere to coating manufacturer's recommendations.

**EXTRA MATERIALS**

Provide small quantity kits for touchup painting and for painting other small areas.

**PART 2 PRODUCTS**

**MANUFACTURERS**

Paint manufacturer shall be nationally recognized manufacturer of paints and protective coatings and regularly engaged in production of such materials that have essentially identical service conditions as this Project.

Minimum of 5 years of verifiable experience in manufacture of specified products.

**ABRASIVE MATERIALS**

Select abrasive type and size to produce surface profile that meets coating manufacturer's recommendations for specific primer and coating system to be applied.

**PAINT MATERIALS**

General:

**Material Quality:** Manufacturer's highest quality products and suitable for the intended service.

**Materials Including Primer and Finish Coats:** Produced by same paint manufacturer.

**Thinners, Cleaners, Driers, and Other Additives:** As recommended by paint manufacturer of particular coating.

**Products:** The selection of these products must be in accordance with the products identified in the table below. No substitutions will be allowed based on the recent research that was done at this site with paint coupons placed in similar receptacles and tanks, subject to the actual conditions that will occur at this tank with the product being removed from the subsurface.

Product	Definition
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AERATION BASIN EFFLUENT TANK, WYCKOFF/EAGLE HARBOR SUPERFUND SITE

DTM Acrylic	Single component, high performance, direct to metal acrylic, Carboline Carbocrylic 3359
Epoxy Intermediate	Converted epoxy primer containing rust-inhibitive pigments, Carboline Carbozine 859
Organic Zinc Primer	Converted epoxy, epoxy/phenolic, or urethane type, minimum of 10 pounds metallic zinc content per gallon
Vinyl Ester	Vinyl ester resin with inert flake pigment suitable for the intended exposure; Plasite 4310

## **COLORS**

**Provide as designated herein**

**Formulate with colorants free of lead, lead compounds, or other materials, which might be affected by presence of hydrogen sulfide or other gas likely to be present at Project site.**

## **SHOP FINISHES**

**Shop Blast Cleaning: Reference paragraph Shop Coating Requirements, this section.**

**Surface Preparation: Provide ENGINEER minimum 7 days' advance notice to start of shop surface preparation work and coating application work.**

**Shop Coating Requirements: When required by equipment Specifications, such equipment shall be primed and finish coated in shop by manufacturer and touched up in field with identical material after installation.**

## **PART 3 EXECUTION**

### **GENERAL**

**Surface Preparation Inspection:**

**Inspect and provide substrate surfaces prepared in accordance with these Specifications and printed directions and recommendations of paint manufacturer whose product is to be applied. In event of conflict, more stringent shall apply.**

**Notify ENGINEER minimum 7 days prior to start of surface preparation work or coating application work.**

**For coatings subject to immersion, obtain full cure for completed system. Consult coatings manufacturer's written instructions for these requirements. Do not immerse coating until completion of curing cycle.**

**The intention of these Specifications is for new metal and submerged metal surfaces to be painted, whether specifically mentioned or not, except as modified herein.**

**Perform painting in accordance with recommendations of the following:**

**Paint manufacturer's instructions.**

**Federal, state, and local agencies having jurisdiction.**

### **PROTECTION OF MATERIALS NOT TO BE PAINTED**

**Protect all surfaces adjacent to, or downwind of Work area from overspray. CONTRACTOR shall be responsible for any damages resulting from overspray.**

**Remove, mask, or otherwise protect hardware, machined surfaces, threaded couplings, shafts, bearings, nameplates on machinery, and other surfaces not specified elsewhere.**

**Provide drop cloths to prevent paint materials from falling on or marring adjacent surfaces.**

**Protect working parts of mechanical and electrical equipment from damage.**

**Mask openings in motors to prevent paint and other materials from entering the motors.**

### **FIELD SANDBLASTING**

**Perform sandblasting as required to restore damaged surfaces previously shop blasted and painted. Materials, equipment, procedures shall meet requirements of the Society for Protective Coatings.**

### **PREPARATION OF SURFACES**

**Metal Surface Preparation:**

**General:**

Submit samples prior to surface preparation blasting.

Conform to current Society for Protective Coatings specifications as follows:

Solvent Cleaning: SP 1.

Hand Tool Cleaning: SP 2.

Power Tool Cleaning: SP 3.

White Metal Blast Cleaning: SP 5.

Commercial Blast Cleaning: SP 6.

Brush-Off Blast Cleaning: SP 7.

Near-White Blast Cleaning: SP 10.

Power Tool Cleaning to Bare Metal: SP 11.

