

DEPARTMENT OF TRANSPORTATION
DES-OE MS #43
1727 30TH Street, 2ND Floor
Sacramento, CA 95816



June 6, 2003

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

Addendum No. 8

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in SAN FRANCISCO COUNTY IN SAN FRANCISCO FROM 0.6 KM TO 1.3 KM EAST OF THE YERBA BUENA TUNNEL EAST PORTAL.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on September 16, 2003, instead of the date of August 5, 2003.

This addendum is being issued to change the bid opening date as shown herein and revise the Project Plans; the Notice to Contractors and Special Provisions, and the Proposal and Contract.

Project Plan Sheets 405, 414, 418, 419, 420, 421, 422, 436, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 474, 477, 494, 495, 496, 498, 502, 669, 671, 673, 675, 693, 752, 753, 754, 758, 853, 856, 857, and 936 are revised. Half-sized copies of the revised sheets are attached for substitution for the like-numbered sheets.

Project Plan Sheet 24A is added. A half-sized copy of the added sheet is attached for addition to the project plans.

In the Special Provisions, Section 5-1.27, "PAYMENTS," in the sixth paragraph, Item O is added as follows:

"O. S-Wire wrapping"

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," subsection "DESIGNATED PORTIONS OF WORK" the first sentence of Item "A. Designated Portion "1" of the Work" of the first paragraph is revised as follows:

"The Designated Portion "1" of the Work shall be defined as the completion of all elements of work, as shown on the plans and special provisions, necessary to allow the completion of Hinge "K" by the YBI Structures contractor prosecuting Contract No. 04-0120P4 as provided for under "Cooperation," of these special provisions."

In the Special Provisions, Section 10-1.01, "ORDER OF WORK," subsection "DESIGNATED PORTIONS OF WORK" the last sentence of Item "A Designated Portion "1" of the Work" of the first paragraph is revised as follows:

"Once this Designated Portion "1" of Work is complete by the Contractor, the YBI contractor prosecuting Contract No. 04-0120P4 shall be provided full and unrestricted access to the Hinge "K" work area by the Contractor."

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

In the Special Provisions, Section 10-1.08, "COOPERATION," Item 6 of the third paragraph is deleted.

In the Special Provisions, Section 10-1.17, "ELECTRONIC MOBILE DAILY DIARY SYSTEM DATA DELIVERY," subsection "DATA DELIVERY REQUIREMENTS," the last paragraph is deleted.

In the Special Provisions, Section 10-1.18, "MOBILIZATION," the first sentence of the second paragraph is revised as follows:

"Attention is directed to Section 5-1.27 "PAYMENTS" of these special provisions, and Sections 9-1.06, "Partial Payments," and 9-1.07, "Payment After Acceptance," of the Standard Specifications."

In the Special Provisions, Section 10-1.18, "MOBILIZATION," the second sentence of the third paragraph is revised as follows:

"The retention of funds provisions in Section 5-1.27, "PAYMENTS" and Section 9-1.06, "Partial Payments," shall apply to the contract lump sum item of mobilization."

In the Special Provisions, Section 10-1.35, "EPOXY ASPHALT CONCRETE SURFACING," is revised as attached.

In the Special Provisions, Section 10-1.44, "SHEAR KEY (PIER E2)," subsection "GENERAL" the sixth paragraph is revised as follows:

"WHEMCO Group of Companies has agreed to furnish the shear key housing, shear stub, and other services described in these special provisions at the guaranteed price of \$263,450.00 per shear key stub and \$276,830.00 per shear key housing. In addition to the above prices, there will be a one time charge of \$21,430 for the shear key stub pattern and a one time charge of \$22,150 for the shear key housing pattern."

In the Special Provisions, Section 10-1.44, "SHEAR KEY (PIER E2)," subsection "GENERAL" the ninth paragraph is revised as follows:

"The above prices will be guaranteed for orders placed with WHEMCO on or before December 31, 2003. The total price will be increased 3 percent for orders placed with WHEMCO after December 31, 2003 and on or before December 31, 2004. The FOB location is Midland, Pennsylvania."

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "GENERAL" the fourth and fifth paragraphs are revised as follows:

"Attention is directed to "Welding" and "Audits" in Section 8, "Materials," of these special provisions. Members shown on the plans with Seismic Performance Critical Member (SPCM) designations, including welds connecting SPCMs to other members shall conform to the requirements in ANSI/AASHTO/AWS D1.5, Section 12, "AASHTO/AWS Fracture Control Plan (FCP) for Non-Redundant Members" as modified herein."

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "DEFINITIONS" the sixth paragraph is revised as follows:

"The "Seismic Performance Critical Member" ("SPCM") designation identifies structural elements, including welds connecting SPCMs to other members, that are critical to the seismic performance of the bridge and that are fabricated and inspected to the requirements of AWS D1.5, Section 12, as modified by these special provisions."

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "ERECTION PLAN" Item H of the fourth paragraph is revised as follows:

"H. Timing and methods for visual and nondestructive examination."

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "CASTINGS" is revised as follows:

"CASTINGS

Castings shown on the plans as "Structural Casting Grade 345," "Structural Casting Grade 415," and "Structural Casting Grade 550" shall conform to the requirements of these special provisions. Castings for suspension, hangar and other cable system components shall conform to the requirements in "Cable System" of these special provisions.

