

CONTRACT CHANGE ORDER

Change Requested by: Engineer

CCO: 216	Suppl. No.	Contract No. 04 – 0120F4	Road SF-80-13.2/13.9	FED. AID LOC.:
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The Contractor shall pay the State of California the sum of \$100,000.00 per day as a disincentive, for each and every day delayed in completing "Readiness for Seismic Safety Opening" after November 30, 2013. Neither an incentive nor disincentive shall apply if the Contractor achieves 'Readiness for Seismic Safety Opening' between October 20, 2013, and November 30, 2013. The total amount of 1) disincentives payable by the Contractor, and 2) liquidated damages payable by the Contractor for delay in completing the 'Contract Completion Date,' shall not exceed the sum of \$100,000.00 per day and the aggregate total sum of which will not exceed \$125,000,000.00."

Incentive associated with this added Extra Work..... increase up to a maximum of \$ 7,500,000.00

3) Limits of Work and Insurance Provisions

The revised "Begin Construction" limit is as specified in Appendix 4, "Limits of Work Drawing, page 1 of 2".

Section 5-1.39, "Insurance" of the Special Provisions, is revised as provided in this paragraph strictly for the performance of the work associated with the Hinge K Concrete work, in this CCO:

"Payment for Repair Work -- When the Occurrence that caused the damage was an earthquake, the State will pay the cost of repair determined as provided in Subsection E".

4) Contract Time Considerations

There will be no adjustment of Contract Time by reason of this CCO 216.

If (i) the "Area and Timelines for Contractor's Use", for constructing Hinge K Concrete, as indicated on Appendix No. 2 of this CCO 216, is not available for the Contractor's use on the dates specified, or (ii) other changes are subsequently caused or directed by the Department, a commensurate adjustment of time will be made to the "Readiness for Seismic Safety Opening" incentive dates specified herein (i.e., October 20, 2013, and August 28, 2013) and the Contract Completion Date in accordance with Section 8-1.07, "Liquidated Damages," of the Standard Specifications and the Section 10-1.13, "Progress Schedule (Critical Path Method)" of the Special Provisions. Additional compensation, as a result of the potential events (i) and (ii) above, will be provided in accordance with Section 4-1.03, "Changes," and Section 8-1.09, "Right of Way Delays," of the Standard Specifications, and Section 10-1.14, "Time Related Overhead," of the Special Provisions and, as applicable, other Contract provisions.

5) Schedule Provisions

The Contractor shall, within 30 days of the approval of this CCO 216, submit a "Revised Baseline Schedule" consistent with the provisions of this CCO 216 and in accordance with Section 10-1.13, "Progress Schedule (Critical Path Method)" of the Special Provisions. The "Revised Baseline Schedule" shall incorporate the Contractor's plans to construct Hinge K Concrete and to achieve "Readiness for Seismic Safety Opening".

6) Progress Payment Provisions

The Contractor shall submit, for approval by the Engineer, a schedule of values detailing the cost breakdown of the agreed lump sum payment provided under this CCO 216. The schedule of values shall reflect the items, work, quantities, and costs required to perform the work provided under this CCO 216. The Contractor shall be responsible for the accuracy of the quantities and costs used in the schedule of values submitted for approval. The sum of the amounts for the items and work listed in the schedule of values shall be equal to the agreed lump payments provided under this CCO 216. When approved in writing by the Engineer, the schedule of values will be used to determine progress payments for the work provided under this CCO 216.

CONTRACT CHANGE ORDER

Change Requested by: Engineer

CCO: 216 Suppl. No. Contract No. 04 - 0120F4 Road SF-80-13.2/13.9 FED. AID LOC.:

Total Extra Work at Agreed Lump Sum Cost of this CCO.....\$21,050,000.00
Total Maximum Incentive associated with this added Extra Work.....\$ 7,500,000.00

Appendices to this CCO:

- 1: Specifications and Plan Sheets (Sheet No 4 to Sheet No 47)
- 2: Areas and Timelines for Contractor's Use (Sheet No.48 to Sheet No. 50)
- 3: Hinge K Scope Matrix (Sheet No. 51 to Sheet No. 53)
- 4: Limit of Work Drawing (Sheet No. 54 to Sheet No.55)

Estimated Cost: Increase Decrease max \$28,550,000.00

By reason of this order the time of completion will be adjusted as follows: 0 Days

Submitted by		
Signature		Resident Engineer
		William Casey, Sup T.E.
		Date 1-19-12

Approval Recommended by		
Signature		Principal Transportation Engineer
		Jon Tapping, Prin. T.E.
		Date 1-20-12

Engineer Approval by		
Signature		Program Manager
		Tony Anziano, Program Manager
		Date 2/2/12

We the undersigned contractor, have given careful consideration to the change proposed and agree, if this proposal is approved, that we will provide all equipment, furnish the materials, except as otherwise be noted above, and perform all services necessary for the work above specified, and will accept as full payment therefor the prices shown above.

NOTE: If you, the contractor, do not sign acceptance of this order, your attention is directed to the requirements of the specifications as to proceeding with the ordered work and filing a written protest within the time therein specified.

Contractor Acceptance by		
Signature		(Print name and title)
		BRIAN A. PETERSEN - PROJECT DIRECTOR
		Date 26 JAN 12

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10-1.45b MINOR CONCRETE (CONCRETE BALLAST)

Minor concrete (concrete ballast) shall conform to the provisions in Section 51, "Concrete Structure," of the Standard Specifications and these special provisions

Minor concrete (concrete ballast) shall be placed within the Hinge K closure portion of the box girder after engagement of Hinge K bearings and prior to release of Hinge K temporary tie-down system.

A bond-breaker shall be provided between the soffit slab of the box girder and the concrete ballast. The ballast shall be sectionalized into areas not larger than 1.0 meter square with plastic joint strips to facilitate possible future removal of the concrete ballast.

Prior to placement of the concrete ballast, the Contractor shall provide the dry unit weight of the approved concrete mix design to the Engineer that will be placed inside the box girder. Engineer will provide the Contractor the volume and layout of ballast concrete to be placed.

The Contractor shall submit a concrete ballast placement plan prior to performing work for approval by the Engineer.

10-1.45c TEMPORARY HINGE TIEDOWNS (HINGE K)

Temporary hinge tiedowns, complete with anchorages, shall be installed and tensioned to maintain a profile grade elevation, as directed by the Engineer, after completion of longitudinal post-tensioning in Frame 2 of YBITS 1.

Working drawings and calculations for temporary hinge tiedowns shall be submitted in conformance with the provisions for working drawings for prestressing systems in Section 50-1.02, "Drawings," of the Standard Specifications. The working drawings and calculations shall be signed by a civil engineer registered in the State of California. Working drawings shall include details of the procedures and methods for the gradual tensioning and detensioning of the hinge tiedowns.

Hinge tiedowns and anchorages shall be made from materials that do not yield during an extended period of time under sustained loading. The hinge tiedowns shall provide for checking and simple adjustment of the force during their service life using commonly available equipment and tools. The hinge tiedowns shall provide for easy and gradual detensioning, simple removal and a minimal amount of repair to the bridge surfaces after removal. The tiedowns shall be protected from damage.

The hinge tiedowns shall not impair the structural integrity of the bridge or its foundation. The design of hinge tiedown system shall include foundation material necessary to support the hinge tiedown anchorages. Additional concrete, reinforcement and other materials necessary to accommodate the hinge tiedowns shall be provided by the Contractor as necessary. Such additions shall conform to the provisions for similar work in these special provisions and the Standard Specifications. Rearrangement of reinforcing steel, prestressing steel and other bridge materials necessary to accommodate the hinge tiedowns shall be performed by YBITS 1 Contractor, as directed by the Engineer. Any additional work necessary to strengthen the bridge structure to accommodate the tie-down system will be performed by the YBITS 1 Contractor.

Hinge tiedowns shall not be attached to the bridge columns unless otherwise shown on the plans.

Stressing of high-tensile wire, strand or bars shall conform to the provisions in Section 50-1.08, "Prestressing," of the Standard Specifications or as approved and directed by the Engineer.

Contractor shall provide a tiedown system capable of handling a tension force for the entire hinge of 6000 kips. Jacking loads during tiedown operation shall not exceed "Do Not Exceed Loads", to be provided by the Engineer.

All the concrete at the hinge, except concrete above the bridge deck, shall be in place for a period of at least 10 days, or as directed by the Engineer, before detensioning tiedowns that are to be removed on this project. The hinge tiedowns that are to be removed shall be gradually detensioned and removed before releasing superstructure falsework in the supported span.

Detensioning of each tiedown shall be in increments such that not more than one-half of the total tension force at the tiedown is released before releasing an equal force at the adjacent tiedowns. At no time during detensioning operations shall more than one-sixth of the tension force for the entire hinge be applied eccentrically about the centerline of the structure. Wires, strands, or bars shall be detensioned before cutting or removing them or their anchorages.

Blockouts and recesses remaining in the structure after removal of the tiedowns shall be filled with concrete and finished to match the surrounding surfaces will be performed by YBITS 1 Contractor. Embedded fasteners and metal parts shall be removed in conformance with the provisions for form bolts in Section 51-1.18A, "Ordinary Surface Finish," of the Standard Specifications. Buried portions of tiedowns and anchorages shall be removed to a depth of one meter

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below finished grade except that the limits for removal shall be as specified for embedded fasteners and metal parts when the tiedowns or anchorages are attached to bridge footings or other buried structures shown on the plans.

10-1.48b INSTALL SPHERICAL BUSHING RING BEARING (HINGE K)

This work shall consist of inspection, shipping and installation of spherical bushing ring bearings on Hinge K in conformance with details shown on the plans and the requirements of these special provisions.

Each spherical bushing ring bearing is a sliding and rotating type of bearing consisting of segmented anchor ring, anchor studs, spherical housing, anchor bolts, assembly bolts, and spherical bushing ring. Bearings shall be anchored in the concrete diaphragm with studs by either direct embedment or with high strength non-shrink grout as shown on the plans.

WORKING DRAWINGS

The Contractor shall submit working drawings in conformance with the provisions in Section "Working Drawings," of these special provisions.

Working drawings shall include the method, materials, equipment, and procedures of installation that the Contractor proposes to use including the placement of high strength non-shrink grout.

Working drawing submittals shall include the following:

- A. Installation plans including methods, materials, equipment, sequence, lifting mechanisms and locations, details of temporary anchorage during setting, and details of temporary support and other procedures that the Contractor proposes to use for installation of the spherical bushing ring bearings.
- B. High strength non-shrink grout mix design and method of placement and curing, if the Contractor elects to use non-shrink grout to secure segmented anchor rings as shown on the plans.
- C. Storage plans for interim storage, and on-site storage details including temporary support for the spherical bushing ring bearings.

Each working drawing and calculation sheet shall be signed by an engineer who is registered as a Civil Engineer in the State of California.

No installation of the spherical bushing ring bearing shall begin until the Engineer has reviewed and approved the working drawing.

MATERIALS

Steel components including plates and anchor bolts shall conform to the details shown on the plans and the provisions in "Steel Structures," of these special provisions.

Welding to any part of bearing segment shall not be permitted, unless approved by the Engineer.

The bearing grout shall conform to the provisions in "High Strength Nonshrink Grout," of these special provisions.

In the Special Provisions, Section 10-1.56, "HIGH STRENGTH NONSHRINK GROUT," subsection "WORKING DRAWINGS," Item E is revised as follows:

"E. High strength nonshrink grout mix design (mix design not required for proprietary pre-packaged high strength nonshrink grouts)."

In the Special Provisions, Section 10-1.56, "HIGH STRENGTH NONSHRINK GROUT," subsection "MATERIALS," the first paragraph is revised as follows:

"Grout shall be high strength, nonshrink grout and shall be a nonmetallic and non-gas-forming flowable or fluid grout containing natural aggregate, portland cement and additives and requiring only the addition of water. Grout shall be pre-measured and prepackaged by the manufacturer, and shall be suitable for baseplate and foundation grouting. Aggregate shall show no segregation or settlement at fluid consistency at specified times or temperatures.

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One hour after mixing, the grout shall pass through a flow cone with continuous flow. Grout shall conform to the requirements of ASTM Designation: C1107, ~~Grade C~~ / C1107M-07a, and the following additional requirements:

Property	Requirement	Test
Shrinkage	0.0%	ASTM C827
Expansion	0.0%min., 4.0% max.	ASTM C827
Fluid Consistency (fluid grout)	20-30 seconds at 5°C to 38°C	ASTM C939
Flowable Consistency (flowable grout)	125-145% flow after 5 drops of the table in 3 seconds	ASTM C1437
1 day compressive strength	24 MPa	ASTM C109
3 day compressive strength	35 MPa	ASTM C109
56 day compressive strength	60 MPa	ASTM C109

.”

In the Special Provisions, Section 10-1.56, "HIGH STRENGTH NONSHRINK GROUT," subsection "MATERIALS," the third paragraph is revised as follows:

“Grout shall be formulated for minimum initial set time of 4 hours and minimum final set time of 6 hours at 21°C. Prior to use, the materials shall be stored in a cool, dry environment. Grout shall be free from chlorides and other corrosion-causing chemicals.”

INSTALLATION

Prior to transporting the spherical bushing ring bearings to the bridge site, the Contractor shall inspect each spherical bushing ring bearing at the storage location as specified in these special provisions. The Contractor shall furnish to the Engineer a spherical bushing ring bearing inspection report as specified in the working drawing and supplement.

Spherical bushing ring bearings shall be secured to shipping skids in a manner that assures protection during transportation, on-loading, and off-loading. Each skid shall be wrapped in moisture proof and dust proof covers.

Spherical bushing ring bearings damaged during loading, shipping, and installation shall be replaced by the Contractor at the Contractor's expense as specified in Section 6-1.02, "State-Furnished Materials," of the Standard Specification. No extension of time or compensation will be made for manufacturing, furnishing, testing, and installing replaced spherical bushing ring bearing.

Damage to the corrosion protection system shall be repaired to the satisfaction of the Engineer prior to installation.

A qualified representative of the manufacturer shall be present during installation of all spherical bushing ring bearings. Spherical bushing ring bearings shall be installed in accordance with the approved working drawings and supplement and the recommendations of the manufacturer's installation technician. The spherical bushing ring bearing manufacturer's installation technician shall certify to the Engineer that the approved installation procedures were followed. All certifications to the Engineer shall be in writing and shall be signed and dated by the manufacturer's installation technician.

The Contractor shall protect the pipe beam stainless steel surface during the installation of the spherical bushing ring bearings. No damage to the stainless steel surface shall be permitted.

The following requirements shall apply if the Contractor elects to use non-shrink grout to secure segmented anchor rings as shown on the plans:

Spherical bushing ring bearing segmented anchor rings shall be temporarily supported during grout operations. Temporary supports shall prevent the rotation or displacement of the bearing during grout operation. Temporary supports shall not inhibit the functioning of the spherical bushing ring bearing after grout has set. Temporary supports shall not restrict the movement at bridge joints due to temperature changes and shortening from prestressing forces. Materials for temporary supports within the limits for placing concrete shall conform to the requirements for form fasteners.

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Prior to the bearing grout being placed, the contact surfaces of previously cast concrete shall be cleaned by abrasive blast to clean the concrete and any exposed reinforcing steel, as necessary, and to remove all rust, paint, grease, asphalt or other foreign materials. A minimum of 3 mm of concrete shall be removed. Steel contact surfaces shall be cleaned by methods approved by the Engineer to remove all rust, paint, grease, or other foreign materials. Immediately prior to placing the grout, the surfaces shall be recleaned by air blasting, or by other approved means, as necessary to remove any debris that has accumulated during construction or after abrasive blast cleaning. Prior to grouting, all concrete contact surfaces shall be kept constantly wet for a period of 24-hours. The surface temperature of the areas to be covered shall be between 7°C and 32°C when the grout is placed. Methods proposed to heat said surfaces are subject to approval by the Engineer. The condition of the concrete contact surface shall be saturated surface-dry when the grout is placed.

Forms shall be nonabsorbent and watertight, and shall conform to the requirements of Section 51-1.05, "Forms," of the Standard Specifications. Forms shall extend 50 mm higher than the top surface of the grout to be placed.

The grout shall be pumped continuously and shall fill the entire space provided for grouting. Grout shall be continuously agitated until pumped. The Contractor shall provide injection and ejection vents with positive shut-offs. Grout shall be allowed to flow from the ejection vent until all entrapped air has been removed, at which time the vent shall be capped or otherwise closed.

Bearing grout shall be cured in accordance with the method specified in the approved working drawing and supplement. Immediately after placed, grout shall be wet cured by covering all the exposed grout with wet rags. Burlap shall not be used to cover the exposed grout surface. The grout surface shall be kept moist until final set. Following removal of damp rags, the grout shall be sprayed with two coats of curing compound (1) of Section 90-7.01B, "Curing Compound Method," of the Standard Specifications.

The Contractor shall provide a flow cone and cube molds with restraining plates onsite for field evaluation of bearing grout. Three 50 mm by 50 mm cubes shall be made by the Contractor for each 0.5 cubic meter of grout used. Restraining caps shall be provided for the cube molds in accordance with CRD-C-621-83. Store cubes at 21°C. Test reports for cubes shall be submitted to the Engineer for approval.

10-1.54b INSTALL SEISMIC JOINT (HINGE K)

Seismic joints shall consist of steel deck plates with friction groove pattern, channel assemblies, support plates, fast setting hydraulic cement concrete, elastomeric concrete, self-consolidating concrete, Trelleborg joint assembly, sealing elements, gutter, and anchorage components and shall be installed at Hinges KW & KE in conformance with the details shown on the plans, the provisions in Section 51, "Concrete Structures," of Standard Specifications, and these special provisions.

Attention is directed to "Cooperation" of these special provisions.

WORKING DRAWINGS

The Contractor shall submit working drawings in conformance with the provisions in "Working Drawings," of these special provisions, and the requirements specified herein.

Working drawings shall include the method, materials, equipment, and procedures for installation that the Contractor proposes to use.

Working drawing submittals shall include the following:

- A. Joint installation plans including methods, materials, equipment, sequence, lifting mechanisms and locations, details of temporary anchorage during setting, temperature adjustment devices, method for maintaining full contact between deck plates and support plates during and after installation, installation details at curbs, seal installation details, and other procedures that the Contractor proposes to use for installation of the seismic joints.
- B. Fast setting hydraulic cement concrete mix design and placement procedures. The Contractor's proposed fast setting hydraulic cement concrete mix design submittals shall be as specified in "Fast Setting Hydraulic Cement Concrete" in these special provisions.
- C. Elastomeric concrete technical information. Technical information shall be furnished from the manufacturer elastomeric concrete proposed for use in the work.

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- D. Self-consolidating concrete mix design and placement procedures. The Contractor's proposed self-consolidating concrete mix design submittals shall include test results for slump flow, slump flow time to a 500 mm diameter, stability of the concrete mixture, and compressive strengths at 7 and 28 days.
- E. Details and procedures of the mock-up construction to demonstrate self-consolidating concrete.
- F. Anchorage components including concrete blockout details and any additions or rearrangements of the reinforcing steel from that shown on the plans.
- G. Storage plans for manufacture storage, interim storage, and on-site storage details including temporary support for the seismic joints.

A supplement to the working drawings shall include the following:

- A. A seismic joint inspection report which includes the condition of seismic joint and any existing damages that may have occurred prior to the Contractor's receiving the seismic joint. If no damage is found, the Contractor shall include a statement in the inspection report to state that the seismic joint are in good conditions and acceptable for delivery and installation.

The Department will provide a copy of the approved working drawings for the seismic joints at Hinge K.

The final approval of the Contractor's mix design for self-consolidating concrete is contingent upon the successful mock-up construction as specified in "Demonstration Pours" herein.

MATERIALS

Attention is directed to "Welding" of these special provisions. Welding of seismic joint shall conform to AWS D1.5.

Structural steel, including anchor studs, shall conform to "Steel Structures" of these special provisions. Structural steel shall conform to the requirements of ASTM Designation: A 709M, Grade 345. High strength bolts shall be galvanized and conform to the requirements of ASTM Designation: A 449, Type 1. Nuts and washers shall conform to the requirements in Section 75, "Miscellaneous Metal," of the Standard Specifications.

Concrete for filling blockouts shall conform to the requirements in "Fast Setting Hydraulic Cement Concrete," "Elastomeric Concrete," and "Self-Consolidating Concrete" of these special provisions.

Neoprene sheet and elastomeric washers shall conform to Section 51-1.145, "Strip Waterstops," of the Standard Specifications.

Sealing elements shall conform to the requirements in "Sealing Elements" of these special provisions.

Reinforcing steel shall conform to the provisions in "Reinforcement" of these special provisions.

Gutter shall conform to the provisions in "Miscellaneous Metal (Bridge)" of these special provisions.

Fast Setting Hydraulic Cement Concrete

Fast setting hydraulic cement concrete shall conform to the provisions in Section 51, "Concrete Structures," of the Standard Specifications and these special provisions.

Fast Setting Hydraulic Cement Concrete (FSHCC) shall consist of hydraulic cement, conforming to the requirements below, aggregate, and any admixtures used. The combined aggregate grading used in FSHCC shall be any of the maximum size grading limits specified in Section 90-3.04, "Combined Aggregate Gradings," of the Standard Specifications. The minimum 3 hour compressive strength shall be 14 MPa and the minimum 56 day compressive strength shall be 35 MPa.

FSHCC shall conform to the provisions in Section 90, "Portland Cement Concrete," of the Standard Specifications, except that any cement meeting the requirements specified in ASTM Designation: C 219 and conforming to the following requirements may be used.

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TEST DESCRIPTION	REQUIREMENT	TEST METHOD
Contraction in Air	0.053 %, max.	California Test 527, W/C Ratio = 0.39 ± 0.010
Mortar Expansion in Water	0.04 %, max.	ASTM Designation: C 1038
Soluble Chloride*	0.05 %, max.	California Test 422
Soluble Sulfates*	0.30 %, max.	California Test 417
Thermal Stability	90 %, min.	California Test 553
Compressive Strength @ 3 days	17 MPa	ASTM Designation: C 109

*Test is to be done on a cube specimen, fabricated in conformance with the requirements in ASTM Designation: C 109, cured at least 14 days and then pulverized to 100% passing the 300-mm sieve

Type C accelerating chemical admixtures conforming to the provisions in Section 90-4, "Admixtures," of the Standard Specifications may be used. In addition to the admixtures listed on the Department's current list of approved admixtures, citric acid or borax may be used if requested in writing by the cement manufacturer and a sample is submitted to the Engineer. Chemical admixtures, if used, shall be included in the testing for requirements listed in the table above.

Penetration requirements in Section 90-6.06, "Amount of Water and Penetration," of the Standard Specifications shall not apply.

The Contractor shall submit mix designs that include the following:

- A. Compressive Strength, at 3 hours, 24 hours, 3 days, 7 days, 28 days and 56 days.
- B. Proposed aggregate grading.
- C. Mix proportions of hydraulic cement, aggregate and water.
- D. Types and amounts of chemical admixtures, if used.
- E. Initial and Final set time of a 300mm x 300mm x 138mm concrete block curing at 21 ± 5°C ambient temperature.
- F. Range of ambient temperatures over which the mix design will achieve the required minimum 3 hour and 56 day compressive strengths.

At the Contractor's option, more than one mix design may be submitted to account for ambient temperature variations that exceed the ranges specified herein.

FSHCC shall be proportioned and placed by volumetric continuous mixers capable of proportioning cement, water, aggregate and admixtures by volume. Identifying numbers or letters of volumetric continuous mixers shall be located on the front or rear of the equipment. Calibration of the volumetric continuous mixers shall be performed demonstrating that the equipment is capable of delivering the proportioned concrete material per the approved mix design. The volumetric continuous mixers shall produce a log of production data, at no less than 20 minute intervals, showing the proportions of cement, aggregate and water dispatched.

The Contractor shall furnish aggregate moisture determinations per California Test Method 223. During actual placement the percent fine aggregate moisture content to be used shall be limited to a maximum value of 2% more than moisture content determined during calibration.

The aggregate and cement proportioning calibrations shall be determined by weight.

The first 3 volumetric continuous mixers to be used during actual production at the site shall be loaded with all material at least 4 hours prior to placement. A trial mix to be disposed of by the Contractor shall be batched for the Engineer's inspection. The mix size shall be from a minimum 20 second operation of the mixer. At 3 hours after discharge the batched material shall be visibly hard indicating at least a final set.

After the calibration and acceptance of the use of a volumetric continuous mixer, water to account for any allowable change in fine aggregate moisture content may be adjusted just prior to placement. Only the water reducer admixtures, if used, may be adjusted during actual placement.

A Certificate of Compliance in conformance with the provisions in Section 6-1.07, "Certificates of Compliance," of the Standard Specifications shall be furnished with each delivery of aggregate, cement, and admixtures used for calibration tests and shall be submitted to the Engineer with a certified copy of the mass of each delivery.

The concrete curing method shall be as recommended by the manufacturer of the cement and as approved by the Engineer.

The Contractor has the option to use the approved Fast Setting Hydraulic Cement Concrete mix design that will be used for the Seismic Joint at Hinge A.

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Elastomeric Concrete

Elastomeric concrete shall be a polymer binder material mixed with fiberglass fibers and natural sand. The polymer binder shall be polyurethane, or epoxy, or a combination of epoxy and polyurethane. Elastomeric concrete shall formulated to be flexible, have high load bearing capacity and be resistant to spalling and cracking.

The Contractor shall furnish and install elastomeric concrete as shown on the plans and in conformance with these special provisions.

Elastomeric concrete shall be mixed, placed, and cured as recommended by the manufacturer, and as approved by the Engineer. A representative of the elastomeric concrete manufacturer shall be present during mixing and placement of elastomeric concrete.

The elastomeric concrete (binder and aggregate) shall have the following physical properties:

ELASTOMERIC CONCRETE (BINDER AND AGGREGATE)		
PROPERTY	REQUIREMENT	TEST METHOD
* Modulus of Elasticity	2000 MPa, maximum, at 24 hours at 21°± 2°C followed by 13 days at 38°± 2°C	California Test 551
* Compressive Stress	7.0 MPa, minimum, at 24 hours at 21°± 2°C followed by 13 days at 38°± 2°C	California Test 551 (Machine crosshead speed @ 1.3mm per minute.)
* Impact	4 intervals with no cracks, minimum	Ball Drop*
PCC Saturated Surface-Dry Bond Strength	2.1 MPa, minimum at 24 hours and 21 ± 1°C	California Test 551
* Test specimen is a cast disk 63.5 mm in diameter and 9.5 mm thick. Specimens are conditioned four hours at test temperatures of: 40 C (± 2 C), 20 C (± 2 C), 10 C (± 2 C), & 0 C (± 2 C). A 0.45 kg steel ball is dropped onto the center of the specimen through a plastic guiding tube from an initial height of 1500 mm. The drop height is increased by 150 mm intervals.		

The polymer binder shall have the following physical properties:

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POLYMER BINDER		
PROPERTY	REQUIREMENT	TEST METHOD
Tensile Strength	3.45 MPa, minimum, at 7 days at 38°± 1°C	ASTM D 412
	3.45 MPa s , minimum, at 24 hours at 21°± 1°C followed by 13 days at 70°± 2°C	ASTM D 412
Elongation	180 percent, minimum, at 7 days at 38°± 1°C	ASTM D 412
	180 percent, minimum, at 24 hours at 21°± 1°C followed by 13 days at 70°± 2°C	ASTM D 412
Hardness, Type D Durometer, points	45, minimum, at 7 days at 38°± 1°C	ASTM D 2240
	45 points, minimum, at 24 hours at 21°± 1°C followed by 13 days at 70°± 2°C	ASTM D 2240

Elastomeric concrete shall not be used until the Engineer has approved the elastomeric concrete submittal in writing, has inspected the materials, and the manufacturer's technical representative has instructed the Contractor and Engineer in the surface preparation, mixing and application of the elastomeric concrete.

At a minimum, cleaning of the contact surfaces of existing concrete shall be accomplished by abrasive blast cleaning. The concrete and any exposed reinforcing steel shall be free of all rust, paint, grease, asphalt or other foreign materials. Steel contact surfaces shall be cleaned by methods approved by the Engineer to remove all rust, paint, grease, or other foreign materials. Immediately prior to placing the elastomeric concrete, the surfaces shall be re-cleaned by sweeping and pressure jetting, or by other approved means, as necessary to remove any debris which has accumulated during construction or after abrasive blast cleaning. The surface temperature of the areas to be covered shall be within the manufacturer's recommendations when the elastomeric concrete is placed. Methods proposed to heat said surfaces are subject to approval by the Engineer.

The Contractor has the option to use the approved Elastomeric Concrete mix design that will be used for the Seismic Joint at Hinge A.

Self-Consolidating Concrete

Self-consolidating concrete shall be flowing concrete capable of spreading without segregation to a level state without the use of internal or external vibrators. Self-consolidating concrete shall conform to "Concrete Structures" of these special provisions and the requirements specified herein.

In addition to the chemical admixtures listed on the Department's current list of approved brands of admixtures that may be used, the Contractor may use a viscosity modifying admixture made by a chemical admixture manufacturer for the purpose of producing a self-consolidating concrete. The use of the viscosity modifying admixture shall be in accordance with the manufacturer's recommendations. The combined aggregate grading shall be any of the four maximum size grading limits specified in Section 90-3.04, "Combined Aggregate Gradings," of the Standard Specifications.

The Contractor's proposed mix design shall be pre-qualified for use in the demonstration pour by trial batch reports in conformance with Section 90-9 "Compressive Strength," of the Standard Specifications except that the consistency shall

CONTRACT CHANGE ORDER NO. 216 SUPPL. NO. ---
ROAD 04-SF-80-13.2, 13.9 SHEET 12 OF 55 SHEETS
FEDERAL NO.(S) _____ CONTRACT NO.: 04-0120F4

be measured by the slump flow test and bleeding shall be measured by ASTM Designation, C 232, Method A. The slump flow test shall conform to the requirements in ASTM Designation: C 143 except the following:

- A. The cone shall be filled in one lift without rodding. The cone shall be placed on a flat, moist, nonabsorbent, rigid base plate that is at least 700mm x 700 mm. The base plate shall have concentric circle marks showing 200-mm and 500-mm diameter circles.
- B. Measure the time it takes for the concrete to reach 500 mm diameter circle. Report this as "Slump Flow Time" to the nearest 0.5 seconds.
- C. After the concrete ceases to flow, measure the diameter in two perpendicular directions. Report this as "Slump Flow" to the nearest 5 mm.
- D. Visually inspect the concrete spread to observe the distribution of coarse aggregate throughout the spread. Measure and record the radial width of any mortar ring without coarse aggregate. If no mortar ring without coarse aggregate exists, report as zero.

Consistency of the self-consolidating concrete shall be determined using the slump flow test method. The self-consolidating concrete shall have a minimum slump flow of 550 mm without segregation. The slump flow shall be selected by the Contractor based on the concrete constituent materials and placement procedures as specified in the approved working drawings.

The percent bleeding shall not exceed 1.5% when determined by ASTM Designation, C 232, Method A except that the container shall be filled in one lift without rodding.

The Contractor has the option to use the approved Self-Consolidating Concrete mix design that will be used for the Seismic Joint at Hinge A.

Amendment to California Test 540

The following amendments to California Test 540, "Method of Making, Handling, and Storing Concrete Compressive Test Specimens in the Field," shall only apply to self-consolidating concrete. The Items "a" and "b" under "2. Test Specimen Fabrication" of "C. Preparation of Test Specimens" of California Test 540 shall be amended to read:

- a. Place test molds on a firm, flat surface to prevent distortion of the bottom surface. When more than one specimen is to be made from the same batch, make all specimens simultaneously. Fill the mold in one lift with a circular motion of the scoop to distribute the concrete evenly in the mold. Pat sides of the mold lightly by hand, or jig by rocking the mold from side to side.
- b. After the sides of the mold have been patted, strike off the surface of the concrete even with the top edge of the mold. Wipe the sides of the mold free of excess concrete and press the lid on to prevent evaporation.

Demonstration Pours

Prior to placing self-consolidating concrete, the Contractor shall construct at least one mock-up to demonstrate that the concrete will flow for the distance required by the proposed construction procedure. The placement of the self-consolidating concrete in the mock-up shall be witnessed by the Engineer.

The mock-up shall have a depth and length equal to that of the blockout detailed on the plans. The width of the mock-up shall be selected by the Contractor based on the distance that the concrete is required to flow according to the proposed construction procedure but shall not be less than 2 meters. The mock-up shall include concrete, reinforcement, and all concrete embedments as shown on the plans and approved working drawings, except that all reinforcement and embedments shall stop 300 mm from both longitudinal ends of the blockout so that concrete can be removed later and tested for segregation. The mock-up shall be covered with removable 27 mm plus or minus 3 mm thick transparent plastic top plate. The Contractor may submit a proposal for approval using multiple transparent plastic top plates to cover the mock-up instead of a single top plate provided that the plates are adequately tied together and are watertight at the vertical edges where joined together as determined by the Engineer. The plastic top plate shall have vent holes of the same size and spacing as those in the support plate.

Acceptance criteria of the self-consolidating concrete shall be as follows:

- A. Self-consolidating concrete shall flow under the plastic top plate and shall completely fill the void in the blockout.

CONTRACT CHANGE ORDER NO. 216 SUPPL. NO. ---
ROAD 04-SF-80-13.2, 13.9 SHEET 13 OF 55 SHEETS
FEDERAL NO.(S) _____ CONTRACT NO.: 04-0120F4

- B. After consolidation against the plastic top plate is verified, the Contractor shall remove the plastic top plate and shall take a sample of at least 45 kg of concrete from each end of the blockout to check for segregation by comparing coarse aggregate content with mix design values. The coarse aggregate content of each sample shall be determined using California Test 529 and shall not differ from the mix design value by more than 110 kg/m³.
- C. The percent bleeding shall not exceed 1.5% when determined by ASTM Designation, C 232, Method A except that the container shall be filled in one lift without rodding.

If the concrete fails to meet any of the acceptance criteria as determined by the Engineer, additional mock-ups shall be constructed at the Contractor's expense.

The mock-up shall not be part of the permanent structure and shall become the property of the Contractor. The mock-up shall be removed from the work site and shall be disposed of in conformance with the provisions in Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications.

The Contractor has the option to perform one demonstration pour that reflects the characteristics of both Hinge A and Hinge K.

Drill and Bond Dowels

Drilling and bonding seismic joint anchors shall conform to the details shown on the plans, the provisions in Section 83-2.02D(1), "General," of the Standard Specifications, and these special provisions.

Seismic joint anchors shall be State furnished.

Sealing Elements

Sealing elements shall conform to the details shown on the plans and shall be continuous without splices.

Silicone sealing elements shall be 2 component silicone sealant that meets the requirements of Type A and AL seal in Section, 51-1.12F(3), "Materials and Installation," of the Standard Specifications.

The expansion joint system, furnished by the Department, will be a Trelleborg 2400 modified as shown on the plans and manufactured by the following manufacturer:

Trelleborg Izarra, S.A.U.
C/ Rio Manzanares, Numero 20-22
Poligono Industrial Jose Luis Velasco
28500 Arganda del Rey (Madrid) Spain
Phone: +34 918 701 700
Fax: +34 918 703 465
<http://www.trelleborg.com/transflex/>

Contact: Laura Ruiz and Juan Carlos Minaya



The Trelleborg 2400 expansion system shall be installed per manufacturer's recommendations.

INSTALLATION

Each seismic joint shall be installed in accordance with the approved working drawings.

The maximum gap between sliding surfaces shall not exceed 2 mm in any unloaded position.

Each seismic joint deck plate shall be installed such that there is no offset in alignment between adjacent plates along the edge surface where strip seal is to be placed.

Each installed seismic joint shall match the finished roadway profile and grades as shown on the plans.

The Contractor shall protect the seismic joint from damage. The Contractor shall protect concrete blockouts and support systems from damage and construction traffic prior to installation of the seismic joints.

Sealing elements not fully bonded to the steel extrusions shall be replaced by the Contractor at the Contractor's expense.