Where OSHA or EPA regulations preclude standard abrasive blast cleaning, wet- or vacu-blast methods may be required. Follow coatings manufacturers' recommendations for wet-blast additives and first coat application.

Hand-tool clean areas that cannot be cleaned by power-tool cleaning.

**Round or chamfer sharp edges and grind smooth burrs, jagged edges, and surface defects.**

**Welds and Adjacent Areas:**

Prepare such that there is:

No undercutting or reverse ridges on weld bead.

No weld spatter on or adjacent to weld or any area to be painted.

No sharp peaks or ridges along weld bead.

Grind embedded pieces of electrode or wire flush with adjacent surface of weld bead.

**Preblast Cleaning Requirements:**

Remove oil, grease, welding fluxes, and other surface contaminants prior to blast cleaning.

Cleaning Methods: Steam, open flame, hot water, or cold water with appropriate detergent additives followed with clean water rinsing.

Clean small isolated areas as above or solvent clean with suitable solvent and clean cloth.

**Blast Cleaning Requirements:**

Type of Equipment and Speed of Travel: Design to obtain specified degree of cleanliness. Minimum surface preparation is as specified herein and takes precedence over coating manufacturer's recommendations.

Select type and size of abrasive to produce surface profile that meets coating manufacturer's recommendations for particular primer to be used.

Use only dry blast cleaning methods.

Do not reuse abrasive, except for designed recyclable systems.

Meet applicable federal, state, and local air pollution and environmental control regulations for blast cleaning, confined space entry (if required), and disposition of spent aggregate and debris.

**Post-Blast Cleaning and Other Cleaning Requirements:**

Clean surfaces of dust and residual particles from cleaning operations by dry (no oil or water vapor) air blast cleaning or other method prior to painting. Vacuum clean enclosed areas and other areas where dust settling is a problem and wipe with a tack cloth.

AERATION BASIN EFFLUENT TANK, WYCKOFF/EAGLE HARBOR SUPERFUND SITE

Paint surfaces the same day they are blasted. Reblast surfaces that have started to rust before they are painted.

## **PAINT MIXING**

### **Multiple-Component Coatings:**

**Prepare using all the contents of container for each component as packaged by paint manufacturer.**

**No partial batches will be permitted.**

**Do not use multiple-component coatings that have been mixed beyond their pot life.**

**Mix only components specified and furnished by paint manufacturer.**

**Do not intermix additional components for reasons of color or otherwise, even within same generic type of coating.**

**Keep paint materials sealed when not in use.**

**Where more than one coat of material is applied within given system, alternate color to provide visual reference that required number of coats has been applied.**

## **PAINT APPLICATION**

### **General:**

**Apply coating in accordance with paint manufacturer's recommendations. Allow sufficient time between coats to assure thorough drying of previously applied paint.**

**Paint units to be bolted together and to structures, prior to assembly or installation.**

**Extent of Coating (Immersion): Coatings shall be applied to internal vessel and pipe surfaces, nozzle bores, flange gasket sealing surfaces, carbon steel internals, and stainless steel internals, unless otherwise specified.**

### **Shop Finished Surfaces:**

**Inspection: Schedule inspection for compliance with Specifications of shop primed or factory finished items with ENGINEER in advance of delivery to jobsite.**

**For damaged coatings on exterior exposed surfaces, hand or power sand areas of chipped, peeled, or abraded coating, feathering the edges. Follow with a spot primer using specified primer.**

**For two-package or converted coatings, consult coatings manufacturer for specific procedures as relates to manufacturer's products.**

## **FIELD QUALITY CONTROL**

### **Testing:**

#### **Test Gauges to be Provided:**

**Magnetic type dry film thickness gauge, to test coating thickness specified in mils, as manufactured by Nordson Corp., Anaheim, CA; Mikrotest.**

Electrical Holiday Detector: High voltage holiday detector for coatings in excess of 20 mils MDFT. Unit to be as recommended by coating manufacturer.

**Number of Coats:**

Minimum required, irrespective of coating thickness.

Additional coats may be required to obtain minimum required paint thickness, depending on method of application, differences in manufacturers' products, and atmospheric conditions.

**Application Thickness:**

Do not exceed coating manufacturer's recommendations.

Use wet film thickness gauge to measure proper coating thickness during application.

**Film Thickness Measurement and Electrical Inspection of Coated Surface:**

Perform with properly calibrated instruments.

Recoat and repair as necessary for compliance with Specifications.

Coats will be subject to inspection by ENGINEER and coating manufacturer's representative.