At the option of the Contractor, the remaining portions of the casting components may be redesigned as castings in accordance with the requirements of this section. Any use of castings for other structural components shall follow the requirements of this section, and a detailed, written proposal shall be submitted to the Engineer for prior approval. The Contractor shall submit for the approval of the Engineer, working drawings for castings in accordance with the requirements of "Working Drawings," of these special provisions. Working drawings for castings shall include, at a minimum, detail drawings of the redesigned cast configuration showing equivalency to the details shown on the plans.

The Contractor shall perform finite element complex heat flow analysis for each pattern including all risers and gates that demonstrates that final solidification will occur outside of the final casting. This analysis shall also be used to confirm inspection procedures by identifying the locations of likely defects such as shrinkage, hot tears and porosity. The analytical solid model shall be sufficiently detailed and accurate to demonstrate complete coverage of ultrasonic examination by including the ability to superimpose ultrasonic beam paths on the model. Coverage may be demonstrated by drawing beam paths on printed sections of the solid model. The analytical model and supporting calculations shall be submitted to the Engineer for approval in accordance with the "Working Drawings" section above.

The Contractor shall submit a manufacturing procedure to the Engineer for approval that shall specify all chemical, heat treatment, testing, visual and nondestructive inspection and quality control requirements. Quality control requirements and manufacturing facilities shall be subject to a quality audit as specified in Section 8-4 "Steel Audits" of these special provisions and include the additional requirements of this section.

Castings shall be manufactured to the requirements in ASTM Designation: A148 with the following Supplementary Requirements as modified herein: S1, S4, S5, S6, S7, S8 (Individually marked), S9, S12, S15 (S15.3.2, except one test coupon shall be 3T by 3T by T for all T as described below), and S16.

The manufacturing procedure shall define the specific chemistry, including tolerances for each element. The alloy shall conform to the general limits in the following table, except alternative alloys that meet the required mechanical properties and other requirements herein, that have similar or better weld ability, and that have a documented history of successful application may be submitted for approval by the Engineer. The steel shall be fully killed and made to fine grain practice.

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

ELEMENT (Max. or range)	BASE GRADE	C	Si	Mn	P	S	Ni	Cr	Mo
Structural Casting Grade 345	A148M, Gr. 550- 345	0.20	0.60	1.50	0.02	.010	1.2	0.50	0.25
Structural Casting Grade 415	A148M, Gr. 620- 415	0.28	0.80	1.00	0.02	.010	1.40 - 2.00	0.55- 0.90	0.20- 0.40
Structural Casting Grade 550	A148M, Gr. 725- 585	0.24	0.50	0.55 - 0.75	0.02	.010	2.50 - 3.50	1.35- 1.85	0.30- 0.60

ELEMENT (Max. or range)	BASE GRADE	Al	Cu	V	Cb	Ti	CE
Structural Casting Grade 345	A148M, Gr. 550- 345	.010 – .060	0.30	0.03	0.03	0.05	0.51
Structural Casting Grade 415	A148M, Gr. 620- 415	.010- .030	0.50*	0.03*	0.03	0.05	0.90
Structural Casting Grade 550	A148M, Gr. 725- 585	.010- .030	0.20*	0.03*	0.03	0.05	-

Notes: * means not intentionally added.
 $CE = C + (Mn+Si)/6 + (Cr + Mo + V)/5 + (Cu + Ni)/15$

Each casting shall be given a double normalized or a normalized plus quench and temper heat treatment at temperatures and times specified in the manufacturing procedure except the final tempering temperature shall not be less than 565 C. Specimens for mechanical testing shall be taken from a representative casting, a prolongation to the casting or a keel block. The test specimen block shall have a section size equivalent to 1/3T of that shown on the plans, be poured from the same ladle and heat treated along with the castings that it represents. The test specimens shall meet the requirements in the table below. In addition, a separate keel block with the equivalent maximum section size shown on the plans shall be poured from the same heat, heat treated along with the casting and machined to provide two tensile test specimens. The tensile yield and ultimate strengths of these specimens shall not be less than 90% of the minimum strengths specified in the table below.

	STRUCTURAL CASTING GRADE 345	STRUCTURAL CASTING GRADE 415	STRUCTURAL CASTING GRADE 550
Tensile Strength:	550 MPa – 690 MPa	620 MPa – 795 MPa	680 MPa – 840 MPa
Yield Strength:	345 MPa, Minimum	415 MPa, Minimum	550 MPa, Minimum
Elongation:	22%, Minimum	20%, Minimum	18%, Minimum
Reduction of Area:	35%, Minimum	35%, Minimum	30%, Minimum
Charpy V-Notch:	42 J, Minimum at 0° C	42 J, Minimum at 0° C	90 J, Minimum at 0° C

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

Each casting shall be visually examined 100% on all surfaces and shall be free of adhering sand, scale, cracks, shrinkage, unfused chills and hot tears and meet the Manufacturing Standardization Society of the Valve and Fittings Industry Inc. Publications (MSS) specification MSS-SP-55, "Quality Standard for Steel Castings for Valves, Flanges and Fittings and Other Piping Components - Visual Method". Machined surfaces shall be free of voids or other discontinuities that exceed the following: A maximum of one discontinuity within a radius of 150 mm that has a diameter not exceeding 3 mm within the saddle troughs or 5 mm elsewhere, a maximum depth of one half of the diameter, and a rounded shape with no sharp corners. Voids within the saddle troughs shall be filled during metallizing.

