AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
J	1 2

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
0001	07-Apr-2003	W22W9K-2340-8015	

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than item 6)	CODE
USA ENGINEER DISTRICT, LOUISVILLE ATTN: CELRL-CT 600 DR. MARTIN LUTHER KING PLACE ROOM 821 LOUISVILLE KY 40202	DACW27	CIVIL/OPS/ENVIRONMENTAL TEAM 600 DR. M. L. KING, JR. PL., RM 821 ATTN: B. J. DURRETT LOUISVILLE KY 40202-2230	DACW27

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
	X	9A. AMENDMENT OF SOLICITATION NO. DACW27-03-T-0047
	X	9B. DATED (SEE ITEM 11) 25-Mar-2003
		10A. MOD. OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 13)
CODE / FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer [ ] is extended, [X] is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

[ ] A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

[ ] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

[ ] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[ ] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

The Solicitation for Beartraps Leave(s) for L&D 52, Brookport, Illinois, is amended as follows:

a. Revised "amendment #0001" specification 11285 is attached.

b. Drawings S-1, S-3, S-6 and S-7 have been revised and are available for download at the website.

c. Statement of Work, paragraph 1.1 Scope of Work, 5th paragraph, change the third sentence to read "The beam is approximately 100' long X 8' tall and will have an approximate weight of 48 tons.

d. Statement of Work, paragraph 1.1 Scope of Work, Start and Completion Dates, delete the last sentence "The projected award of this contract will be by 15 April 2003".

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)		16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print) TEL: EMAIL:	
15B. CONTRACTOR/OFFEROR _____ (Signature of person authorized to sign)	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA BY _____ (Signature of Contracting Officer)	16C. DATE SIGNED 07-Apr-2003

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

SECTION SF 30 - BLOCK 14 CONTINUATION PAGE

The following have been added by full text:

AMENDMENT #0001

e. Contractors shall acknowledge this amendment as stated in item #11 above.

(End of Summary of Changes)

SECTION 11285A

BEARTRAP LEAF AND LIFTING BEAM FABRICATION
01/94

PART 1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 27	(1995) Steel Castings, Carbon, for General Application
ASTM A 36	(2001) Standard Specification for Carbon Structural Steel
ASTM A 240	(2001)Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels
ASTM A 325	(2002) Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM A 572	(2000)High-Strengthow-Alloy Columbium-Vanadium Structural Steel
ASTM A 564	(2002)Hot-Rolled and Cold Finished Age-Hardening Stainless Steel Bars and Shapes
ASTM A 588/A 588M	(2000) High-Strength Low-Alloy Structural Steel with 50 ksi (345 MPa) Minimum Yield Point to 4 in. (100 mm) Thick
***1 ASTM B 148**	**(1997) Aluminum Bronze Sand Castings *1**
ASTM B 505	(1996) Copper-Base Alloy Continuous Castings
ASTM D 2856	(1994) Open-Cell Content of Rigid Cellular Plastics by the Air Pycnometer

AMERICAN INSTITUTE OF STEEL CONSTRUCTION

AISC QC 001	AISC Certification Program for Structural Steel Fabricators

AMERICAN SOCIETY OF NONDESTRUCTIVE TESTING

ASNT RP SNT-TC-1A	(1996) Recommended Practice

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1	(2000) Structural Welding Code - Steel
AWS D1.5	(1996) Bridge Welding Code

ASME INTERNATIONAL (ASME)

ASME Y14.5	Geometric Dimensioning and Tolerancing
ASME B4.1	(1967; R 1994) Preferred Limits and Fits for Cylindrical Parts
ASME B46.1	(1985) Surface Texture (Surface Roughness, Waviness, and Lay)

UNDERWRITERS LABORATORIES (UL)

UL 94	(1996)Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances

U.S. GENERAL SERVICES ADMINISTRATION (GSA)

CID A-A-3132	Coating System: Epoxy Primer/Urethane Topcoat, For Minimally Prepared Atmospheric Steel

1.2 DETAIL DRAWINGS

Detail drawings for metalwork and machine work shall include catalog cuts, templates, fabrication and assembly details and type, grade and class of material as appropriate. Elements of fabricated items inadvertently omitted on contract drawings shall be detailed by the fabricator and indicated on the detail drawings. Fabrication drawings shall show complete details of materials, tolerances, connections, and proposed welding sequences which clearly differentiate shop welds and field welds.