DIST.	COUNTY	ROUTE	KILOMETER TOTAL PROJECT	POST NO.	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K550A	806	806

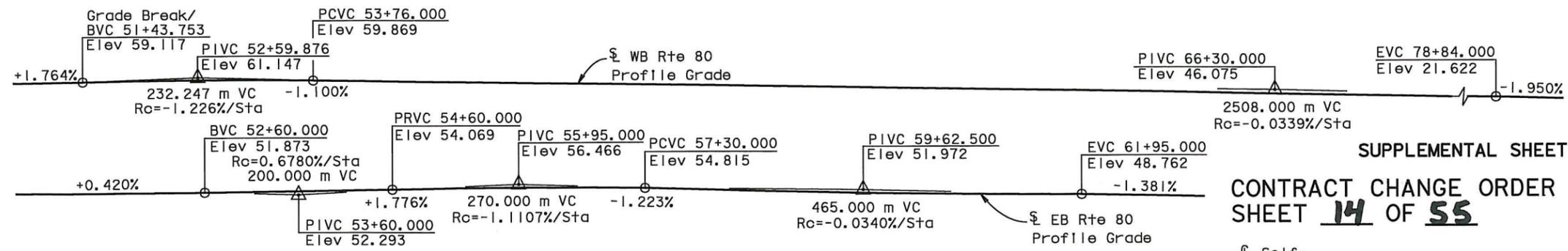
REGISTERED ENGINEER - CIVIL
01/20/2012

PLANS APPROVAL DATE

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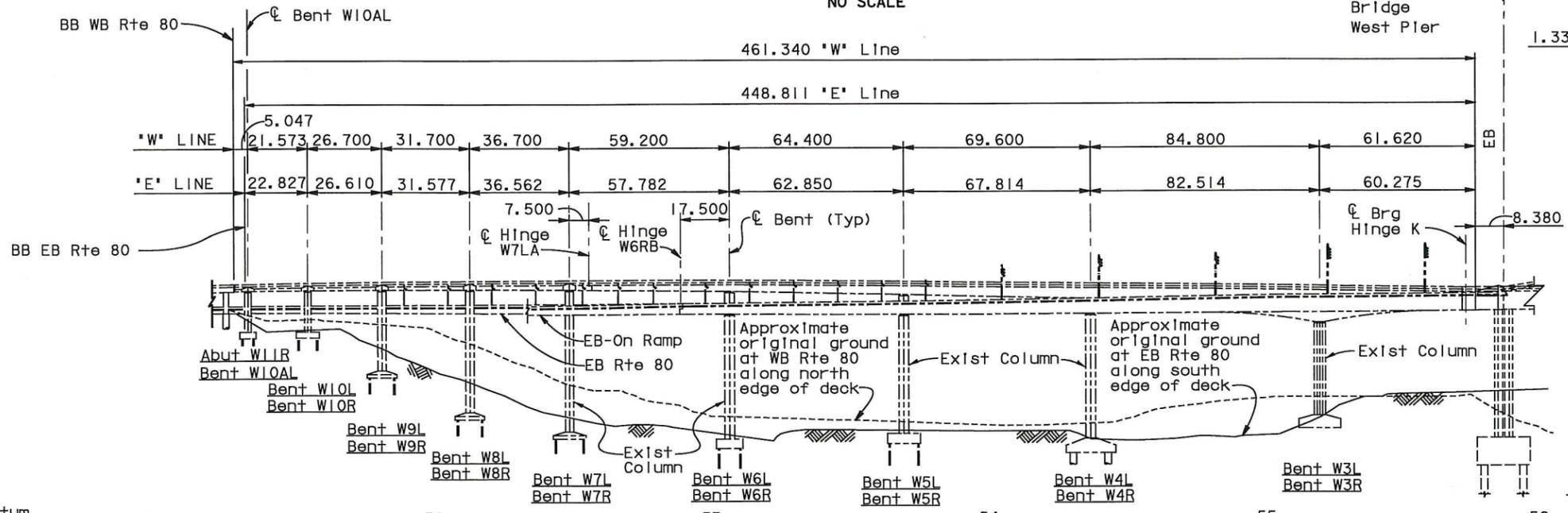
T.Y. LIN / MOFFATT & NICHOL
TWO HARRISON STREET
SAN FRANCISCO, CA 94105

1166 of 1204

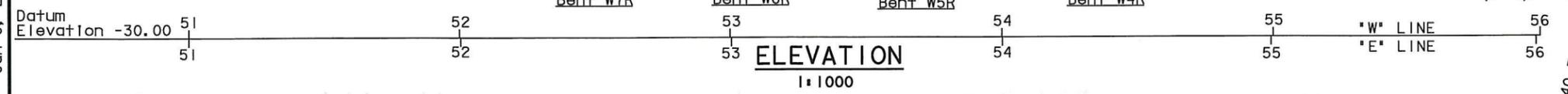


SUPPLEMENTAL SHEET
CONTRACT CHANGE ORDER NO. 216
SHEET 14 OF 55

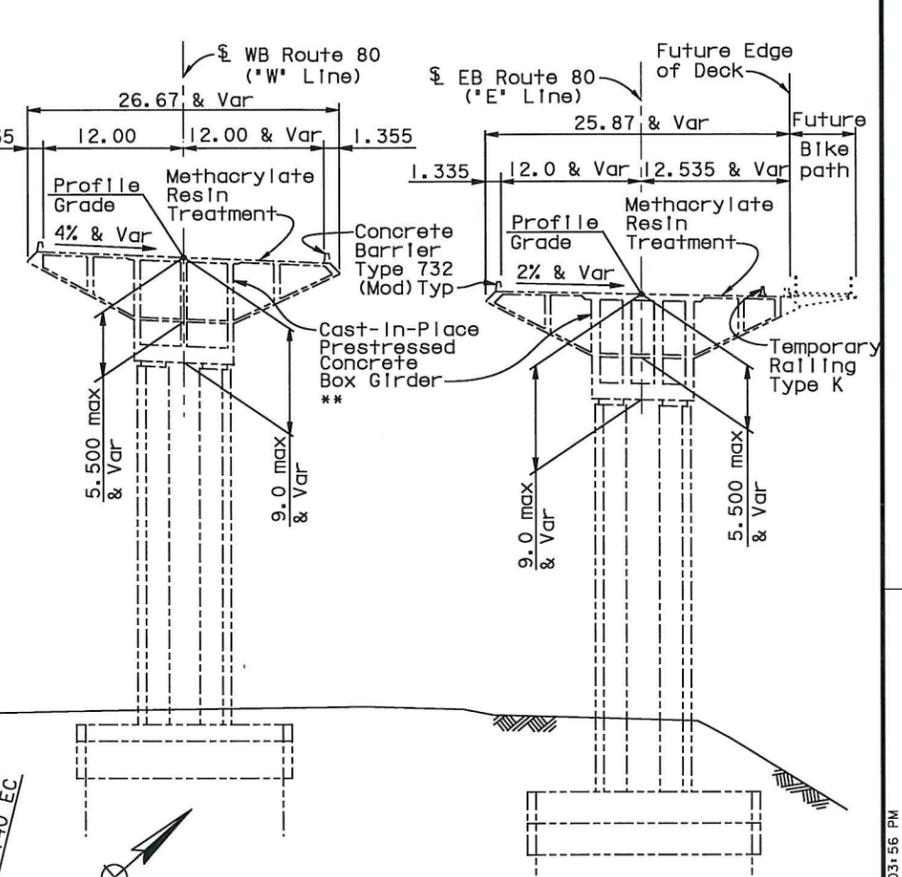
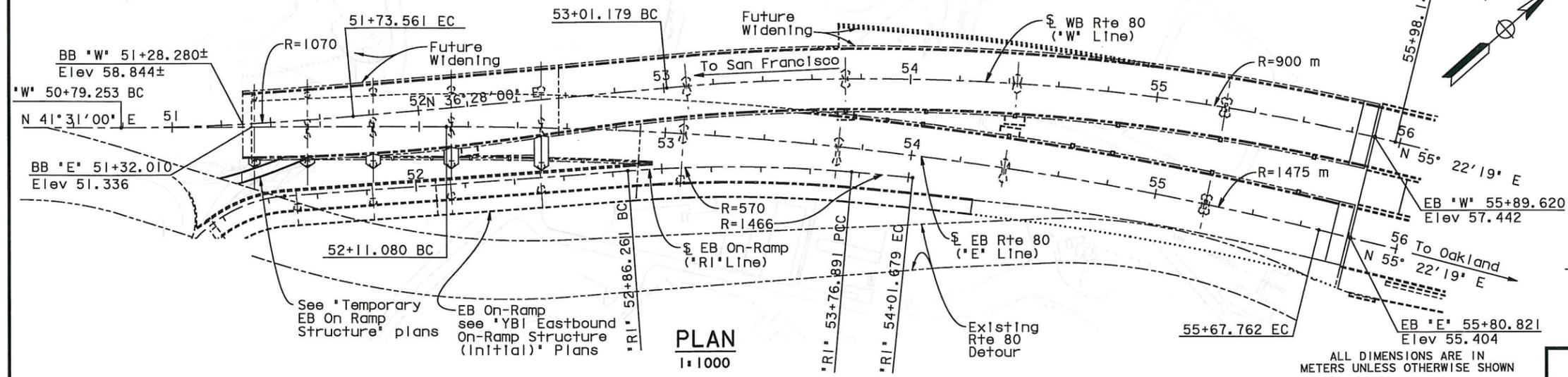
PROFILE GRADE
NO SCALE



ELEVATION
1:1000



PLAN
1:1000



TYPICAL SECTION
(Bent W3L & W3R Shown)
1:300

** Note WB Superstructure is a Cast-In-Place conventionally reinforced concrete box girder from Bent W10AL to Hinge W7LA

Notes:
For approximate bridge quantities see "Foundation Plan" sheet.
For Index to Bridge Plans see "Structure Plan" sheet.

--- Indicates existing structures.

⊙ Standard Plan Sheet No.
⊙ Detail No.

DESIGN OVERSIGHT ADE AKINSANYA		DESIGN BY Desai	CHECKED Jain	LOAD FACTOR DESIGN	LIVE LOADING HS20-44 AND ALTERNATIVE AND PERMIT DESIGN LOAD	BRIDGE NO. 34-0006 L/R
SIGN OFF DATE		DETAILS BY van Ryn/Zuochi/Mai	CHECKED Jain	LAYOUT BY Desai	CHECKED Alogaraz	KILOMETER POST 12.8
Rev. Date 5-16-08		QUANTITIES BY Liao	CHECKED E. Nichol	SPECIFICATIONS BY J. Ely	PLANS AND SPECS COMPARED Jain	DISREGARD PRINTS BEARING EARLIER REVISION DATES

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Jal Birdy
PROJECT ENGINEER

CU 04
EA 0120F1

SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT		YBI TRANSITION STRUCTURES - HINGE K		GENERAL PLAN	
REVISION DATES (PRELIMINARY STAGE ONLY)		SHEET		OF	
		KIA		209	

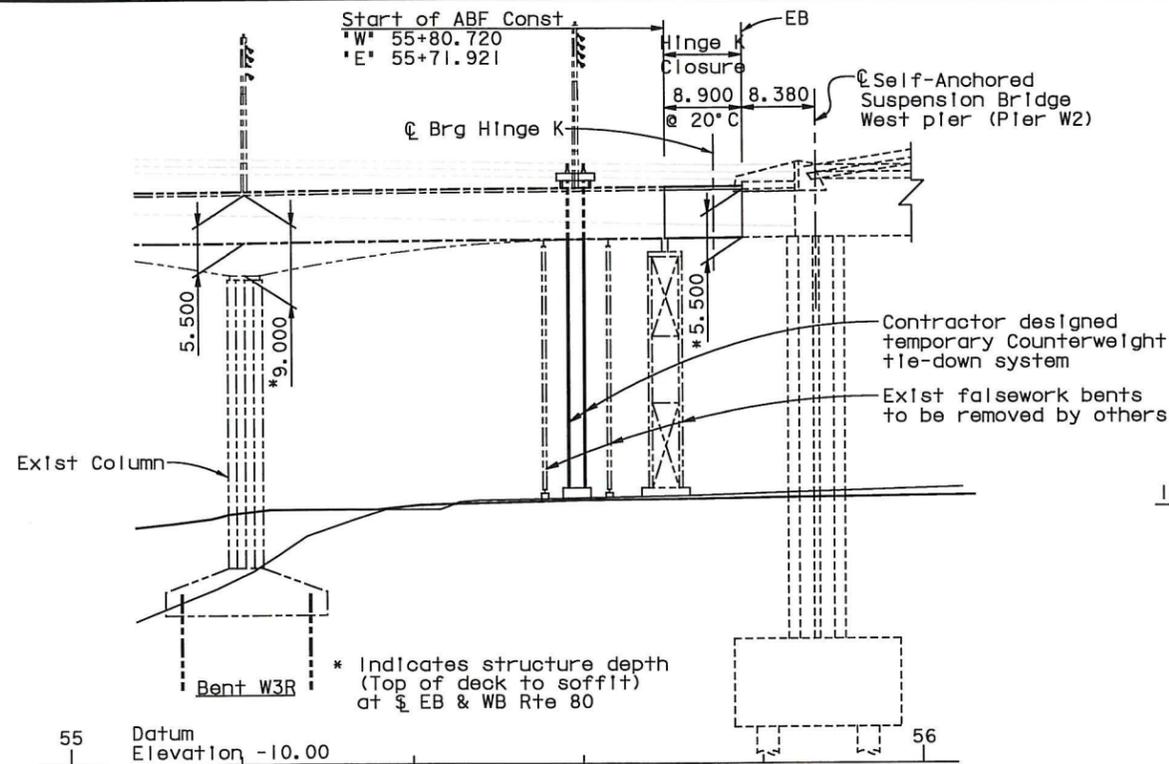


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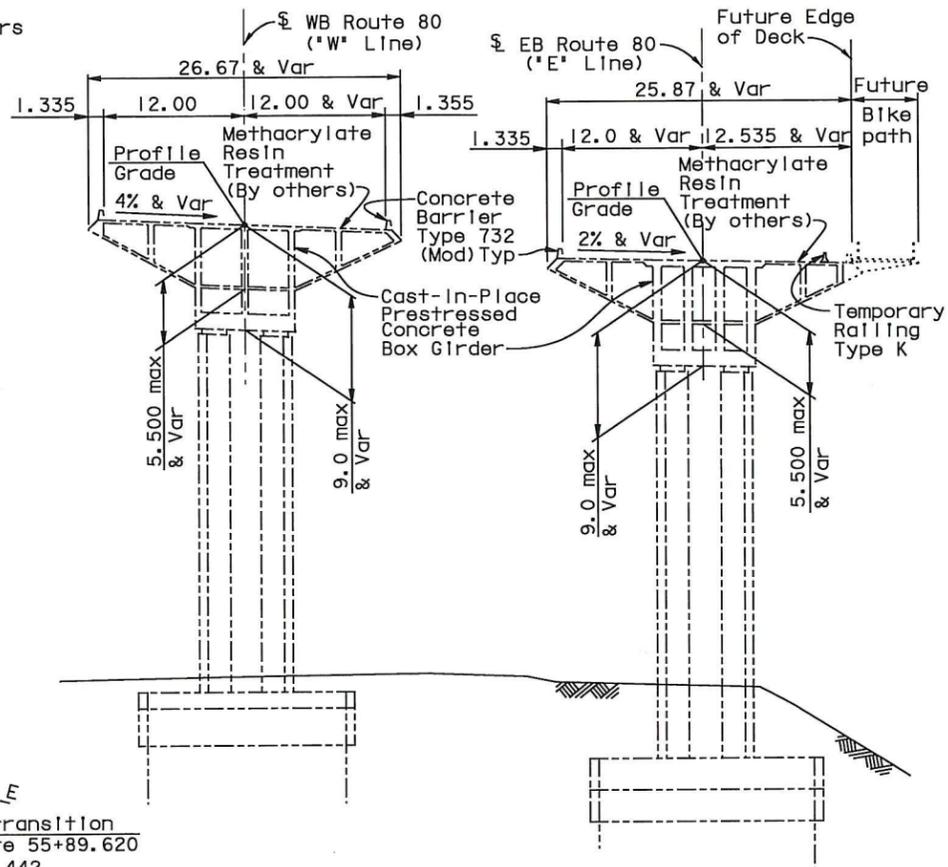
REGISTERED ENGINEER - CIVIL
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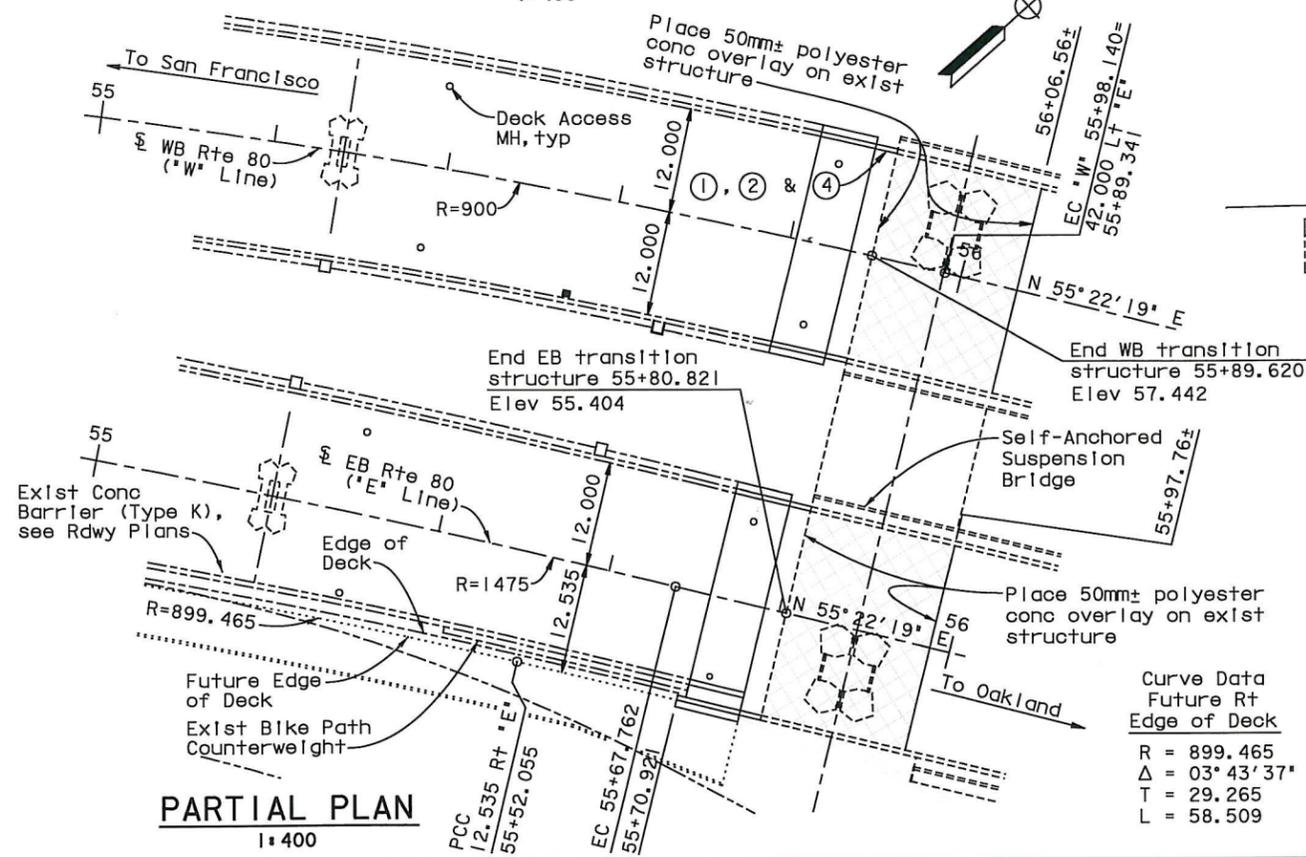
PARTIAL ELEVATION
 (EB Structure shown, WB Structure similar)
 1:400



TYPICAL SECTION
 (Bent W3L & W3R Shown)
 1:300

Notes:
 ① Paint 'YBI WB TRANSITION STRUCTURE'
 ② Paint 'Bridge number 34-0006 L'
 ④ Paint hinge number
 For General Notes see 'Deck Contours' sheet.
 For Approximate Bridge Quantities see 'Foundation Plan' sheet.
 --- Indicates existing structures
 (Symbol) Standard Plan Sheet No.
 (Symbol) Detail No.

Curve Data *W* Line		Curve Data *E* Line	
R = 900.000	Δ = 18° 54' 18"	R = 1475.000	Δ = 13° 51' 19"
T = 149.842	L = 296.961	T = 179.215	L = 356.682



PARTIAL PLAN
 1:400

INDEX TO BRIDGE PLANS

SHEET NO.	TITLE
K1A	GENERAL PLAN
K5A	STRUCTURE PLAN
K9A	DECK CONTOURS
K13A	FOUNDATION PLAN
K118A	HINGE K CLOSURE DETAILS NO. 1
K119A	HINGE K CLOSURE DETAILS NO. 2
K120A	HINGE K CLOSURE DETAILS NO. 3
K121A	HINGE K CLOSURE DETAILS NO. 4
K122A	HINGE K CLOSURE DETAILS NO. 5
K123A	HINGE K CLOSURE DETAILS NO. 6
K124A	HINGE K CLOSURE DETAILS NO. 7
K124AA	HINGE K CLOSURE DETAILS NO. 7A
K125A	HINGE K CLOSURE DETAILS NO. 8
K126A	HINGE K CLOSURE DETAILS NO. 9
K127A	HINGE K CLOSURE DETAILS NO. 10
K128A	HINGE K CLOSURE DETAILS NO. 11
K129A	HINGE K CLOSURE DETAILS NO. 12
K130A	HINGE K CLOSURE DETAILS NO. 13
K131A	HINGE K CLOSURE DETAILS NO. 14
K132A	HINGE K CLOSURE DETAILS NO. 15
K148A	HINGE KE & KW EXPANSION JOINT DETAILS NO. 1
K149A	HINGE KE & KW EXPANSION JOINT DETAILS NO. 2
K150A	HINGE KE & KW EXPANSION JOINT DETAILS NO. 3
K151A	HINGE KE & KW EXPANSION JOINT DETAILS NO. 4
K152A	HINGE KE & KW EXPANSION JOINT DETAILS NO. 5
K153A	HINGE KE & KW EXPANSION JOINT DETAILS NO. 6
K154A	HINGE KE & KW EXPANSION JOINT DETAILS NO. 7
K155A	HINGE KE & KW EXPANSION JOINT DETAILS NO. 8
K156A	HINGE KE & KW EXPANSION JOINT DETAILS NO. 9
K156AA	HINGE KE & KW EXPANSION JOINT DETAILS NO. 9
K156BA	HINGE K PIPE BEAM DUST COVER DETAILS
K159A	FUTURE BIKE PATH DETAILS NO. 1
K161A	FUTURE BIKE PATH DETAILS NO. 2
K166A	CONCRETE BARRIER TYPE 732 (MOD)

SUPPLEMENTAL SHEET
 CONTRACT CHANGE ORDER NO. 216
 SHEET 15 OF 55

DESIGN OVERSIGHT ADE AKINSANYA	DESIGN BY Desai	CHECKED Jain
SIGN OFF DATE	DETAILS BY van Ryn/Zucchi/Mal	CHECKED Jain
Rev. Dates 5-18-98	QUANTITIES BY Liao	CHECKED E. Nichol

BRIDGE NO. 34-0006 L/R	YBI TRANSITION STRUCTURES - HINGE K
KILOMETER POST 12.8	
STRUCTURE PLAN	

DESIGNED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	PROJECT ENGINEER Jal Birdy
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CU 04 EA 0120F1	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET K5A	OF 209
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Jan 6, 2012

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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K558A	806

REGISTERED ENGINEER - CIVIL
 A.L. ELY
 No. 18880
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

REGISTRATION NO. 18880
 EXPIRES 6-30-13

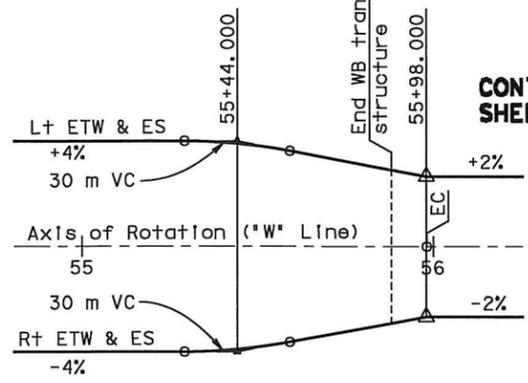
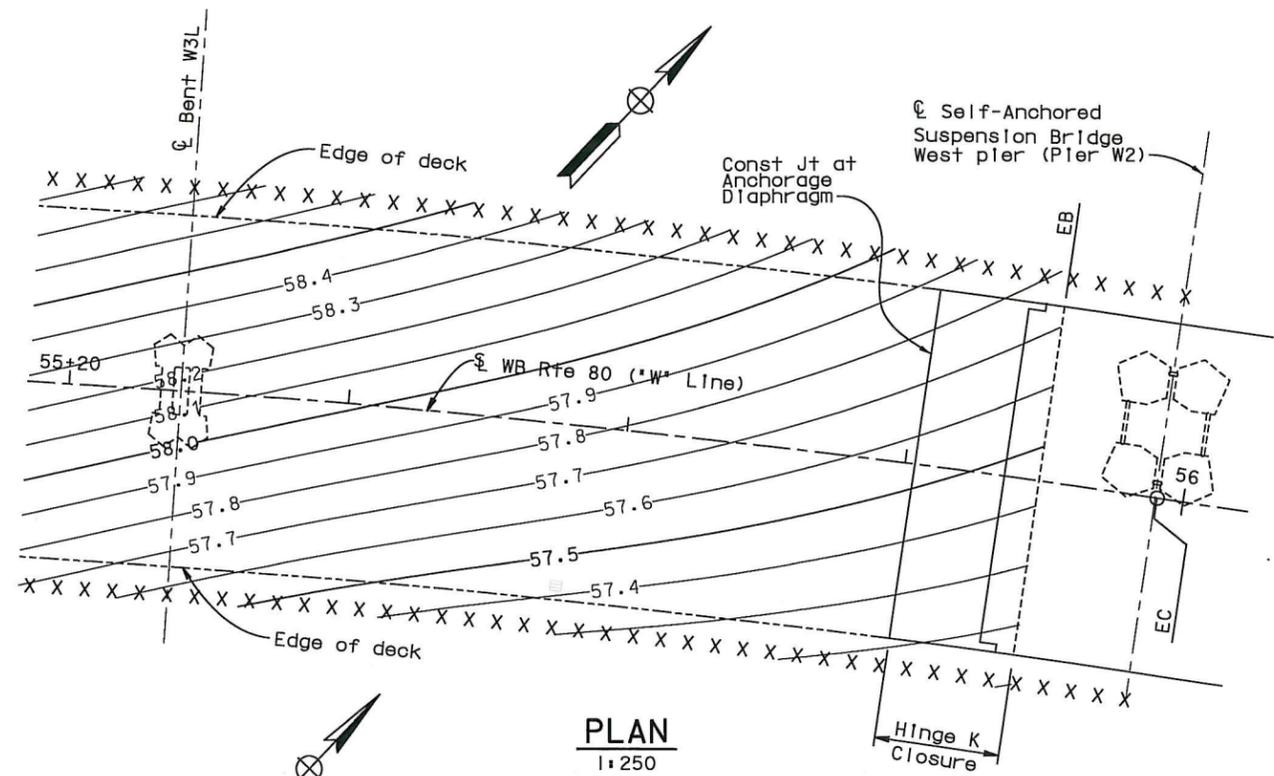
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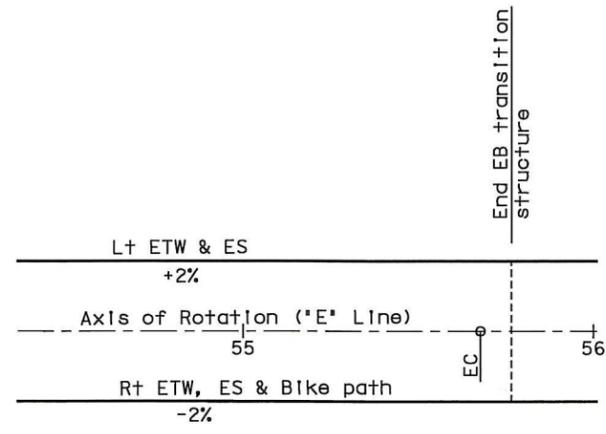
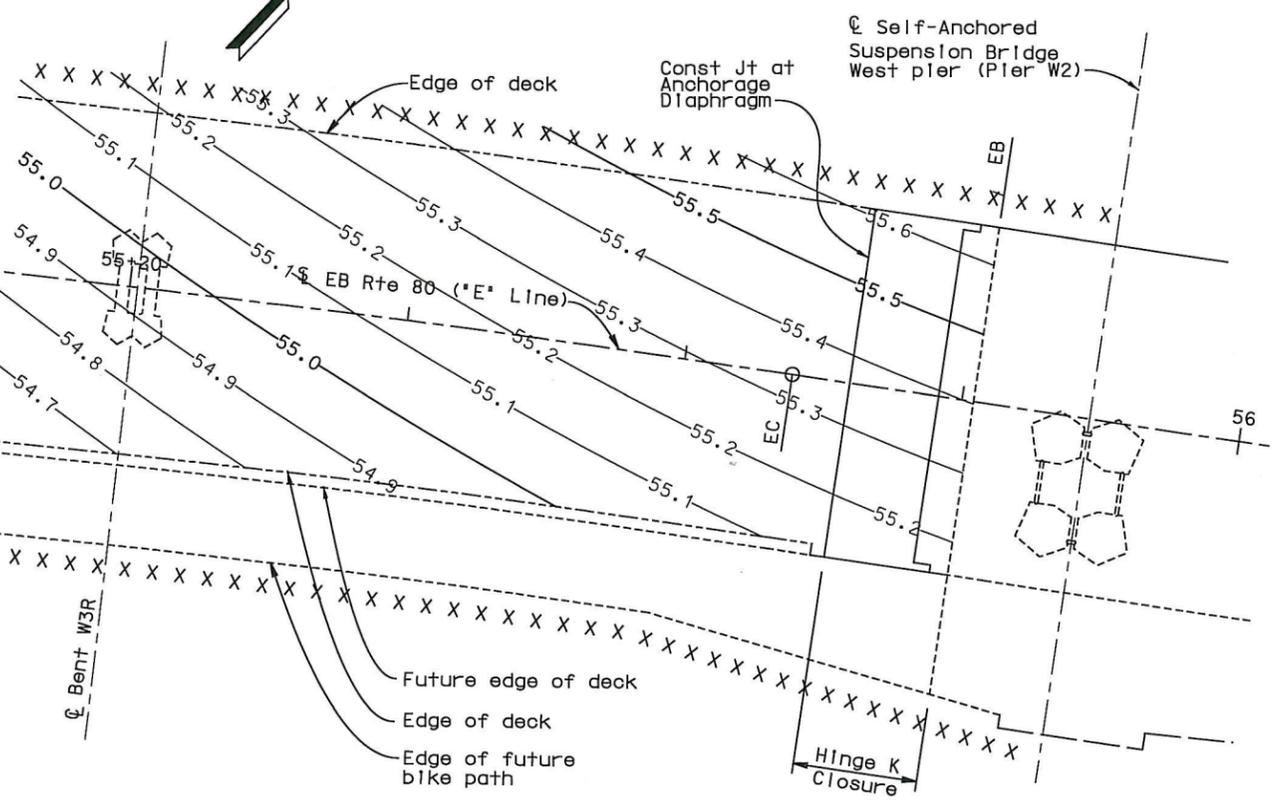
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1166s02 of 1204

CONTRACT CHANGE ORDER NO. 216
 SHEET 16 OF 55



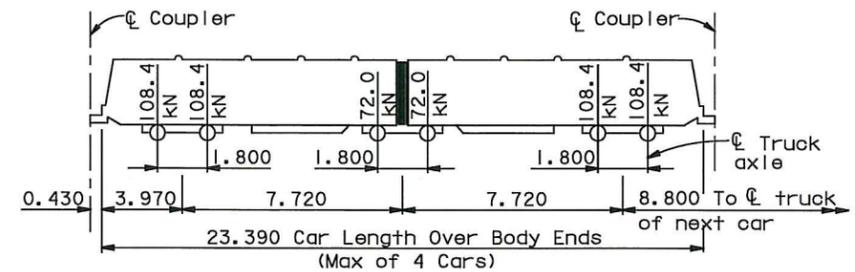
WESTBOUND SUPERELEVATION DIAGRAM
 No Scale



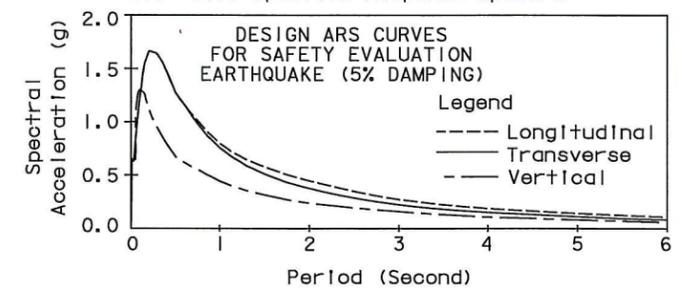
EASTBOUND SUPERELEVATION DIAGRAM
 No Scale

GENERAL NOTES

Load Factor Design
 Design: Caltrans Design Specifications-April 2000 (LFD) (1996 AASHTO with Interims and revisions by Caltrans)
 Dead Load: Includes 1675 N/m2 for future wearing surface on roadbed
 Live Load: HS20-44 and alternative and permit design load
 Bike Path Live Load: 4000 N/m2
 Future Mass Transit Loading:



Seismic Loading: Refer to project specific seismic design criteria for San Francisco Oakland Bay Bridge East Span Seismic Safety Project Dated 01-08-00 See 'Site Specific Response Spectra'



SITE SPECIFIC RESPONSE SPECTRA

Reinforced Concrete: Fy = 420 MPa
 F'c = 46 MPa
 N = 8

Transverse Deck Slabs (Working Stress Design)
 Fs = 140 MPa
 Fc = 8 MPa
 N = 10

NOTES:
 Contours shown do not include camber.
 X indicates 2 meter interval along 'W' or 'E' Line
 Contour interval shown is 0.1 m.

Jan 6, 2012

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DESIGN OVERSIGHT
 ADE AKINSANYA

DESIGN	BY Alogaz	CHECKED Degg
DETAILS	BY van Ryn/Zucchi/Mai	CHECKED Jain
QUANTITIES	BY Liao	CHECKED E. Nichol

PREPARED FOR THE
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

Jal Birdy
 PROJECT ENGINEER

BRIDGE NO.	34-0006 L/R
KILOMETER POST	12.8

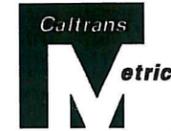
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EAST SPAN SEISMIC SAFETY PROJECT
YBI TRANSITION STRUCTURES - HINGE K
DECK CONTOURS

SIGN OFF DATE
 Rev. Date 5-18-98



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	K9A	209



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K562A	806

LEGEND
 [Symbol] Denotes bottom of footing elevation
 [Symbol] Denotes existing structure

A.L. Ely
 REGISTERED ENGINEER - CIVIL
 01/20/2012

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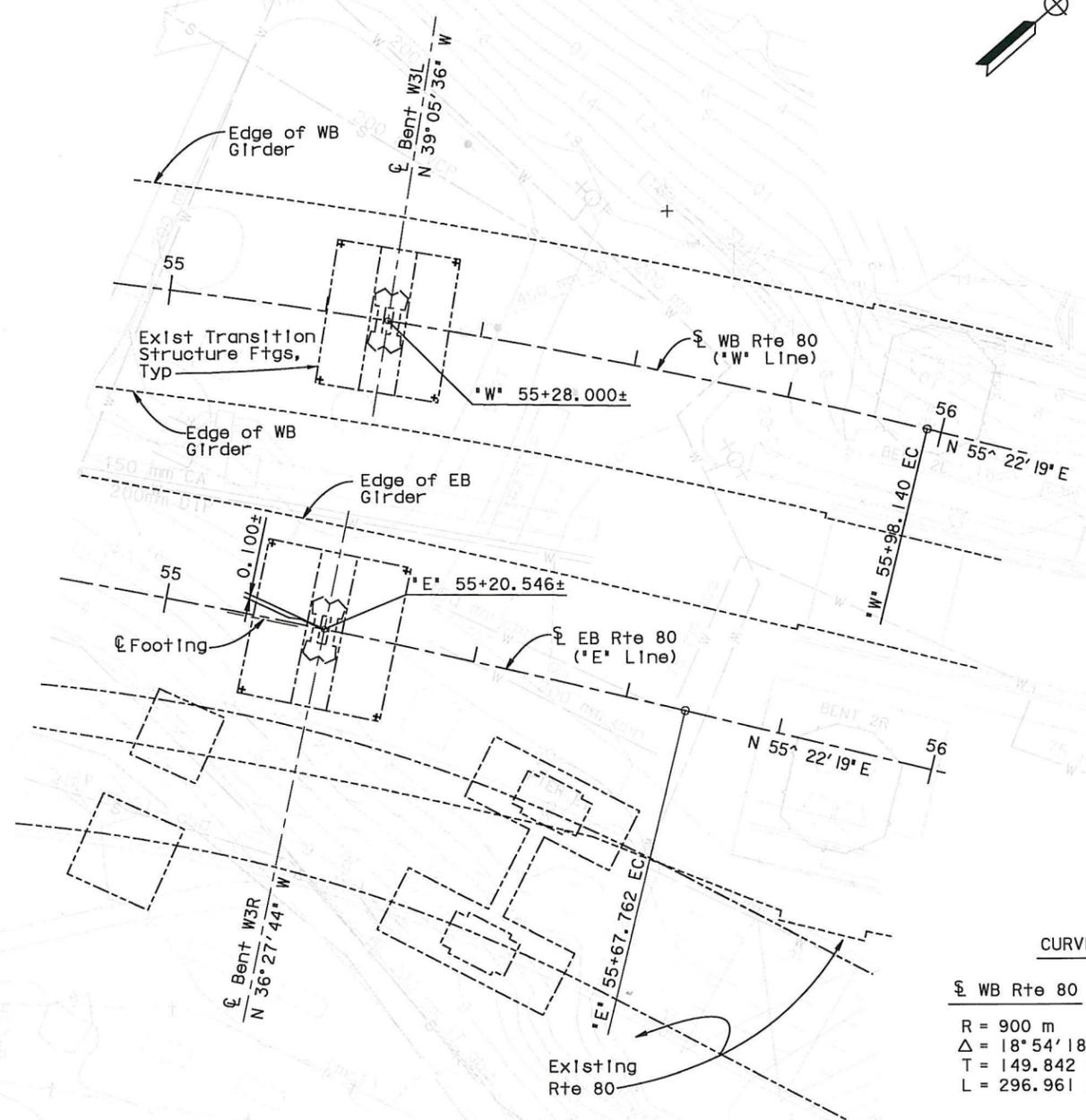
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1166s03 of 1204

CONTRACT CHANGE ORDER NO. 216
SHEET 17 OF 55

QUANTITIES

TEMPORARY COUNTERWEIGHT TIE-DOWN SYSTEM	LUMP SUM
PREPARE CONCRETE BRIDGE DECK SURFACE.....	813 m ²
STRUCTURAL CONCRETE, BRIDGE.....	707 m ³
MINOR CONCRETE (CONCRETE BALLAST) (50MM).....	36 m ³
FURNISH POLYESTER CONCRETE OVERLAY.....	41 m ³
PLACE POLYESTER CONCRETE OVERLAY (50MM).....	813 m ²
INSTALL HINGE K BEARING ASSEMBLY.....	4 EA
INSTALL SEISMIC JOINT (HINGE KW).....	LUMP SUM
INSTALL SEISMIC JOINT (HINGE KE).....	LUMP SUM
BAR REINFORCING STEEL (BRIDGE).....	172,872 kg
HEADED BAR REINFORCEMENT.....	4,072 EA
CLEAN AND PAINT STRUCTURAL STEEL.....	LUMP SUM
(MISCELLANEOUS FACILITIES)	
MISCELLANEOUS METAL (BRIDGE).....	LUMP SUM
CONCRETE BARRIER (TYPE 732 MODIFIED).....	46 m



CURVE DATA

⊙ WB Rte 80	⊙ EB Rte 80
R = 900 m	R = 1475 m
Δ = 18° 54' 18"	Δ = 13° 51' 19"
T = 149.842 m	T = 179.215 m
L = 296.961 m	L = 356.682 m

PARTIAL PLAN
 1:400

JAN 6, 2012

3/13/08 APPROVAL DATE
 PROFESSIONAL
 TECHNICAL

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ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT

YBI TRANSITION STRUCTURES - HINGE K
FOUNDATION PLAN

BRIDGE NO. 34-0006 L/R
 KILOMETER POST 12.8

DESIGNER: Desai
 CHECKED: Jain
 DETAILED BY: Van Ryn/Zucchi/Mai
 CHECKED: Jain
 QUANTITIES BY: Liao
 CHECKED: E. Nichol

PROJECT ENGINEER: Jal Birdy

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 13A OF 209

DESIGN OVERSIGHT ADE AKINSANYA	SCALE: PHOTOGRAMMETRY AS OF	VERT. DATUM NGVD 29	HORZ. DATUM NAD 83	DESIGN BY Desai	CHECKED Jain	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 34-0006 L/R
SURVEYED BY	ALIGNMENT TIES	DRAFTED BY	BY Van Ryn/Zucchi/Mai	CHECKED Jain	KILOMETER POST 12.8		
FIELD CHECKED BY	CHECKED BY	QUANTITIES BY Liao	CHECKED E. Nichol				
SIGN OFF DATE							

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

Notes:
 -Hinge K closure pour not to be placed until a min of 75 days after prestressing adjacent frame.
 -At EB structure, bike path counterweight shall be placed prior to placement of Hinge K closure pour.

-Prior to placement of Hinge K closure concrete, counterweights shall be placed at the cantilever ends of the adjacent frames to balance a portion of the dead load reaction of the closure concrete (approx 13 300 KN). Center of gravity of counterweight to be located at station line for WB Structure and 625 mm south of station line for EB Structure. Counterweights to be removed after closure concrete has attained required strength and prior to falsework release.

-Concrete ballast within Hinge K closure shall be placed after Hinge K bearing assembly is grouted in final position.