Each casting shall be examined 100% on all surfaces by visible contrast, wet magnetic particle method to ASTM Designation: E709 on the final, as-finished surface. The prod method shall not be used on Grades 415 or 550 and shall be controlled to eliminate arcing. Linear indications, defined as having a ratio of maximum to minimum dimensions greater than 3, tears and cracks will not be permitted.

Each casting shall also be volumetrically examined 100% by ultrasonic (UT) methods in accordance with a written procedure submitted with the manufacturing procedure. The procedure shall define calibrations, equipment and materials and shall include part-specific shooting sketches that demonstrate complete coverage of the full volume from two perpendicular directions. Coverage shall be compatible with locations identified as possible locations for defects based on the finite element heat flow analysis and the foundry practice.

Ultrasonic procedures shall be based on ASTM Designation: A 609, "Standard Specification for Longitudinal Beam Ultrasonic Inspection of Carbon and Low-Alloy Steel Castings," using Procedure A, except supplementary angle beam examination to Supplementary Requirement S1 shall be performed on castings to ensure coverage from two perpendicular directions and on areas of castings where a back reflection cannot be maintained during straight beam examination, or where the angle between the front and back surfaces of the castings exceeds 15 degrees. The Distance Amplitude Curve (DAC) method shall be used for both straight and angle beam examinations. The DAC shall be constructed using a 3.0 mm diameter reference reflector hole for areas within 30 mm of the final surface unless noted otherwise on the plans, and areas designated as Level 1 on the plans, and a hole diameter as specified in ASTM Designation: A 609M shall be used elsewhere. At each facility producing castings, ultrasonic test calibration blocks shall be poured from the first casting heat produced for this contract. The calibration blocks shall be made available to the Engineer for use in QA testing of the castings and to any subcontractors that perform ultrasonic testing on the castings. All calibration details shall be defined in the procedure.

The ultrasonic examination acceptance criteria shall be as follows: Within 30 mm of any final surface, unless otherwise noted on the plans, and at locations designated as Level 1 on the plans, indications that provide a response equal to or greater than the DAC and that are planar or that exceed the area specified in ASTM Designation: A 609, Table 2 for ultrasonic testing quality Level 1 will not be permitted. At all other locations, indications that provide a response equal to or greater than the DAC and that are planar or that exceed the area specified in ASTM Designation: A 609, Table 2 for ultrasonic testing quality Level 3 will not be permitted. The method for determining whether a reflector is planar shall be defined in the written procedure and shall be based on the high directionality of amplitude response for planar reflectors or other established technique.

Each casting shall be stenciled with its heat number and serial number.

Before casting, the Contractor shall produce 1/10 scale model of the tower saddle in wood or other material approved by the Engineer. The model shall show all details of the saddle including the location of weld, cast and plate materials and cast component parting lines. The model and manufacturing procedure shall be approved by the Engineer before the start of foundry production.

All areas of steel castings that will be in contact with other elements by welding, bolting or direct contact pressure shall be machined.

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

Unless noted otherwise on the plans, the tolerance for linear dimensions of unmachined sections shall have a plus and minus tolerance (i.e., one half of the total tolerance range) in accordance with the following table:

Tolerance For Linear Dimensions (mm) Unaffected By Machined Surfaces

LINEAR DIMENSION, L	L < 60	60 ≤ L < 120	120 ≤ L < 250	250 ≤ L < 400	400 ≤ L < 630	630 ≤ L < 1000	1000 ≤ L < 1600	1600 ≤ L < 2500	2500 ≤ L < 4000	4000 ≤ L
TOLERANCE	4.5	5.5	7.0	9.0	11.0	13.0	16.0	19.0	31.0	47.0

Unless noted otherwise on the plans, the thickness tolerance of unmachined ribs shall have a minus tolerance of 3 mm and a plus tolerance in accordance with the following table:

Plus Tolerance For Thickness Of Ribs (mm) Where Both Faces Are Not Machined

THICKNESS RANGE	t < 18	18 ≤ t < 30	30 ≤ t < 50	50 ≤ t < 80	80 ≤ t < 120	120 ≤ t < 180	180 ≤ t < 250	250 ≤ t < 315	315 ≤ t < 400	400 ≤ t
PLUS TOLERANCE	6.0	9.0	10.0	11.0	12.0	13.0	15.0	19.0	27.0	35.0

No coating or oil preservative shall be applied to a casting until that casting has been inspected and approved by the Engineer.

Minor defects may be removed by grinding or chipping without welding repair, in accordance with the following requirements:

- A. The removal of metal does not affect the strength, integrity or functionality of the casting, as determined by the Engineer.
- B. The remaining wall thickness is equal to or greater than the required minimum wall thickness.
- C. The surrounding metal is ground to a smooth contour with the elimination of apparent stress raisers.
- D. Specified tolerances on machined surfaces are satisfied.