1.3 WELDING REQUIREMENTS

1.3.1 Welding Procedure Qualifications

Except for prequalified (per AWS D1.1/D1L1M) and previously qualified procedures, each Contractor performing welding shall record in detail and shall qualify the welding procedure specification for any welding procedure followed in the fabrication of weldments. Qualification of welding procedures shall conform to AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam) and to the specifications in this section. Copies of the welding procedure specification and the results of the procedure qualification test for each type of welding which requires procedure qualification shall be submitted for approval. Approval of any procedure, however, will not relieve the Contractor of the sole responsibility for producing a finished structure meeting all the requirements of these specifications. This information shall be submitted on the forms in Appendix E of AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam). Welding procedure specifications shall be individually identified and shall be referenced on the detail drawings and erection drawings, or shall be suitably keyed to the contract drawings. In case of conflict between this specification and AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), this specification governs.

1.3.1.1 Previous Qualifications

Welding procedures previously qualified by test may be accepted for this contract without requalification if the following conditions are met:

a. Testing was performed by an approved testing laboratory, technical consultant, or the Contractor's approved quality control organization.

b. The qualified welding procedure conforms to the requirements of this specification and is applicable to welding conditions encountered under this contract.

c. The welder, welding operator, and tacker qualification tests conform to the requirements of this specification and are applicable to welding conditions encountered under this contract.

1.3.1.2 Prequalified Procedures

Welding procedures which are considered prequalified as specified in AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam) will be accepted without further qualification. The Contractor shall submit for approval a listing or an annotated drawing to indicate the joints not prequalified. Procedure qualification shall be required for these joints.

1.3.1.3 Retests

If welding procedure fails to meet the requirements of AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), the procedure specification shall be revised and requalified, or at the Contractor's option, welding procedure may be retested in accordance with AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam). If the welding procedure is qualified through retesting, all test results, including those of test welds that failed to meet the requirements, shall

be submitted with the welding procedure.

1.3.2 Welder, Welding Operator, and Tacker Qualifications

Each welder, welding operator, and tacker assigned to work on this contract shall be qualified in accordance with the applicable requirements of AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam) and as specified in this section. Welders, welding operators, and tackers who make acceptable procedure qualification test welds will be considered qualified for the welding procedure used.

1.3.2.1 Previous Personnel Qualifications

At the discretion of the Contracting Officer, welders, welding operators, and tackers qualified by test within the previous 6 months may be accepted for this contract without requalification if all the following conditions are met:

a. Copies of the welding procedure specifications, the procedure qualification test records, and the welder, welding operator, and tacker qualification test records are submitted and approved in accordance with the specified requirements for detail drawings.

b. Testing was performed by an approved testing laboratory, technical consultant, or the Contractor's approved quality control organization.

c. The previously qualified welding procedure conforms to the requirements of this specification and is applicable to welding conditions encountered under this contract.

d. The welder, welding operator, and tacker qualification tests conform to the requirements of this specification and are applicable to welding conditions encountered under this contract.

1.3.2.2 Certificates

Before assigning any welder, welding operator, or tacker to work under this contract, the Contractor shall submit the names of the welders, welding operators, and tackers to be employed, and certification that each individual is qualified as specified. The certification shall state the type of welding and positions for which the welder, welding operator, or tacker is qualified, the code and procedure under which the individual is qualified, the date qualified, and the name of the firm and person certifying the qualification tests. The certification shall be kept on file, and 3 copies shall be furnished. The certification shall be kept current for the duration of the contract.

1.3.2.3 Renewal of Qualification

Requalification of a welder or welding operator shall be required under any of the following conditions:

a. It has been more than 6 months since the welder or welding operator has used the specific welding process for which he is qualified.

b. There is specific reason to question the welder or welding operator's ability to make welds that meet the requirements of these specifications.

c. The welder or welding operator was qualified by an employer other than those firms performing work under this contract, and a qualification test has not been taken within the past 12 months. Records showing periods of employment, name of employer where welder, or welding operator, was last employed, and the process for which qualified shall be submitted as evidence of conformance.

d. A tacker who passes the qualification test shall be considered eligible to perform tack welding indefinitely in the positions and with the processes for which he is qualified, unless there is some specific reason to question the tacker's ability. In such a case, the tacker shall be required to pass the prescribed tack welding test.

1.3.3 Inspector Qualification

Inspector qualifications shall be in accordance with AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam). Nondestructive testing personnel shall be qualified in accordance with the requirements of ASNT RP SNT-TC-1A for Level II or III in the applicable nondestructive testing method. The inspector may be supported by assistant welding inspectors who are not qualified to ASNT RP SNT-TC-1A, and assistant inspectors may perform specific inspection functions under the supervision of the qualified inspector.