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K667A	806

REGISTERED ENGINEER - CIVIL
 A.L. ELY
 No. 18880
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

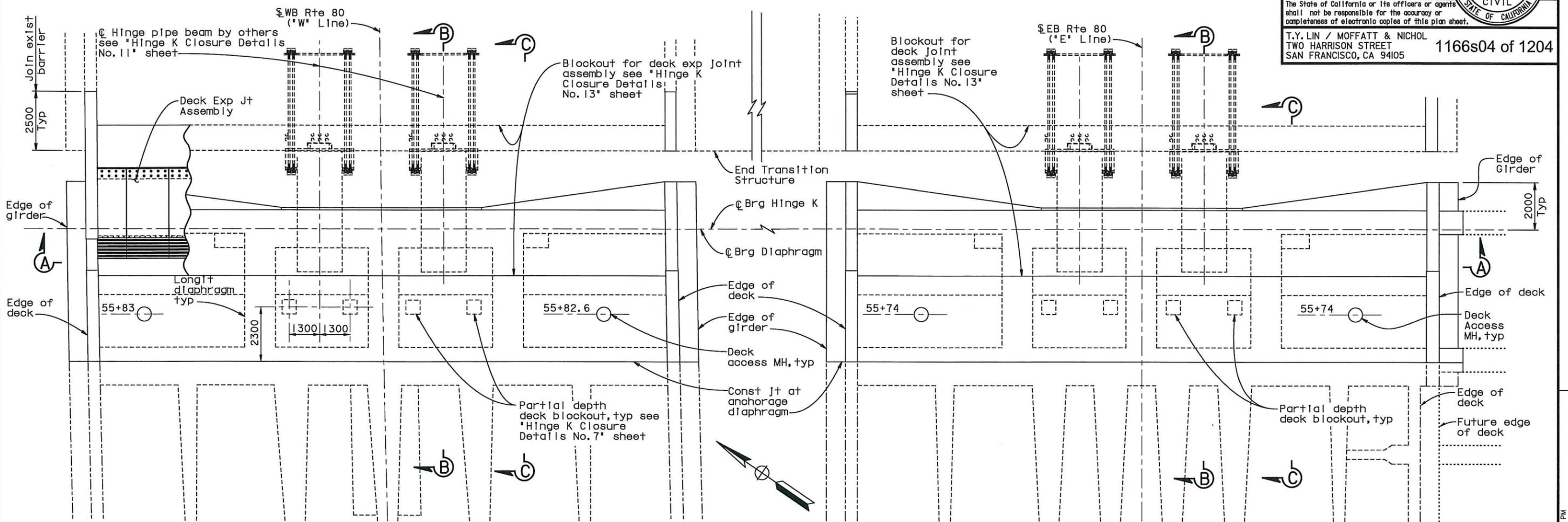
PLANS APPROVAL DATE
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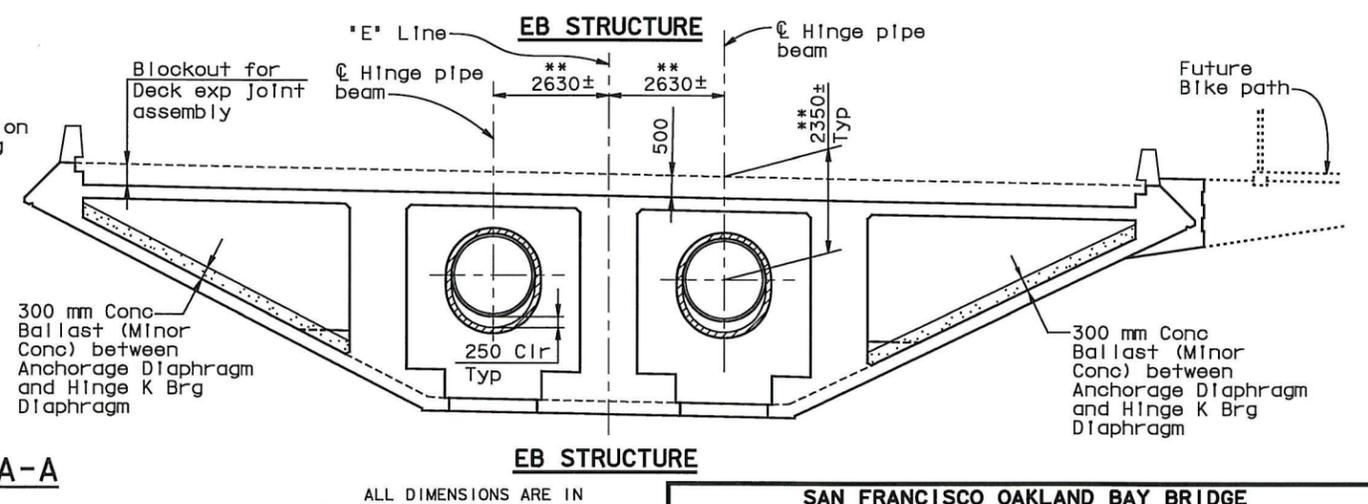
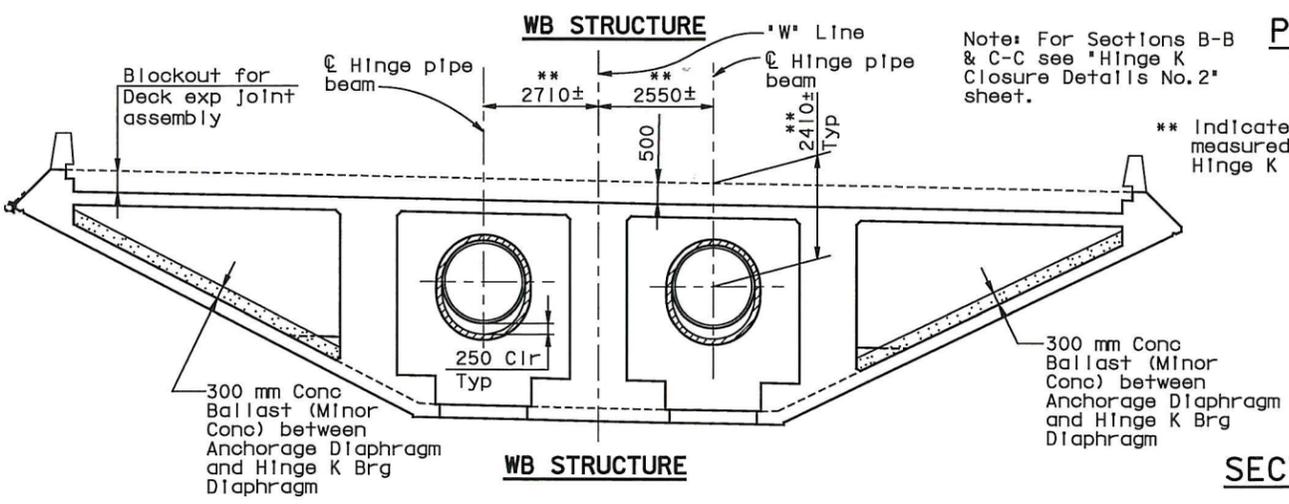
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1166s04 of 1204

SUPPLEMENTAL SHEET
 CONTRACT CHANGE ORDER NO. 216
 SHEET 18 OF 55



Jan 6, 2012



Note: For Sections B-B & C-C see "Hinge K Closure Details No. 2" sheet.
 ** Indicates dimension measured at C Brg Hinge K

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

DESIGN OVERSIGHT
 ADE AKINSANYA

DESIGN	BY Lee	CHECKED Atiquliah
DETAILS	BY van Ryn/Zuochi/Mai	CHECKED Jain
QUANTITIES	BY Liao	CHECKED E. Nichol

PREPARED FOR THE
 STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

Jal Birdy
 PROJECT ENGINEER

BRIDGE NO.
 34-0006 L/R
 KILOMETER POST
 12.8

SAN FRANCISCO OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT

YBI TRANSITION STRUCTURES - HINGE K
 HINGE K CLOSURE DETAILS NO. I

SIGN OFF DATE
 Rev. Date: 5-18-98

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

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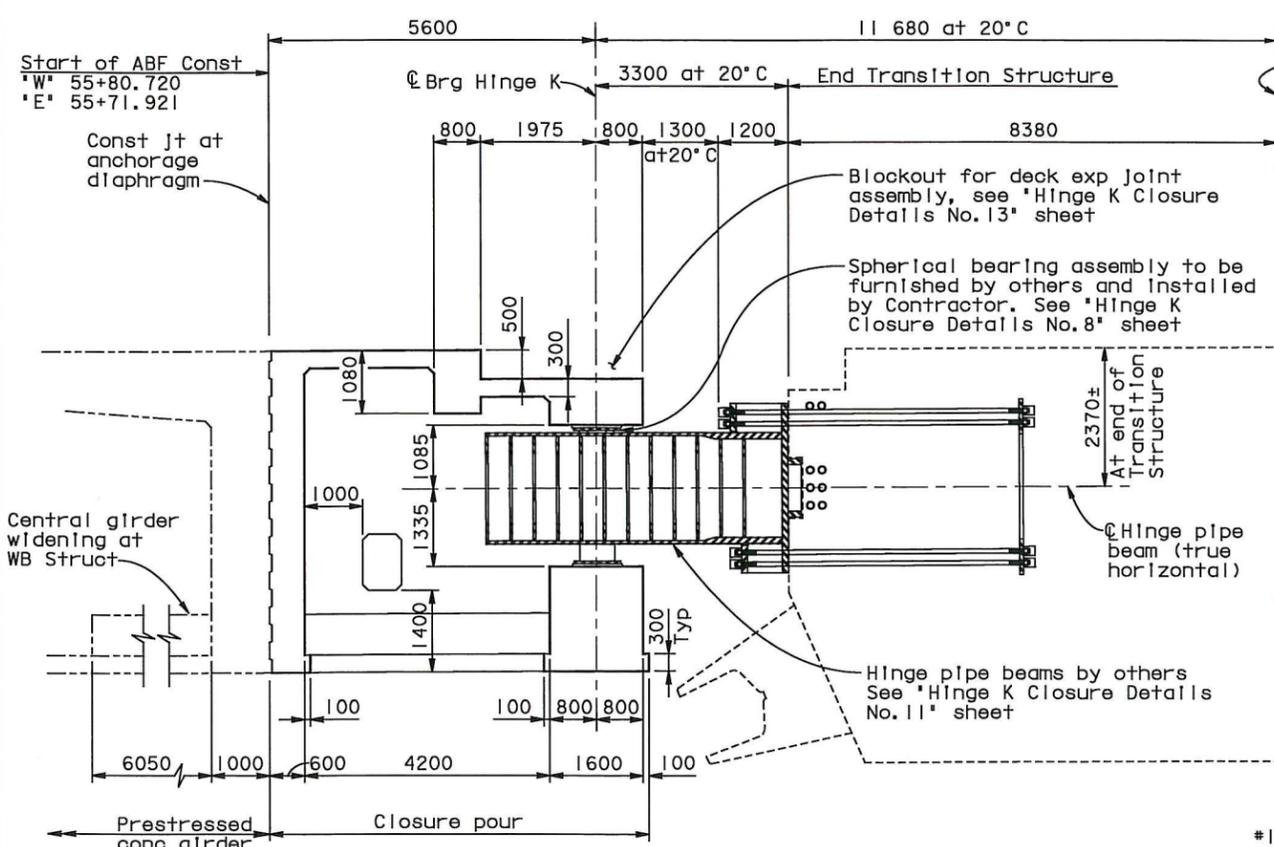
DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K668A	806

REGISTERED ENGINEER - CIVIL
 A.L. ELY
 No. 18880
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

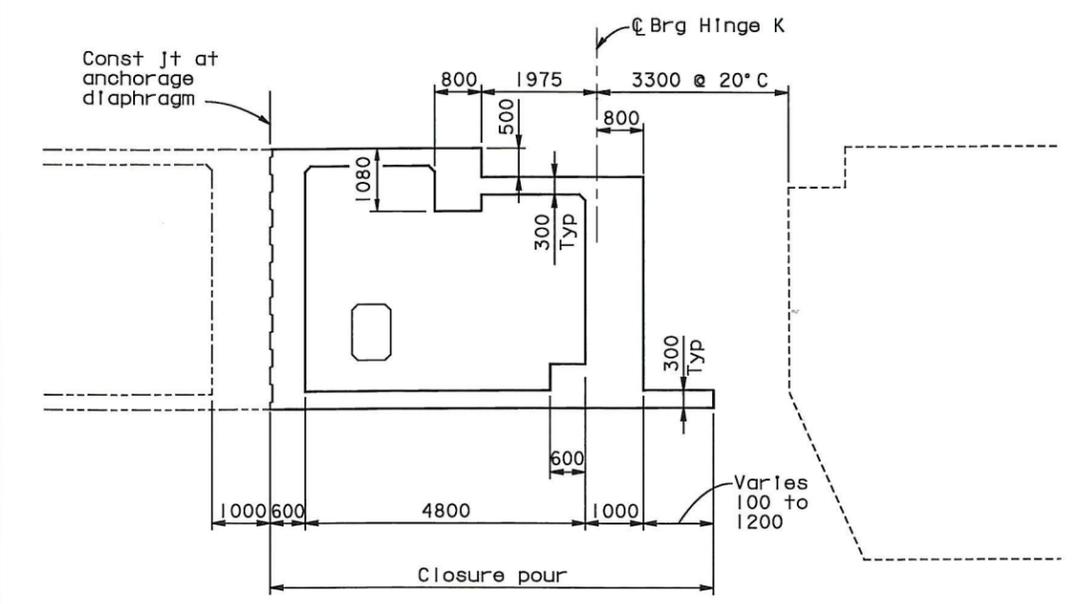
PLANS APPROVAL DATE
 01/20/2012

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 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105
 1166s05 of 1204



SECTION B-B - ADJACENT TO CENTRAL LONGIT DIAPHRAGM

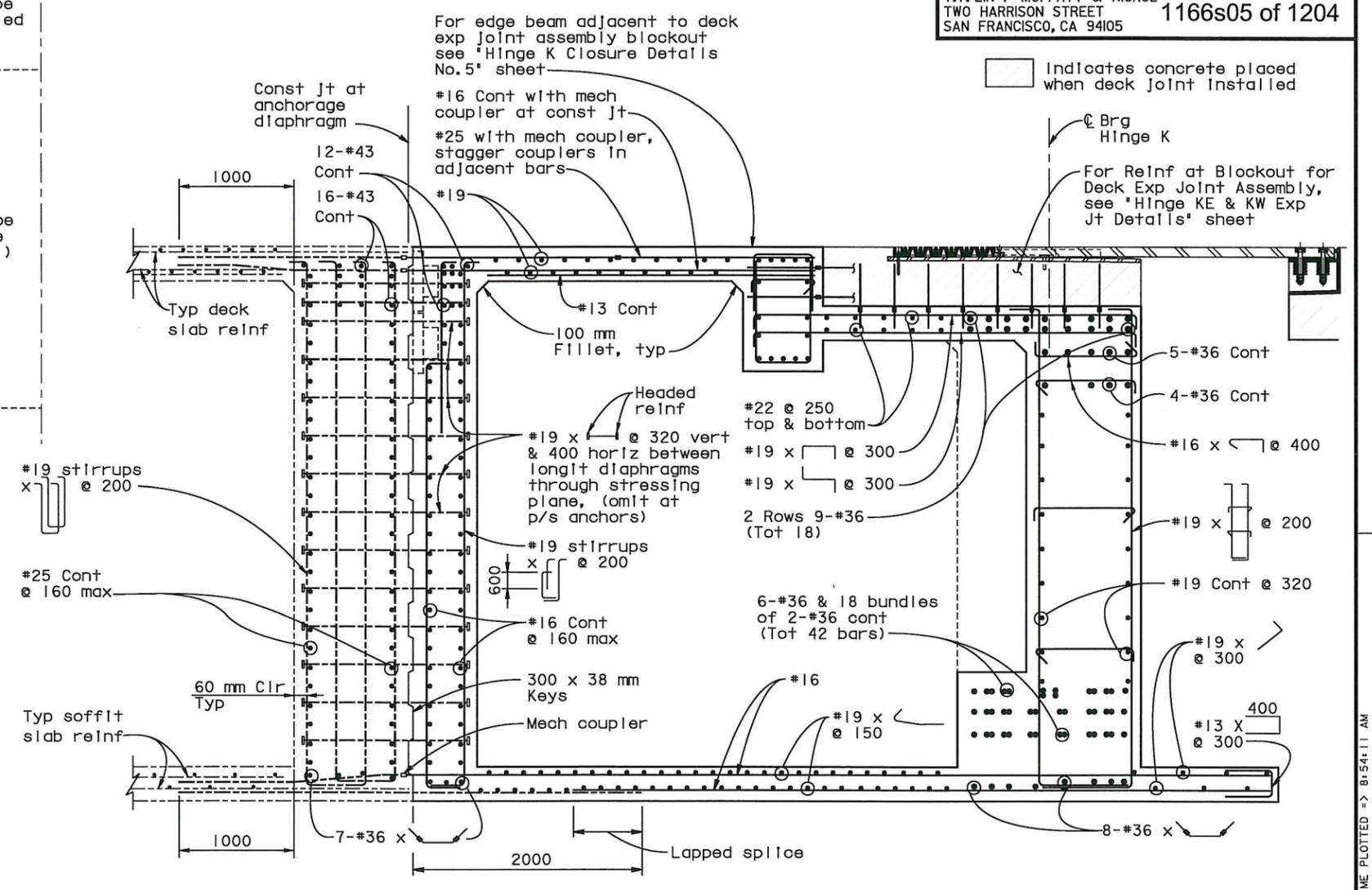


SECTION C-C - ADJACENT TO OUTER LONGIT DIAPHRAGM

LONGITUDINAL SECTIONS AT HINGE K CLOSURE

1:60

Self-Anchored Suspension Bridge West Pier (Pier W2)



LONGITUDINAL SECTION REINFORCEMENT

(Shown adjacent to outer longit diaphragm) 1:25

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. 216
SHEET 19 OF 55

Note: For locations of Sections B-B & C-C see 'Hinge K Closure Details No.1' sheet

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

DESIGN OVERSIGHT
 ADE AKINSANYA

SIGN OFF DATE

Rev. Date: 5-18-98

DESIGN BY Lee
 CHECKED Atiqullah

DETAILS BY van Ryn/Zuochi/Ma
 CHECKED Jain

QUANTITIES BY Liao
 CHECKED E. Nichol

PREPARED FOR THE
 STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

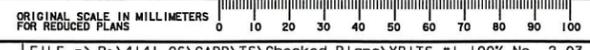
Jal Birdy
 PROJECT ENGINEER

BRIDGE NO.
 34-0006 L/R

KILOMETER POST
 12.8

SAN FRANCISCO OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT

YBI TRANSITION STRUCTURES - HINGE K
 HINGE K CLOSURE DETAILS NO.2



CU 04 EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET OF
 K119A 209

Jan 6, 2012

TIME PLOTTED => 8:54:11 AM USERNAME => fscmsion DATE PLOTTED => 1/18/2012



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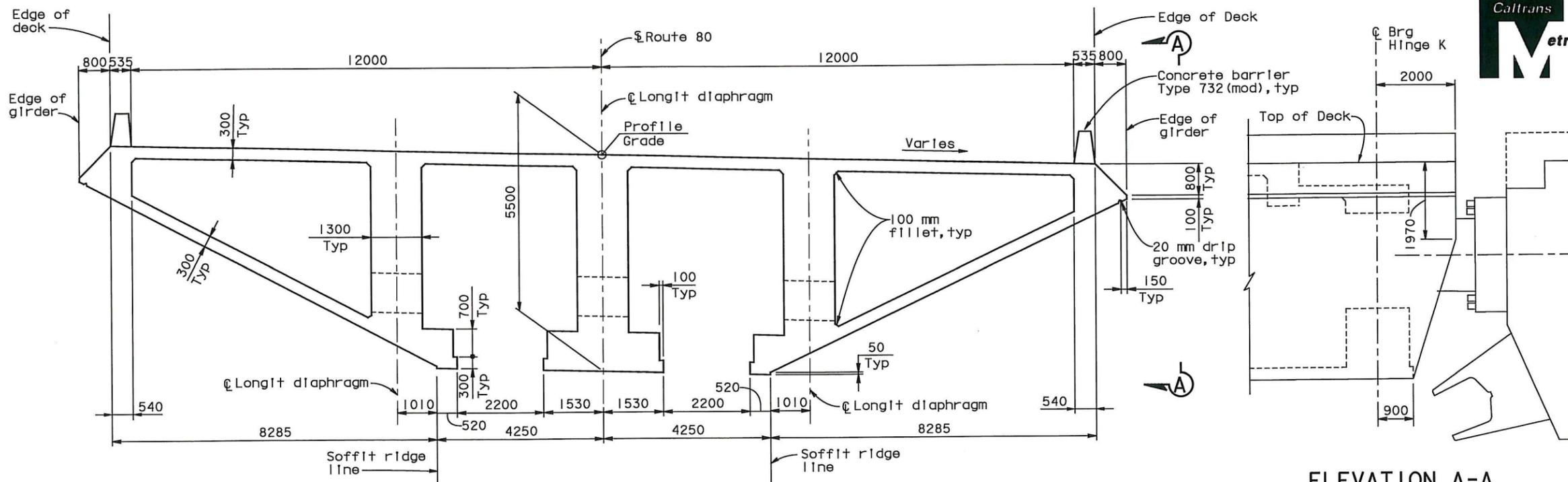
REGISTERED ENGINEER - CIVIL
A.L. ELY
No. 18880
Exp. 6-30-13
STATE OF CALIFORNIA

PLANS APPROVAL DATE
01/20/2012

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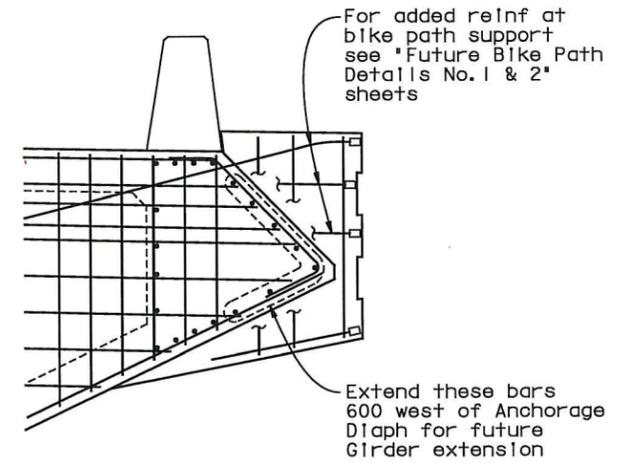
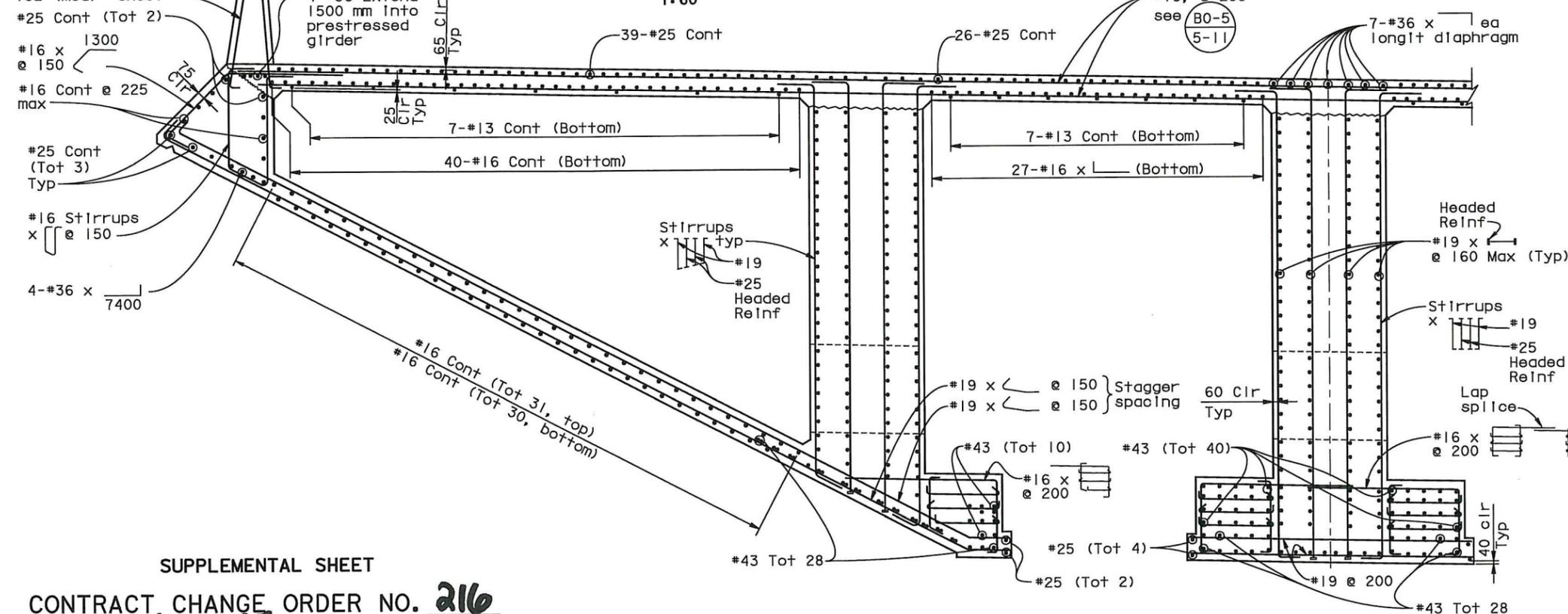
T.Y. LIN / MOFFATT & NICHOL
TWO HARRISON STREET
SAN FRANCISCO, CA 94105

1166s07 of 1204



TYPICAL SECTION AT HINGE K CLOSURE
1:60

For details not shown, see "Conc Barrier Type 732 (Mod)" sheet



PARTIAL TYPICAL SECTION
1:30

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT	
BRIDGE NO. 34-0006 L/R	YBI TRANSITION STRUCTURES - HINGE K HINGE K CLOSURE DETAILS NO. 4
KILOMETER POST 12.8	

DESIGN OVERSIGHT ADE AKINSANYA
SIGN OFF DATE
Rev. Date: 5-18-98

DESIGN BY: Lee	CHECKED: Atiqullah
DETAILS BY: van Ryn/Zucchi/Ma	CHECKED: Jain
QUANTITIES BY: Liao	CHECKED: E. Nichol

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Jal Birdy
PROJECT ENGINEER



CU 04
EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET K121A	OF 209
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Jan 6, 2012

TIME PLOTTED => 5:19:56 PM
DATE PLOTTED => 1/5/2012
USERNAME => feamson



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K671A	806

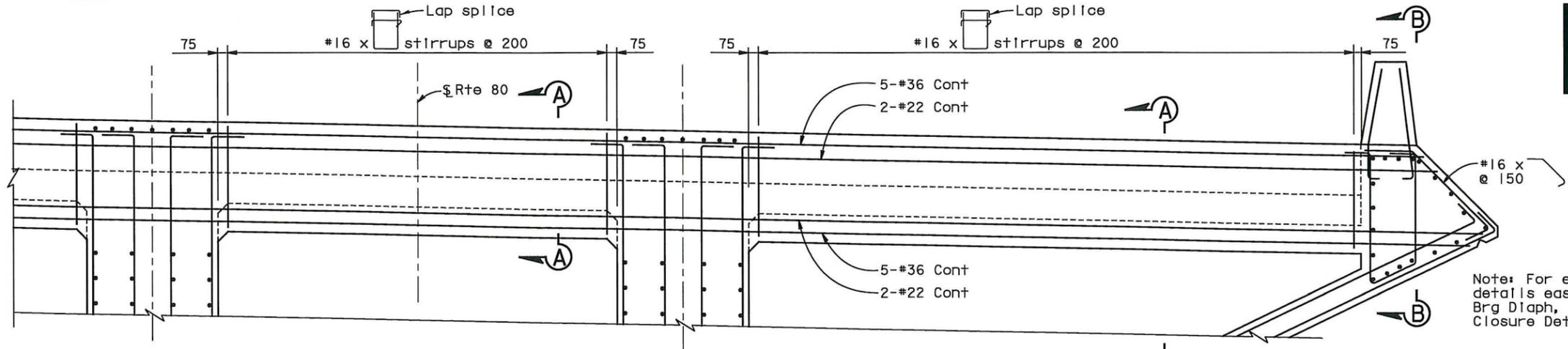
REGISTERED ENGINEER - CIVIL
 A.L. ELY
 No. 18880
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE
 01/20/2012

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 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105

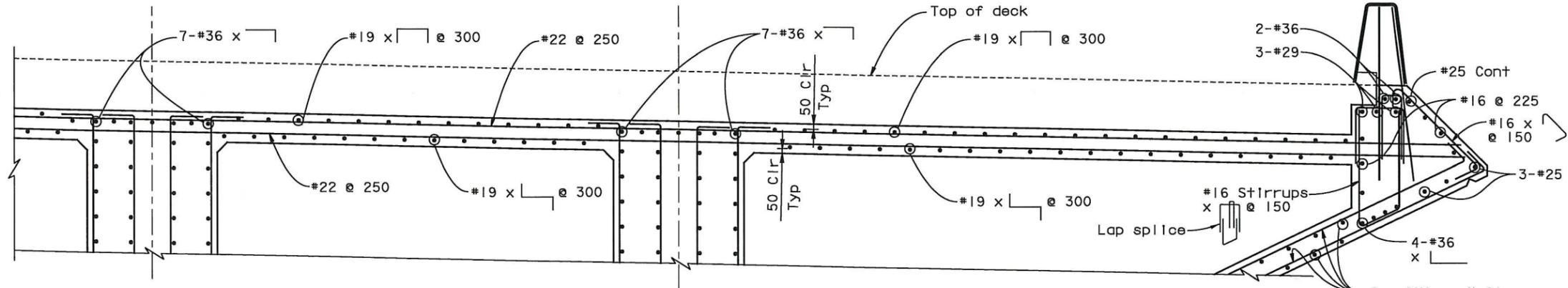
1166s08 of 1204



PARTIAL ELEVATION EDGE BEAM ADJACENT TO EXPANSION JOINT ASSEMBLY BLOCKOUT

1:25

Note: For edge of deck details east of Hinge K Brg Diaph, see 'Hinge K Closure Details No. 7' sheet.

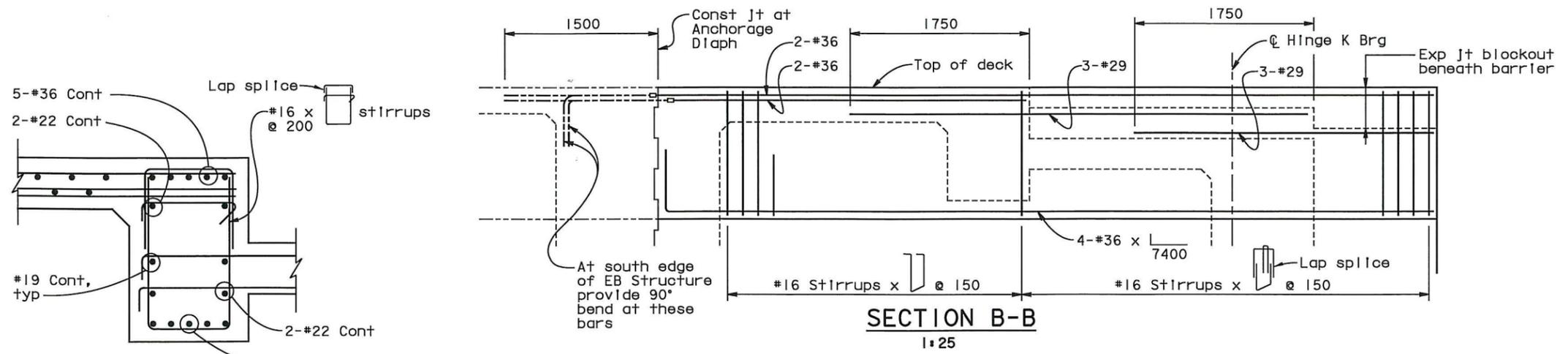


PARTIAL TYPICAL SECTION AT EXPANSION JOINT ASSEMBLY BLOCKOUT

1:25

Note: For reinf at breakout for deck exp joint assembly, see 'Hinge KE & KW Expansion Joint Details' sheet.

See 'Hinge K Closure Details No. 2' sheet



SECTION A-A

1:15

SECTION B-B

1:25

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. 216
SHEET 22 OF 55

DESIGN OVERSIGHT ADE AKINSANYA	SIGN OFF DATE
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DESIGN	BY Lee	CHECKED Wang
DETAILS	BY van Ryn/Zucchi/Mai	CHECKED Jain
QUANTITIES	BY Liao	CHECKED E. Nichol

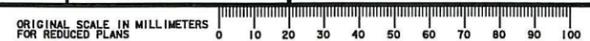
PREPARED FOR THE
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

Jal Birdy
 PROJECT ENGINEER

BRIDGE NO.	34-0006 L/R
KILOMETER POST	12.8

SAN FRANCISCO OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT

YBI TRANSITION STRUCTURES - HINGE K
HINGE K CLOSURE DETAILS NO. 5



CU 04
 EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF	K122A 209
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Jan 6, 2012

TIME PLOTTED => 1/5/2012 5:20:05 PM USERNAME => f5mson



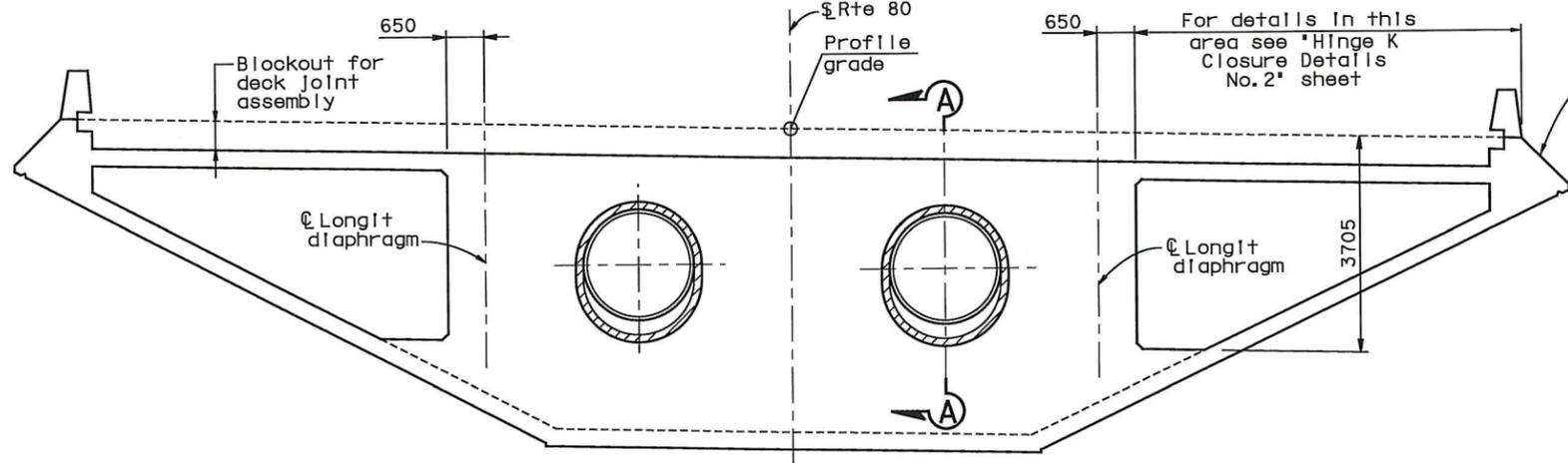
DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K672A	806

Al Ely
 REGISTERED ENGINEER - CIVIL
 01/20/2012

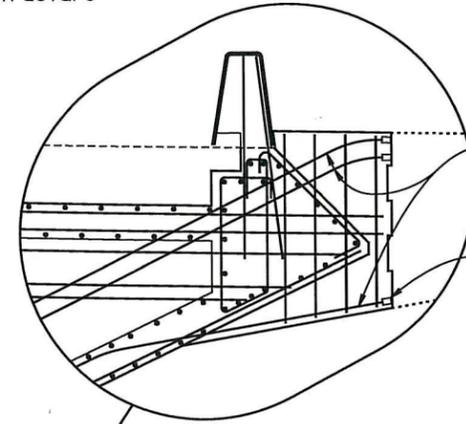
PLANS APPROVAL DATE
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 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105

1166s09 of 1204



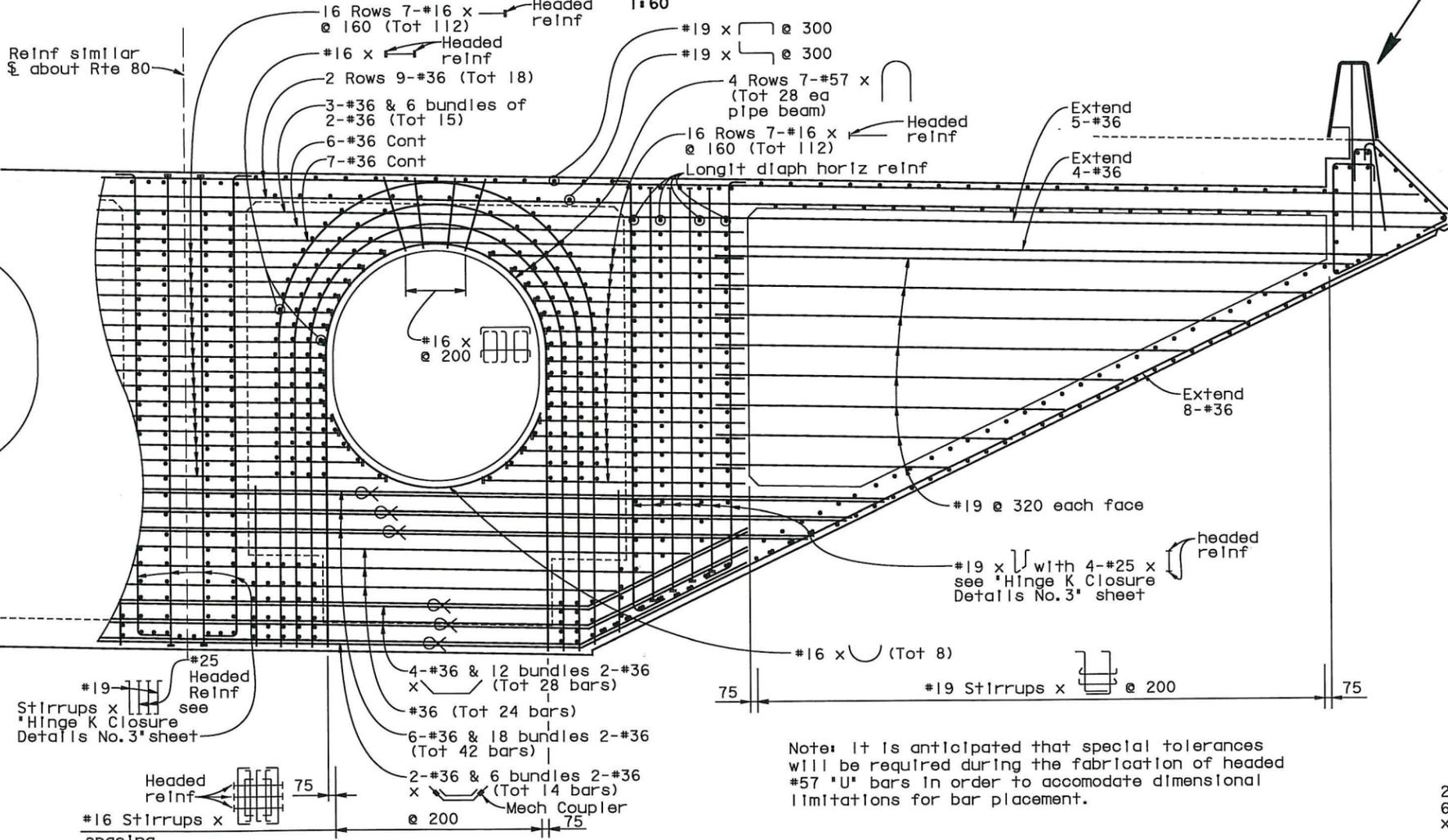
ELEVATION HINGE K BEARING DIAPHRAGM
 (WB Structure shown, EB Structure similar except as noted)



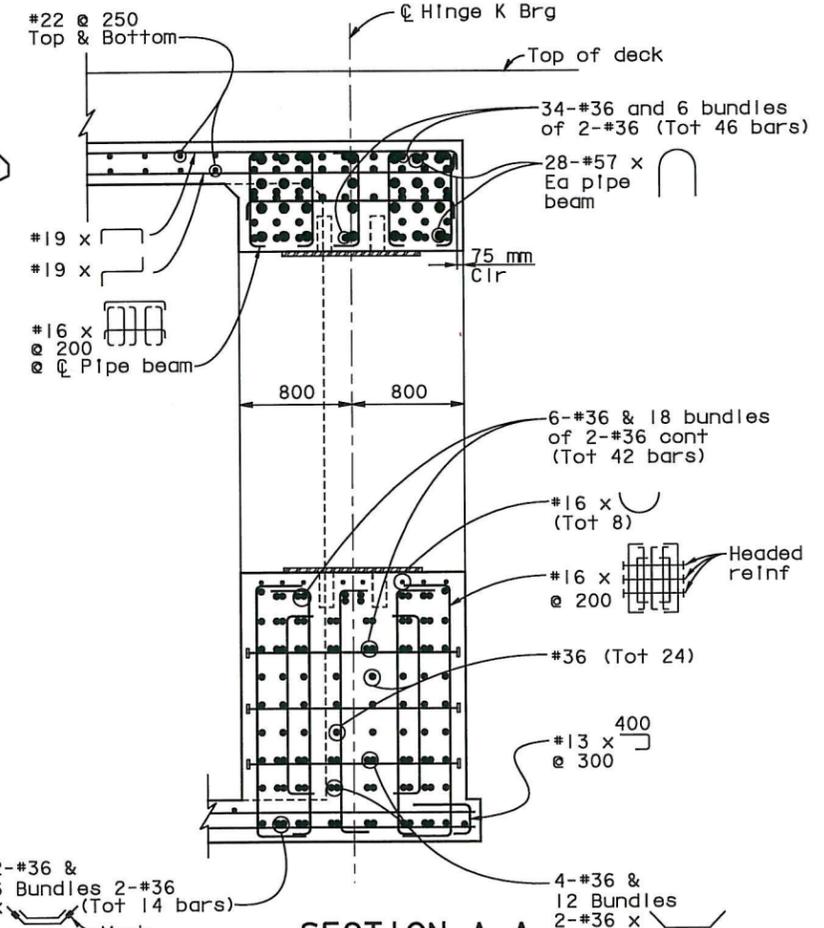
SOUTH EDGE AT EB STRUCTURE

For added reinf at bike path support beam, see 'Future Bike Path Details No. 1 & 2' sheets
 Mechanical Couplers (Typ)

SUPPLEMENTAL SHEET
 CONTRACT CHANGE ORDER NO. **216**
 SHEET **23** OF **55**



PARTIAL ELEVATION BEARING DIAPHRAGM
 1:30



SECTION A-A
 1:25

Note: It is anticipated that special tolerances will be required during the fabrication of headed #57 'U' bars in order to accommodate dimensional limitations for bar placement.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