Weld repairs may be permitted if qualified welding procedures are used that demonstrate Charpy V-Notch toughness of 34J at -30 C in the weld metal and 34J for Structural Casting Grades 345 and 415, or 60J for Structural Casting Grade 550, at 0 C in the heat-affected zone in the final delivery condition. Weld procedure tests shall be qualified on 50 mm thick plates poured from the same heat as the final casting. Weld repairs shall be given a post weld stress relief heat treatment after all welding is complete. All proposed repair or upgrading welding procedure specifications (WPSs) shall conform to the requirements of ASME Boiler and Pressure Vessel Code, Section IX, as modified herein. Additional essential variables required for WPSs other than SMAW shall include welding travel speed (limited to ±10%), heat input (limited to +10%, -30%), and, for FCAW, the brand name of the electrode. Weld procedures with all supporting procedure qualification records (PQRs) shall be submitted in writing to the Engineer for each welding location, and shall include a description of the defect or other need for welding, the size and the shape of the excavation, the welding procedure specification, preheat and post weld heat treatment. If a second repair to base metal or heat affected zone is required at the same location, the Contractor shall include a metallurgical evaluation for the cause of the rejection in the submittal package to the Engineer for review and approval.

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

No welding or heat treatment will be permitted except with the specific written approval of the Engineer. In addition, the Contractor shall give the Engineer at least 12 hours notice prior to performing the work.

The exterior surfaces of the castings, after acceptance, shall be coated as specified in "Clean and Paint Structural Steel" and "Metallized Steel Surfaces" of these special provisions. The castings shall be carefully masked to avoid coating any high strength fastener contact surface, interior or other machine finished surface.

At the time of assembly, the contact surfaces of the castings shall meet the machine finish requirements shown on the plans."

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "FABRICATION," subsection "Fabrication/Erection Procedure and Mock-Ups," Item KL of the third paragraph is revised as follows:

"K. Tower Strut Assembly including connection to Tower Diaphragm"

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "FABRICATION," subsection "Fabrication/Erection Procedure and Mock-Ups," Item B of the fourth paragraph is revised as follows:

"B. Tower Diaphragm Type 3B"

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "FABRICATION," subsection "Fabrication/Erection Procedure and Mock-Ups," Item F is added to the fourth paragraph as follows:

"F. Tower section"

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "FABRICATION," subsection "Fabrication/Erection Procedure and Mock-Ups," the sixth paragraph is revised as follows:

"For each mock-up, the Contractor shall prepare a written fabrication and welding sequence and a preliminary mock-up made of wood, plastic, dense Styrofoam or other material approved by the Engineer. The preliminary mock-up shall be sufficiently large to demonstrate the assembly sequence, but need not exceed one-half scale. These shall be submitted for review by the Engineer, and approval shall be given before the full-scale mock-up is fabricated in steel. The Engineer shall witness all fit-up and welding for each steel mock-up."

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "FABRICATION," subsection "Bikepath at Pier W2," the first paragraph is revised as follows:

"A portion of the bikepath at Pier W2 will be furnished by the Contractor and installed by others, as shown on the plans. This portion of bikepath shall conform to the requirements of this section, including the requirements for cleaning and painting in section "Clean and Paint Structural Steel," of these special provisions."

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "FABRICATION," subsection "Bolted Connections," the following paragraph is added after the first paragraph:

"The provisions of Section 8-1.01 "SUBSTITUTION OF NON-METRIC MATERIALS AND PRODUCTS," will not be permitted for high-strength fastener assemblies."

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "FABRICATION," subsection "Bolted Connections," the fifth paragraph is revised as follows:

"Bolted connections shall conform to the requirements in the Research Council on Structural Connections, "Specification for Structural Joints Using ASTM A325 or A490 Bolts," 2000 (RCSC Specification), with the following revisions:

- A. Reference to A325 bolts shall mean A325M bolts.
- B. Reference to A490 bolts shall mean A490M bolts.
- C. Reference to A563 nuts shall mean A563M nuts.
- D. Reference to F436 washers shall mean F436M washers.
- E. Reference to F959 direct tension indicators shall mean F959M direct tension indicators.
- F. Reference to F1852 twist-off type tension control bolts shall not apply.
- G. Reference to ANSI B18.2.6 (for bolt dimensions) is replaced with B.18.2.3.7M.
- H. Reference to ANSI B18.2.6 (for nut dimensions) is replaced with B.18.2.4.6M.
- I. Replace Table 2.1 of the RCSC Specification with Table 8.1 of the AISC "Manual of Steel Construction, Load & Resistance Factor Design, Metric Conversion of the Second Edition" (AISC Specification).
- J. Replace Table C-2.1, Figure C-2.2, and Table C-2.2 of the RCSC Specification with Table 8.2 of the AISC Specification.
- K. Replace Table 3.1 of the RCSC Specification with Table J3.3 of the AISC Specification.
- L. Section 6.2.3. of the RCSC is deleted.
- M. Table 6.1 of the RCSC Specification is replaced with the following:

Table 6.1. Washer Requirements for Bolted Joints with Oversized and Slotted Holes in the Outer Ply

ASTM Designation	Nominal Bolt Diameter db, mm	Hole Type in Outer Ply		
		Oversized	Short-Slotted	Long-Slotted
A325	12-36	ASTM F436M		8 mm thick plate washer or continuous bar ^{a,b}
A490	≤ 25			ASTM F436M with 8 mm thickness ^a
	>25			

^a Multiple washers with a combined thickness of 8 mm or larger do not satisfy this requirement.
^b The plate washer or bar shall be of structural-grade steel material, but need not be hardened.