1.4 DELIVERY, STORAGE AND HANDLING

Materials and fabricated items shall be delivered, handled, and stored and shipped in such a manner as to prevent damage. The Contractor shall verify the condition and quantity of the items delivered by the Contracting Officer and acknowledge receipt and condition thereof in writing to the Contracting Officer. If delivered items are damaged or a shortage is determined, the Contractor shall notify the Contracting Officer of such in writing within 48 hours after delivery.

1.5 FABRICATOR CERTIFICATION

The fabricator shall submit a certificate indicating that they meet the requirements of at least one of the following Certified Fabricator Programs:

a.) AISC Quality Certification Program, (Complex Bridges)

b.) AWS Certified Welding Fabricator Program

c) American Bureau of Shipping (ABS)

PART 2 PRODUCTS

2.1 MATERIALS

2.1.1 Materials Orders

The Contractor shall furnish 3 copies of purchase orders, mill orders, shop orders and work orders for all materials orders and items used in the work. Where mill tests are required purchase orders shall contain the test site address and the name of the testing agency.

2.1.2 Metals

Structural steel, steel castings, stainless steel, aluminum bronze and other metal materials used for fabrication shall conform to the material specifications in this section.

2.1.2.1 Structural Steel

Beartrap Leaves: Structural steel shall conform to ASTM A 588, Grade 50
Lifting Beam: Structural Steel shall conform to ASTM A 572, Grade 50.

2.1.2.2 Steel Pipe

ASTM A53, Type S

2.1.2.3 Stainless Steel Bars and Shapes

ASTM A276 UNS 30400
ASTM A564 UNS 17400 Condition A

2.1.2.4 Top Roller

ASTM A564 UNS 17400 Condition A

2.1.2.5 Castings

ASTM A27 Grade 70-40

***1**

2.1.2.6 Bushings

ASTM B 148 **or ASTM B505 UNS C95200** ***1**

2.1.2.7 Bolts, Nuts and Washers

Bolts - ASTM A325

2.1.2.8 Stainless Steel Nuts

ASTM A 194, Grade 8N

***1**

2.1.2.9 Shims

Bearing Bronze: ASTM **B** 505 UNS C93200 ***1**

2.1.3 Other Materials

2.1.3.1 Polyurethane Foam

The top bay of the beartrap leaves (refer to drawings) shall be completely filled with a component polyurethane foam to increase overall buoyancy. The leaf bay must be clean, dry, free of loose particles, dust, grease and mold before application is to begin. Filling shall take place after all welding has been completed. The polyurethane foam shall have a closed cell content of 95% or higher and meet ASTM D-2856 requirements. The polyurethane foam product to be used shall meet the requirements of "UL-94 HF-1" classification for fire rating and shall have a density of no more than 2.75 pcf. Contractor will be required to follow all product application instructions before and during product implementation.

2.2 FABRICATION

2.2.1 Structural Fabrication

Material must be straight before being laid off or worked. If straightening is necessary it shall be done by methods that will not impair the metal. Sharp kinks or bends shall be cause for rejection of the material. Material with welds will not be accepted except where welding is definitely specified, indicated or otherwise approved. Bends shall be made by approved dies, press brakes or bending rolls. Where heating is required, precautions shall be taken to avoid overheating the metal and it shall be allowed to cool in a manner that will not impair the original properties of the metal. Shearing shall be accurate and all portions of the work shall be neatly finished. Corners shall be square and true unless otherwise shown. Re-entrant cuts shall be filleted to a minimum radius of 3/4 inch unless otherwise approved. Finished members shall be free of twists, bends and open joints. Bolts, nuts and screws shall be tight. Dimensional tolerances shall be as specified and shown on the drawings. Splices shall occur only where shown or approved. Pin holes shall be bored in components after welding, straightening, stress-relieving, and threading operations are completed. Brackets, eye bar sections, and other components requiring straightening shall be straightened by methods which will not damage the material. Bronze bushings shall be press-fitted with supporting components. Bolt connections, lugs, clips, or other pick-up assembly devices shall be provided for components as shown and required for proper assembly and installation. Structural steel may be cut by mechanically guided or hand-guided torches, provided an accurate profile with a surface that is smooth and free from cracks and notches is obtained. Surfaces and

edges to be welded shall be prepared in accordance with AWS D1.1 or AWS D1.5, Subsection 3.2. Where structural steel is not to be welded, chipping or grinding will not be required except as necessary to remove slag and sharp edges of mechanically guided or hand-guided cuts not exposed to view. Hand-guided cuts which are to be exposed or visible shall be chipped, ground or machined to sound metal.