SAN FRANCISCO OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT

DESIGN OVERSIGHT
 ADE AKINSANYA

DESIGN BY Lee
 CHECKED Wang
 DETAILS BY van Ryn/Zucchi/Mal
 CHECKED Jain
 QUANTITIES BY Lido
 CHECKED E. Nichol

PREPARED FOR THE
 STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

Jal Birdy
 PROJECT ENGINEER

BRIDGE NO.
 34-0006 L/R
 KILOMETER POST
 12.8

YBI TRANSITION STRUCTURES - HINGE K
 HINGE K CLOSURE DETAILS NO. 6

SIGN OFF DATE
 Rev. Dates 5-18-98



CU 04
 EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET NO.	OF
		K123A	209

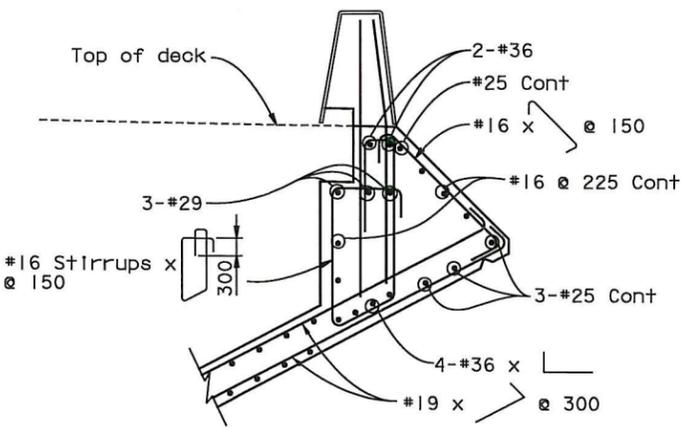
Jan 6, 2012

USERNAME => fcamson DATE PLOTTED => 1/5/2012 TIME PLOTTED => 5:20:14 PM

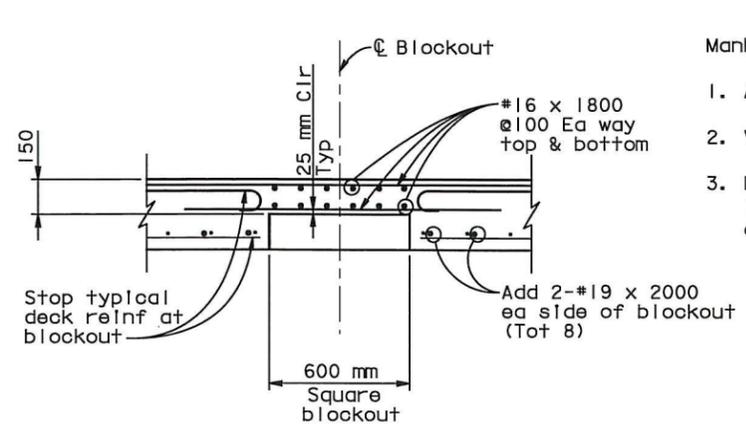


DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K673A	806

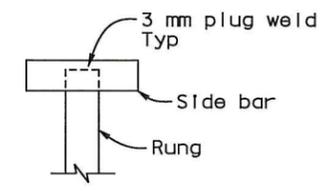
REGISTERED ENGINEER - CIVIL
 01/20/2012
 PLANS APPROVAL DATE
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 T.Y. LIN / MOFFATT & NICHOL
 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105
 1166s10 of 1204



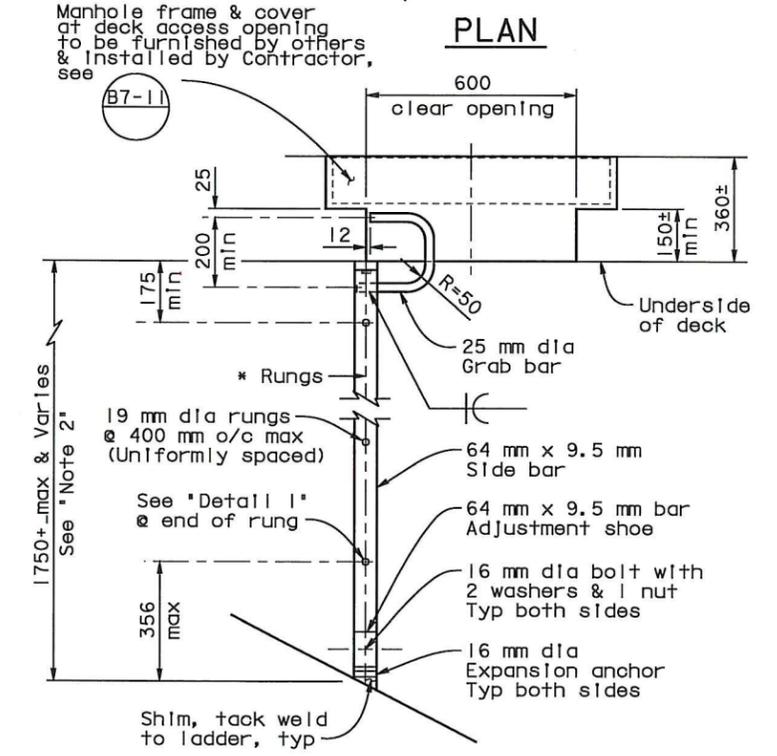
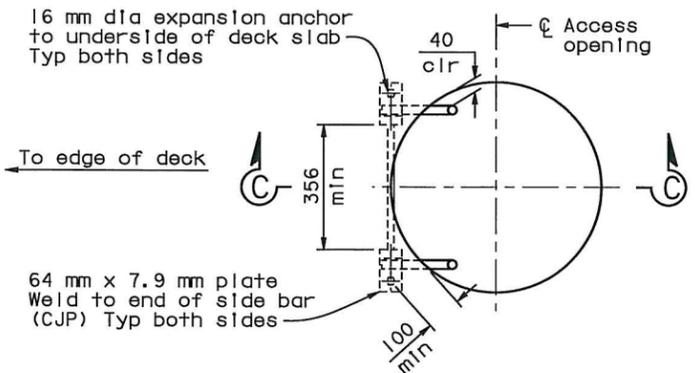
EDGE OF DECK DETAIL EAST OF HINGE K BEARING DIAPHRAGM
 1:25



PARTIAL DEPTH DECK BLOCKOUT DETAIL
 (For location see "Hinge K Closure Details No. 1" sheet)
 1:15

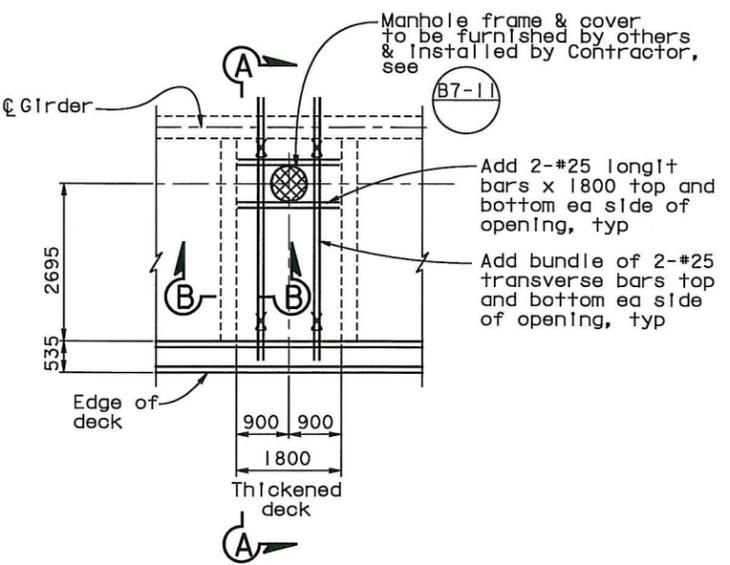


DETAIL 1
 1:2

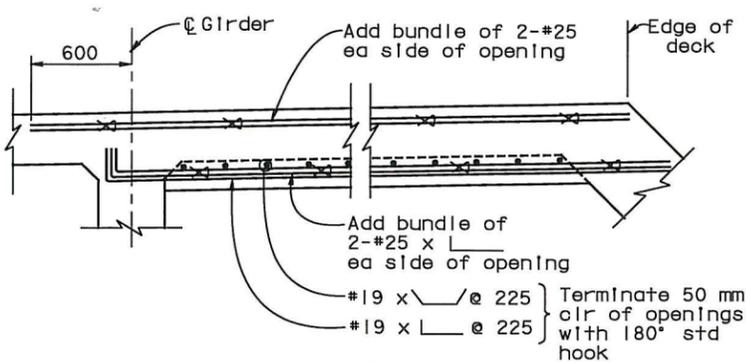


TYPICAL LADDER DETAILS AT DECK ACCESS OPENINGS
 1:10

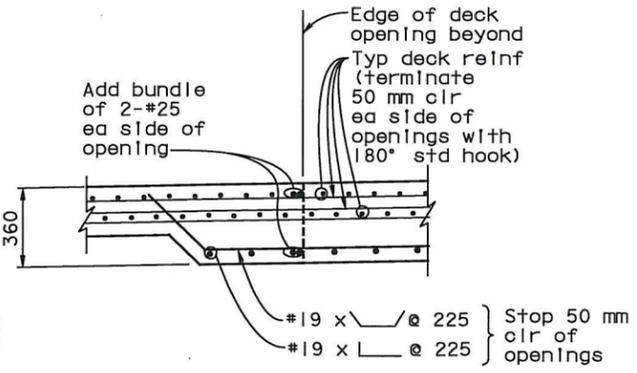
- Manhole Ladder Notes:
- All metal, including fasteners, shall be galvanized.
 - Verify all dimensions in the field prior to fabrication.
 - Ladders shall be provided for all deck access openings. In Westbound and Eastbound structures at Hinge K closure.



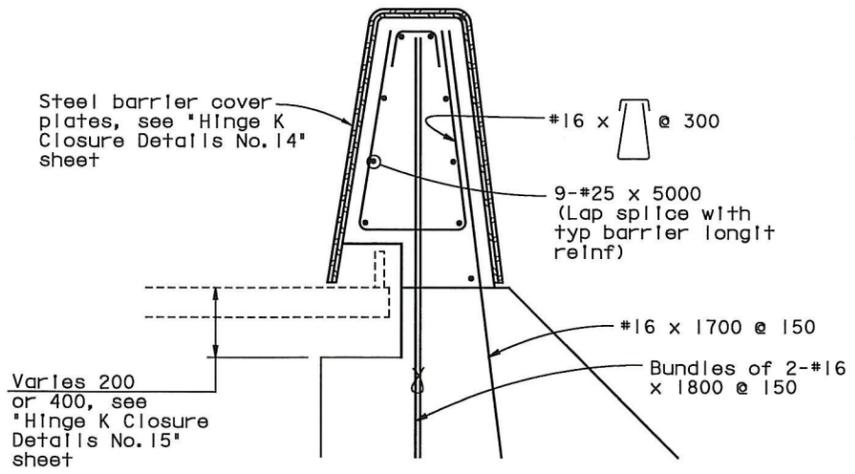
PLAN AT DECK ACCESS MANHOLES
 (4 Req'd)
 1:60



SECTION A-A
 NO SCALE



SECTION B-B
 NO SCALE



BARRIER DETAIL AT BLOCKOUT FOR EXPANSION JOINT ASSEMBLY
 1:10

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. **216**
 SHEET **24** OF **55**

Jan 6, 2012

DESIGN OVERSIGHT
 ADE AKINSANYA
 SIGN OFF DATE
 Rev. Date: 5-18-98

DESIGN BY Lee
 CHECKED Wang
 DETAILS BY van Ryn/Zucchi/Mai
 CHECKED Jain
 QUANTITIES BY Liao
 CHECKED E. Nichol

PREPARED FOR THE
 STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

Jal Birdy
 PROJECT ENGINEER

BRIDGE NO.
 34-0006 L/R
 KILOMETER POST
 12.8

SAN FRANCISCO OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT
YBI TRANSITION STRUCTURES - HINGE K
HINGE K CLOSURE DETAILS NO. 7

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

CU 04
 EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES
 REVISION DATES (PRELIMINARY STAGE ONLY)
 SHEET OF
 K124A 209

TIME PLOTTED => 5:20:23 PM
 USERNAME => fscmsm DATE PLOTTED => 1/5/2012



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K673AA	806

REGISTERED ENGINEER - CIVIL
 No. 18880
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE
 01/20/2012

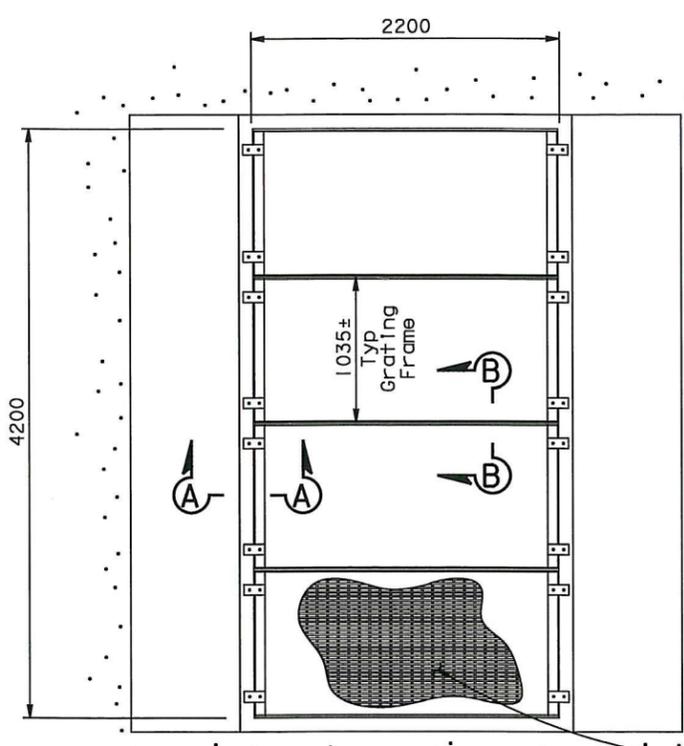
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 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105

1166s11 of 1204

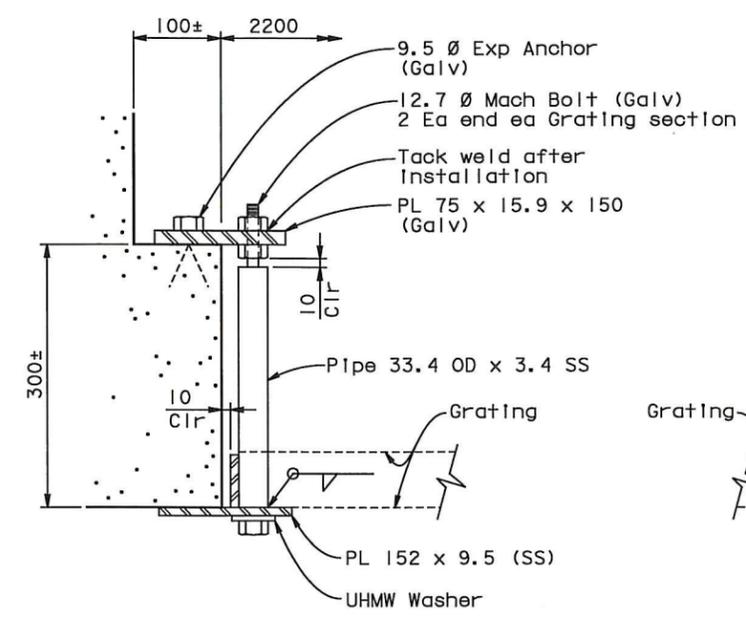
Grating Design (Service) Loads:

Live Load - 4788 Pa
 Wind (Uplift) - 3830 Pa

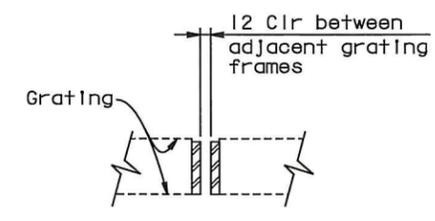


PLAN AT SOFFIT OPENING
 1:25

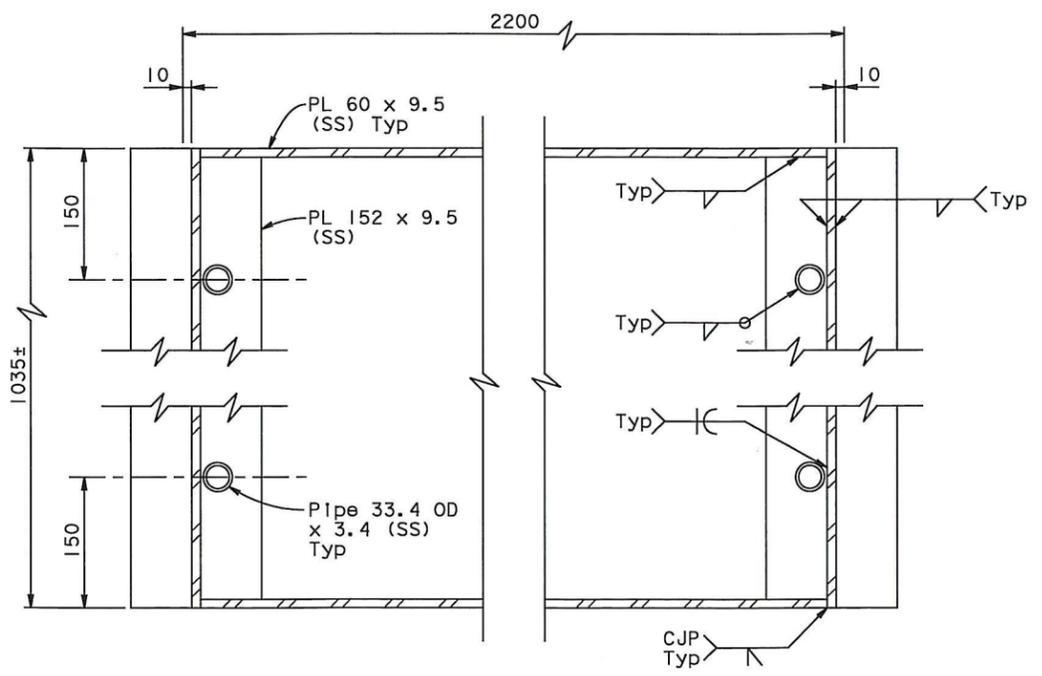
Fibergrate HI 5825 Grating or equal, attach to grating frame in accordance with grating manuf recommendations



SECTION A-A
 1:4



SECTION B-B
 1:4



PLAN - GRATING FRAME
 1:4

Note: Welding to stainless steel shall be in accordance with AWS D1.6-1999.

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. 216
 SHEET 25 OF 55

Jan 6, 2012

TIME PLOTTED => 1/5/2012 5:20:33 PM

DESIGN OVERSIGHT ADE AKINSANYA	DESIGN BY Leeb CHECKED Birdy	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 34-0006 L/R	SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT YBI TRANSITION STRUCTURES - HINGE K HINGE K CLOSURE DETAILS NO. 7A
SIGN OFF DATE	DETAILS BY Samson CHECKED Ely	PROJECT ENGINEER Jal Birdy	KILOMETER POST 12.8	
Rev. Date: 5-18-98	QUANTITIES BY Fellows CHECKED Birdy	CU 04 EA 0120F1	DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET OF K124AA 209

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS: 0 10 20 30 40 50 60 70 80 90 100

FILE => P:\4141-06\CADD\TS\Checked Plans\YBITS #1-100% No. 2_03-03-08 (Final Renamed)\010612 Hinge K SAS T19 CCO\04-0120f1-34-006r1-n-hinged07a.dgn

SUPPLEMENTAL SHEET
CONTRACT CHANGE ORDER NO. 216
SHEET 26 OF 55



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K674A	806

REGISTERED ENGINEER - CIVIL
A.L. ELY
No. 18880
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA

01/20/2012

PLANS APPROVAL DATE

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TWO HARRISON STREET
SAN FRANCISCO, CA 94105

1166s12 of 1204

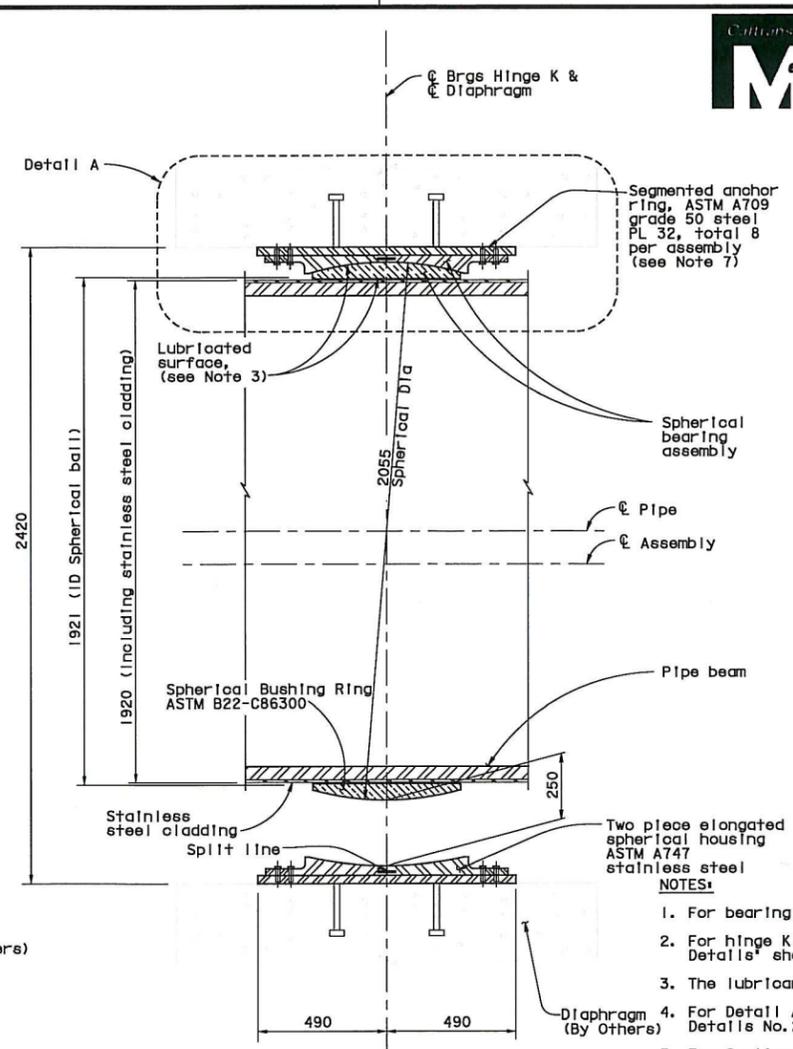
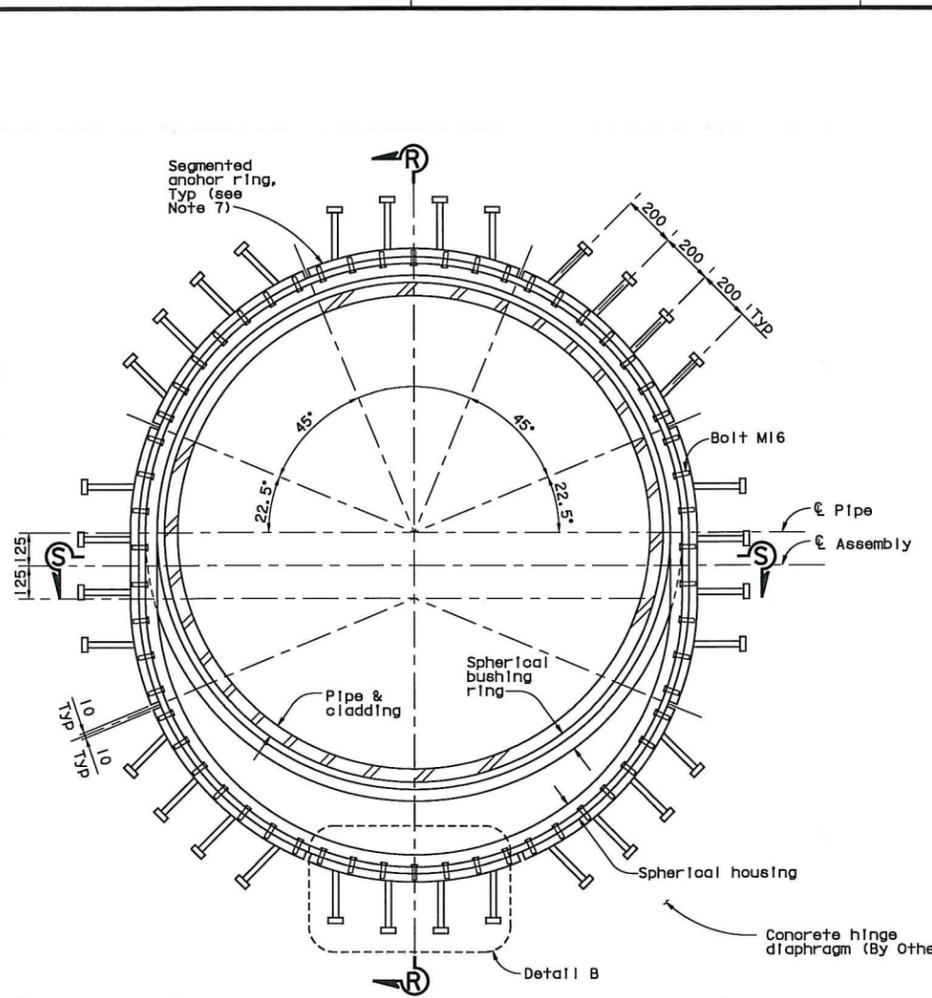
DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	846	1204

REGISTERED ENGINEER - CIVIL
12-6-04
PLANS APPROVAL DATE

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825 BATTERY STREET
SAN FRANCISCO, CA 94111

Caltrans now has a web site! To get to the web site, go to: <http://www.dot.ca.gov>



- NOTES:
1. The drawing provided hereon is reproduced from the contract plans of the adjacent Self-Anchored Suspension Bridge contract.
 2. Hinge K Bearing assembly will be furnished by others, the YBI Structures Contractor shall erect the bearing assembly in its final position. Hinge K bearing assembly consists of spherical bushing ring, lubricated surfaces, spherical bearing assembly, two piece elongated spherical housing, segmented anchor ring and all connection and assembly bolts, pins, and studs.
 3. For bearing locations, see 'Hinge K Layout' sheets.
 4. For hinge K additional details, see 'Hinge K Details' sheets.
 5. The lubricant shall be self lubricated.
 6. For Detail A and Detail B, see 'Hinge K Bearing Details No. 2' sheet.
 7. For Section S-S, see 'Hinge K Bearing Details No. 2' sheet.
 8. Hinge K Bearing assembly is shown in its erected final position for information only. The Contractor shall furnish Hinge K bearing assembly. Erection of Hinge K bearing by others. Hinge K bearing assembly consists of spherical bushing ring, lubricated surfaces, spherical bearing assembly, two piece elongated spherical housing, segmented anchor ring and all connection and assembly bolts, pins and studs.
 9. The Contractor may propose an alternate arrangement of the segmented anchor ring subject to the review and approval of the Engineer.

R. Valizadeh/V. Toan/Y.L./W.L./F.C. DESIGN OVERSIGHT R. Valizadeh/V. Toan/Y.L./W.L./F.C. SIGN OFF DATE 04/18/04 Rev. Date: 5-18-98	DESIGN BY M. Nader DETAILS BY C. Mibelli QUANTITIES BY C. Mibelli	CHECKED J. Krizek CHECKED N. Vo CHECKED N. Vo	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	R. Manzanarez PROJECT ENGINEER	BRIDGE NO. 34-0006L/R KILOMETER POST 13.2/13.9	SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT SELF-ANCHORED SUSPENSION BRIDGE (SUPERSTRUCTURE & TOWER) HINGE K BEARING DETAILS NO. 1	CU 04 EA 0120F1	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET 429 OF
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Jan 6, 2012

100% P.S.E.

DESIGN OVERSIGHT
ADE AKINSANYA

SIGN OFF DATE

Rev. Date: 5-18-98

DESIGN BY NA	CHECKED NA
DETAILS BY van Ryn/Zucchi/Mal	CHECKED Jain
QUANTITIES BY Liao	CHECKED E. Nichol

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Jal Birdy
PROJECT ENGINEER

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT

YBI TRANSITION STRUCTURES - HINGE K
HINGE K CLOSURE DETAILS NO. 8

TIME PLOTTED => 5:20:43 PM
USERNAME => tsamson DATE PLOTTED => 1/5/2012

SUPPLEMENTAL SHEET
CONTRACT CHANGE ORDER NO. 216
SHEET 27 OF 55



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K675A	806

A.L. Ely
REGISTERED ENGINEER - CIVIL
01/20/2012

PLANS APPROVAL DATE
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T.Y. LIN / MOFFATT & NICHOL
825 BATTERY STREET
SAN FRANCISCO, CA 94105

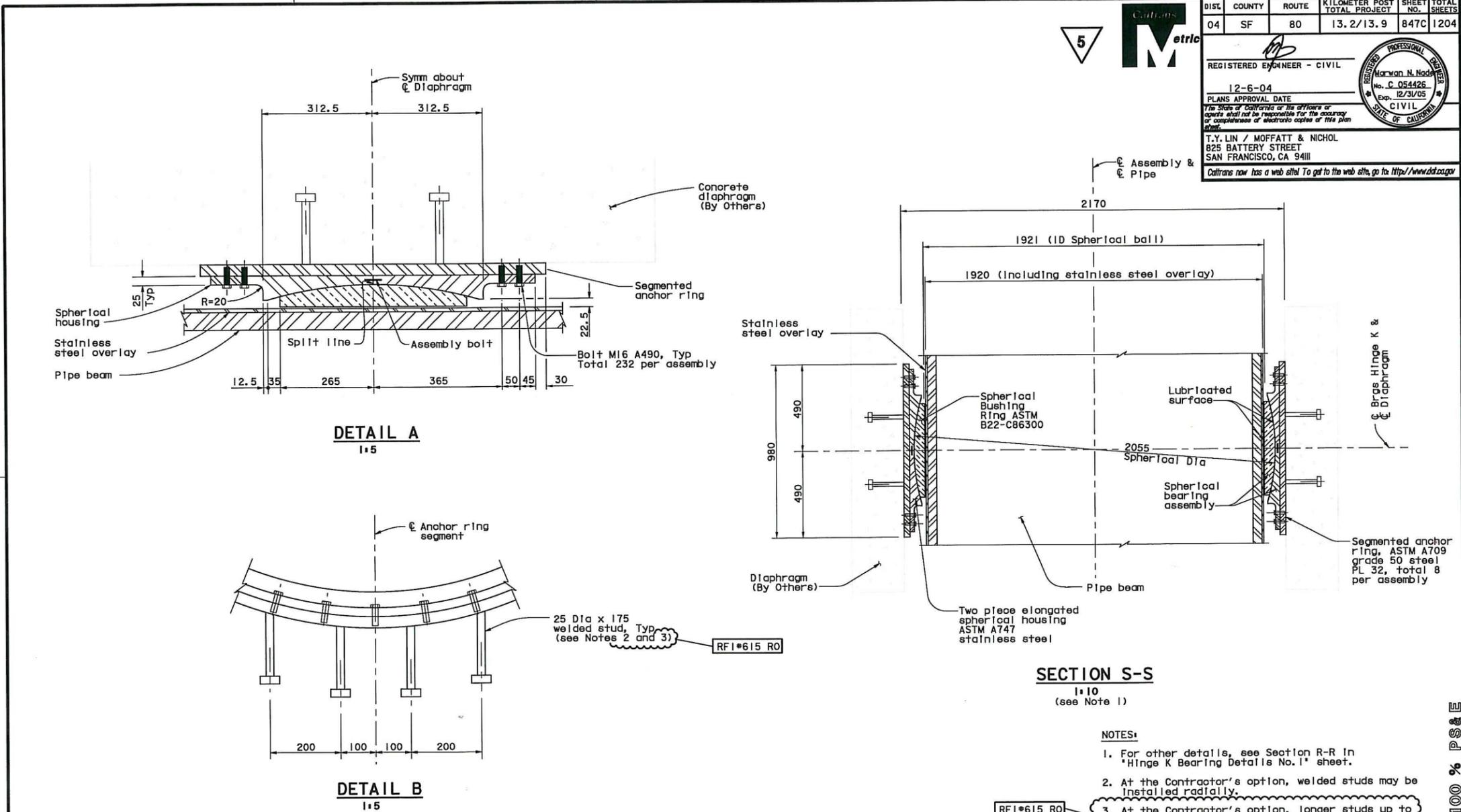
1166s13 of 1204

5

REGISTERED ENGINEER - CIVIL
12-6-04
PLANS APPROVAL DATE
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825 BATTERY STREET
SAN FRANCISCO, CA 94105

1166s13 of 1204



- NOTES:
- The drawing provided hereon is reproduced from the contract plans of the adjacent Self-Anchored Suspension Bridge contract.

- NOTES:
- For other details, see Section R-R in "Hinge K Bearing Details No. 1" sheet.
 - At the Contractor's option, welded studs may be installed radially.
 - At the Contractor's option, longer studs up to 210 mm may be used.

100% P&E

5 REVISED PER ADDENDUM NO. 5 DATED DECEMBER 21, 2005

R. Valizadeh/V. Toan/Y. L. / M. L. / F. C. DESIGN OVERSIGHT <i>Ron Valizadeh / V. Toan / Y. L. / M. L. / F. C.</i>		DESIGN BY M. Nader	CHECKED J. Krizek	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	R. Manzanarez PROJECT ENGINEER	BRIDGE NO. 34-0006L/R	KILOMETER POST 13.2/13.9	SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT SELF-ANCHORED SUSPENSION BRIDGE (SUPERSTRUCTURE & TOWER) HINGE K BEARING DETAILS NO. 2	
DESIGN BY C. Mibelli	CHECKED N. Vo	DETAILS BY C. Mibelli	CHECKED N. Vo	CU 04 EA 0120F1	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET 430C	OF	

Jan 6, 2012

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USERNAME => fsmason

DESIGN OVERSIGHT ADE AKINSANYA <i>Ade Akinsanya</i>		DESIGN BY NA	CHECKED NA	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	Jal Birdy PROJECT ENGINEER	BRIDGE NO. 34-0006 L/R	KILOMETER POST 12.8	SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT YBI TRANSITION STRUCTURES - HINGE K HINGE K CLOSURE DETAILS NO. 9	
DESIGN BY van Ryn/Zuochi/Ma	CHECKED Jaln	DETAILS BY Lido	CHECKED E. Nichol	CU 04 EA 0120F1	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET K126A	OF 209	

SUPPLEMENTAL SHEET
 CONTRACT CHANGE ORDER NO. **216**
 SHEET **28** OF **55**



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K676A	806

REGISTERED ENGINEER - CIVIL
 A.L. ELY
 No. 18880
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE
 01/20/2012

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 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105
 1166s14 of 1204

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	848	1204

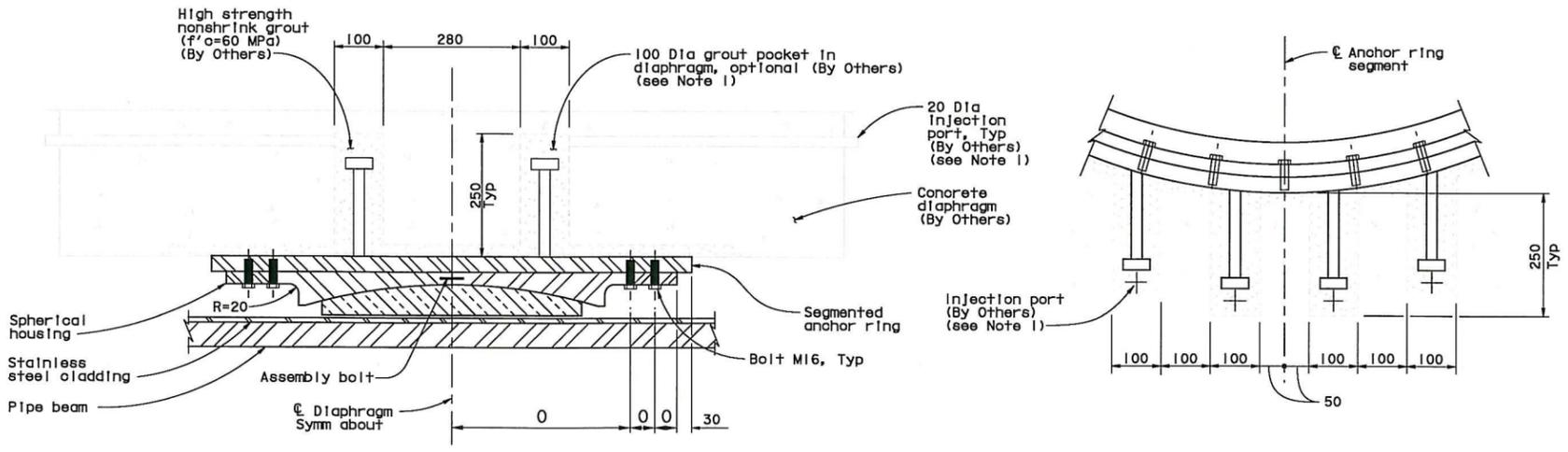
REGISTERED ENGINEER - CIVIL
 Mervan N. Nader
 No. C 054426
 Exp. 12/31/05
 CIVIL
 STATE OF CALIFORNIA

12-6-04
 PLANS APPROVAL DATE

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 SAN FRANCISCO, CA 94111

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DETAIL A 1:5
 DETAIL B 1:5

GRouted POCKET ALTERNATIVE FOR PLACEMENT OF BEARING

HINGE K BEARING DESIGN VALUES

Hinge	Support Type	Design Load (KN per pipe beam)		Design Rotation (radians)		Uplift-Inside bearing gap (mm)	Longitudinal Movement (mm)	
		Service	Ultimate	Service	Ultimate		Service	Ultimate
KW, KE	Sliding	10100	56250	0.001	0.0130	250	134	1000 (closing) 1300 (opening)

* Design value for shear given corresponds to maximum shear capacity of fuse pipe beam. It can occur in any direction.

NOTES:
 1. Grouted pockets with injection ports are an acceptable alternative to insure that the bearings are aligned and installed within the specified tolerances (by Others).