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

N. Replace Table 8.1 of the RCSC Specification with the following:

Minimum Bolt Tension, N*

Bolt Size, mm	A325M Bolts	A490M Bolts
M16	91 000	114 000
M20	142 000	179 000
M22	176 000	221 000
M24	205 000	257 000
M27	267 000	334 000
M30	326 000	408 000
M36	475 000	595 000

*Equal to 0.70 of minimum tensile strength of bolts, rounded off to nearest kN and converted to N, as specified in ASTM specifications for A325M and A490M bolts with UNC threads.

O. Table 8.2 of the RCSC Specification is replaced with the following:

Table 8.2. Nut Rotation from Snug-Tight Condition for Turn-of-Nut Pretensioning^{a,b}

Bolt Length ^c	Disposition of Outer Face of Bolted Parts		
	Both faces normal to bolt axis	One face normal to bolt axis, other sloped not more than 1:20 ^d	Both faces sloped not more than 1:20 from normal to bolt axis ^d
Not more than 4d _b	1/2 turn	1/2 turn	2/3 turn
More than 4d _b but not more than 8d _b	1/2 turn	2/3 turn	5/6 turn
More than 8d _b but not more than 12d _b	2/3 turn	5/6 turn	1 turn

^a Nut rotation is relative to bolt regardless of the element (nut or bolt) being turned. For required nut rotations of 1/2 turn, the tolerance is plus 30 degrees; for required nut rotations of 2/3 turn and more, the tolerance is plus 45 degrees.
^b Applicable only to joints in which all material within the grip is steel.
^c When the bolt length exceeds 12dh, the required nut rotation shall be determined by actual testing in a suitable tension calibrator that simulates the conditions of solidly fitting steel.
^d Beveled washer not used.

P. Sections 8.2.2, 8.2.3, 9.2.2, and 9.2.3 of the RCSC Specification are deleted.

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

Where the DTI method is used, the DTI shall be collapsed to 0.075mm (3 mils), and the gap in the DTI shall be caulked after acceptance by the Engineer. The method of bolt tightening shall be as specified below:

LOCATION	BOLT TYPE	COATING	TIGHTENING METHOD
Tower	A325	Mechanical galvanizing	Turn-of-Nut or Direct Tension Indicator (DTI) collapsed to 3mils (0.075mm) on inside of Tower
	A490	Organic zinc coating	Turn-of-Nut or DTI collapsed to 3mils (0.075mm) on inside of Tower
Box Girder	A325	Mechanical galvanizing	Turn-of-Nut or DTI collapsed to 3mils (0.075mm) on inside of box
Tower Skirt	A307	Hot Dip Galvanized	Snug-Tight

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "FABRICATION," subsection "Bolted Connections," the following paragraphs are added after the sixth paragraph:

"At least 60 working days prior to beginning turn-of-nut bolting operations, the Contractor shall perform the following tests to verify turn-of-nut installation procedures:

A. Minimum tension shall be verified using the "Pre-Installation Verification Turn-of-the-Nut Method," of the "Structural Bolting Handbook," published by the Steel Structures Technology Center, Incorporated, except that the required rotation shall be as given in Table 8.2. of this section and the required tension shall be as shown in the following table:

**Pre-Installation Verification
Required Tension, N***

Bolt Size, mm	A325M Bolts	A490M Bolts
M16	96 000	120 000
M20	149 000	188 000
M22	185 000	232 000
M24	215 000	270 000
M27	280 000	351 000
M30	342 000	428 000
M36	499 000	625 000
*The above values are 5% higher than the required pretension values used for design, actual installation and inspection, rounded to the nearest kN.		

B. Rotational-capacity tests in accordance with the requirements in Section 11.5.6.4.2 "Rotational-Capacity Tests," of the AASHTO LRFD Bridge Construction Specifications, except that Table 11.5.6.4.1-2 "Nut Rotation from the Snug Condition," is replaced by Table 8.2. of this section.

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

Test results shall confirm both the minimum bolt tension and the rotational capacity of the bolts. If either test fails, the Contractor shall modify the nut rotation in Table 8.2. of this section until the requirements of both tests are satisfied. No adjustment in compensation will be allowed for modifications to the nut rotations as necessary to satisfy test requirements. Revisions to Table 8.2. shall be approved by the Engineer prior to bolting operations.

The Engineer will randomly sample and perform quality assurance testing of high strength fasteners. Samples will be obtained at locations chosen by the Engineer. The Contractor shall provide the number of bolts specified below to the Engineer for quality assurance testing:

Lot Size (No. of Bolts)	Sample Size (No. of Bolts)
2 to 15	3
16 to 25	4
26 to 50	5
51 to 90	7
91 to 150	8
151 to 280	9
281 to 10,000	12
10,001 to 500,000	16
500,001 and over	20

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "FABRICATION," subsection "Bolted Connections," the seventh paragraph is replaced with the following paragraphs:

"Steel fasteners, designated on the plans as A 354, Grade BC, and A 354, Grade BD, shall conform to the requirements of ASTM Designation: A 354. Steel fastener components for steel fasteners designated as A 354 shall include a bolt, nut and hardened washer. Nuts for steel fasteners designated as A 354 shall conform to Section 55-2.01, "Description," of the Standard Specifications.