2.2.2 Dimensional Tolerances for Structural Work

Dimensions shall be measured by an approved calibrated steel tape of approximately the same temperature as the material being measured. The overall dimensions of an assembled structural unit shall be within the tolerances indicated on the drawings or as specified in the particular section of these specifications for the item of work. Where tolerances are not specified in other sections of these specifications or shown, an allowable variation of 1/32 inch is permissible in the overall length of component members with both ends milled and component members without milled ends shall not deviate from the dimensions shown by not more than 1/16 inch for members 30 feet or less in length and by more than 1/8 inch for members over 30 feet in length. Centerline dimensions between girders and diaphragms cannot vary mory than 1/8" from the drawings. The overall squareness of the beartrap must be within 1/4" as measured from corner to corner diagonally.

2.2.3 Welding of Structural Steel

a. Welding Procedures for Structural Steel - Welding procedures for structural steel shall be prequalified as described in AWS D1.1, Subsection 5.1 or shall be qualified by tests as prescribed in AWS D1.1/D.1.M, Section 5. Properly documented evidence of compliance with all requirements of these specifications for previous qualification tests shall establish a welding procedure as prequalified. For welding procedures qualified by tests, the test welding and specimen testing must be witnessed and the test report document signed by the Contracting Officer. Approval of any welding procedure will not relieve the Contractor of the responsibility for producing a finished structure meeting all requirements of these specifications. The Contractor will be directed or authorized to make any changes in previously approved welding procedures that are deemed necessary or desirable by the Contractor Officer. The Contractor shall submit a complete schedule of welding procedures for each steel structure to be welded. The schedule shall conform to the requirements specified in the provisions AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), Sections 2, 3, 4, 7 and 9 and applicable provisions of Section 10. The schedule shall provide detailed procedure specifications and tables or diagrams showing the procedures to be used for each required joint. Welding procedures must include filler metal, preheat, interpass temperature and stress-relief heat treatment requirements. Each welding procedure shall be clearly identified as being prequalified or required to be qualified by tests. Welding procedures must show types and locations of welds designated or in the specifications to receive nondestructive examination.

b. Welding Process - Welding of structural steel shall be by an

electric arc welding process using a method which excludes the atmosphere from the molten metal and shall conform to the applicable provisions of AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), Sections 1 thru 7, 9, 10 and 11. Welding shall be such as to minimize residual stresses, distortion and shrinkage.

c. Welding Technique

(1) Filler Metal - The electrode, electrode-flux combination and grade of weld metal shall conform to the appropriate AWS specification for the base metal and welding process being used or shall be as shown where a specific choice of AWS specification allowables is required. The AWS designation of the electrodes to be used shall be included in the schedule of welding procedures. Only low hydrogen electrodes shall be used for manual shielded metal-arc welding regardless of the thickness of the steel. A controlled temperature storage oven shall be used at the job site as prescribed by AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), Subsection 4.5 to maintain low moisture of low hydrogen electrodes.

(2) Preheat and Interpass Temperature - Preheating shall be performed as required by AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), Subsection 4.2 and 4.3 or as otherwise specified except that the temperature of the base metal shall be at least 70 degrees F. The weldments to be preheated shall be slowly and uniformly heated by approved means to the prescribed temperature, held at that temperature until the welding is completed and then permitted to cool slowly in still air.

(3) Stress-Relief Heat Treatment - Where stress relief heat treatment is specified or shown, it shall be in accordance with the requirements of AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), Subsection 4.4 unless otherwise authorized or directed.

d. Workmanship - Workmanship for welding shall be in accordance with AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), Section 3 and other applicable requirements of these specifications.

(1) Preparation of Base Metal - Prior to welding the Contractor shall inspect surfaces to be welded to assure compliance with AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), Subsection 3.2.

(2) Temporary Welds - Temporary welds required for fabrication and erection shall be made under the controlled conditions prescribed for permanent work. Temporary welds shall be made using low-hydrogen welding electrodes and by welders qualified for permanent work as specified in these specifications. Preheating for temporary welds shall be as required by AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam) for permanent welds except that the minimum temperature shall be 120 degrees F in any case. In making temporary welds arcs shall not be struck in other than weld locations. Each temporary weld shall be removed and ground flush with adjacent surfaces after serving its purpose.

(3) Tack Welds - Tacks welds that are to be incorporated into the permanent work shall be subject to the same quality requirements as the permanent welds and shall be cleaned and thoroughly fused with permanent welds. Preheating shall be performed as specified above for temporary welds. Multiple-pass tack welds shall have cascaded ends. Defective tack welds shall be removed before permanent welding.