**Give particular attention to edges, angles, flanges, and other similar areas, where insufficient film thickness are likely to be present, and ensure proper millage in these areas.**

**Apply additional coats as required to complete hiding of underlying coats. Hiding shall be so complete that additional coats would not increase hiding.**

**Thickness and Continuity Testing:**

Measure coating thickness specified in mils with magnetic type dry film thickness gauge in accordance with SSPC PA2.

Check each coat for correct millage. Do not make measurement within 8 hours, minimum, after application of coating.

Holiday detect coatings in excess of 20 mils MDFT with high voltage units recommended by coating manufacturer, and in accordance with NACE RP0188. Holiday test 100 percent of coated surfaces inside tank.

After repaired and recoated areas have dried sufficiently, retest each repaired area. Final test may also be conducted by ENGINEER.

**Damaged Coatings, Pinholes, and Holidays:**

**Feather edges and repair in accordance with recommendations of paint manufacturer.**

**Hand or power sand visible areas of chipped, peeled, or abraded paint, and feather edges. Follow with primer and finish coat in accordance with Specifications. Depending on extent of repair and appearance, finish sanding and topcoat may be required.**

**Repair fusion bonded coatings as recommended by original applicator.**

**Apply finish coats, including touchup and damage-repair coats, in a manner, which will present uniform texture and color-matched appearance.**

**Unsatisfactory Application:**

**Clean and top coat surfaces found to have improper finish color or insufficient film thickness.**

**Evidence of runs, bridges, shiners, laps, or other imperfections shall be cause for rejection.**

**Repair defects in coating system per written recommendations of coating manufacturer.**

**Leave staging up until ENGINEER has inspected surface or coating. Replace staging removed prior to approval by ENGINEER.**

**MANUFACTURERS' SERVICES**

**Coating manufacturer's representative shall be present at site as follows:**

**On first day of application of any coating.**

**Minimum of one additional site inspection visit. As required to resolve field problems attributable to, or associated with, manufacturers' product.**

**As required to verify full cure of coating prior to coated surfaces being placed into immersion service.**

**CLEANUP**

**Place cloths and waste that might constitute fire hazard in closed metal containers or destroy at end of each day.**

**Upon completion of work, remove staging, scaffolding, and containers from site or destroy in legal manner.**

**Completely remove paint spots, oil, or stains from adjacent surfaces and floors and leave entire job clean.**

**PROTECTIVE COATINGS SYSTEMS**

**System No. 3 Submerged Metal:**

<b>Surface Prep.</b>	<b>Paint Material</b>	<b>Min. Coats, Cover</b>
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Surface Prep.	Paint Material	Min. Coats, Cover
SP 5, White Metal Blast Cleaning (see Note 1)	Vinyl Ester, Shop-Applied	2-3 coats, 45 MDFT total
Note 1: Abrasive blast profile shall be angular with a minimum depth of 4 mils, in accordance with the manufacturer's written instructions.		

**System No. 4 Exposed Metal:**

Surface Prep.	Paint Material	Min. Coats, Cover
SP10, Near-White Blast Cleaning	Organic Zinc Primer, Shop-Applied	1 coat, 3-5 MDFT
	Epoxy Intermediate Coat	1 coat, 3-5 MDFT
	DTM Acrylic, Shop-Applied	1 coat, 3-5 MDFT

**PAINT APPLICATION SCHEDULE**

Unless otherwise shown or specified in these Specifications, paint or coat work in accordance with the following application schedule. In event of discrepancies or omissions in the following, request clarification from ENGINEER before starting work in question.

**System No. 3 Submerged Metal:** Use on all metal surfaces of tank interior, below or above the liquid surface.

**System No. 4 Exposed Metal - Highly Corrosive:** Use on all exterior exposed metal surfaces of Wyckoff secondary effluent tank.

**SUPPLEMENTS**

The supplements listed below, following "END OF SECTION," are a part of this Specification:

**Data Sheet: Paint System Data Sheet (PSDS)**

**END OF SECTION**

### PAINT SYSTEM DATA SHEET

Complete and attach manufacturer's Technical Data Sheet to this PSDS for each coating system.

Paint System Number (from Spec.):		
Paint System Title (from Spec.):		
Coating Supplier:		
Representative:		
Surface Preparation:		
Paint Material (Generic)	Product Name/Number (Proprietary)	Min. Coats, Coverage

Provide manufacturer's recommendations for the following parameters at temperature (F)/relative humidity:

Temperature/RH	50/50	70/30	90/25
Induction Time			
Pot Life			
Shelf Life			
Drying Time			
Curing Time			
Min. Recoat Time			
Max. Recoat Time			

Provide manufacturer's recommendations for the following:

Mixing Ratio: \_\_\_\_\_

Maximum Permissible Thinning: \_\_\_\_\_

Ambient Temperature Limitations:                    min.: \_\_\_\_\_ max.: \_\_\_\_\_

Surface Temperature Limitations: min.: \_\_\_\_\_ max.: \_\_\_\_\_

Surface Profile Requirements: min.: \_\_\_\_\_ max.: \_\_\_\_\_

Attach additional sheets detailing manufacturer's recommended storage requirements and holiday testing procedures.