Steel fasteners designated on the plans as A 354, Grade BD shall be dry blast cleaned in accordance with the provisions of Surface Preparation Specification No. 10, "Near White Blast Cleaning," of the "SSPC: The Society for Protective Coatings."

Steel fasteners designated on the plans as A 354, Grade BC, and A 354, Grade BD, shall be galvanized in accordance with the requirements in Section 75-1.05, "Galvanizing," of the Standard Specifications and shall conform to the requirements in ASTM Designation: A123 for bolts and ASTM Designation: A153 for nuts and hardware. Steel fastener assemblies designated as A354, Grade BD, shall be galvanized within 4 hours of being dry blast cleaned.

The Contractor shall submit certified test reports showing that the A 354, Grade BD fasteners conform to the provisions in ASTM Designation: A 143."

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "WELDING OF HPS485W STEELS" in the third paragraph Item E is revised as follows:

"E. Backing; AWS D1.5, Section 5.4.5 is modified to allow steel backing material for WPS test plates to be of grade 345W (Sulfur = 0.025 max.) or HPS485W material."

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "WELDING OF HPS485W STEELS" the fourth paragraph which starts with "shall be qualified by testing ..." is revised as follows:

"WELDING OF GRADE 690 STEELS

Welds in Grade 690 steels shall conform to the requirements of AWS D1.5, as modified herein. All welding procedures shall be qualified by testing in accordance with the requirements in AWS D1.5 as modified herein and shall be used within the qualified limits of heat input. Previously qualified welding procedures witnessed by the State may be submitted for review based on these specification requirements. Regardless of qualification range, the heat input, preheat temperature and maximum interpass temperature shall conform to the requirements of this section."

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "SHOP WELDING," subsection "General Provisions," Item A is revised as follows:

"A. Steel fabrication shall conform to the requirements of AWS D1.5, except members designated on the plans as SPCMs, including welds connecting SPCM's to other members, shall be fabricated according to Chapter 12 of the AWS D1.5, "AASHTO/AWS Fracture Control Plan (FCP) for Nonredundant Members", except as modified in these special provisions.

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "SHOP WELDING," subsection "Design Details," Item F is revised as follows:

"F. Weld repairs – In addition to the provisions in AWS D1.5, Section 3.7.4, re-repair of welds or base metal requires prior approval of the Engineer. Repairs to SPCMs, including welds connecting SPCM's to other members, shall be as specified in AWS D1.5, "AASHTO/AWS Fracture Control Plan (FCP) for Nonredundant Member," Section 12.17, as modified herein."

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "SHOP WELDING," subsection "Welding of Closed Ribs to Box Shell Plate," Item B, the fourth paragraph beginning with "At the completion of welding ..." is revised as follows:

"At completion of welding, the welded panels shall be checked for straightness and other production tolerances. The welded, unstraightened panel shall be flat within 10 mm. If the unstraightened panel is not flat within 10 mm, new measures such as different prebending or fixturing, shall be proposed, and new trial panels welded."

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "SHOP WELDING," subsection "Welding of Closed Ribs to Box Shell Plate," Item C, the first paragraph is revised as follows:

"C. Monitoring of Production Welds – During fabrication, weld monitoring tests shall be conducted for each operator on each welding machine at the start of each work shift. Test specimens shall consist of a separate piece of deck plate and rib. The rib shall be tack welded to the test piece the same as on the panel. Run-on and run-off tabs may be used if used in the production plates. If the equipment is used in production to simultaneously weld multiple ribs, then at least two ribs shall be welded during the test. The specimen shall be at least 500 mm long, and shall be examined 100% by UT. The specimen shall be macroetched 25 mm from each end, at a tack weld, and at two intermediate locations, as determined by the Engineer, immediately after welding."

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "SHOP WELDING," subsection "Welding of Closed Ribs to Box Shell Plate," Item D, the first paragraph is revised as follows:

"D. Panel Production – The dimensions of production panels of box shell plating shall be checked after welding. The welded panel, after straightening, if any, shall be flat within 5 mm in each 5 m length of box panels. Panels may be straightened in accordance with a written procedure that is in conformance to AWS D1.5 and is approved by the Engineer."

In the Special Provisions, Section 10-1.51, "STEEL STRUCTURES," subsection "INSPECTION AND TESTING" the Notes following the table are revised as follows:

"Notes:

1) Vertical butt joints marked ** in the table shall be tested as follows:

(a) 1/6 of the web depth beginning at each end of weld, unless otherwise noted, shall be tested 100 %.

(b) 25 % of the remainder shall be tested.

2) If unacceptable discontinuities are found in a joint with 100% NDT, the repairs shall be completed and then re-examined by the same NDT method along with an additional 50 mm at each end of the weld repair, for a minimum total additional length of 100 mm.

3) If unacceptable discontinuities are found in a joint with a specified percentage of NDT less than 100 %, including RT examination of butt weld repairs, the repairs shall be completed and then re-examined by the same NDT method along with an additional 50mm at each end of the weld repair, for a minimum total additional length of 100mm for the repair re-examination. Two additional previously untested segments, each at least 10% of the total weld length, on each side of the repair, for a total additional length of 20%, shall be tested with the same NDT method. If additional unacceptable discontinuities are found as a result of this testing, then 100% of the remaining untested portion of the weld shall be tested with the same NDT method. All weld repairs shall be tested with the same NDT method that located the original defect.