2.2.4 Welding Equipment and Materials

All welding equipment, electrodes, welding wire, and fluxes shall be capable of producing satisfactory welds when used by a qualified welder or welding operator performing qualified welding procedures. All welding equipment and materials shall comply with the applicable requirements of AWS D1.1 or D1.5.

2.2.5 Bolted Connections

Bolts, nuts and washers shall be of the type specified or indicated. All nuts shall be equipped with washers except for high strength bolts. Beveled washers shall be used where bearing faces have a slope of more than 1:20 with respect to a plane normal to the bolt axis. Where the use of high strength bolts is specified or indicated the materials, workmanship and installation shall conform to the applicable provisions of ASTM A 325 .

a. Bolt Holes - Bolt holes shall be accurately located, smooth, perpendicular to the member and cylindrical.

(1) Holes for regular bolts shall be drilled or subdrilled and reamed in the shop and shall not be more than 1/16 inch larger than the diameter of the bolt.

(2) Holes for fitted bolts shall be match-reamed or drilled in the shop. Burrs resulting from reaming shall be removed. The threads of bolts shall be entirely outside of the holes. The body diameter of bolts shall have tolerances as recommended by ASME B4.1 for the class of fit specified. Fitted bolts shall be fitted in reamed holes by selective assembly to provide an LN-2 fit.

(3) Holes for high strength bolts shall have diameters of not more than 1/16 inch larger than bolt diameters. If the thickness of the material is not greater than the diameter of the bolts the holes may be punched. If the thickness of the material is greater than the diameter of the bolts the holes may be drilled full size or subpunched or subdrilled at least 1/8 inch smaller than the diameter of the bolts and then reamed to full size. Poor matching of holes will be cause for rejection. Drifting occurring during assembly shall not distort the metal or enlarge the holes. Reaming to a larger diameter of the next standard size bolt will be allowed for slight mismatching.

2.2.6 Machine Work

Tolerances, allowances and gauges for metal fits between plain,

non-threaded, cylindrical parts shall conform to ASME B4.1 for the class of fit shown or required unless otherwise shown on approved detail drawings. Where fits are not shown they shall be suitable as approved. Tolerances for machine-finished surfaces designated by non-decimal dimensions shall be within 1/64 inch. Other tolerances are governed by ASME Y14.5 Sufficient machining stock shall be allowed on placing pads to ensure true surfaces of solid material. Finished contact or bearing surfaces shall be true and exact to secure full contact. Journal surfaces shall be polished and all surfaces shall be finished with sufficient smoothness and accuracy to ensure proper operation when assembled. Parts entering any machine shall be accurately machined and all like parts shall be interchangeable except that parts assembled together for drilling or reaming of holes or machining will not be required to be interchangeable with like parts. All drilled holes bolts shall be accurately located.

2.2.6.1 Finished Surfaces

Surface finishes indicated or specified shall be in accordance with ASME B46.1. Values of required roughness heights are arithmetical average deviations expressed in microinches. These values are maximum. Lesser degrees will be satisfactory unless otherwise indicated. Compliance with surface requirements shall be determined by sense of feel and visual inspection of the work compared to Roughness Comparison Specimens in accordance with the provisions of ASME B46.1. Values of roughness width and waviness height shall be consistent with the general type of finish specified by roughness height. Where the finish is not indicated or specified it shall be that which is most suitable for the particular surface, provide the class of fit required and be indicated on the detail drawings by a symbol which conforms to ASME B46.1 when machine finishing is provided. Flaws such as scratches, ridges, holes, peaks, cracks or checks which will make the part unsuitable for the intended use will be cause for rejection.

2.2.6.2 Unfinished Surfaces

All work shall be laid out to secure proper matching of adjoining unfinished surfaces unless otherwise directed. Where there is a large discrepancy between adjoining unfinished surfaces they shall be chipped and ground smooth or machined to secure proper alignment. Unfinished surfaces shall be true to the lines and dimensions shown and shall be chipped or ground free of all projections and rough spots. Depressions or holes not affecting the strength or usefulness of the parts shall be filled in an approved manner.

2.2.6.3 Pin Holes

Pin holes shall be bored true to gauges, smooth, straight and at right angles to the axis of the member. The boring shall be done after the member is securely fastened in position.

2.2.7 Patterns

Care shall be taken to avoid sharp corners or abrupt changes in cross section and ample fillets shall be used in the construction of patterns.