100% P&E

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

DESIGN OVERSIGHT R. Valizadeh/V. Tran/Y. Lin/W. L. /F. C. SIGN OFF DATE 12/19/02 Rev. Date: 5-18-98	DESIGN BY M. Nader CHECKED J. Krizek	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	R. Manzanarez PROJECT ENGINEER	BRIDGE NO. 34-0006L/R KILOMETER POST 13.2/13.9	SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT SELF-ANCHORED SUSPENSION BRIDGE (SUPERSTRUCTURE & TOWER) HINGE K BEARING DETAILS NO. 3
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ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS: 0 10 20 30 40 50 60 70 80 90 100

CU 04 EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 431 OF

DESIGN OVERSIGHT ADE AKINSANYA SIGN OFF DATE Rev. Date: 5-18-98	DESIGN BY NA CHECKED NA	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	Jal Birdy PROJECT ENGINEER	BRIDGE NO. 34-0006 L/R KILOMETER POST 12.8	SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT YBI TRANSITION STRUCTURES - HINGE K HINGE K CLOSURE DETAILS NO. 10
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ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS: 0 10 20 30 40 50 60 70 80 90 100

CU 04 EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET K127A OF 209

Def 69, 20021

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SUPPLEMENTAL SHEET
CONTRACT CHANGE ORDER NO. 216
SHEET 29 OF 55



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K677A	806

REGISTERED ENGINEER - CIVIL
A.L. ELY
No. 18880
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA

01/20/2012

PLANS APPROVAL DATE

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825 BATTERY STREET
SAN FRANCISCO, CA 94105
1166s15 of 1204

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	844RIC	1204

REGISTERED ENGINEER - CIVIL
John Sun
No. C 54648
Exp. 12/31/05
CIVIL
STATE OF CALIFORNIA

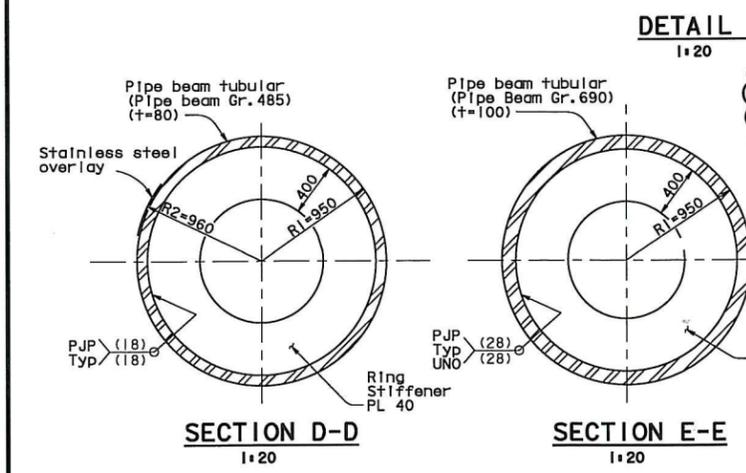
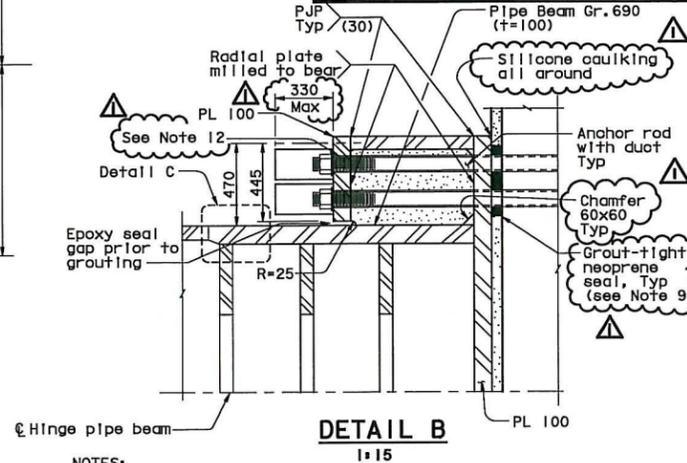
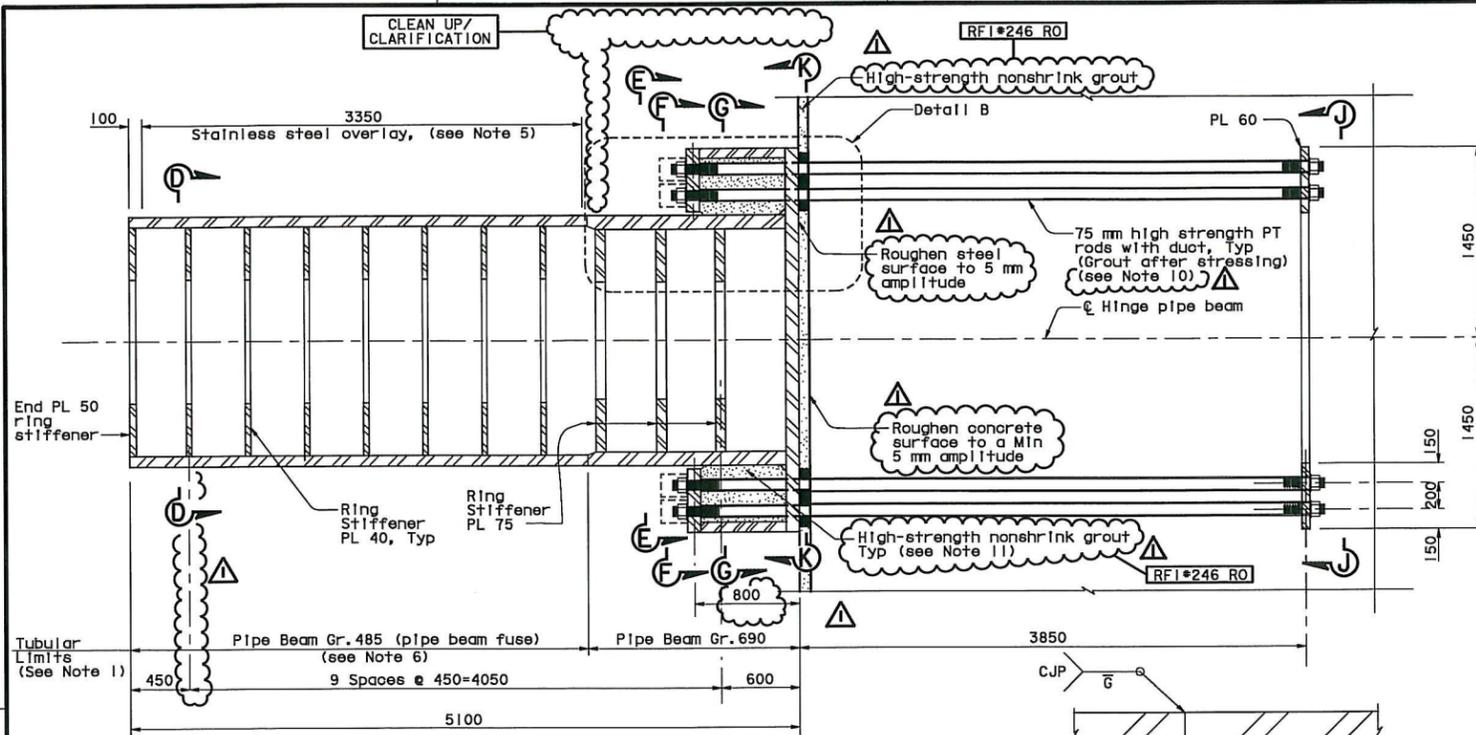
12-6-04

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825 BATTERY STREET
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- DETAIL A
1:20
- DETAIL C
1:5
- RFI#947 RO
- RFI#246 RO
- RFI#947 RO
- The Contractor may substitute the PT duct with a PT Supplier recommended debonding tape, subject to review and approval by the Engineer.
 - Contractor shall grout the interior cells of the pipe beam anchorage. If PT duct substitution is approved by the Engineer.
 - At the Contractor's option, a 96 max diameter oversized hole may be used provided a 25 min thick plate washer is also used. Plate washer shall have silicone caulking around the perimeter. Post-tension cap shall be attached to the seal plate washer.
 - At the Contractor's option, it is acceptable to add a reinforcing fillet to this weld and grind it smooth.



- NOTES:
- Pipe Beam tubulars shall be forgings. Hinge beam ring stiffener plate, stiffener plates and anchorage plates shall be pipe beam Gr. 485, UNO.
 - Hinge beam shall be SPCM.
 - For Section F-F through K-K, see 'Hinge K Details No. 2' sheet.
 - Steel hinge beam PT anchor rods are 75 mm high strength PT rods (f_y=1030 Mpa) with standard galvanized steel ducts, unless specified otherwise. For additional prestressing details, see 'Prestressing Notes' sheet, and for general stressing sequence, see 'Pier W2 Construction Sequence' sheet.
 - The areas noted as stainless steel overlay shall be 316L weld overlay. The area shall be machine finished to within 1 mm of the 960 theoretical radius with a surface finish of 0.8um. The minimum final thickness of the stainless steel overlay shall be 5 mm.
 - Total of 4 spare beam fuses (including stiffeners) for hinges KW and KE shall be fabricated with a minimum overall length of 3513 mm. Spare pipe beams to replace the fuse sections in case of damage due to earthquake in the future (By Others).
 - Jacking force in the steel hinge beam PT anchor rods (HB1-HB76) shall be 3000 kN typical. RFI#400 RO
 - Welds between interior ring stiffener plates and tubulars may be undermatched by one strength level.
 - Grout-tight neoprene seal shown is schematic. The seal shall prevent any grout from seeping through the PT rod holes in the base plate. Area around the hole perimeter shall be ground smooth to produce a tight seal.

NO./DATE	DESCRIPTIONS	BY	CH'D	CCO#	
01/31/07	HINGE K PIPE BEAM BLOCKOUTS	MN	NV	15	
MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
REVISIONS					

CONTRACT CHANGE ORDER NO. _____
SHEET _____ OF _____

5 REVISED PER ADDENDUM NO. 5 DATED DECEMBER 21, 2005

R. Valizadeh/V. Toan/Y.L./M.L./F.C. DESIGN OVERSIGHT Rev. Date 01/23/07 SIGN OFF DATE	DESIGN BY J. Sun CHECKED C. Redfield	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	R. Manzanarez PROJECT ENGINEER	BRIDGE NO. 34-0006L/R	SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT SELF-ANCHORED SUSPENSION BRIDGE (SUPERSTRUCTURE & TOWER)
DETAILS BY J. Duxbury CHECKED M. Chen	QUANTITIES BY J. Duxbury CHECKED S. Shi	CU 04 EA 0120F1	BRIDGE NO. 34-0006L/R	KILOMETER POST 13.2/13.9	HINGE K DETAILS NO. 1
ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS	0 10 20 30 40 50 60 70 80 90 100	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	427RIC	SHEET OF 427RIC

Jan 6, 2012

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DESIGN OVERSIGHT ADE AKINSANYA SIGN OFF DATE Rev. Date 5-10-98	DESIGN BY NA CHECKED NA	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	Jal Birdy PROJECT ENGINEER	BRIDGE NO. 34-0006 L/R	SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT YBI TRANSITION STRUCTURES - HINGE K HINGE K CLOSURE DETAILS NO. 11
DETAILS BY van Ryn/Zucchi/Mai CHECKED Jain	QUANTITIES BY Liao CHECKED E. Nichol	CU 04 EA 0120F1	BRIDGE NO. 34-0006 L/R	KILOMETER POST 12.8	HINGE K CLOSURE DETAILS NO. 11
ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS	0 10 20 30 40 50 60 70 80 90 100	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	427RIC	SHEET OF 427RIC

SUPPLEMENTAL SHEET
CONTRACT CHANGE ORDER NO. 216
SHEET 30 OF 55



DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K678A	806

REGISTERED ENGINEER - CIVIL
A.L. ELY
No. 18880
Exp. 6-30-13
CIVIL
STATE OF CALIFORNIA

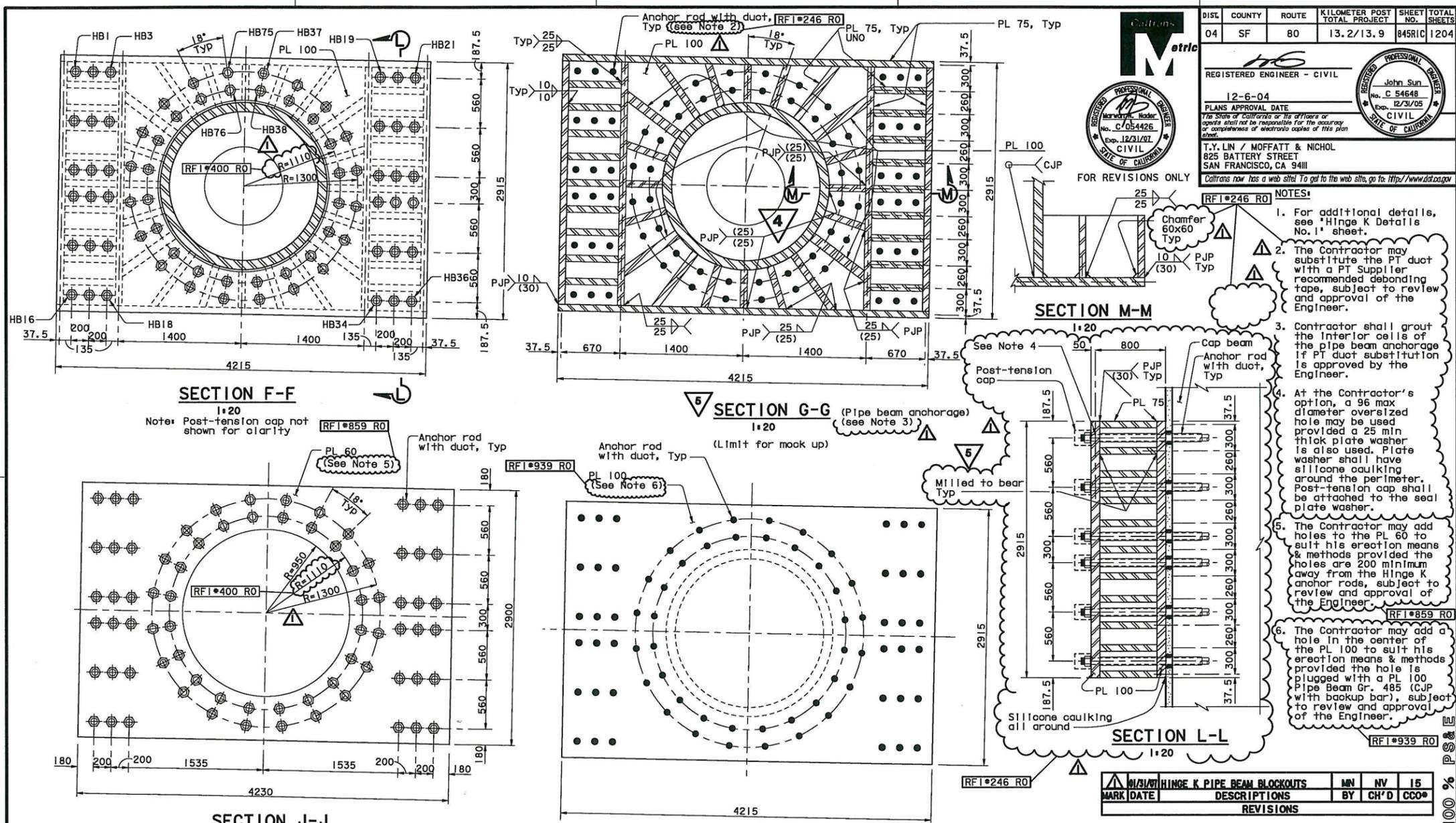
01/20/2012

PLANS APPROVAL DATE

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TWO HARRISON STREET
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1166s16 of 1204



- NOTES:
1. For additional details, see 'Hinge K Details No. 1' sheet.
 2. The Contractor may substitute the PT duot with a PT Supplier recommended bonding tape, subject to review and approval of the Engineer.
 3. Contractor shall grout the interior cells of the pipe beam anchorage if PT duot substitution is approved by the Engineer.
 4. At the Contractor's option, a 96 max diameter oversized hole may be used provided a 25 min thick plate washer is also used. Plate washer shall have silicone caulking around the perimeter. Post-tension cap shall be attached to the seal plate washer.
 5. The Contractor may add holes to the PL 60 to suit his erection means & methods provided the holes are 200 minimum away from the Hinge K anchor rods, subject to review and approval of the Engineer.
 6. The Contractor may add a hole in the center of the PL 100 to suit his erection means & methods provided the hole is plugged with PL 100 Pipe Beam Gr. 485 (CJP with backup bar), subject to review and approval of the Engineer.

MARK	DATE	DESCRIPTIONS	MN	NV	15
REVISIONS			BY	CH'D	CCO*

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REVISIONS PER ADDENDUM NO. 4 DATED DECEMBER 9, 2005

REVISIONS PER ADDENDUM NO. 5 DATED DECEMBER 21, 2005

DESIGN	BY J. Sun	CHECKED C. Redfield	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 34-006L/R
DETAILS	BY J. Duxbury	CHECKED M. Chen	R. Manzanarez PROJECT ENGINEER	KILOMETER POST 13.2/13.9
QUANTITIES	BY J. Duxbury	CHECKED S. Shi	CU 04 EA 0120F1	DISREGARD PRINTS BEARING EARLIER REVISION DATES

ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS

DESIGN OVERSIGHT: ADE AKINSANYA

DESIGN: NA

DETAILS: van Ryn/Zucchi/Mal

QUANTITIES: Liqo

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

Jal Birby PROJECT ENGINEER

BRIDGE NO. 34-006 L/R

KILOMETER POST 12.8

CU 04 EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT

YBI TRANSITION STRUCTURES - HINGE K

HINGE K CLOSURE DETAILS NO. 12

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 129A OF 209

Jan 6, 2012

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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K679A	806

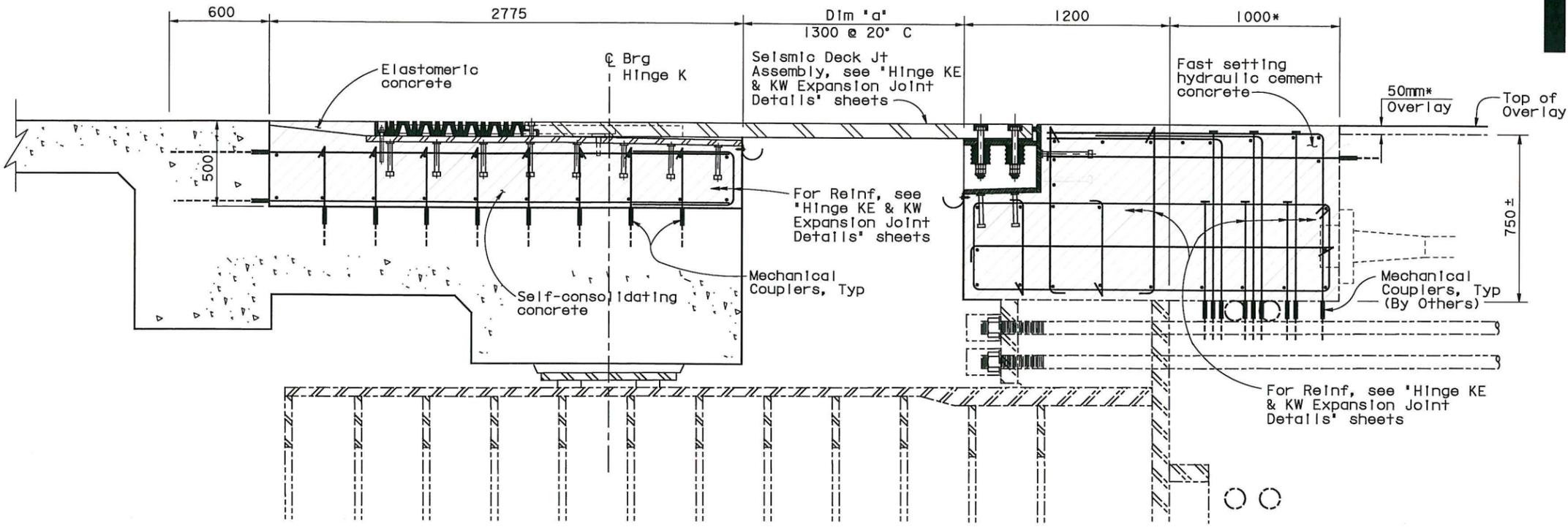
REGISTERED ENGINEER - CIVIL
 A.L. ELY
 No. 18880
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE
 01/20/2012

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 SAN FRANCISCO, CA 94105

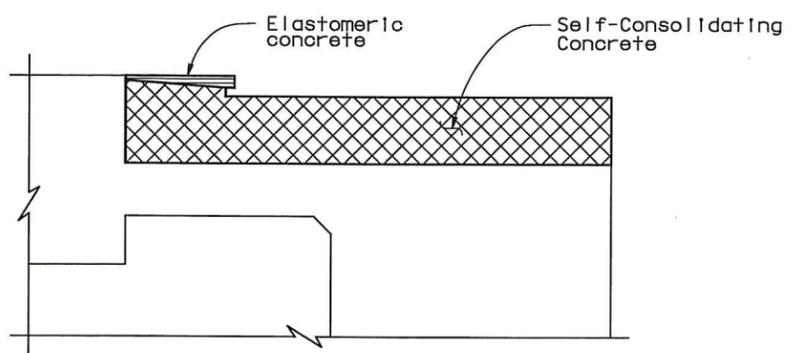
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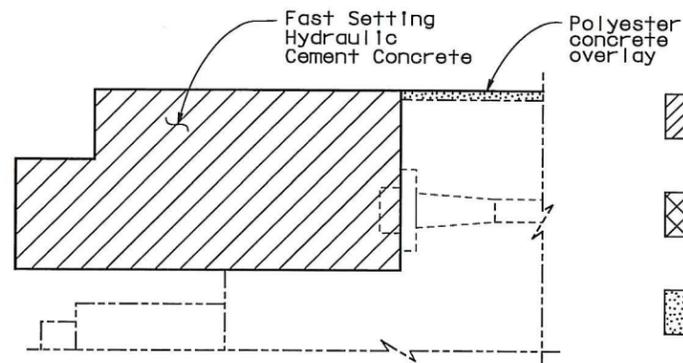
TYPICAL SECTION AT EXPANSION JOINT
 1:15

Expansion Joint Information
 Movement Rating (MR): 280 mm

Air Temperature (T)	Dimension 'a' (mm)
5° C	1350
10° C	1333
15° C	1317
20° C	1300
25° C	1284
30° C	1267
35° C	1251



YBI



SAS

CONCRETE STRENGTH AND TYPE LIMITS

Indicates concrete placed when deck joint installed

- Fast Setting Hydraulic Cement Concrete (FSHCC)
 $f'_{ci} = 14 \text{ MPa @ 3 hours}$
 $f'_c = 35 \text{ MPa @ 56 days}$
- Self-Consolidating Concrete (SCC) Bridge
 $f'_c = 35 \text{ MPa @ 56 days}$
- Overlay
- Elastomeric Concrete (see Note 1)

NOTES:

1. At the Contractor's option, Watson Bowman's WaboCrete II Elastomeric Concrete may be used, subject to review and approval of the Engineer.

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. **216**
 SHEET **31** OF **55**

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DESIGN OVERSIGHT
 ADE AKINSANYA
 SIGN OFF DATE
 Rev. Date: 5-18-98

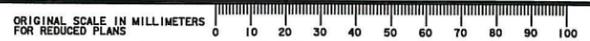
DESIGN	By: Lee	CHECKED: Wang
DETAILS	By: van Ryn/Zuochi/Ma	CHECKED: Jain
QUANTITIES	By: Liao	CHECKED: E. Nichol

PREPARED FOR THE
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

Jal Birdy
 PROJECT ENGINEER

BRIDGE NO.	34-0006L/R
KILOMETER POST	12.8

SAN FRANCISCO OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT
YBI TRANSITION STRUCTURES - HINGE K
HINGE K CLOSURE DETAILS NO. 13



CU 04
 EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET	OF
		K130A	209

Jan 6, 2012

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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K681A	806

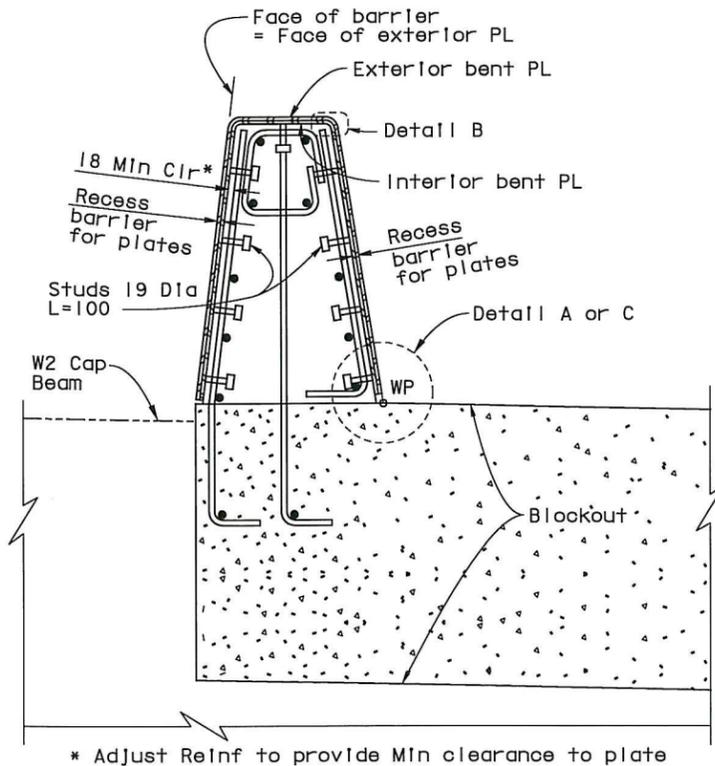
REGISTERED ENGINEER - CIVIL
 A.L. ELY
 No. 18880
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE
 01/20/2012

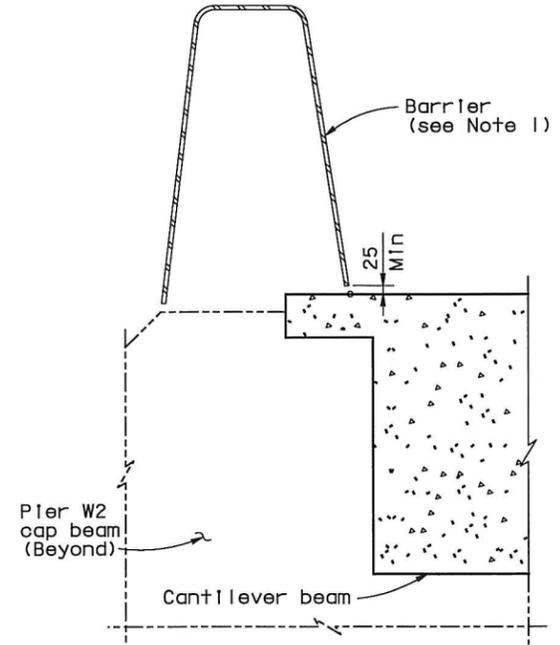
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 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105

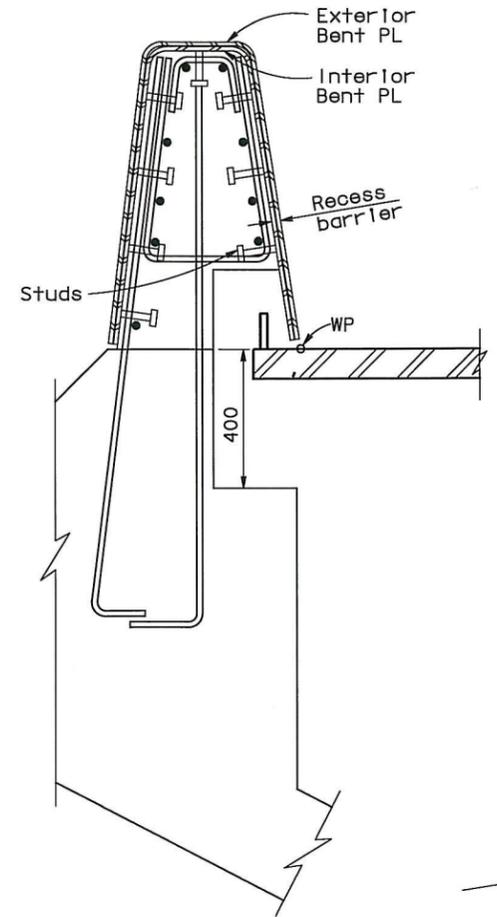
1166s19 of 1204



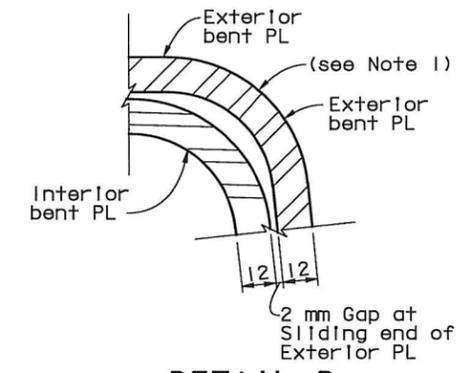
SECTION A-A
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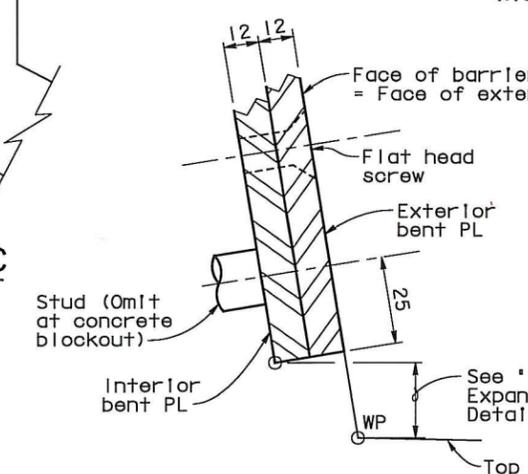
SECTION B-B
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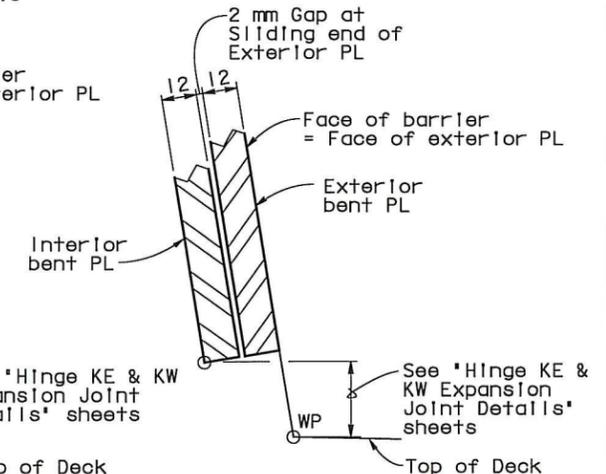
SECTION C-C
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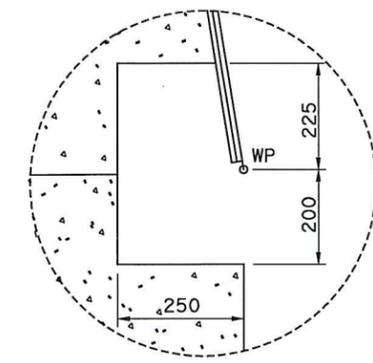
DETAIL B
NTS



DETAIL TYPICAL AT FIXED END OF EXTERIOR PL
DETAIL A
NTS



DETAIL TYPICAL AT SLIDING END OF EXTERIOR PL
DETAIL C
NTS



TYPICAL BARRIER BLOCKOUT
NTS

NOTES:

- Bend steel plates to conform to shape of concrete barrier.
- Galvanize all metal hardware after fabrication.
- Steel barrier cover plates to be furnished by others and installed by Contractor.

Jan 6, 2012

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CONTRACT CHANGE ORDER NO. **216**
 SHEET **33** OF **55**

SUPPLEMENTAL SHEET

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SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT	
BRIDGE NO. 34-0006L/R	YBI TRANSITION STRUCTURES - HINGE K HINGE K CLOSURE DETAILS NO. 15
KILOMETER POST 12.8	
CU 04 EA 0120F1	REVISION DATES (PRELIMINARY STAGE ONLY)
	SHEET 209 OF 209

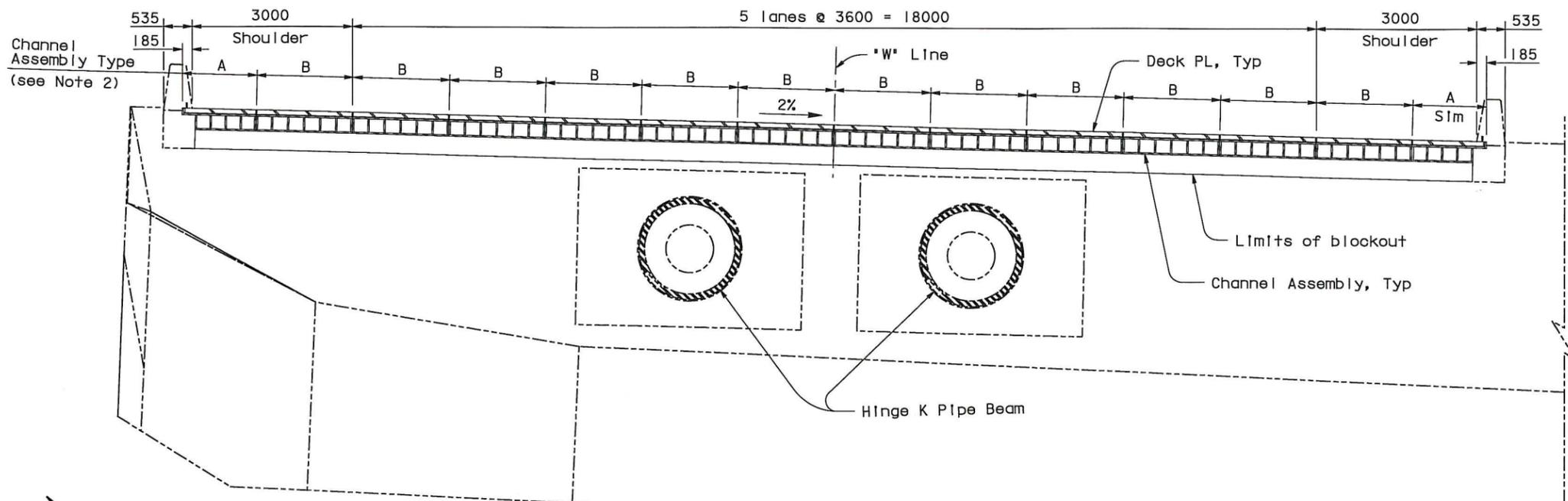
DESIGN OVERSIGHT ADE AKINSANYA	DESIGN BY Lee	CHECKED Wang	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	J. Birdy PROJECT ENGINEER
SIGN OFF DATE	DETAILS BY van Ryn/Zuochi/Mai	CHECKED Jain		
Rev. Dates 5-18-98	QUANTITIES BY Liao	CHECKED E. Nichol		





DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K697A	806

REGISTERED ENGINEER - CIVIL
 01/20/2012
 PLANS APPROVAL DATE
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 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105
 166s20 of 1204

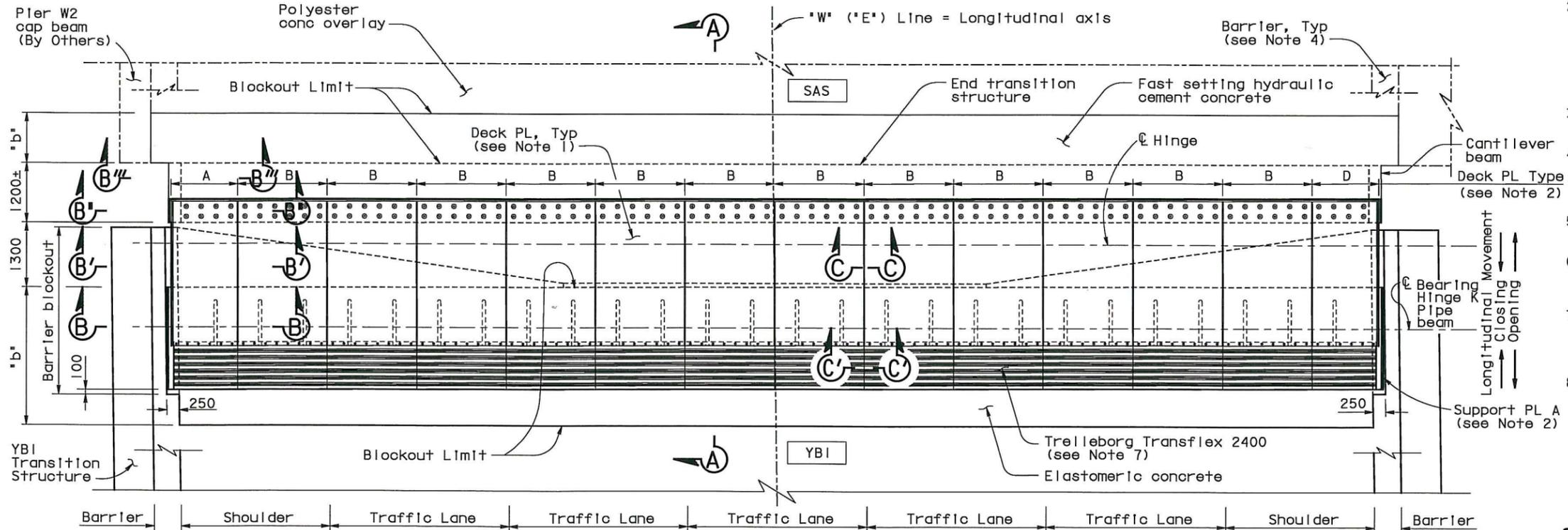


ELEVATION

1:50
 (Westbound Shown, Eastbound Similar)
 (Elevation View Looking East)

NOTES:

- For Deck Plates A, B and D, see "Hinge KE & KW Expansion Joint Details No.3" sheet.
- Deck Plate A and D matches with Support Plate A and the Channel Assembly A (Module A). Deck Plate B matches with Support Plate B and the Channel Assembly B (Module B). For details, see "Hinge KE & KW Expansion Joint Details No.3" and "Hinge KE & KW Expansion Joint Details No.5" sheets.
- One module "B" is placed per half traffic lane.
- Portions of barriers are not shown for clarity. For barrier details at expansion joint, see "Hinge K Closure Details No.14" sheet.
- For Section A-A, see "Hinge KE & KW Expansion Joint Details No.2" sheet.
- For Sections B-B, B'-B', B''-B''', B''''-B''''', C-C and C'-C', see "Hinge KE & KW Expansion Joint Details No.3" sheet.
- The expansion joint shall be 1800 wide Transflex 2400 module with movement rating of 600. The joint between the Transflex modules shall be water tight.
- For General Notes, see "General Notes" sheets.



PLAN-EXPANSION JOINT

1:50
 (Westbound Shown, Eastbound Similar)

SUPPLEMENTAL SHEET
CONTRACT CHANGE ORDER NO. 216
SHEET 34 OF 55

DESIGN OVERSIGHT
 ADE AKINSANYA
 SIGN OFF DATE
 Rev. Date: 5-18-98

DESIGN	BY C. Redfield	CHECKED M. Nader
DETAILS	BY H. Patel	CHECKED J. Duxbury
QUANTITIES	BY H. Patel	CHECKED J. Duxbury

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
 PROJECT ENGINEER: Jal Birdy

SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT	
BRIDGE NO.	34-0006 L/R
KILOMETER POST	12.8
YBI TRANSITION STRUCTURES - HINGE K	
HINGE KE & KW EXPANSION JOINT DETAILS NO. 1	



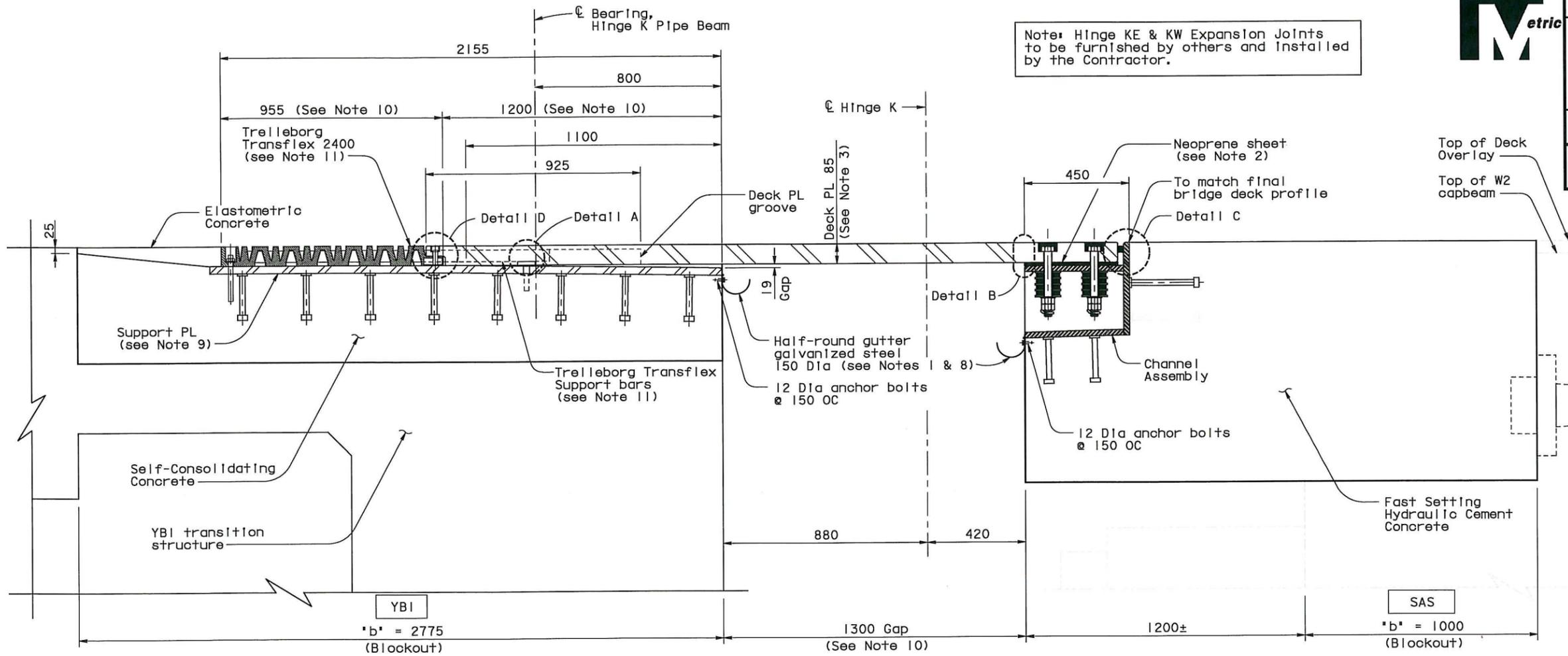
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				K148A	209



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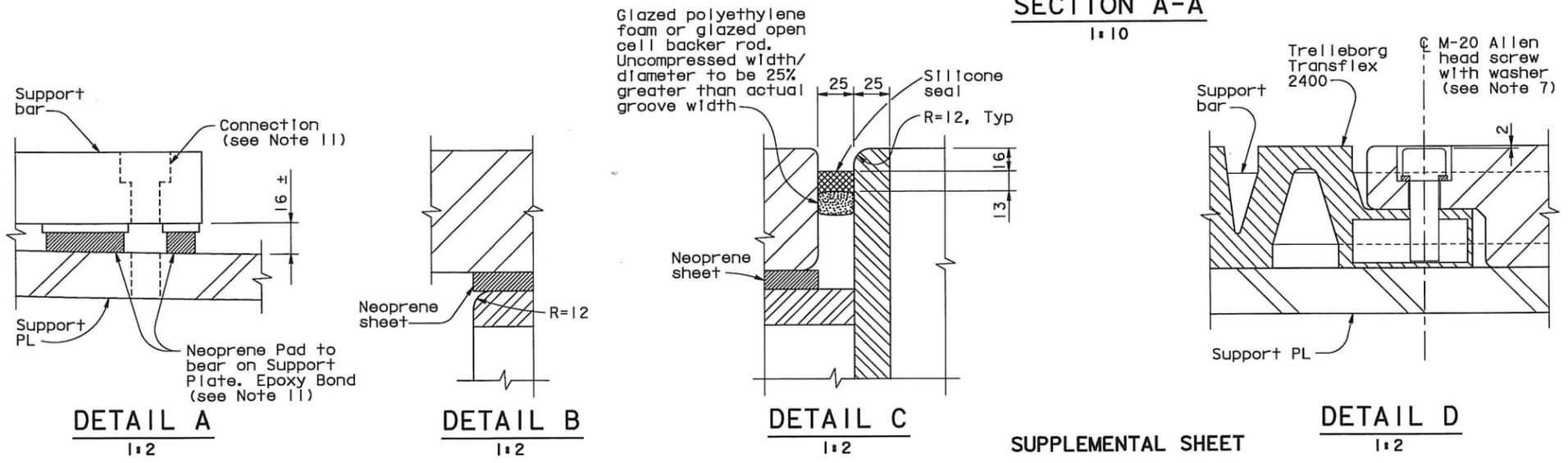
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 01/20/2012
 PLANS APPROVAL DATE
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 T.Y. LIN / MOFFATT & NICHOL
 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105
 1166s21 of 1204

Note: Hinge KE & KW Expansion Joints to be furnished by others and installed by the Contractor.