#### CLAUSES INCORPORATED BY REFERENCE

52.219-6	Notice Of Total Small Business Set-Aside	JUN 2003
52.243-1	Changes--Fixed Price	AUG 1987

#### CLAUSES INCORPORATED BY FULL TEXT

52.213-4 TERMS AND CONDITIONS--SIMPLIFIED ACQUISITIONS (OTHER THAN COMMERCIAL ITEMS) (OCT 2003)

(a) The Contractor shall comply with the following Federal Acquisition Regulation (FAR) clauses that are incorporated by reference:

(1) The clauses listed below implement provisions of law or Executive order:

(i) 52.222-3, Convict Labor (June 2003) (E.O. 11755).

(ii) 52.222-21, Prohibition of Segregated Facilities (Feb 1999) (E.O. 11246).

(iii) 52.222-26, Equal Opportunity (Apr 2002) (E.O. 11246).

(iv) 52.225-13, Restrictions on Certain Foreign Purchases (Oct 2003) (E.o.s, proclamations, and statutes administered by the Office of Foreign Assets Control of the Department of the Treasury).

(v) 52.233-3, Protest After Award (Aug 1996) (31 U.S.C. 3553).

(2) Listed below are additional clauses that apply:

(i) 52.232-1, Payments (Apr 1984).

(ii) 52.232-8, Discounts for Prompt Payment (Feb 2002).

(iii) 52.232-11, Extras (Apr 1984).

(iv) 52.232-25, Prompt Payment (Oct 2003).

(v) 52.233-1, Disputes (Jul 2002).

(vi) 52.244-6, Subcontracts for Commercial Items (APR 2003).

(vii) 52.253-1, Computer Generated Forms (Jan 1991).

(b) The Contractor shall comply with the following FAR clauses, incorporated by reference, unless the circumstances do not apply:

(1) The clauses listed below implement provisions of law or Executive order:

(i) 52.222-19, Child Labor--Cooperation with Authorities and Remedies (Sept 2002) (E.O. 13126). (Applies to contracts for supplies exceeding the micro-purchase threshold.)

(ii) 52.222-20, Walsh-Healey Public Contracts Act (DEC 1996) (41 U.S.C. 35-45) (Applies to supply contracts over \$10,000 in the United States, Puerto Rico, or the U.S. Virgin Islands).

(iii) 52.222-35, Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212) (Applies to contracts of \$25,000 or more).

(iv) 52.222-36, Affirmative Action for Workers with Disabilities (JUN 1998) (29 U.S.C. 793) (Applies to contracts over \$10,000, unless the work is to be performed outside the United States by employees recruited outside the United States.) (For purposes of this clause, United States includes the 50 States, the District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, and Wake Island.)

(v) 52.222-37, Employment Reports on Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (DEC 2001) (38 U.S.C. 4212) (Applies to contracts over \$25,000).

(vi) 52.222-41, Service Contract Act, As Amended (May 1989) (41 U.S.C. 351, et seq.) (Applies to service contracts over \$2,500 that are subject to the Service Contract Act and will be performed in the United States, District of Columbia, Puerto Rico, the Northern Mariana Islands, American Samoa, Guam, the U.S. Virgin Islands, Johnston Island, Wake Island, or the outer continental shelf lands.)

(vii) 52.223-5, Pollution Prevention and Right-to-Know Information (Aug 2003) (E.O. 13148) (Applies to services performed on Federal facilities).

(viii) 52.225-1, Buy American Act--Supplies (June 2003) (41 U.S.C. 10a-10d) (Applies to contracts for supplies, and to contracts for services involving the furnishing of supplies, for use in the United States or its outlying areas, if the value of the supply contract or supply portion of a service contract exceeds the micro-purchase threshold and the **acquisition--**

(A) Is set aside for small business concerns; or

(B) Cannot be set aside for small business concerns (see 19.502-2), and does not exceed \$25,000.)

(ix) 52.232-33, Payment by Electronic Funds Transfer--Central Contractor Registration (May 1999). (Applies when the payment will be made by electronic funds transfer (EFT) and the payment office uses the Central Contractor Registration (CCR) database as its source of EFT information.)

(x) 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration (Oct 2003). (Applies when the payment will be made by EFT and the payment office does not use the CCR database as its source of EFT information.)