Draft and increases in pattern thicknesses shall be added as required to conform to the standard foundry practice applied and as necessary to ensure that all metal thicknesses of the finished castings conform to the dimensions shown and are within the tolerances specified in paragraph INSPECTION OF STEEL CASTINGS.

2.2.7.1 Fabrication of Patterns and Core Boxes

Patterns and core boxes that shall become the property of the Government shall be substantially made from thoroughly seasoned Grade B or better sugar pine, northern white pine or an approved equal. Built-up patterns and core boxes shall be securely glued and screwed together. Glue shall be of an approved high grade, water resistant and suitably treated for resistance to fungus and insect infestation. Only light sections are permitted to be nailed. Screw holes shall be counterbored and neatly filled with wood plugs. Loose pieces shall be dovetailed or fastened with pull-out dowels. Split patterns and core boxes shall have metal dowels at partings. Skelton or sweep patterns will not be accepted unless specifically authorized. All nail and tool marks on molding surfaces shall be filled with beeswax. All surfaces shall be sanded with No. 0 grade sandpaper. Patterns shall be finished with not less than three coats of an approved phenolic-resin sealer colored in accordance with the standard trade practices for pattern colors. Each pattern, core box and loose piece shall be stamped with the part mark shown. Patterns shall be furnished complete with necessary core boxes and templates.

2.2.7.2 Disposition of Patterns, Core Boxes, and Templates

Boxes and crates for the packing and shipment of patterns, core boxes and templates shall be substantially made and put together with screws so that they can be used several times. Each box and crate shall be plainly marked to indicate its contents. All patterns, core boxes and templates shall be thoroughly cleaned, crated and delivered in first-class condition with a list of same in duplicate to U.S. Army Corps of Engineers, Louisville Repair Station before final payment is made. The Contracting Officer reserves the right to withhold payment for final parts made from any pattern until such pattern is delivered. Patterns and core boxes shall be varnished and all templates given a coat of an approved paint before being crated. Any pattern, core box or template lost in shipment or damaged by the Contractor shall be replaced by the Contractor without charge to the Government.

2.2.8 Castings

Each casting shall bear cast or stamped mark numbers. Castings weighing more than 500 required pounds shall also bear cast or stamped heat numbers. Deviations from the dimensions of castings shown shall not exceed amounts that will impair the strength of castings by more than 10 percent as computed from the dimensions shown. Dimensions of castings shown on approved detail drawings shall be finished dimensions. Castings that are warped or otherwise distorted or that are oversize to an extent that will interfere with proper fit with other parts of the machinery or structure will be rejected. The structure of metal in castings shall be homogeneous and free from excessive nonmetallic inclusions. Excessive segregation of

impurities or alloys at critical points in castings will be cause for rejection. Repairs to castings shall not be made prior to approval. Minor surface imperfections not affecting the strength of casting may be welded in the "green" if approved. Surface imperfections shall be considered minor when the depth of the cavity prepared for welding is the lesser of 20 percent of the actual wall thickness or 1 inch. Inspection of the castings shall be done in accordance with paragraph 2.3.8 of this section. Defects other than minor surface imperfections may be welded only when specifically authorized in accordance with the following requirements:

a. The defects have been entirely removed and are judged not to affect the strength, use or machineability of the castings when properly welded and stress relieved.

b. The proposed welding procedure, stress relief and method of examination of the repair work have been submitted and approved.

2.3 TESTS, INSPECTIONS, AND VERIFICATIONS

The Contractor shall require material tests and analyses performed and certified by an approved laboratory to demonstrate that materials are in conformity with the specifications. These tests and analyses shall be performed and certified at the Contractor's expense. Tests, inspections, and verifications shall conform to the requirements of the particular sections of these specifications for the respective items of work unless otherwise specified or authorized. Tests shall be conducted in the presence of the Contracting Officer if so required. The Contractor shall furnish specimens and samples for additional independent tests and analyses upon request by the Contracting Officer. Specimens and samples shall be properly labeled and prepared for shipment.

2.3.1 Nondestructive Testing

When doubt exists as to the soundness of any material part such part may be subjected to any form of nondestructive testing determined by the Contracting Officer. This may include ultrasonic, magnaflux, dye penetrant, x-ray, gamma ray or any other test that will thoroughly investigate the part in question. The cost of such investigation will be borne by the Government. Any defects will be cause for rejection and rejected parts shall be replaced and retested at the Contractor's expense.

2.3.2 Inspection of Structural Steel Welding

The Contractor shall maintain an approved inspection system and perform required inspections in accordance with the Contractor's Quality Control System. Welding shall be subject to inspection to determine conformance with the requirements of AWS D1.1or AWS D1.5, the approved welding procedures and provisions stated in other sections of these specifications. Nondestructive examination of designated welds will be required. Supplemental examination of any joint or coupon cut from any location in any joint may be required.