NOTES:

1. Use caulking or sealant between gutter and concrete.
2. 40 mm holes in neoprene sheets shall be drilled or punched so that the neoprene is not distorted at the time of installation. See "Hinge KE & KW Expansion Joint Details No.6" sheet.
3. For deck plate layout and details, see "Hinge KE & KW Expansion Joint Details No.1" sheet. For deck plate friction groove pattern, see "Hinge KE & KW Expansion Joint Details No.4" sheet.
4. For mild steel reinforcement in blackout areas, see "Hinge KE & KW Expansion Joint Details No.8" sheet.
5. For channel assembly details, see "Hinge KE & KW Expansion Joint Details No.5" and "Hinge KE & KW Expansion Joint Details No.6" sheets.
6. Place deck plate, support plate and channel assembly so that full bearing is achieved between 1) deck plate and channel assembly and 1) deck plate and support plates as shown in Section A-A.
7. M-20 Allen head screw shall be stainless steel.
8. Gutter shall be placed 75 mm minimum clear from the deck plate and shall be parallel to deck cross slope.
9. For support plate details see "Hinge KE & KW Expansion Joint Details No.7" sheet.
10. Values are for mean temperature of 20°C.
11. All the connection hardware shall be supplied with Trelleborg Transflex 2400. The connection of Transflex 2400 and that of the support bar to the blackout concrete shall be drilled and bond dowels.



SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. 216
 SHEET 35 OF 55

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT	
BRIDGE NO. 34-006 L/R	YBI TRANSITION STRUCTURES - HINGE K
KILOMETER POST 12.8	HINGE KE & KW EXPANSION JOINT DETAILS NO.2

DESIGN OVERSIGHT
 ADE AKINSANYA
 SIGN OFF DATE

DESIGN	BY C. Redfield	CHECKED M. Nader
DETAILS	BY H. Patel	CHECKED J. Duxbury
QUANTITIES	BY H. Patel	CHECKED J. Duxbury

PREPARED FOR THE
STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
 Jal Birdy
 PROJECT ENGINEER

CU 04
 EA 0120F1



DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET K149A	OF 209
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Jan 6, 2012

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 DATE PLOTTED => 1/12/2012
 USERNAME => fsmason



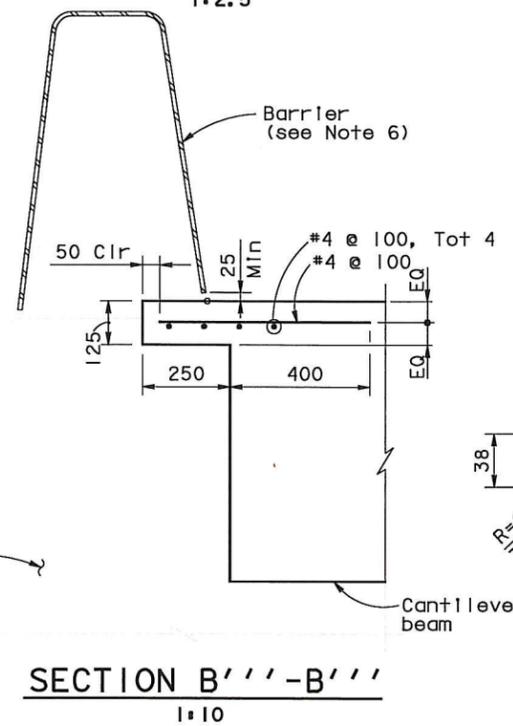
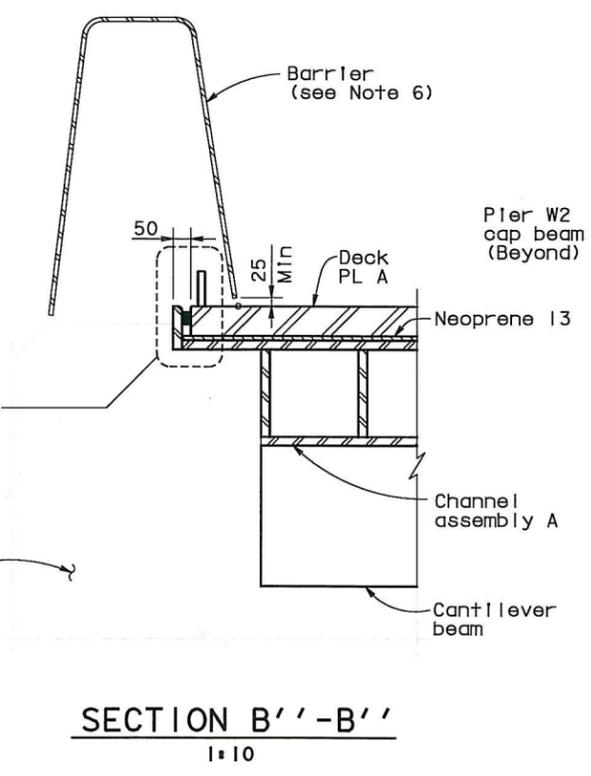
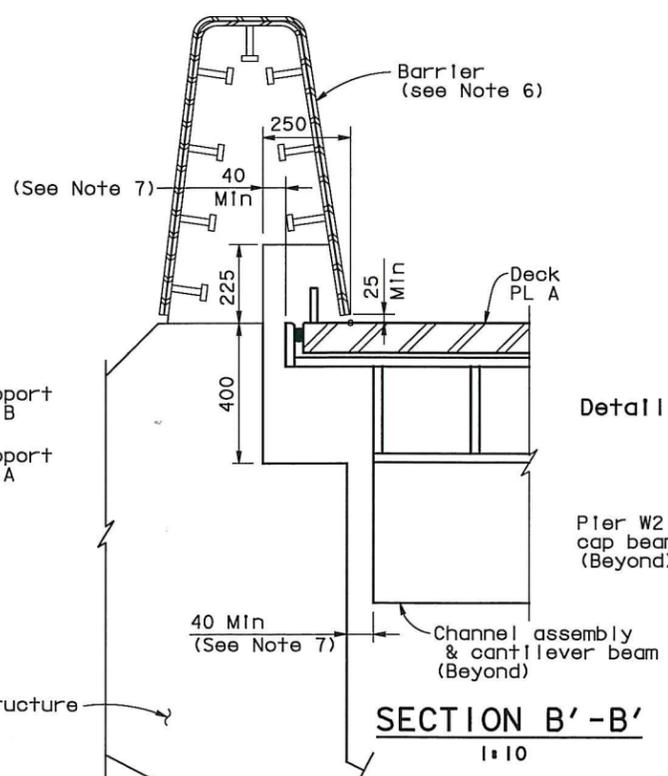
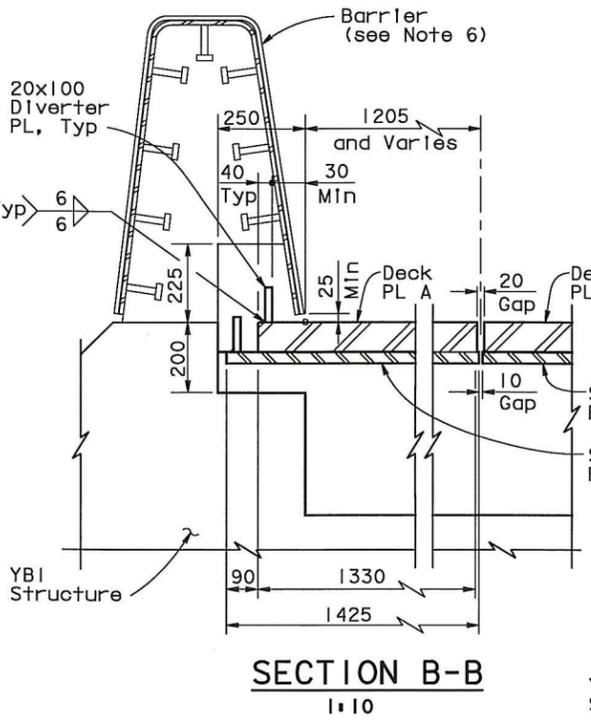
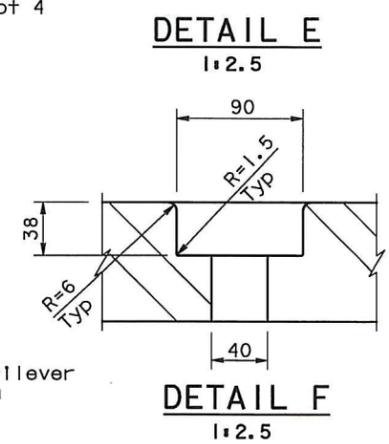
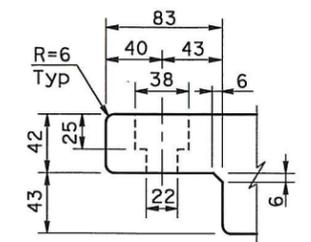
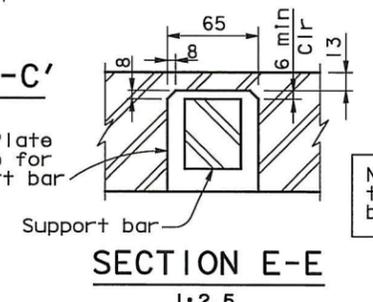
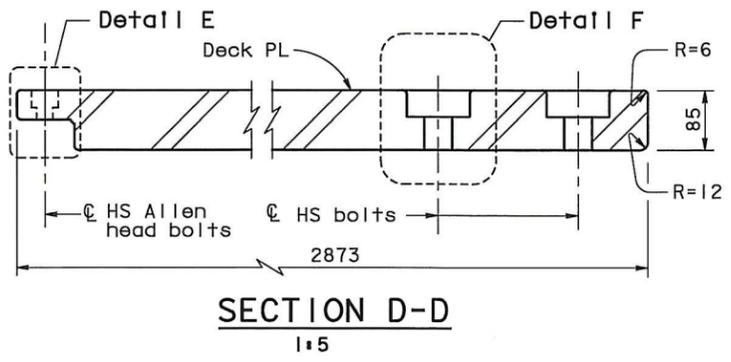
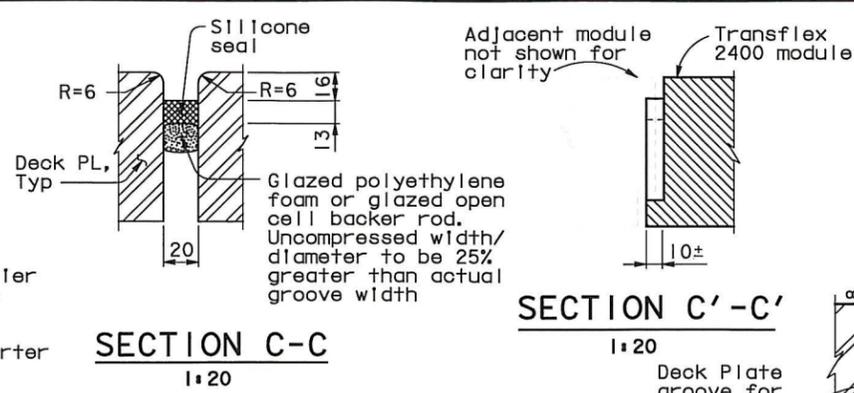
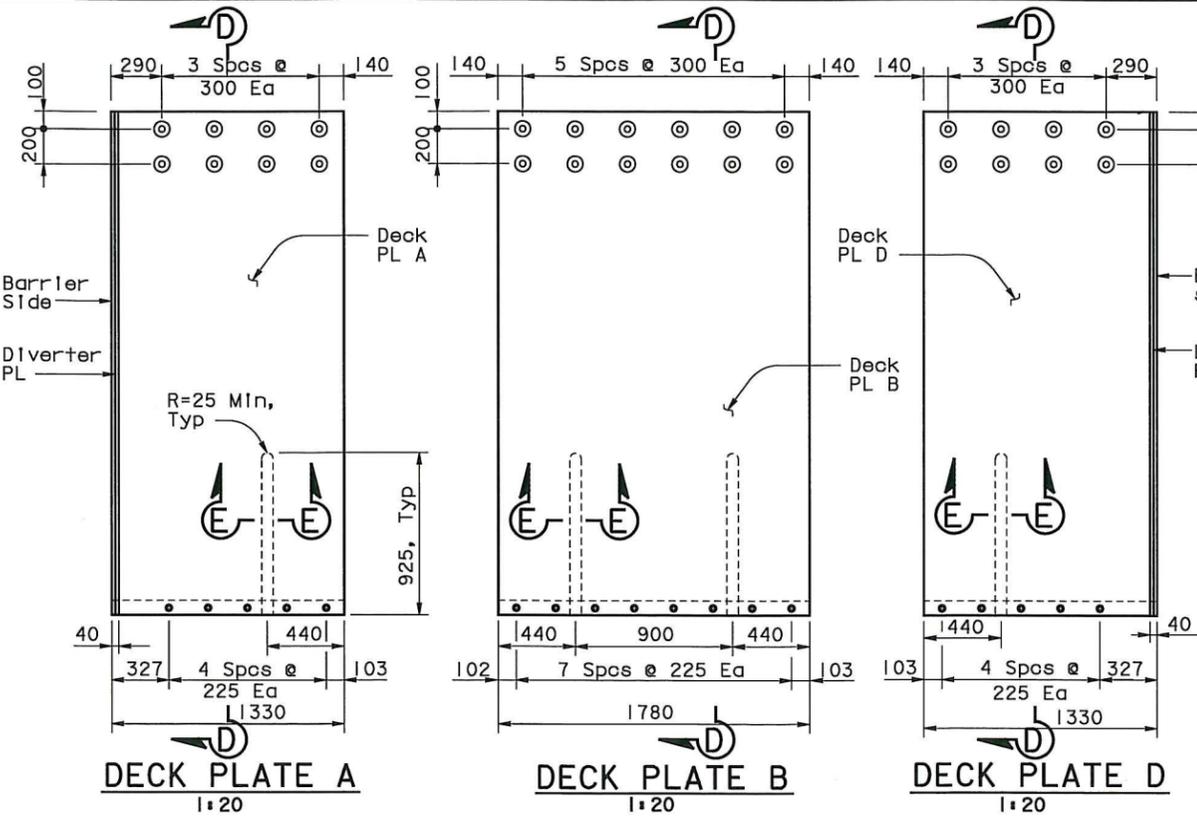
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REGISTERED ENGINEER - CIVIL
 01/20/2012
 PLANS APPROVAL DATE
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 SAN FRANCISCO, CA 94105
 1166s22 of 1204

Note: Hinge KE & KW Expansion Joints to be furnished by others and installed by the Contractor.



- NOTES:
- For deck plate plan see "Hinge KE & KW Expansion Joint Details No.1" sheet.
 - Diverter plate applies to Deck plates A and D and Support plate A only.
 - For bolting of deck plates to channel assembly details, see "Hinge KE & KW Expansion Joint Details No.6" sheet.
 - For connection detail between Trelleborg Transflex 2400 and deck plate see, "Hinge KE & KW Expansion Joint Details No.2" sheet.
 - For Detail L, see "Hinge KE & KW Expansion Joint Details No.6" sheet.
 - For barrier details, see "Hinge K Closure Details No.14" sheet.
 - Minimum clearance of 40 mm shall be provided between the cantilever at SAS blockout and interior face of YBI edge girder to ensure free seismic closing movement.

SUPPLEMENTAL SHEET
 CONTRACT CHANGE ORDER NO. 216
 SHEET 36 OF 55

DESIGN OVERSIGHT
 ADE AKINSANYA

DESIGN	BY C. Redfield	CHECKED M. Nader
DETAILS	BY H. Patel	CHECKED J. Duxbury
QUANTITIES	BY H. Patel	CHECKED J. Duxbury

PREPARED FOR THE
 STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

Jal Birdy
 PROJECT ENGINEER

BRIDGE NO.	34-0006 L/R
KILOMETER POST	12.8
SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT	
YBI TRANSITION STRUCTURES - HINGE K	
HINGE KE & KW EXPANSION JOINT DETAILS NO.3	



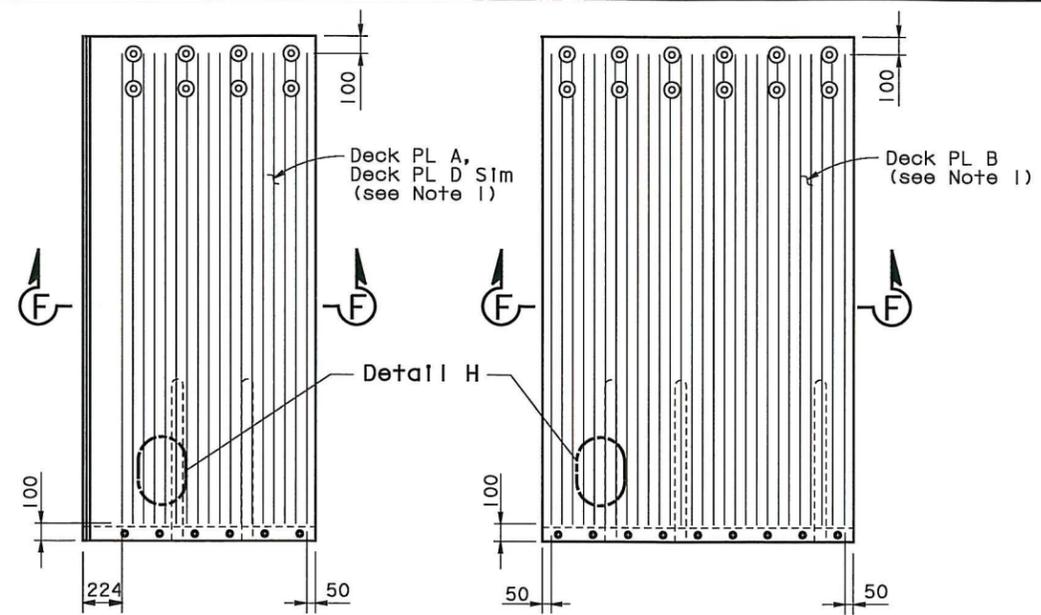
CU 04 EA 0120F1	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET 209 OF 209
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DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
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REGISTERED CIVIL ENGINEER DATE 01/20/2012 PLANS APPROVAL DATE					
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1166s23 of 1204

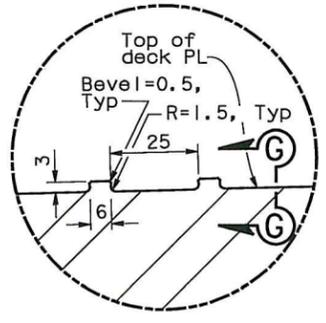
Note: Hinge KE & KW Expansion Joints to be furnished by others and installed by the Contractor.



DECK PLATE A/D

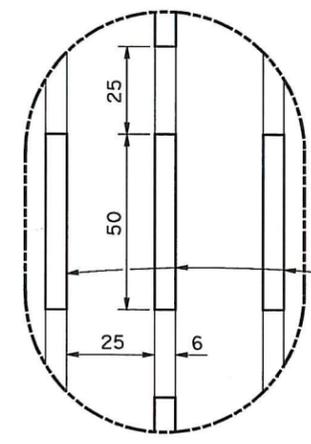
DECK PLATE B

(Deck PL A Shown, Deck PL D Similar)



DETAIL G

1:1

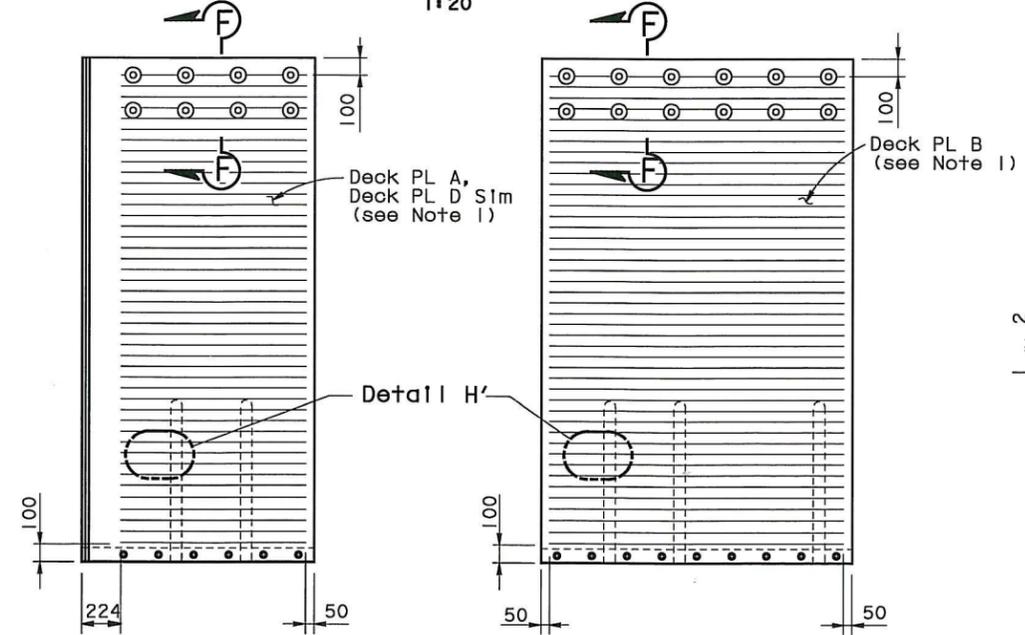


DETAIL H

1:1

FRICTION PATTERN (See Note 2)

1:20



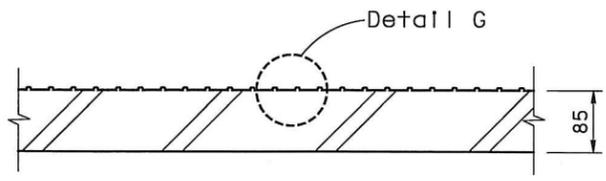
DECK PLATE A/D

DECK PLATE B

(Deck PL A Shown, Deck PL D Similar)

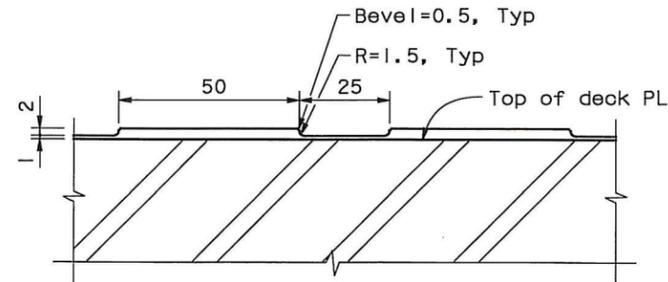
ALT FRICTION PATTERN (See Note 2)

1:20



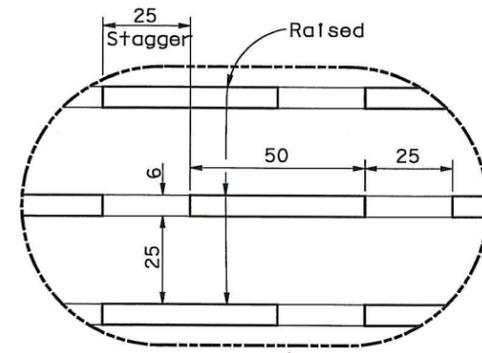
SECTION F-F

1:5



SECTION G-G

1:1



DETAIL H'

1:1

NOTES:

- For Details not shown, see "Hinge KE & KW Expansion Joint Details No.3" sheet.
- Friction pattern type shall be selected as directed by the Engineer. Polymer/Aggregate Skid Coat (PASC) may be applied per Engineer's direction.

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. **216**
SHEET **37** OF **55**

SAN FRANCISCO OAKLAND BAY BRIDGE	
EAST SPAN SEISMIC SAFETY PROJECT	
YBI TRANSITION STRUCTURES - HINGE K	
SEISMIC JOINT (TYPE II)	
HINGE KE & KW EXPANSION JOINT DETAILS NO. 4	



MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO*
REVISIONS					

DESIGN	BY R MAGGENTI	CHECKED M WHITESIDE
DETAILS	BY R MAGGENTI	CHECKED M WHITESIDE
QUANTITIES	BY R MAGGENTI	CHECKED M WHITESIDE

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES
STRUCTURE DESIGN
SPECIAL DESIGNS BRANCH

BRIDGE NO.
34-0006 L/R
KILOMETER POST
12.8

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN



CU 04
EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES	SHEET	OF
	K151A	209

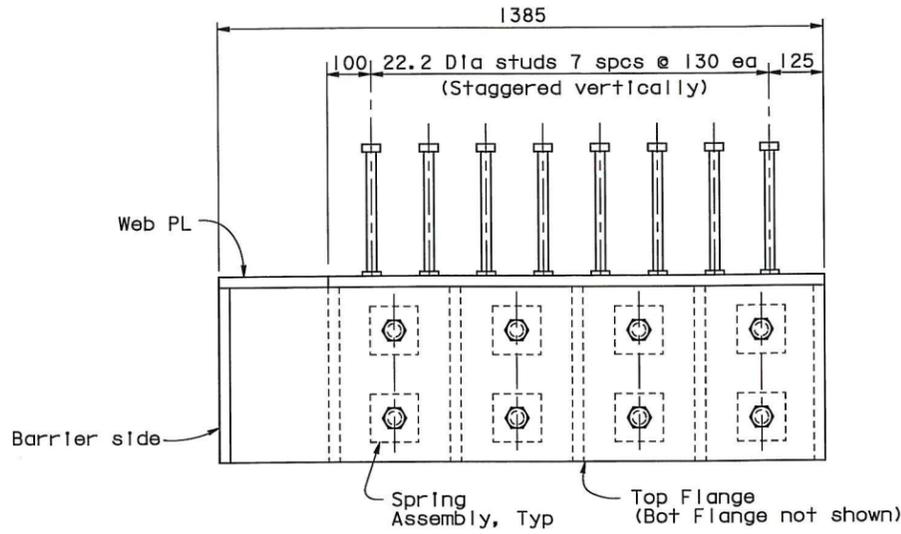
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Jan 6, 2012

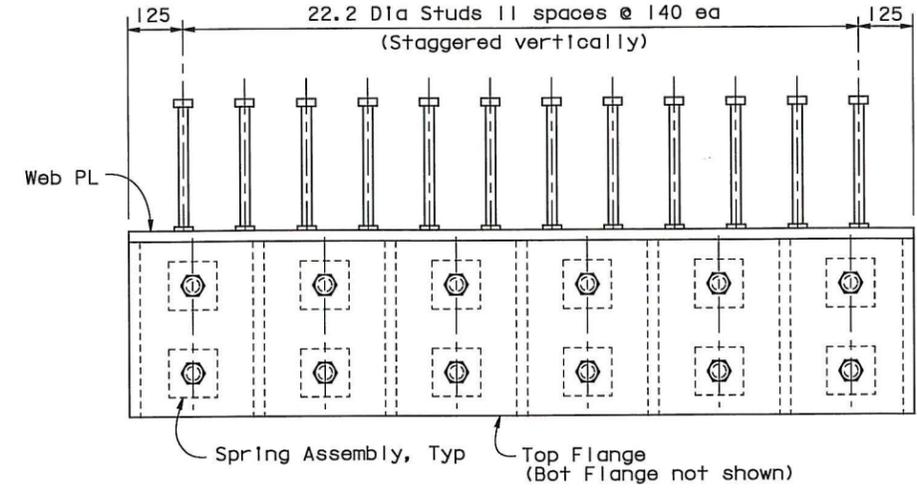


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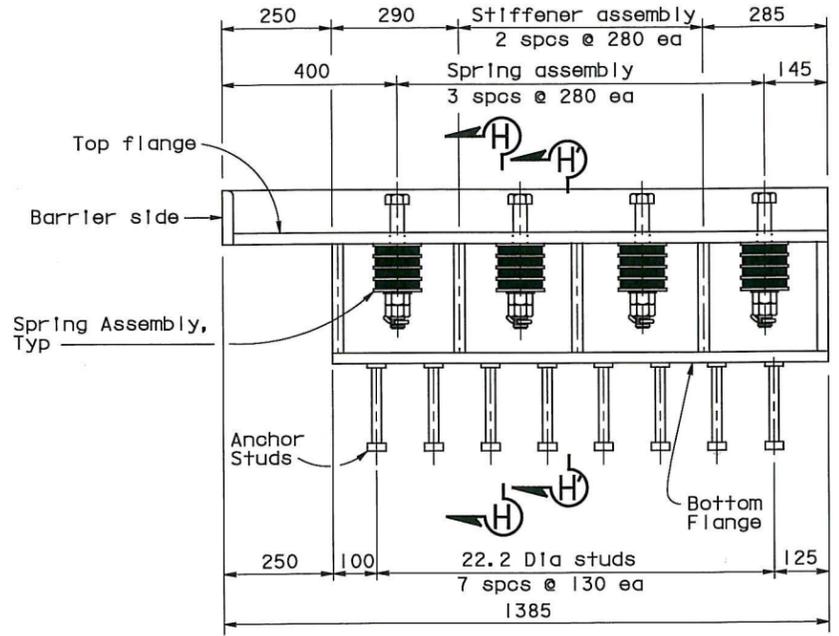
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01/20/2012	
PLANS APPROVAL DATE	
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.	
T.Y. LIN / MOFFATT & NICHOL TWO HARRISON STREET SAN FRANCISCO, CA 94105	
1166s24 of 1204	



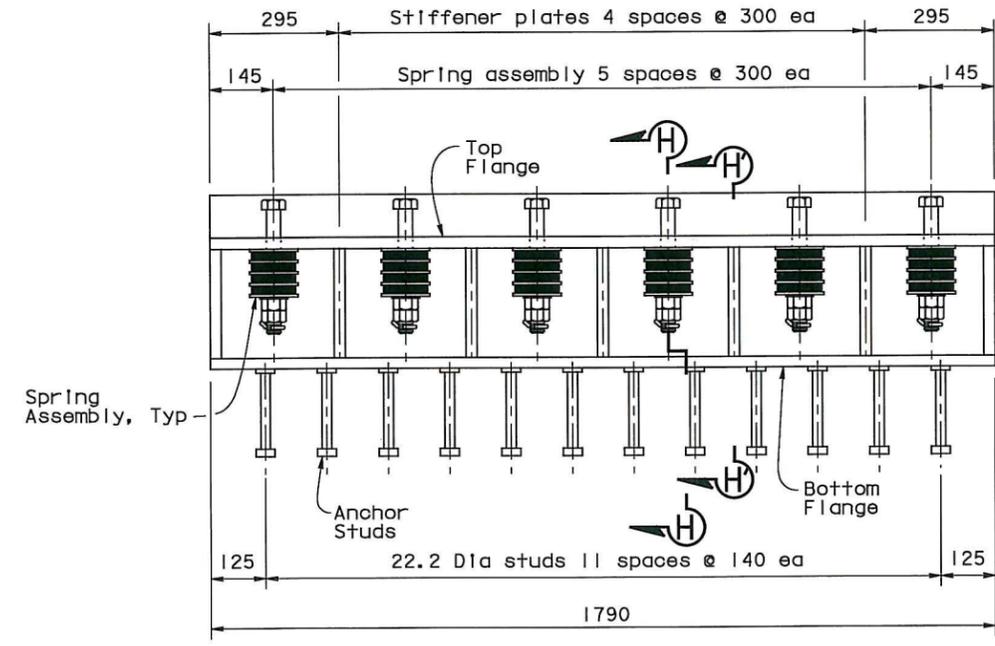
PLAN - BUILT UP CHANNEL ASSEMBLY "A"
NTS



PLAN - BUILT UP CHANNEL ASSEMBLY "B"
NTS



ELEVATION - BUILT UP CHANNEL ASSEMBLY "A"
NTS



ELEVATION - BUILT UP CHANNEL ASSEMBLY "B"
NTS

Note: Hinge KE & KW Expansion Joints to be furnished by others and installed by the Contractor.

Jan 6, 2012

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. 216
SHEET 38 OF 55

NOTES:

- 1. For Sections H-H and H'-H', see "Hinge KE & KW Expansion Joint Details No.6" sheet.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT	
BRIDGE NO. 34-0006 L/R	YBI TRANSITION STRUCTURES - HINGE K
KILOMETER POST 12.8	HINGE KE & KW EXPANSION JOINT DETAILS NO.5

DESIGN OVERSIGHT
ADE AKINSANYA
SIGN OFF DATE
Rev. Date: 5-18-98

DESIGN	BY C. Redfield	CHECKED M. Nader
DETAILS	BY H. Patel	CHECKED J. Duxbury
QUANTITIES	BY H. Patel	CHECKED J. Duxbury

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Jal Birdy
PROJECT ENGINEER
CU 04
EA 0120F1



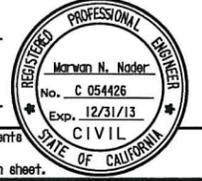
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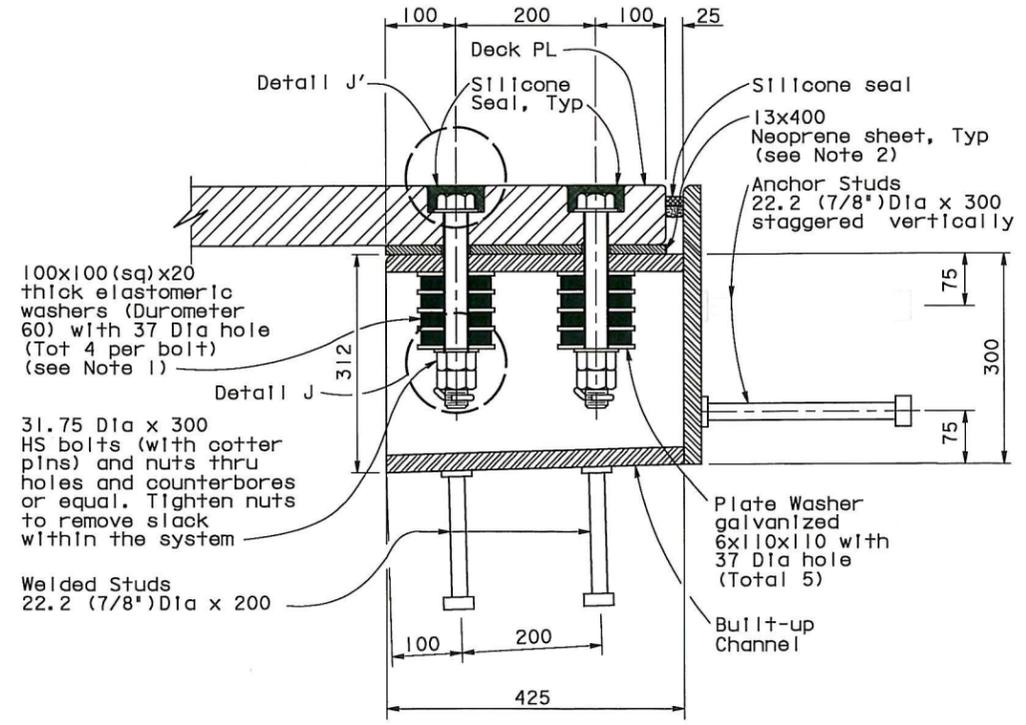


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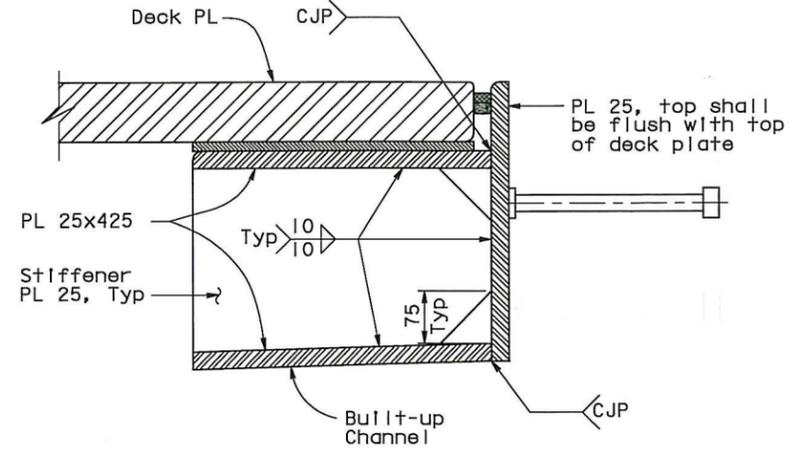
REGISTERED ENGINEER - CIVIL
 01/20/2012
 PLANS APPROVAL DATE
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 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105
 1166s25 of 1204



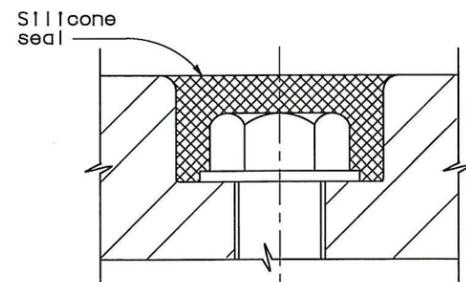
Note: Hinge KE & KW Expansion Joints to be furnished by others and installed by the Contractor.