(xi) 52.247-64, Preference for Privately Owned U.S.-Flag Commercial Vessels (APR 2003) (46 U.S.C. Appx 1241). (Applies to supplies transported by ocean vessels (except for the types of subcontracts listed at 47.504(d).)

(2) Listed below are additional clauses that may apply:

(i) 52.209-6, Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (JULY 1995) (Applies to contracts over \$25,000).

(ii) 52.211-17, Delivery of Excess Quantities (SEPT 1989) (Applies to fixed-price supplies).

(iii) 52.247-29, F.o.b. Origin (JUN 1988) (Applies to supplies if delivery is f.o.b. origin).

(iv) 52.247-34, F.o.b. Destination (NOV 1991) (Applies to supplies if delivery is f.o.b. destination).

(c) FAR 52.252-2, Clauses Incorporated by Reference (FEB 1998). This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://www.arnet.gov/far>  
<http://www.farsite.hill.af.mil>  
<http://www.dtic.mil/dfars>

(d) Inspection/Acceptance. The Contractor shall tender for acceptance only those items that conform to the requirements of this contract. The Government reserves the right to inspect or test any supplies or services that have been tendered for acceptance. The Government may require repair or replacement of nonconforming supplies or reperformance of nonconforming services at no increase in contract price. The Government must exercise its postacceptance rights--

(1) Within a reasonable period of time after the defect was discovered or should have been discovered; and

(2) Before any substantial change occurs in the condition of the item, unless the change is due to the defect in the item.

(e) Excusable delays. The Contractor shall be liable for default unless nonperformance is caused by an occurrence beyond the reasonable control of the Contractor and without its fault or negligence, such as acts of God or the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, unusually severe weather, and delays of common carriers. The Contractor shall notify the Contracting Officer in writing as soon as it is reasonably possible after the commencement of any excusable delay, setting forth the full particulars in connection therewith, shall remedy such occurrence with all reasonable dispatch, and shall promptly give written notice to the Contracting Officer of the cessation of such occurrence.

(f) Termination for the Government's convenience. The Government reserves the right to terminate this contract, or any part hereof, for its sole convenience. In the event of such termination, the Contractor shall immediately stop all work hereunder and shall immediately cause any and all of its suppliers and subcontractors to cease work. Subject to the terms of this contract, the Contractor shall be paid a percentage of the contract price reflecting the percentage of the work performed prior to the notice of termination, plus reasonable charges that the Contractor can demonstrate to the satisfaction of the Government, using its standard record keeping system, have resulted from the termination. The Contractor shall not be required to comply with the cost accounting standards or contract cost principles for this purpose. This paragraph does not give the Government any right to audit the Contractor's records. The Contractor shall not be paid for any work performed or costs incurred that reasonably could have been avoided.

(g) Termination for cause. The Government may terminate this contract, or any part hereof, for cause in the event of any default by the Contractor, or if the Contractor fails to comply with any contract terms and conditions, or fails to provide the Government, upon request, with adequate assurances of future performance. In the event of termination for cause, the Government shall not be liable to the Contractor for any amount for supplies or services not accepted, and the Contractor shall be liable to the Government for any and all rights and remedies provided by law. If it is determined that the Government improperly terminated this contract for default, such termination shall be deemed a termination for convenience.

(h) Warranty. The Contractor warrants and implies that the items delivered hereunder are merchantable and fit for use for the particular purpose described in this contract.

(End of clause)

#### 52.217-4 EVALUATION OF OPTIONS EXERCISED AT TIME OF CONTRACT AWARD (JUN 1988)

Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate the total price for the basic requirement together with any option(s) exercised at the time of award.

(End of provision)

#### 52.217-5 EVALUATION OF OPTIONS (JUL 1990)

(a) Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

(b) The Government may reject an offer as nonresponsive if it is materially unbalanced as to prices for the basic requirement and the option quantities. An offer is unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(End of provision)

#### 52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (APR 2002)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is **332420**.

(2) The small business size standard is **500 employees**.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it ( ) is, ( ) is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it ( ) is, ( ) is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a women-owned small business concern.

(4) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a veteran-owned small business concern.

(5) (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.) The offeror represents as part of its offer that it ( ) is, ( ) is not a service-disabled veteran-owned small business concern.

(6) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, as part of its offer, that--

(i) It ( ) is, ( ) is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR part 126; and

(ii) It ( ) is, ( ) is not a joint venture that complies with the requirements of 13 CFR part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture: \_\_\_\_\_.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(c) Definitions. As used in this provision--

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern," means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern," means a small business concern --

(1) That is at least 51 percent owned by one or more women; in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)