2.3.3 Visual Examination

All visual examination of completed welds shall be cleaned and carefully examined for insufficient throat or leg sizes, cracks, undercutting, overlap, excessive convexity or reinforcement and other surface defects to ensure compliance with the requirements of AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), Section 3 and Section 9, Part D.

2.3.4 Nondestructive Examination

The nondestructive examination of shop welds shall be performed as designated or described in the sections of these specifications covering the particular items of work.

a. Testing Agency - The nondestructive examination of welds and the evaluation of examination tests as to the acceptability of the welds shall be performed by a testing agency adequately equipped and competent to perform such services or by the Contractor using suitable equipment and qualified personnel. In either case written approval of the examination procedures is required and the examination tests shall be made in the presence of the Contracting Officer. The evaluation of examination tests shall be subject to the approval and all records shall become the property of the Government.

b. Examination Procedures - Examination procedures shall conform to the following requirements.

(1) Ultrasonic Testing - Making, evaluating and reporting ultrasonic testing of welds shall conform to the requirements of AWS D1.1 or AWS D1.5, Section 6, Part C. The ultrasonic equipment shall be capable of making a permanent record of the test indications. A record shall be made of each weld tested.

(2) Radiographic Testing - Making, evaluating and reporting radiographic testing of welds shall conform to the requirements of AWS D1.1 or AWS D1.5, Section 6, Part B.

(3) Magnetic Particle Inspection - Magnetic particle inspection of welds shall conform to the applicable provisions of ASTM E 709.

(4) Dye Penetrant Inspection - Dye penetrant inspection of welds shall conform to the applicable provisions of ASTM E 165.

c. Acceptability of Welds - Welds shall be unacceptable if shown to have defects prohibited by AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), Subsection 9.25 or possess any degree of incomplete fusion, inadequate penetration or undercutting.

d. Welds to be Subject to Nondestructive Examination

Refer to project drawings for specific locations of nondestructive testing to be performed. In addition to the nondestructive testing shown on the drawings, 10% of all remaining welds shall be tested at random locations, using the appropriate test for the type of weld inspected.

2.3.5 Test Coupons

The Government reserves the right to require the Contractor to remove coupons from completed work when doubt as to soundness cannot be resolved by nondestructive examination. Should tests of any two coupons cut from the work of any welder show strengths less than that specified for the base metal it will be considered evidence of negligence or incompetence and such welder shall be removed from the work. When coupons are removed from any part of a structure the members cut shall be repaired in a neat manner with joints of the proper type to develop the full strength of the members. Repaired joints shall be peened as approved or directed to relieve residual stress. The expense for removing and testing coupons, repairing cut members and the nondestructive examination of repairs shall be borne by the Government or the Contractor.

2.3.6 Supplemental Examination

When the soundness of any weld is suspected of being deficient due to faulty welding or stresses that might occur during shipment or erection the Government reserves the right to perform nondestructive supplemental examinations before final acceptance. The cost of such inspection will be borne by the Government.

2.3.7 Structural Steel Welding Repairs

Defective welds in the structural steel welding repairs shall be repaired in accordance with AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), Subsection 3.7. Defective weld metal shall be removed to sound metal by use of air carbon-arc or oxygen gouging. The surfaces shall be thoroughly cleaned before welding. Welds that have been repaired shall be retested by the same methods used in the original inspection. Except for the repair of members cut to remove test coupons and found to have acceptable welds costs of repairs and retesting shall be borne by the Contractor.

2.3.8 Inspection of Steel Castings

The Contractor shall perform radiographic inspection of steel castings as designated and as described in the section of these specifications covering the particular item of work. The procedure for making, evaluating and reporting the radiographic inspection shall conform to the requirements of ASTM E 94. The castings shall be unacceptable if shown to have defects of greater severity than the applicable reference standard specified in the following table:

DISCONTINUITY TYPE	SEVERITY LEVELS OR CLASSES
Gas or Blowholes	4
Sand Spots and Inclusions	3
Internal Shrinkage	2
Hot Tears, Cracks	1
Unfused Chaplets	1
Internal Chills	1

DISCONTINUITY TYPE	SEVERITY LEVELS OR CLASSES
Gas or Blowholes	4
Sand Spots and Inclusions	3
Internal Shrinkage	2
Hot Tears, Cracks	1
Unfused Chaplets	1

The applicable referenced standards shall be as illustrated in ASTM E 446. The evaluation of the radiographs shall be subject to approval and all records shall become the property of the Government.