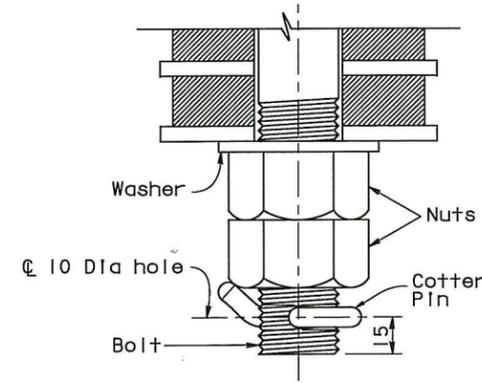
SECTION H-H
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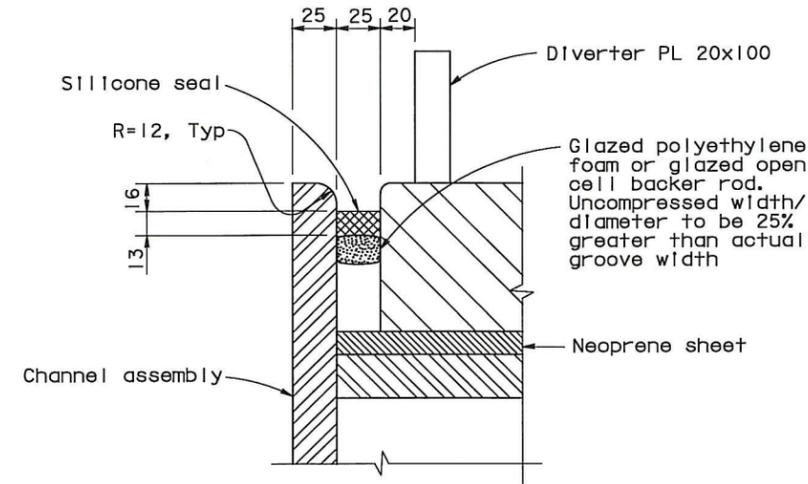
SECTION H'-H'
NTS



DETAIL J'
NTS



DETAIL J
NTS



DETAIL L
NTS

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. **216**
 SHEET **39** OF **55**

NOTES:

- Elastomeric washers shall be plain neoprene.
- The length of the 13x400 mm neoprene sheet below the deck plate is 1360 mm and 1790 mm long for modules 'A' and 'B' respectively.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

DESIGN OVERSIGHT ADE AKINSANYA	DESIGN BY C. Redfield CHECKED M. Nader	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 34-0006 L/R	SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT
SIGN OFF DATE	DETAILS BY H. Patel CHECKED J. Duxbury	Jal Birdy PROJECT ENGINEER	12.8	YBI TRANSITION STRUCTURES - HINGE K
Rev. Date: 5-18-98	QUANTITIES BY H. Patel CHECKED J. Duxbury	CU 04 EA 0120F1	DISREGARD PRINTS BEARING EARLIER REVISION DATES	HINGE KE & KW EXPANSION JOINT DETAILS NO. 6
ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS	0 10 20 30 40 50 60 70 80 90 100	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF	K153A 209

Jan 6, 2012

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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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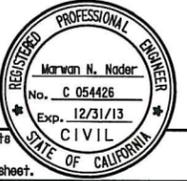
REGISTERED ENGINEER - CIVIL
01/20/2012

PLANS APPROVAL DATE

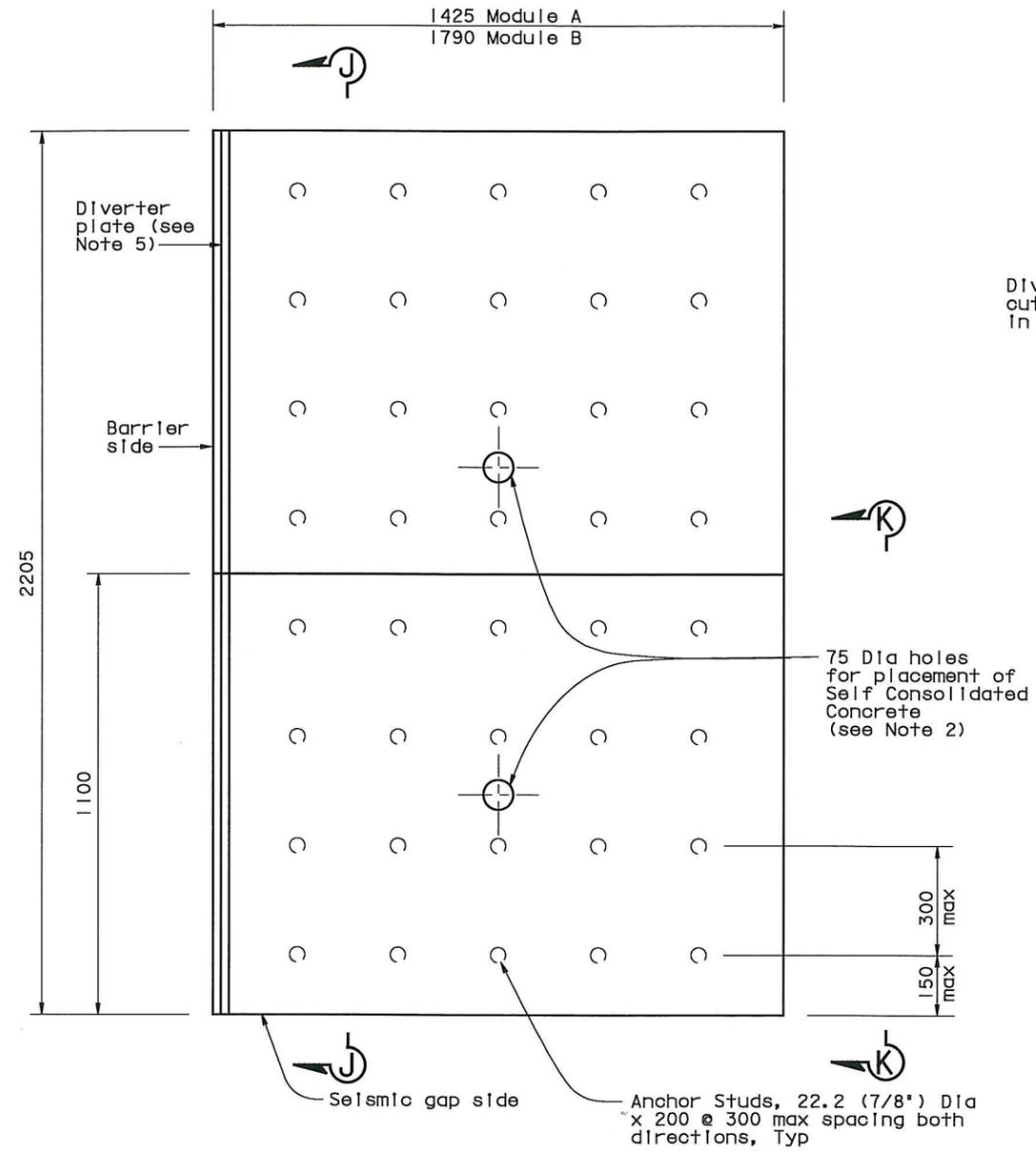
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TWO HARRISON STREET
SAN FRANCISCO, CA 94105

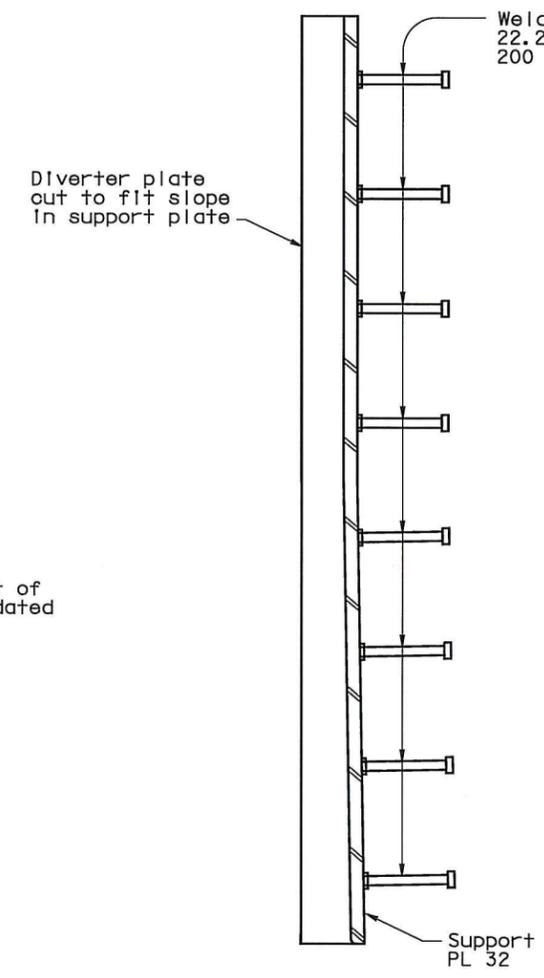
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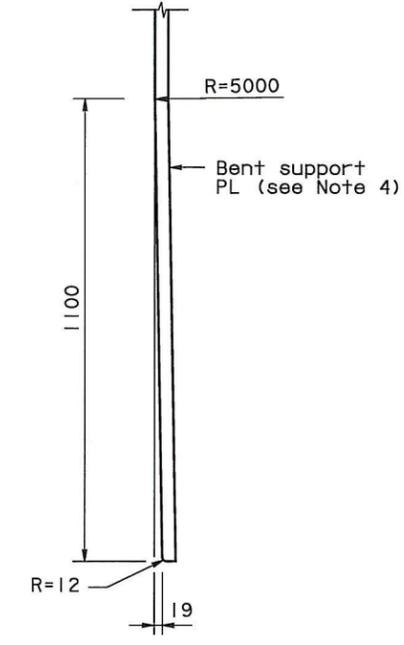
Note: Hinge KE & KW Expansion Joints to be furnished by others and installed by the Contractor.



PLAN-SUPPORT PLATE
NTS



SECTION J-J
NTS



SECTION K-K
NTS

NOTES:

1. Support Plate A shown, Support Plate B similar.
2. Exact location of 75 Dia holes to be determined prior to support plate fabrication.
3. Anchor holes for Trelleborg Transflex 2400 and Trelleborg Support Bar connection not shown. Coordinate anchor hole location with Transflex modules.
4. At the Contractor's option, the support plate may be machined in lieu of bending.
5. For diverter plate details see 'Hinge KE & KW Expansion Joint Details No.3' sheet. Diverter plate applies only to support plate A.

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. 216
SHEET 40 OF 55

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

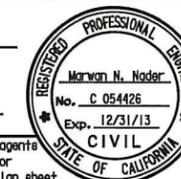
DESIGN OVERSIGHT ADE AKINSANYA	DESIGN BY C. Redfield	CHECKED M. Nader	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	Jal Birdy PROJECT ENGINEER	BRIDGE NO. 34-0006 L/R	SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT
	SIGN OFF DATE	DETAILS BY H. Patel		CHECKED J. Duxbury	KILOMETER POST 12.8	
Rev. Date: 5-18-98	QUANTITIES BY H. Patel	CHECKED J. Duxbury	CU 04 EA 0120F1	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	HINGE KE & KW EXPANSION JOINT DETAILS NO.7
ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS				0 10 20 30 40 50 60 70 80 90 100	SHEET OF	K154A 209

Jan 6, 2012

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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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REGISTERED ENGINEER - CIVIL

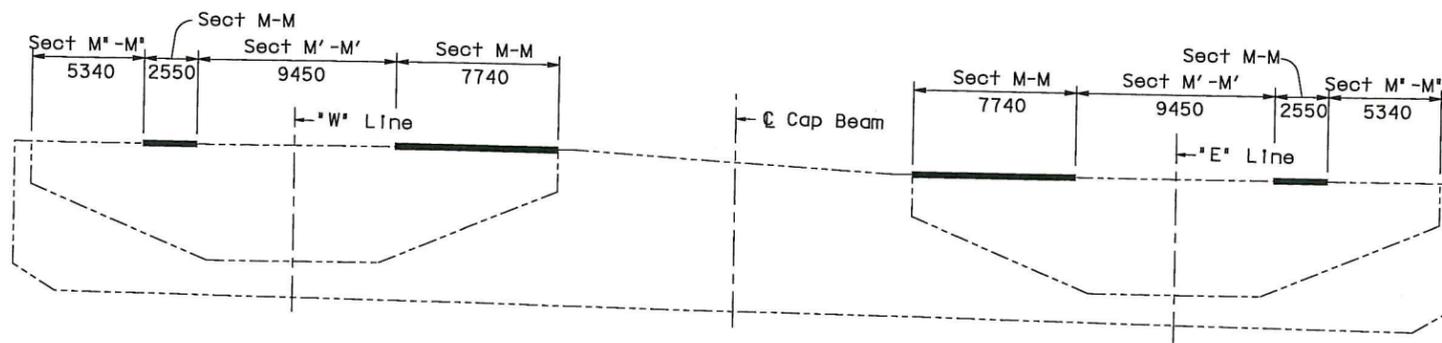
01/20/2012

PLANS APPROVAL DATE

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T.Y. LIN / MOFFATT & NICHOL
TWO HARRISON STREET
SAN FRANCISCO, CA 94105

1166s27 of 1204

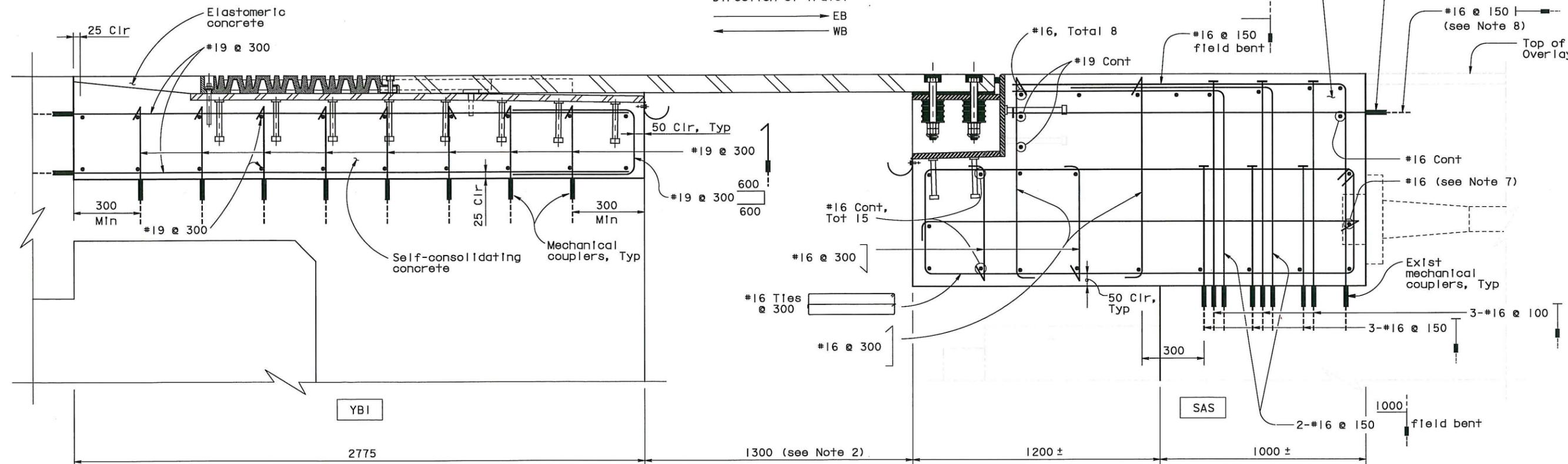


Note: Hinge KE & KW Expansion Joints to be furnished by others and installed by the Contractor.

LOCATION - SECTION M-M

NTS

Direction of Travel



SECTION M-M

1:10

LEGEND:

— Indicates 'T' head reinforcement.

NOTES:

1. Rebars with mechanical couplers shall extend beyond blockout limits by at least 50 db.
2. Values are for mean temperature of 20°C.
3. Contractor shall locate all existing mechanical couplers.
4. Contractor shall connect reinforcement to existing rebar couplers at blockout limits.
5. Rebars may be relocated to match existing couplers.
6. Mechanical couplers at SAS side provided by others.
7. Rebar shall be discontinued 25 mm clear of postensioning hardware.
8. Rebar may be bent horizontally to clear anchor studs on channel assembly.

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. **216**
SHEET **41** OF **55**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT

DESIGN OVERSIGHT
ADE AKINSANYA

DESIGN	BY C. Redfield	CHECKED M. Nader
DETAILS	BY H. Patel	CHECKED J. Duxbury
QUANTITIES	BY H. Patel	CHECKED J. Duxbury

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Jal Birdy
PROJECT ENGINEER

BRIDGE NO.	34-0006 L/R
KILOMETER POST	12.8

YBI TRANSITION STRUCTURES - HINGE K
HINGE KE & KW EXPANSION JOINT DETAILS NO. 8

SIGN OFF DATE

Rev. Date: 5-16-98



CU 04
EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

SHEET 41 OF 55

Jan 6, 2012

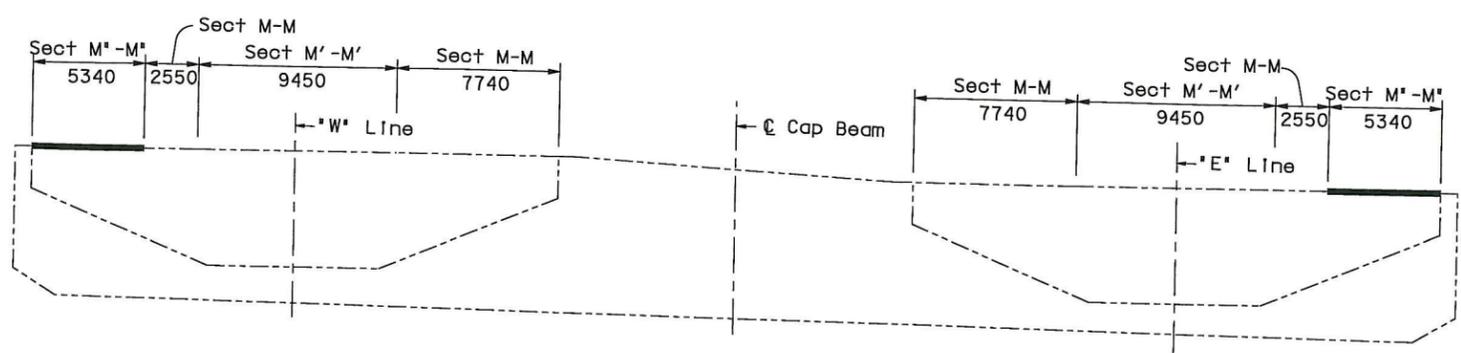
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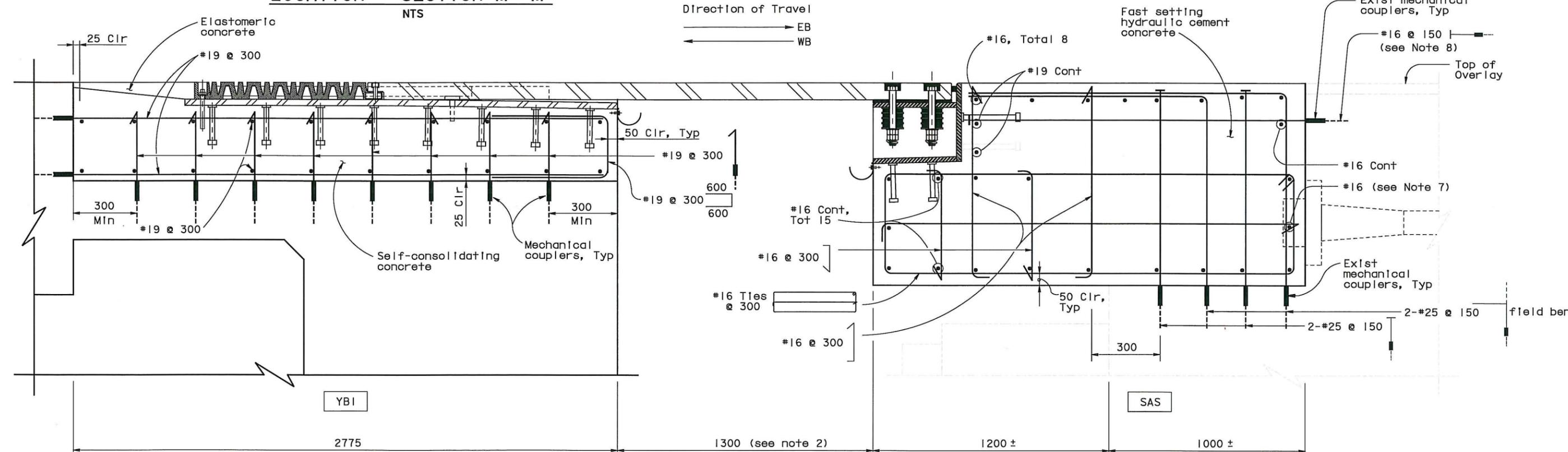
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04	SF	80	12.7/13.2	K705AA	806

REGISTERED ENGINEER - CIVIL
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 SAN FRANCISCO, CA 94105
 1166s29 of 1204

Note: Hinge KE & KW Expansion Joints to be furnished by others and installed by the Contractor.



LOCATION - SECTION M'-M'
NTS



SECTION M'-M'
1:10

LEGEND:

— Indicates 'T' head reinforcement.

NOTES:

1. Rebars with mechanical couplers shall extend beyond breakout limits by at least 50 db.
2. Values are for mean temperature 20°C.
3. Contractor shall locate all existing mechanical couplers.
4. Contractor shall connect reinforcement to existing rebar couplers at breakout limits.
5. Rebars may be relocated to match existing couplers.
6. Mechanical couplers at SAS side provided by others.
7. Rebar shall be discontinued 25 mm clear of posttensioning hardware.
8. Rebar may be bent horizontally to clear anchor studs on channel assembly.

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. **216**
 SHEET **43** OF **55**

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

DESIGN OVERSIGHT
 ADE AKINSANYA
 SIGN OFF DATE

DESIGN	BY C. Redfield	CHECKED M. Nader
DETAILS	BY H. Patel	CHECKED J. Duxbury
QUANTITIES	BY H. Patel	CHECKED J. Duxbury

PREPARED FOR THE
 STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

Jal Birdy
 PROJECT ENGINEER
 BRIDGE NO. 34-0006 L/R
 KILOMETER POST 12.8

SAN FRANCISCO OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT
YBI TRANSITION STRUCTURES - HINGE K
HINGE KE & KW EXPANSION JOINT DETAILS NO. 10

Rev. Dates 5-18-98



CU 04
 EA 0120F1

REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET 209 OF
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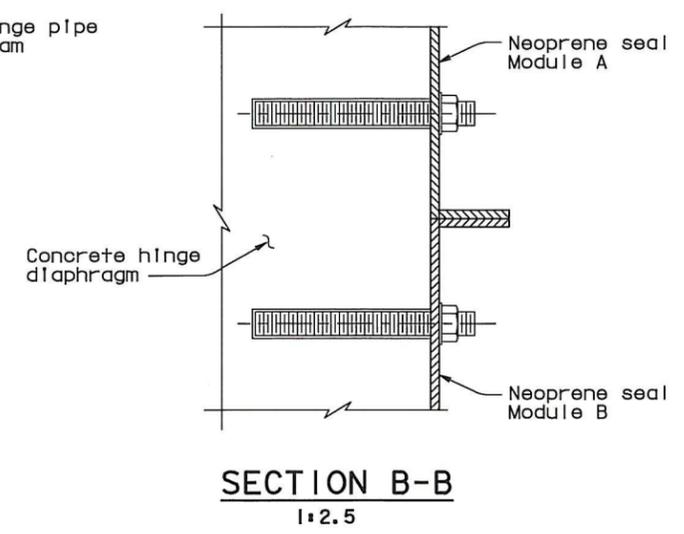
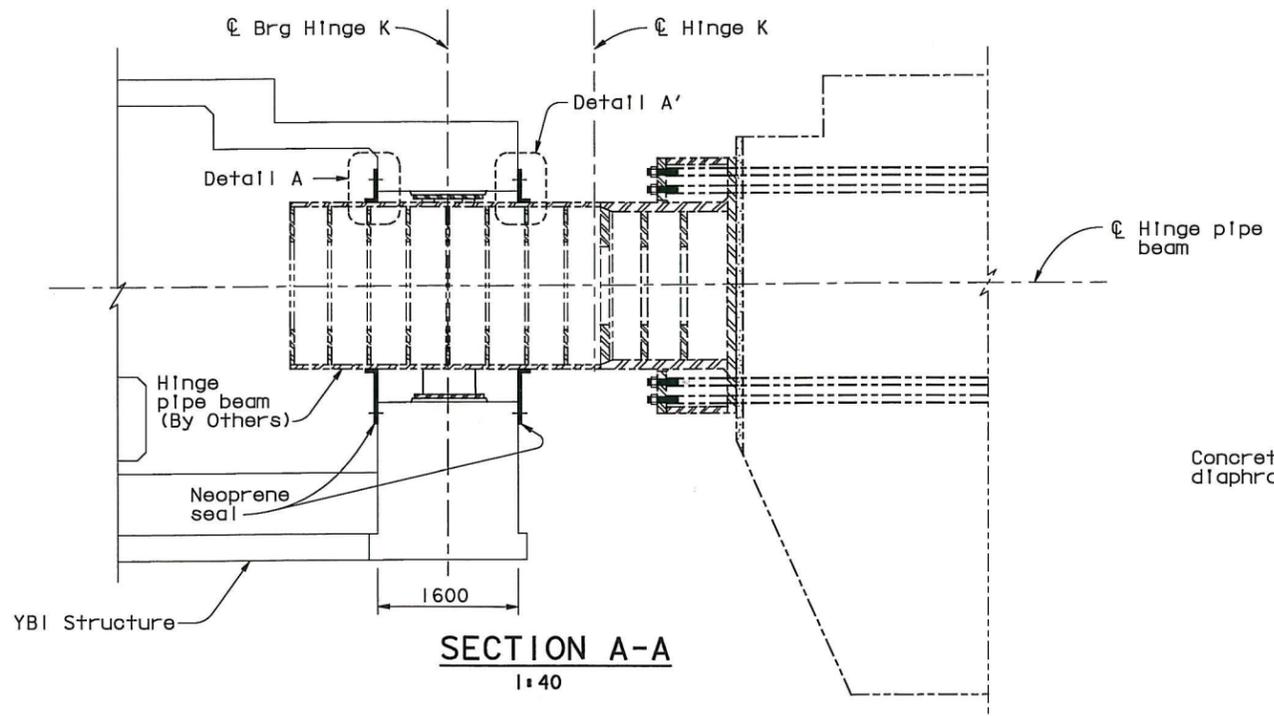
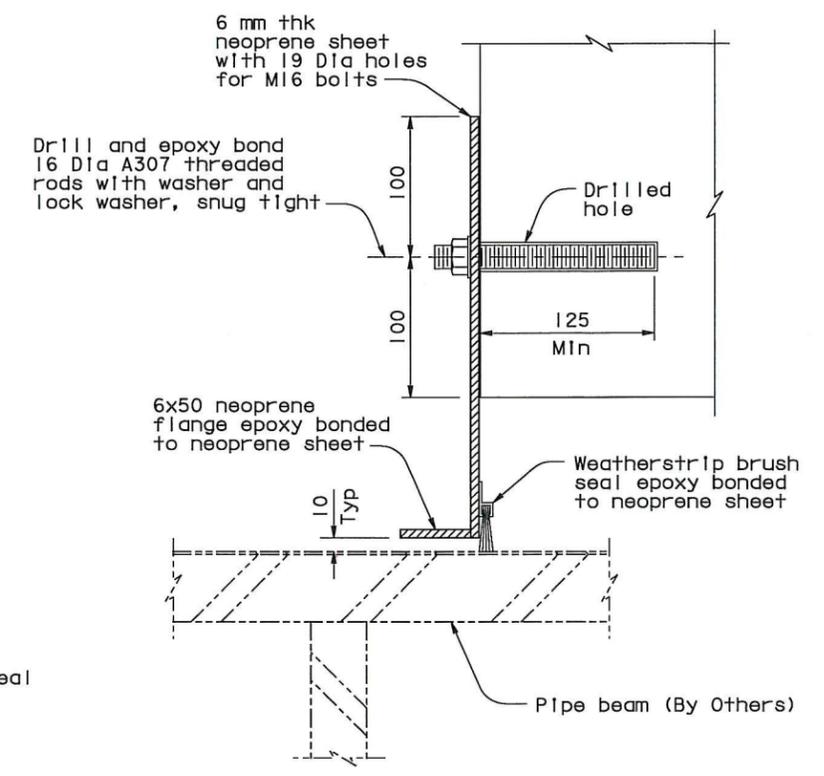
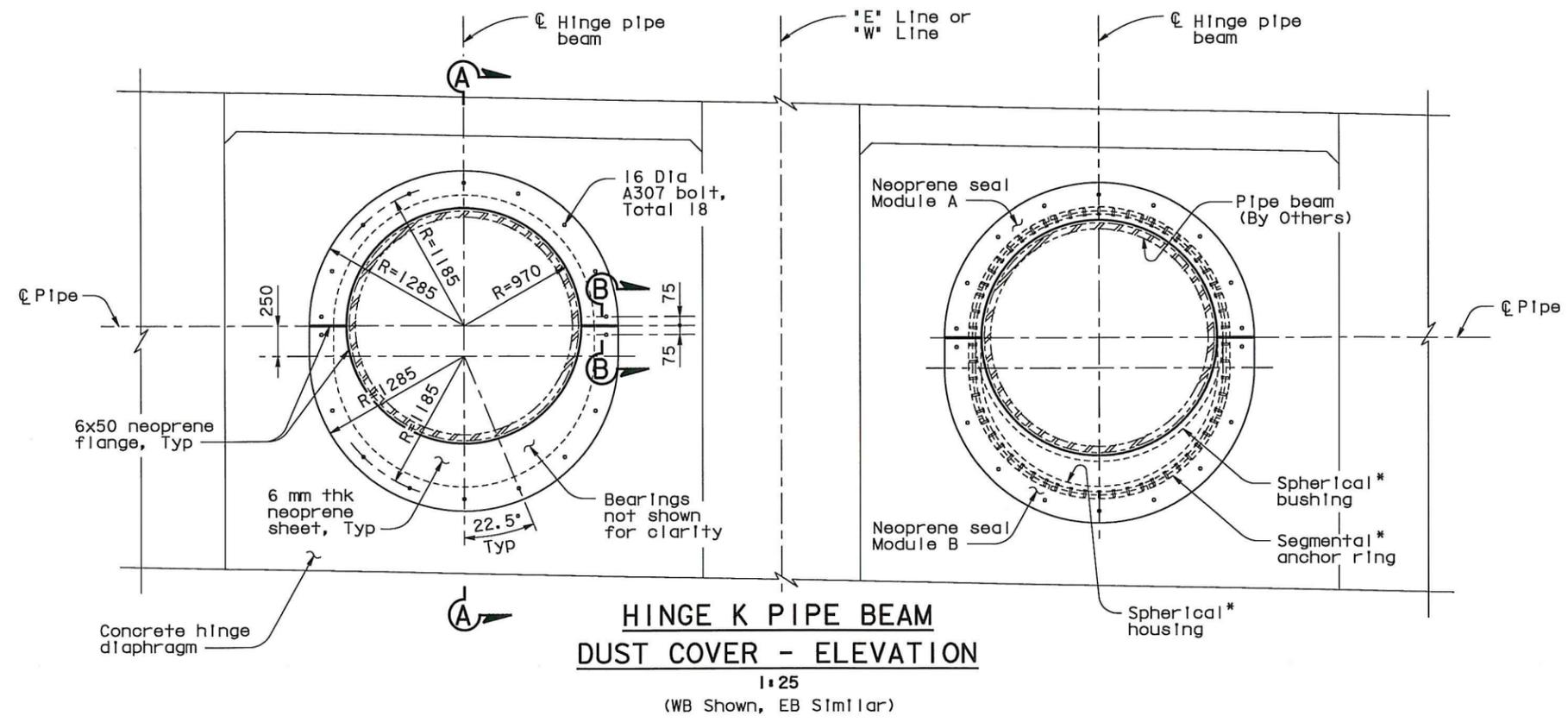
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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K705BA	806

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 1166s30 of 1204



NOTES:
 * Furnished by Others, Erection in this contract.

SUPPLEMENTAL SHEET
 CONTRACT CHANGE ORDER NO. 216
 SHEET 44 OF 55

Jan 6, 2012

DESIGN OVERSIGHT
 ADE AKINSANYA

DESIGN	BY N. Vo	CHECKED M. Nader
DETAILS	BY H. Patel	CHECKED J. Duxbury
QUANTITIES	BY H. Patel	CHECKED J. Duxbury

PREPARED FOR THE
 STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

Jai Birdy
 PROJECT ENGINEER

BRIDGE NO.	34-0006 L/R
KILOMETER POST	12.8
YBI TRANSITION STRUCTURES - HINGE K HINGE K PIPE BEAM DUST COVER DETAILS	

SIGN OFF DATE
 Rev. Dates 5-18-98

ORIGINAL SCALE IN MILLIMETERS
 FOR REDUCED PLANS

CU 04
 EA 0120F1

REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET	OF
	K156BA	209

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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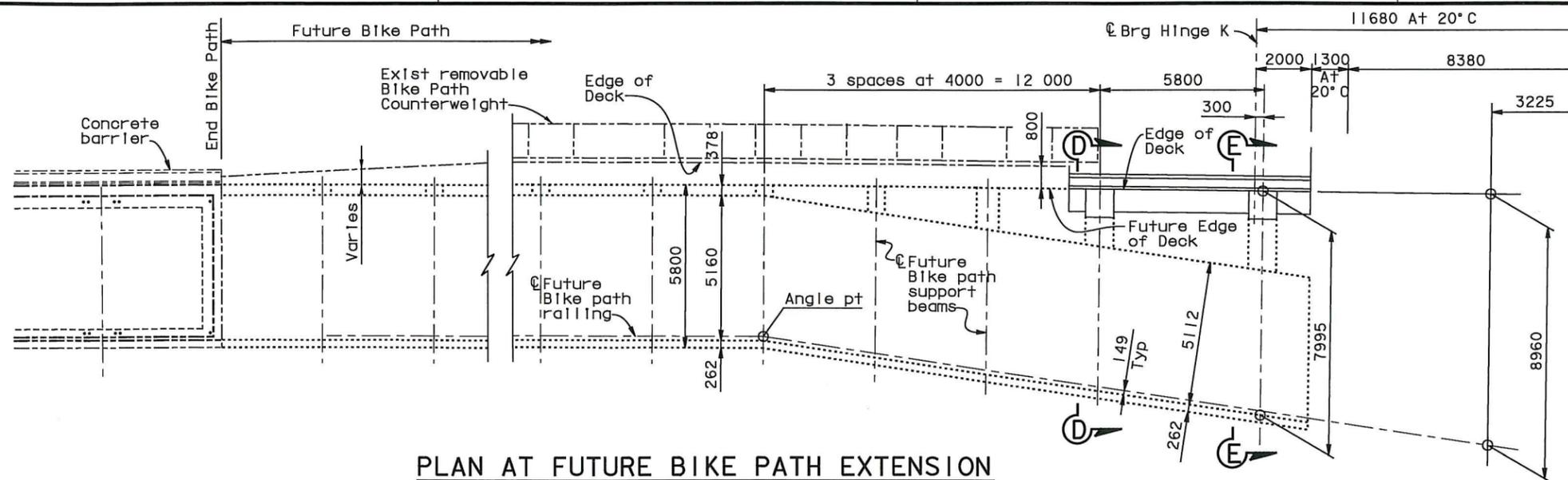
REGISTERED ENGINEER - CIVIL
 A.L. ELY
 No. 18880
 Exp. 6-30-13
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE
 01/20/2012

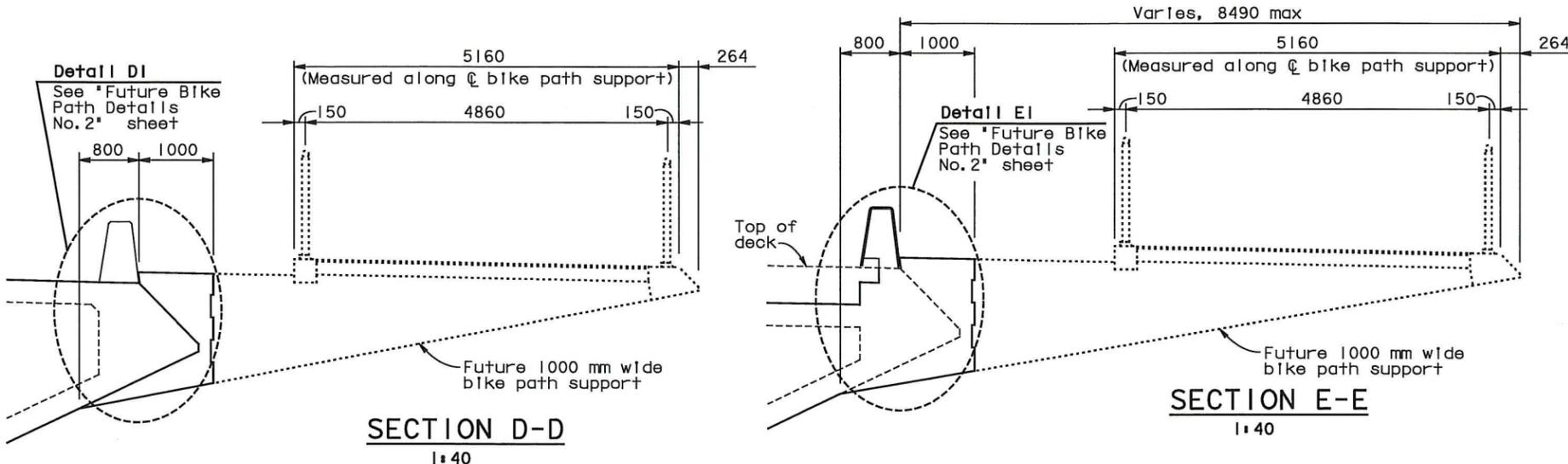
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 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105

1166s31 of 1204



PLAN AT FUTURE BIKE PATH EXTENSION
 1:100



SECTION D-D
 1:40

SECTION E-E
 1:40

Jan 6, 2012

SUPPLEMENTAL SHEET
 CONTRACT CHANGE ORDER NO. **216**
 SHEET **45** OF **55**

DESIGN OVERSIGHT ADE AKINSANYA	DESIGN BY Atiqullah CHECKED Ahn	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	BRIDGE NO. 34-0006 L/R	SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT
SIGN OFF DATE	DETAILS BY van Ryn/Zucchi/Mal CHECKED Jain	Jal Birdy PROJECT ENGINEER	KILOMETER POST 12.8	
Rev. Date: 5-18-98	QUANTITIES BY Liao CHECKED E. Nichol	CU 04 EA 0120F1	DISREGARD PRINTS BEARING EARLIER REVISION DATES	YBI TRANSITION STRUCTURES - HINGE K FUTURE BIKE PATH DETAILS NO. 1
ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS			REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET OF K159A 209

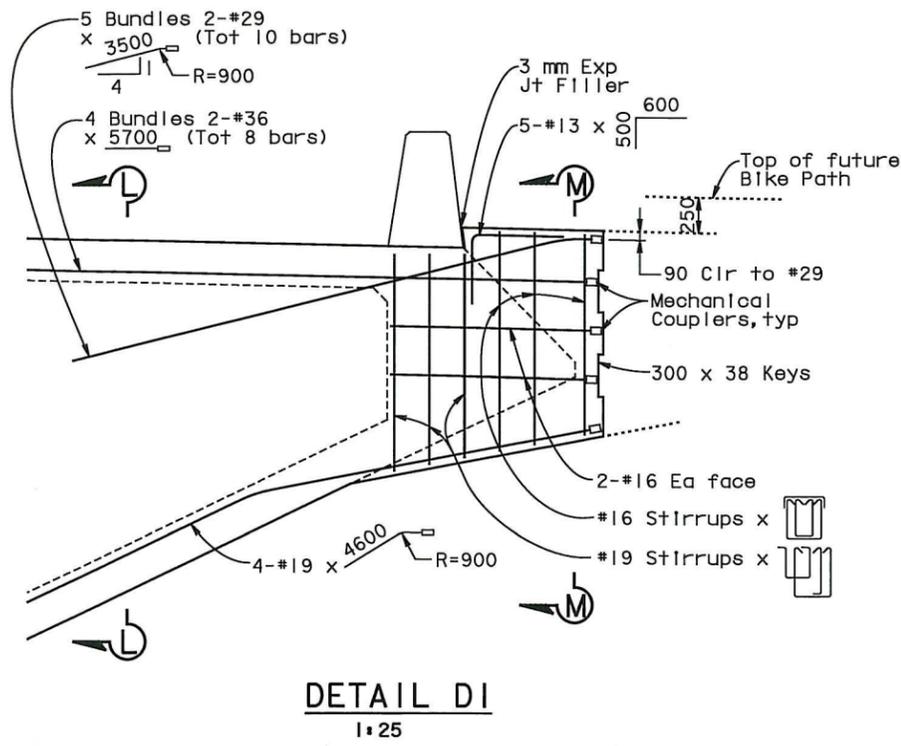
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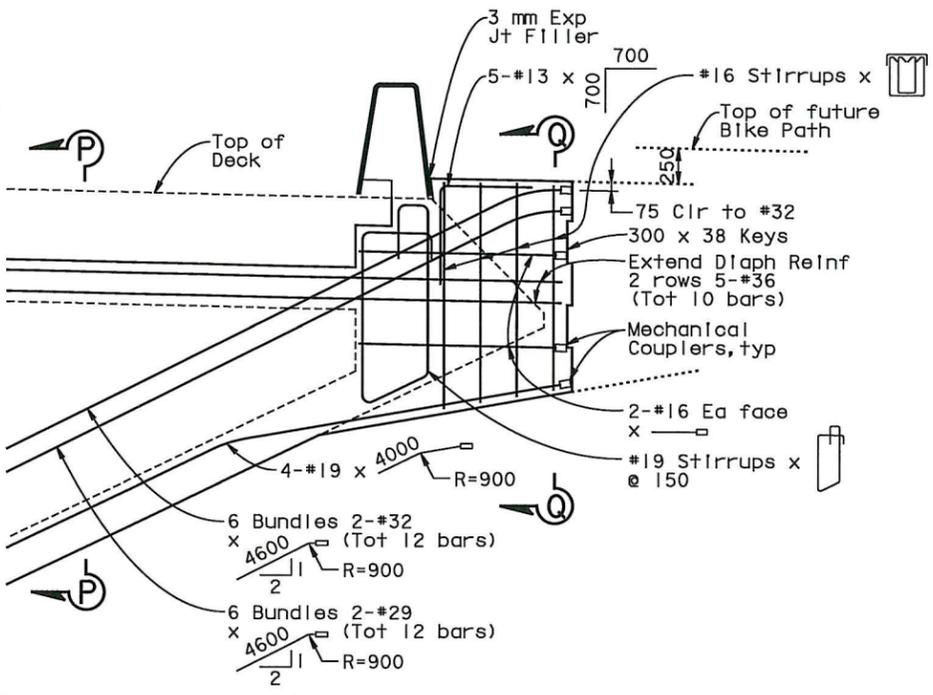
DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	K710A	806

REGISTERED ENGINEER - CIVIL	
A.L. ELY	
No. 18880	
Exp. 6-30-13	
CIVIL	

PLANS APPROVAL DATE	
01/20/2012	
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1166s32 of 1204	

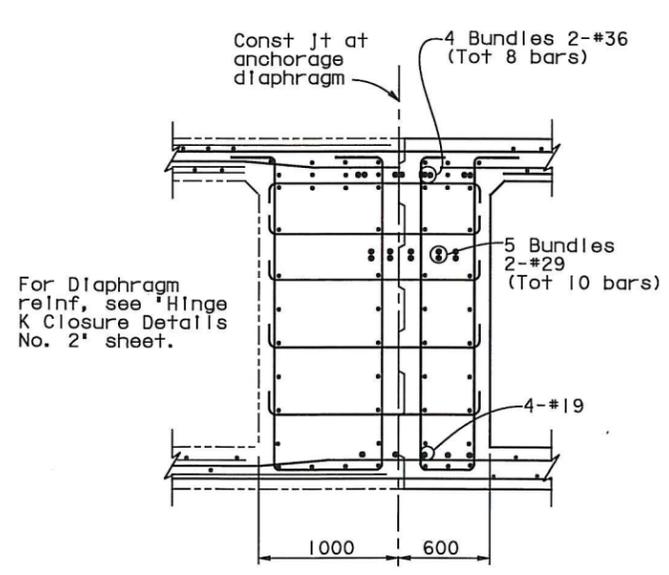


DETAIL DI
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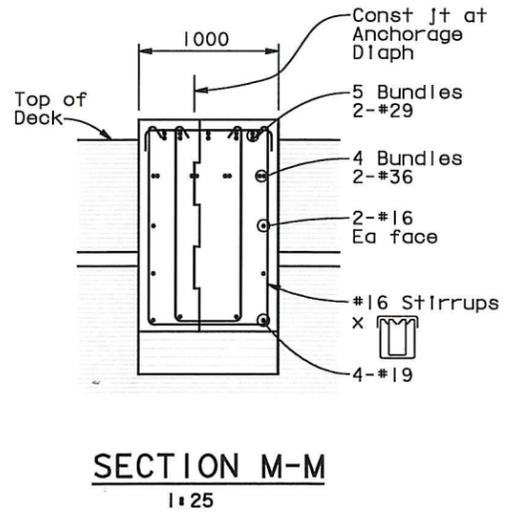


DETAIL EI
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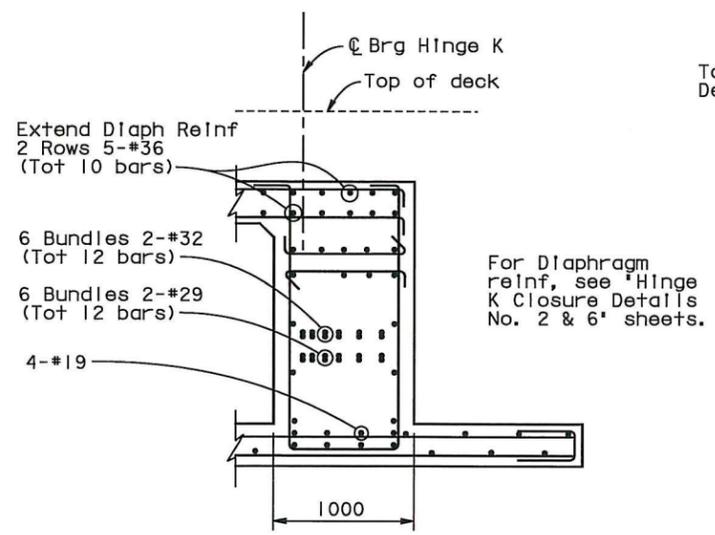
Note: For location of Details DI & EI, see 'Future Bike Path Details No. 1' sheet.