4) Where the specified percentage of testing is greater than 25 %, the specified length of each weld shall be tested.

5) Where the specified percentage of testing is 25 %, each weld that is 1.5 m long or more shall be examined over 25 % of the weld length. Welds under the same table category in the same component that are less than 1.5 m long may be lot examined by testing one weld 100 % for each lot of four welds.

6) Where the specified percentage of testing is 15 %, each weld that is 2.5 m long or more shall be tested over 15 % of the weld length. Welds under the same table category in the same component that are less than 2.5 m long may be lot examined by testing one weld 100 % for each lot of seven welds

7) Where the specified percentage of testing is 10 %, each weld that is 4.0 m long or more shall be examined over 10 % of the weld length. Welds under the same table category in the same component that are less than 4.0 m long may be lot examined by testing one weld 100 % for each lot of ten welds.

8) For lot examination, if unacceptable discontinuities are found in the weld tested, the remainder of that weld shall be tested, and a second weld in the lot will be chosen by the Engineer and shall be tested. If unacceptable discontinuities are found in the second weld, the entire lot shall be tested.

9) UT examination of PJP welds shall confirm the specified weld size and, for weld sizes greater than 15 mm, shall also evaluate the accessible weld volume to the requirements of AWS D1.5 for welds in compression.

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

10) Welds, and adjacent parent material within 10 mm of all accessible areas surrounding the weld, in grades with strength levels of 485 and above shall be tested 100% by MT in addition to other specified inspection. The timing of visual and any method of NDT for welds in these steels shall be in accordance with AWS D1.5, Section 12.16.4.

11) Welds made by either the electroslag or electrogas processes shall be examined 100% by both radiographic and ultrasonic testing.

12) Scanning for ultrasonic examination of corner, tee and cruciform welds in thicknesses greater than 50 mm shall include base metal behind and adjacent to the welds. Lamellar tearing discontinuities that exceed 3 mm or that lie within 10 mm of the surface shall be repaired.

13) SPCMs shall include welds connecting SPCM's to other members."

In the Special Provisions, Section 10-1.52, "CABLE SYSTEM," subsection "MATERIALS AND FABRICATION," subsection "Cable Wrapping Wire," the first sentence of the second paragraph is revised as follows:

"The S-shaped cable wrapping wire shall be manufactured by the following supplier:"

In the Special Provisions, Section 10-1.52, "CABLE SYSTEM," subsection "MATERIALS AND FABRICATION," subsection "Cable Wrapping Wire," the seventh paragraph is revised as follows:

"The price quoted by the manufacturer for S-shaped cable wrapping wire is \$5.50 per kilogram. The manufacturer's charge for a technical supervisor is \$1,400 per person per day, and \$25,000 per person per month (20 working days per month). These charges apply from the day of departure from Japan to the day of return back to Japan. The daily allowance for a technical supervisor shall be \$125 per person per day. The charge for round trip airfare between Japan and San Francisco, California, United States, shall be \$4,200 per person. The FOB location is Yokohama, Japan. Quoted prices are in United States dollars."

In the Special Provisions, Section 10-1.52, "CABLE SYSTEM," subsection "MATERIALS AND FABRICATION," subsection "Cable Wrapping Wire," the ninth paragraph is revised as follows:

"The S-wire wrapping price includes all materials, technical advice and inspection by a qualified representative of the manufacturer during installation and final inspection of the installed S-wire wrapping."

In the Special Provisions, Section 10-1.64, "CLEAN AND PAINT CABLE SYSTEM," subsection "MATERIALS," the first paragraph is revised as follows:

"The cable painting system shall consist of a primer, a two intermediate coat Noxyde painting system, or equal, and a finish coat. The Noxyde cable painting system shall be manufactured by the following supplier:"

In the Special Provisions, Section 10-1.64, "CLEAN AND PAINT CABLE SYSTEM," subsection "MATERIALS," the third paragraph is revised as follows:

"The intermediate and finish coats shall be a water-borne, single component semi-paste acrylic with highly elastic polymers. The coats shall be capable of 200 percent elongation, and shall be 100 percent waterproof and 100 percent resistant to ultraviolet radiation. The two intermediate coats shall be 100 percent Noxyde Plus."

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

In the Special Provisions, Section 10-1.64, "CLEAN AND PAINT CABLE SYSTEM," subsection "MATERIALS," the tenth paragraph is revised as follows:

"The intermediate coats of the cable paint system shall conform to the following physical requirements:"

In the Special Provisions, Section 10-1.64, "CLEAN AND PAINT CABLE SYSTEM," subsection "PAINTING," the sixth and seventh paragraphs are revised as follows:

"The intermediate coat shall be applied within 24 hours of the application of primer coat, weather permitting, except for the handrope stanchions, main cable shrouds, and the surfaces of cable band castings, tower saddle castings, and splay saddle castings. All undercoat surfaces showing evidence of contamination, as determined by the Engineer, shall be cleaned. The Engineer shall be the sole judge of the need for cleaning.