2.3.9 Lifting Beam Testing

The lifting beam shall be tested for each of the various weights and configurations shown on the drawings (for a total of four tests). The test weight, rigging and lifting mechanism for these tests are the responsibility of the contractor. The test shall done in the presence of the contracting officer's representative. A report for each shall be submitted to the Government and a load rating shall be given for each of the four weights that are tested. Deflections of the beam measured at the ends, pick points and centerline, shall also be recorded as part of the test.

2.4 PAINTING

Items or surfaces to be coated: All exposed surfaces of the beartrap hinge pedestal castings, lift beam and lift beam racks. Do not paint the insides of bolt holes or pin holes. Either one of the following paint sytems listed shall be used.

PAINT SYSTEMS

SURFACE PREPARATION	1st COAT	2nd COAT
Alternate 1 Power tool or brush-off blast cleaning	Epoxy Primer CID A-A-3132	Urethane Topcoat CID A-A-3132
Alternate 2 Commercial blast cleaning	Epoxy Primer CID A-A-3132	Urethane Topcoat CID A-A-3132

The 2nd Coat shall be applied to a dry thickness of 6 mils.

PART 3 EXECUTION

3.1 WELDING OPERATIONS

3.1.1 Requirements

Workmanship and techniques for welded construction shall conform to the requirements of AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam) and AISC 335. When AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam) and the AISC ASD 335 specification conflict, the requirements of AWS D1.1 shall govern.

3.1.2 Identification

Welds shall be identified in one of the following ways:

a. Written records shall be submitted to indicate the location of welds made by each welder, welding operator, or tacker.

b. Each welder, welding operator, or tacker shall be assigned a number, letter, or symbol to identify welds made by that individual. The Contracting Officer may require welders, welding operators, and tackers to apply their symbol next to the weld by means of rubber stamp, felt-tipped marker with waterproof ink, or other methods that do not cause an indentation in the metal. For seam welds, the identification mark shall be adjacent to the weld at 3 foot intervals. Identification with die stamps or electric etchers shall not be allowed.

3.2 QUALITY CONTROL

Testing shall be done by an approved inspection or testing laboratory or technical consultant; or if approved, the Contractor's inspection and testing personnel may be used instead of the commercial inspection or testing laboratory or technical consultant. The Contractor shall perform visual inspection plus one of the following: a)radiographic or b)ultrasonic or c) magnetic particle, inspection to determine conformance with paragraph STANDARDS OF ACCEPTANCE. Procedures and techniques for inspection shall be in accordance with applicable requirements of AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam), except that in radiographic inspection only film types designated as "fine grain," or "extra fine," shall be employed.

3.3 STANDARDS OF ACCEPTANCE

Dimensional tolerances for welded construction, details of welds, and quality of welds shall be in accordance with the applicable requirements of AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam) and the contract drawings. Nondestructive testing shall be by visual inspection and radiographic, ultrasonic, magnetic particle, methods. The minimum extent of nondestructive testing shall be random 10 percent of welds or joints, as indicated on the drawings.

3.4 GOVERNMENT INSPECTION AND TESTING

In addition to the inspection and tests performed by the Contractor for quality control, the Government may perform inspection and testing for acceptance to the extent determined by the Contracting Officer. The costs

of such inspection and testing will be borne by the Contractor if unsatisfactory welds are discovered, or by the Government if the welds are satisfactory. The work may be performed by the Government's own forces or under a separate contract for inspection and testing. The Government reserves the right to perform supplemental nondestructive and destructive tests to determine compliance with paragraph STANDARDS OF ACCEPTANCE.

3.5 CORRECTIONS AND REPAIRS

When inspection or testing indicates defects in the weld joints, the welds shall be repaired using a qualified welder or welding operator as applicable. Corrections shall be in accordance with the requirements of AWS D1.1 (Beartraps) or AWS D1.5 (Lifting Beam) and the specifications. Defects shall be repaired in accordance with the approved procedures. Defects discovered between passes shall be repaired before additional weld material is deposited. Wherever a defect is removed and repair by welding is not required, the affected area shall be blended into the surrounding surface to eliminate sharp notches, crevices, or corners. After a defect is thought to have been removed, and before rewelding, the area shall be examined by suitable methods to ensure that the defect has been eliminated. Repair welds shall meet the inspection requirements for the original welds. Any indication of a defect shall be regarded as a defect, unless reevaluation by nondestructive methods or by surface conditioning shows that no unacceptable defect is present.

-- End of Section --