The intermediate coat shall be applied in accordance with the manufacturer's recommendations. The two intermediate coats shall be spray applied in a fine even spray so as to produce a uniform coating. The total dry film thickness of the two intermediate coats shall be between 200 μm and 350 μm ."

In the Special Provisions, Section 10-1.64, "CLEAN AND PAINT CABLE SYSTEM," subsection "PAINTING," the twelfth paragraph is revised as follows:

"The finish coat shall be applied in accordance with the manufacturer's recommendations. The finish coat shall be applied to produce a uniform coating. The dry film thickness of the finish coat shall be 35 μm ."

In the Special Provisions, Section 10-3.08, "SUPPORT HARDWARE FOR CONDUITS, CABLE TRAYS AND WIREWAYS," subsection "CABLE TRAY LADDER TYPE," the following subsection is added after subsection "Cable Tray Sections and Components":

"Cable Tray Solid Trough Type

The solid trough type tray shall be the same as ladder type cable tray specified elsewhere in these special provisions except for the following. It shall be a solid bottom trough type tray with two longitudinal members (side rails) with a corrugated bottom welded to the side rails. The peaks of the corrugated bottom shall have a minimum flat cable-bearing surface of 70 mm and shall be spaced on 152-mm centers. The cable trays may be manufactured by B-Line Systems, Chalfant, or other approved manufacturer. Solid bottom trays with covers shall be used for communications and signal wire trays. Tray fittings shall include all reducers, and vertical and horizontal bends. Cable tray shall be supported at intervals of not more than 4.74 m. All conduit terminating at trays shall provide a continuous cable route by using bushings specifically suited for attaching conduit to the tray rail and for providing ground continuity."

In the Special Provisions, Section 10-3.10, "CONDUCTORS, CABLES AND WIRING," the following subsection is added after subsection "600 VOLT MULTI-CONDUCTOR CABLE":

"600 VOLT ARMORED MULTI-CONDUCTOR CABLE

The 600-volt armored cable shall be used for call box power supply and bike path lighting as shown on the roadway eastbound plan sheet.

The individual conductor of the armored cable shall conform to the 600-volt cable requirements as specified above in the special provisions.

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

The armor sheath shall exceed the grounding conductor requirements of Table 250-95 of the National Electrical Code and UL 1569. The armor sheath shall be impervious, continuous, welded, corrugated aluminum that will provide complete protection against moisture, liquid, and gases, and has excellent mechanical strength. The armor sheath shall be covered with low temperature black polyvinyl chloride to protect the cable against chemical attack.

The cable shall have stranded copper grounding conductor, located in the outer interstices. The cable shall be UL Listed as type MC cable per Article 334 of the NEC."

In the Special Provisions, Section 10-3.10, "CONDUCTORS, CABLES AND WIRING," the following subsection is added after subsection "SHIELDED TWISTED PAIR CABLE":

"600 Volt Shielded-Twisted Pair Armored Cable

The 600 V instrumentation armored cables shall be used for call box communication as shown on the roadway eastbound plan sheet.

The individual conductor of the armored cable shall conform to the shielded-twisted pair cable requirements as specified above in the special provisions.

The armor sheath shall be impervious, continuous, welded, corrugated aluminum that will provide complete protection against moisture, liquid, and gases, and shall have excellent mechanical strength and provide equipment grounding through the sheath. The armor sheath shall be covered with low temperature black polyvinyl chloride to protect cable against chemical attack.

The cable shall be UL Listed as ITC/PLTC in accordance with Article 727 and Article 725 of the NEC. Cables shall comply with UL 2250 and UL 13 for PLTC, CL2, and CL3."

In the Special Provisions, Section 10-4.02, "PIPE, FITTING AND VALVES," subsection "PART 2.-PRODUCTS," subsection "MATERIALS, PIPE AND FITTINGS," the following subsection is added after subsection "Hinged Flex Joint":

" Manufactured Expansion Loop for Compressed Air and Water

Provide flexible expansion loops of size noted on drawings. The loop shall consist of flexible sections series 300 SS hose and braid, and two steel end nipples with cut grooves for groove-couplings and gaskets. Loops shall be installed in a neutral condition unless noted otherwise.

Install loop within four pipe diameters, both upstream and downstream, from a pipe guide or anchor. Loop shall be Metaflex, Metraloop or equal."

In the Proposal and Contract, the Engineer's Estimate for both Alternatives 1 and 2, Items 161 and 162 are added and Items 152 and 160 are deleted as attached.

To Proposal and Contract book holders:

Replace pages 35 and 43 and add pages 35A and 43A of the Engineer's Estimate in the Proposal with the attached revised and added pages 35, 35A, 43, and 43A of the Engineer's Estimate. The revised Engineer's Estimate is to be used in the bid.

Attached are the following: A copy of additional Materials Information and a readable CD ROM.

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

Addendum No. 8
Page 17
June 6, 2003

04-SF-80-13.2/13.9
04-0120F4
ACBRIM-080-1(095)N

This office is sending this addendum by UPS overnight mail to Proposal and Contract book holders to ensure that each receives it. A copy of this addendum and the modified wage rates are available for the contractor's use on the Internet Site:

http://www.dot.ca.gov/hq/esc/oe/weekly_ads/addendum_page.html

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY:

REBECCA D. HARNAGEL, Chief
Office of Plans, Specifications & Estimates
Office Engineer

Attachments