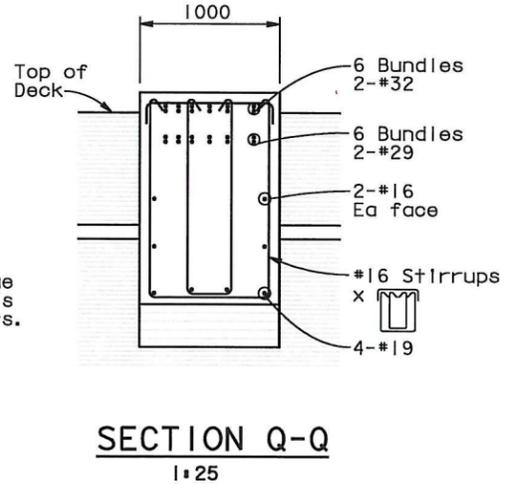
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SECTION M-M
1:25



SECTION P-P
1:25



SECTION Q-Q
1:25

SUPPLEMENTAL SHEET
CONTRACT CHANGE ORDER NO. **216**
SHEET **46** OF **55**

Jan 6, 2012

DESIGN OVERSIGHT
ADE AKINSANYA
SIGN OFF DATE
Rev. Date: 5-18-98

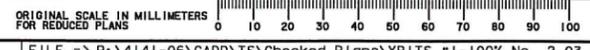
DESIGN BY Atiquliah
CHECKED Ahn
DETAILS BY van Ryn/Zucchi/Mal
CHECKED Jain
QUANTITIES BY Liao
CHECKED E. Nichol

PREPARED FOR THE
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

Jal Birdy
PROJECT ENGINEER

BRIDGE NO.
34-0006 L/R
KILOMETER POST
12.8

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
YBI TRANSITION STRUCTURES - HINGE K
FUTURE BIKE PATH DETAILS NO. 2



CU 04
EA 0120F1

REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET	OF
	K161A	209

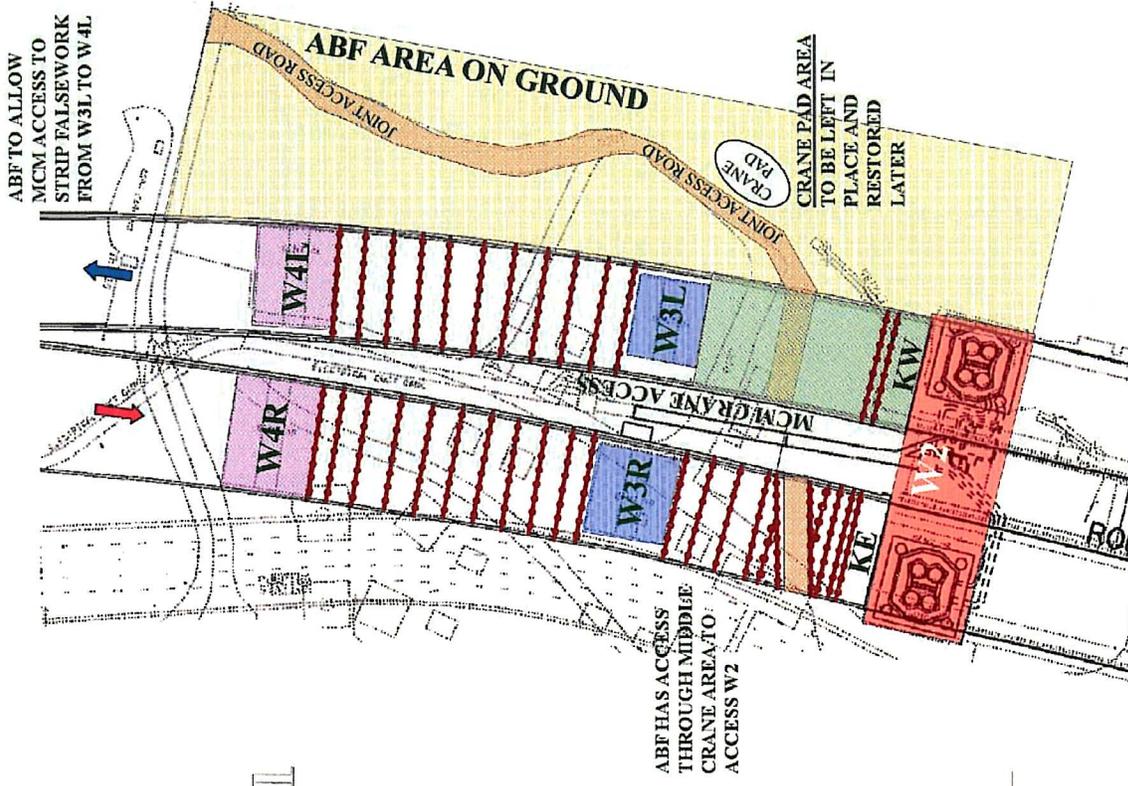
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AREAS AND TIMELINES FOR CONTRACTOR'S USE

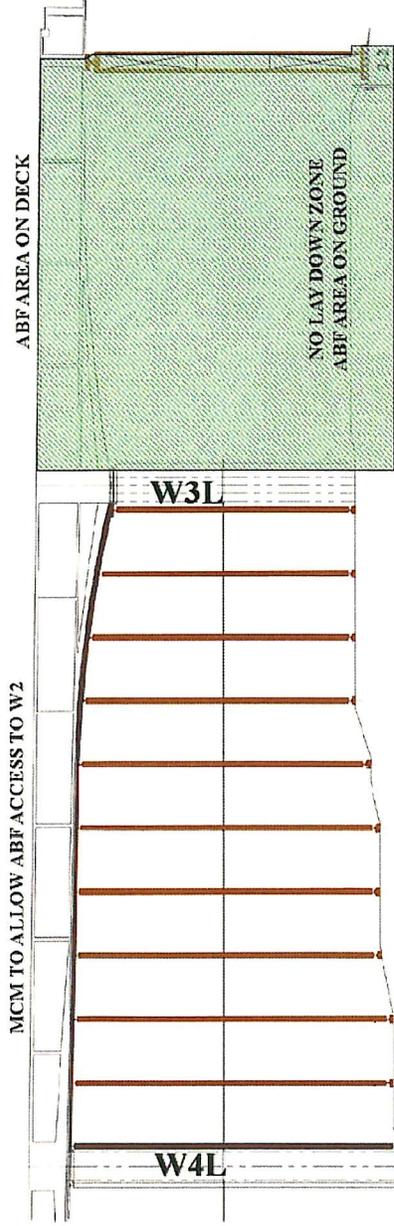
PHASE 1 (05-01-2012)

HINGE K START AFTER 05-01-2012

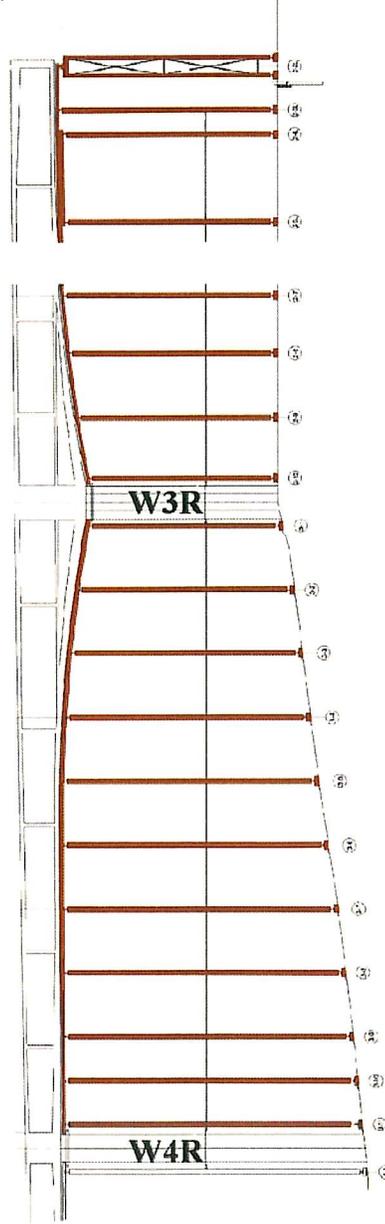
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PLAN VIEW - GROUND ACCESS ONLY



ELEVATION VIEW - DECK/GROUND ACCESS (WB)



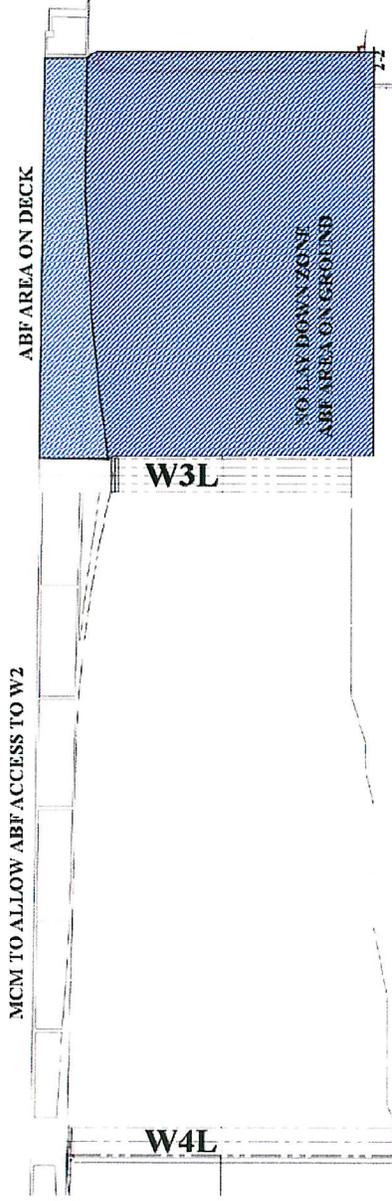
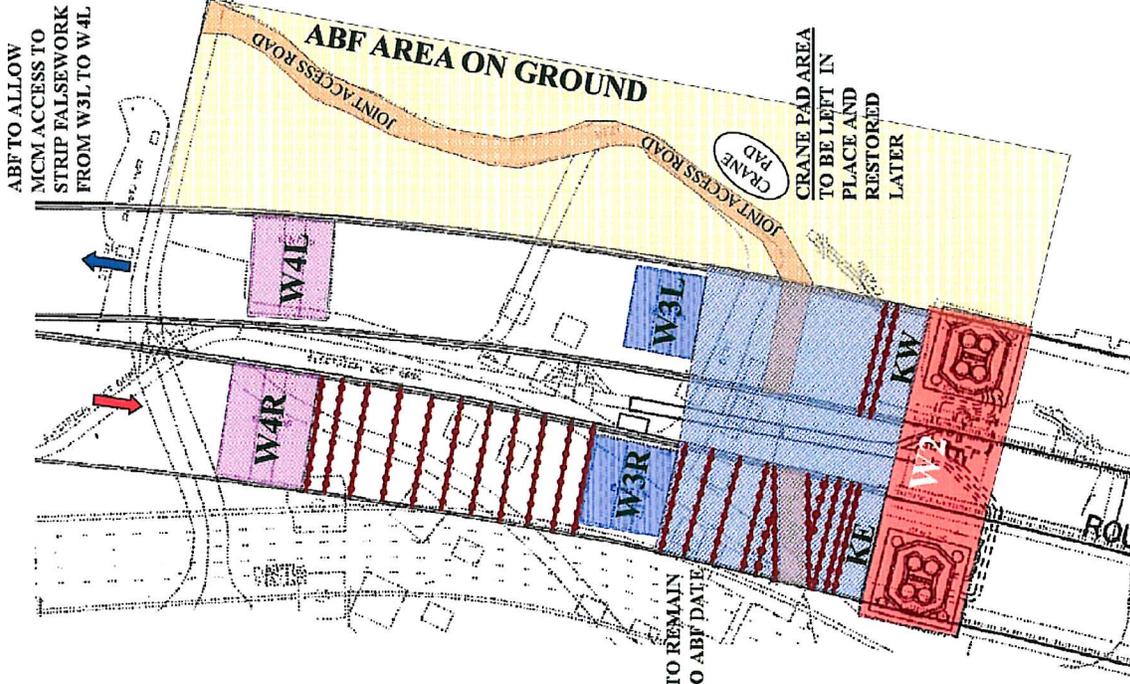
ELEVATION VIEW - DECK/GROUND ACCESS (EB)

CONTRACT 04-0120F4 CCO 216 S0

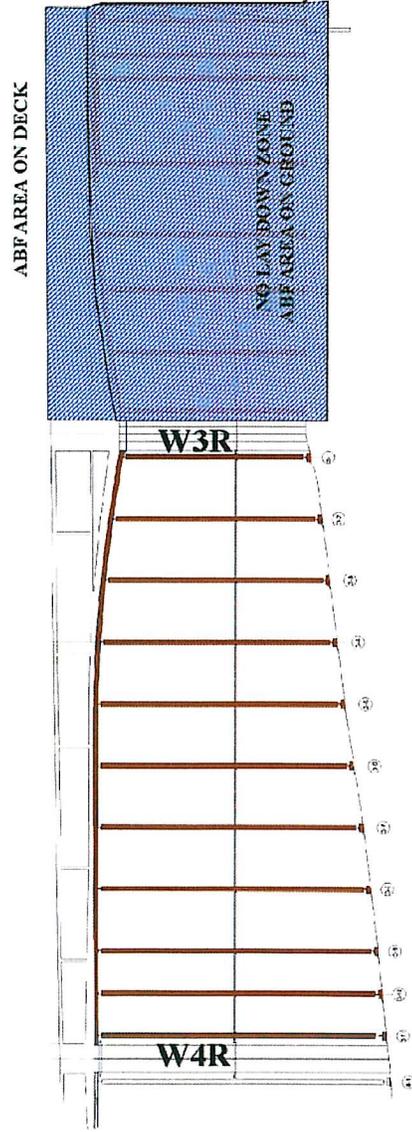
APPENDIX 2: AREAS AND TIMELINES FOR CONTRACTOR'S USE

PAGE 1 OF 3

AREAS AND TIMELINES FOR CONTRACTOR'S USE PHASE 2 (12-01-2012)



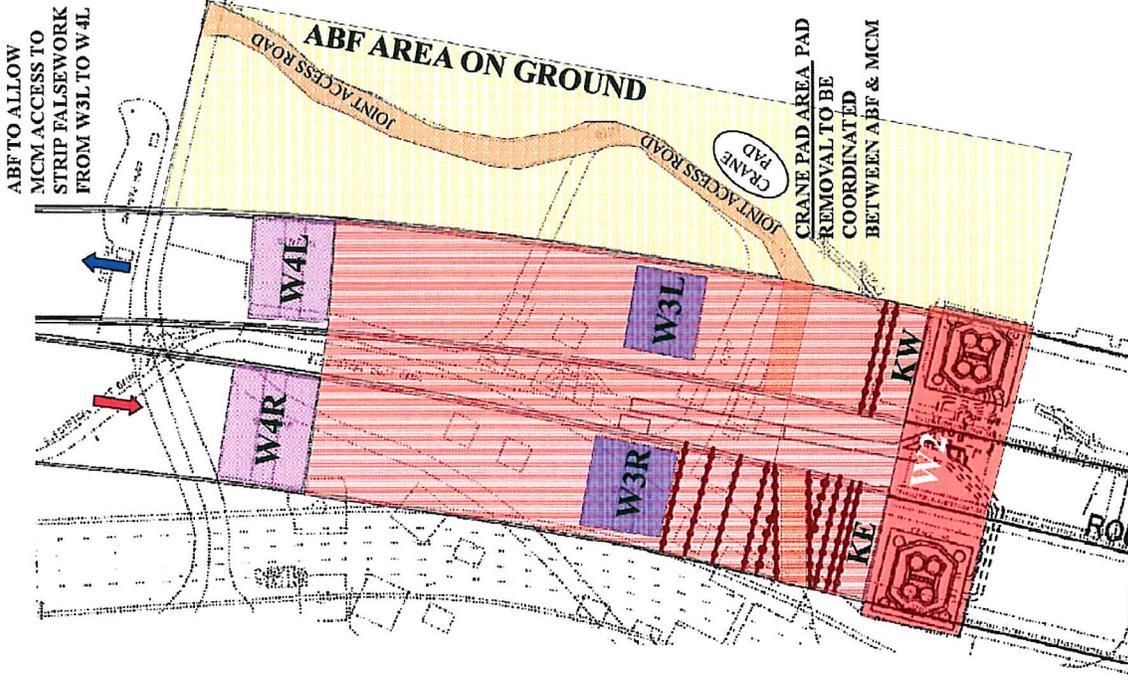
ELEVATION VIEW - DECK/GROUND ACCESS (WB)



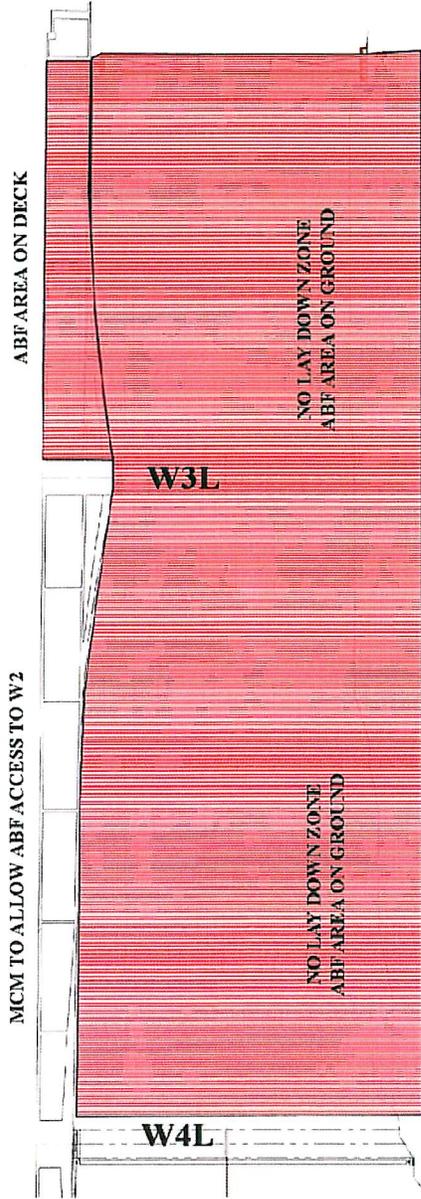
ELEVATION VIEW - DECK/GROUND ACCESS (EB)

PLAN VIEW - GROUND ACCESS ONLY

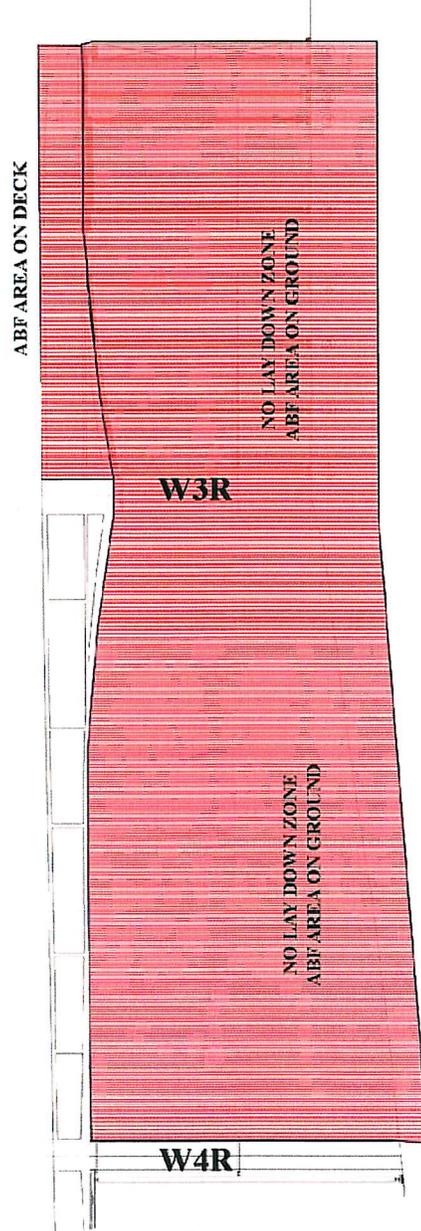
AREAS AND TIMELINES FOR CONTRACTOR'S USE PHASE 3 (12-31-2012)



PLAN VIEW - GROUND ACCESS ONLY



ELEVATION VIEW - DECK/GROUND ACCESS (WB)



ELEVATION VIEW - DECK/GROUND ACCESS (EB)

CONTRACT NO. 04-0120F4 CCO216 S0

APPENDIX 3

HINGE K SCOPE MATRIX

LINE NO.	ITEM OF WORK	DESCRIPTION	WB	EB	DATE	REF. DWG	REF. SPECIAL PROVISIONS	INCLUDED IN CCO 21650 LS	COMMENT
1	Falsework Spans from Hinge K to W3L/W3R								
2		Complete Removal of WB FW Bents 2-3 to 2-8 (Allow ABFJV access to install tie-down foundations)	MCM		2/6/2012				
3		Modify EB FW Bents as needed for Hinge K work		MCM	TBD				TBD
4		Remove all remaining FW Bents once Hinge K is complete	MCM	MCM	TBD				
5		Maintenance of FW that is not removed prior to ABF closure work	MCM	MCM					
6	Falsework Spans from W3L/W3R to W4L/W4R								
7		Remove all FW both EB and WB and allow full access to ABF (Phase 3)	MCM	MCM	12/31/2012	Areas and Timeline for Contractor's Use (Appendix 2)			

CONTRACT NO. 04-0120F4 CCO216 S0

APPENDIX 3

HINGE K SCOPE MATRIX

LINE NO.	ITEM OF WORK	DESCRIPTION	WB	EB	DATE	REF. DWG	REF. SPECIAL PROVISIONS	INCLUDED IN CCO 21650 LS	COMMENT	
8	Superstructure Hinge K to W3									
9	TURNOVER DATES	WB: Clean up and turnover WB Phase 1 area to allow full access a to ABF at ground and bridge deck level (Phase 1)	MCM		5/1/2012	Areas and Timeline for Contractor's Use (Appendix 2)				
10		EB: Clean up and turnover EB Phase 2 area to allow full access to ABF at ground and bridge deck level (Phase 2)		MCM	12/1/2012	Areas and Timeline for Contractor's Use (Appendix 2)				
11	TIE-DOWN SYSTEM	WB: Install Tie-Down foundation and system (located between Bents 2-3 and 2-4)	ABF		(2/6/2012 start date)		10-1.45c (Appendix 1)	YES		
12		EB: Install Tie-Down foundation and system (located between Bents 2-4 and 2-5)		ABF	TBD		10-1.45c (Appendix 1)	YES		
13	MISC. INTERFACE DETAILS AT THE ANCHORAGE DIAPHRAGM	Furnish reinforcing steel (female/male ends and mech. Coupler) at anchorage diaphragm	MCM	MCM						
14		Install up to and including mech. coupler	MCM	MCM						
15		Install male end connecting into mech. coupler (Hinge K side)	ABF	ABF			Limits of Work Drawing (Appendix 1)		NO	Item not included in CCO 21650 and will be included in rebar supplemental change order.
16		Temporary Counterweight, if required, prior to implementation of ABFJV Counterweight Tie-down System	CT	CT	TBD					TBD
17		WB: Remove all formwork	MCM		5/1/2012					
18		EB: Remove all formwork		MCM	12/1/2012					
19		RAIL & ELECTRICAL	Furnish and install barrier rail reinforcing starter steel cast into deck	MCM	MCM					
20			MCM	MCM			Limits of Work Drawing (Appendix 1)			
21	Furnish and install barrier rail bar reinforcing steel Install barrier rail coupled reinforcing steel (Total length of 2m from the anchorage diaphragm on YBITS 1 side)		MCM	MCM			Limits of Work Drawing (Appendix 1)			Allows clearance between barrier rail reinforcing steel and ABFJV falsework beam.
22	Furnish and install all barrier rail electrical and utility conduits and pull boxes		MCM	MCM						
23	Form, place and finish concrete barrier rail (732 mod)		MCM	MCM			Limits of Work Drawing (Appendix 1)			Per Caltrans, rail will not be constructed on Frame WB2 from W3L to Hinge K, and on Frame EB2 from W3R to Hinge K until after final profile grade is determined. MCM will construct rail after ABF has constructed Hinge K closure rail within +/- 1m of the anchorage diaphragm joint.
24	Furnish and install all wiring conductors for lighting and call boxes		MCM	MCM						MCM work to be coordinated with ABF work
25	Furnish and install bar reinforcing steel for light standarc		MCM	MCM						
26	Furnish Anchor Bolts		MCM	MCM						
27	Install Anchor Bolts		MCM	MCM						
28	Install Electrical Conduit		MCM	MCM						
29	Furnish Light Poles	BATA	BATA						State furnished material provided to MCM for installation	
30	Install Light Poles and Wiring	MCM	MCM							
31	DECK FINISH	Perform Profilograph W3 to W2 Span and provide area's to be grounc	CT	CT						
32		Grind W3 to W2 span as needed	MCM	MCM						
33		Methacrylate Coating	MCM	MCM						To be performed after completion of hinge construction and ABF vacates staging area on frame
34		Stripe	Others	Others						OTD2 contemplates striping on SAS and Skyway as well as OTD - To be confirmed

CONTRACT NO. 04-0120F4 CCO216 S0

APPENDIX 3

HINGE K SCOPE MATRIX

LINE NO.	ITEM OF WORK	DESCRIPTION	WB	EB	DATE	REF. DWG	REF. SPECIAL PROVISIONS	INCLUDED IN CCO 21650 LS	COMMENT
35	Construct Hinge K								
36	SEISMIC JOINT ASSEMBLIES	Fabricate and furnish Hinge K seismic deck joint assembly, including channel assembly, support plate, trelleborg, deck plate and all hardware	MCM	MCM	DELIVER WB 6/15/2011, EB 12/15/2012				State furnished material provided to ABF for installation to include all hardware. Deliver to ABFJV at Pier 7.
37		Install Hinge K Seismic Joint Assemblies	ABF	ABF			10-1.54b (Appendix 1)	YES	
38		Furnish & install Seismic Deck Joint Assembly Reinforcing Steel	ABF	ABF				NO	Item not included in CCO 21650 and will be included in rebar supplemental change order.
39		Apply Non-Skid Surface for Seismic Deck Plates	ABF	ABF				NO	Excluded from CCO21650 and will be included in separate CCO.
40		Furnish and place concrete for Seismic Joint (SCC and FSHCC)	ABF	ABF				YES	
41		Furnish Elastomeric Concrete	ABF	ABF				YES	
42		Install Elastomeric Concrete	ABF	ABF				YES	
43		Furnish and Perform Mockup for Concrete Block Outs						NO	Contractor has option to use demo pour from SAS.
44	HINGE K STEEL BARRIER RAIL	Fabricate and Furnish Hinge K steel barrier Rails	MCM	MCM	WB 7/15/2012, EB 1/15/2013				State furnished material provided to ABF for installation. Deliver to ABFJV at Pier 7.
45		Install Hinge K steel barrier plates	ABF	ABF				YES	
46		Clean and Paint Hinge K Steel Barrier	ABF	ABF				NO	Excluded from CCO21650 and will be included in separate CCO.
47	HINGE K CLOSURE POUR STRUCTURAL CONCRETE	Furnish and Install Bar Reinforcing Steel	ABF	ABF				NO	To be included in supplement CCO.
48		Fabricate and Furnish deck access manhole in Hinge K closure	MCM	MCM	5/1/2012				
49		Install deck access manhole in Hinge K closure	ABF	ABF				YES	
50		Fabricate and Furnish Hinge K soffit access opening manhole covers	ABF	ABF				NO	Excluded from CCO21650 and will be included in separate CCO.
51		Furnish, Install, and Remove Superstructure Falsework and Forming System	ABF	ABF				YES	
52		Furnish, Place, and Finish Structural Concrete	ABF	ABF			SAS SP 10-1.45	YES	ABF is approved to use W2 cap beam approved concrete mix designs.
53		Install Spherical Bushing Ring Bearing assemblies	ABF	ABF			10-1.48b (Appendix 1)	YES	
54		Furnish and Install Dust Covers for Hinge K Pipe Beam Bearings	ABF	ABF				NO	Excluded from CCO21650 and will be included in separate CCO.
55	Furnish and Install Ballast Concrete	ABF	ABF			10-1.45b (Appendix 1)	YES	Permanent Counterweight. Volume of 36 CM included in lump sum cost.	
56	MISC.	Perform Overlay on W2	ABF	ABF				NO	50mm overlay with epoxy asphalt payment shall be SAS Bid Item 30-33 extensions.
57		Strong Motion Sensors	MCM	MCM					
58	Hinge K Bike Path (FUTURE)								
59		Furnish and install reinforcing steel for future bike path support (up to mech. coupler)	NA	ABF		Limits of Work Drawing (Appendix 1)		NO	
60		Install Bike path Counterweight on Southern side of EB Bridge	MCM	MCM	12/1/2012				To be installed prior to 12/1/2012. Actual bike path gets installed on YBITS2. CT Design confirmed that bike path counterweight to be installed after stressing and before turnover to ABF.
61		Install K-Rail protection for Temporary Counterweight	MCM	MCM					K-Rail to Remain after SSO. Removed by YBITS2
62		Railing and other miscellaneous items	NA	NA					Future contract/CCO

Notes:
 -Hinge K closure pour not to be placed until a min of 75 days after prestressing of adjacent frame.
 -At EB structure, h like path counterweight shall be placed prior to placement of Hinge K closure pour.
 -Prior to placement of Hinge K closure concrete, counterweights shall be placed at the ends of the adjacent frames to balance a portion of the dead load reaction of the closure concrete (approx 13,500 kN). Center of gravity of counterweight 625 mm south of station line for EB Structure and counterweights to be removed after closure concrete has attained required strength and prior to falsework release.

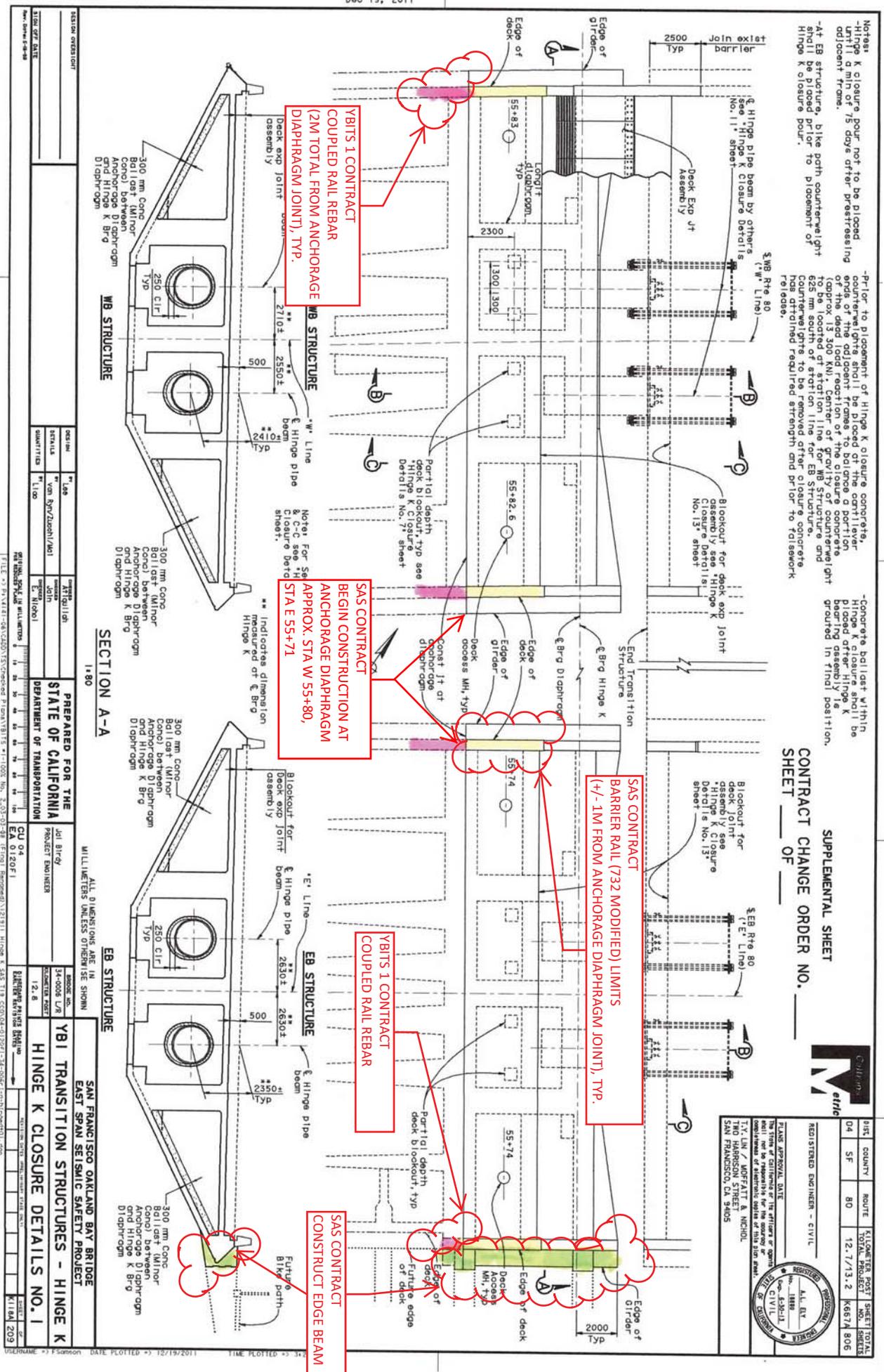
-Concrete ballast within Hinge K shall be placed after Hinge K bearing assembly is grouted in final position.

SUPPLEMENTAL SHEET

CONTRACT CHANGE ORDER NO. _____
 SHEET _____ OF _____

DATE	COUNTY	ROUTE	KILOMETER POST NO.	SHEET NO.	TOTAL SHEETS
04	SF	80	12.7/13.2	6674	806

REGISTERED ENGINEER - CIVIL
 A.L. BY
 No. 1888
 CIVIL
 REGISTERED PROFESSIONAL ENGINEER
 STATE OF CALIFORNIA
 T.Y. LIN / MOFFATT & NICHOL
 TWO HARRISON STREET
 SAN FRANCISCO, CA 94105



VBITS 1 CONTRACT
 COUPLED RAIL REBAR
 (2M TOTAL FROM ANCHORAGE
 DIAPHRAGM JOINT), TYP.

SAS CONTRACT
 BEGIN CONSTRUCTION AT
 ANCHORAGE DIAPHRAGM
 APPROX. STA W 55+80,
 STA E 55+71

SAS CONTRACT
 BARRIER RAIL (732 MODIFIED) LIMITS
 (+/- 1M FROM ANCHORAGE DIAPHRAGM JOINT), TYP.

VBITS 1 CONTRACT
 COUPLED RAIL REBAR

SAS CONTRACT
 CONSTRUCT EDGE BEAM

SECTION A-A

PREPARED FOR THE
 STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION

PROJECT ENGINEER
 CA 0120F1

REGISTERED PROFESSIONAL ENGINEER
 T.Y. LIN / MOFFATT & NICHOL

PROJECT NO.
 04-0120F4

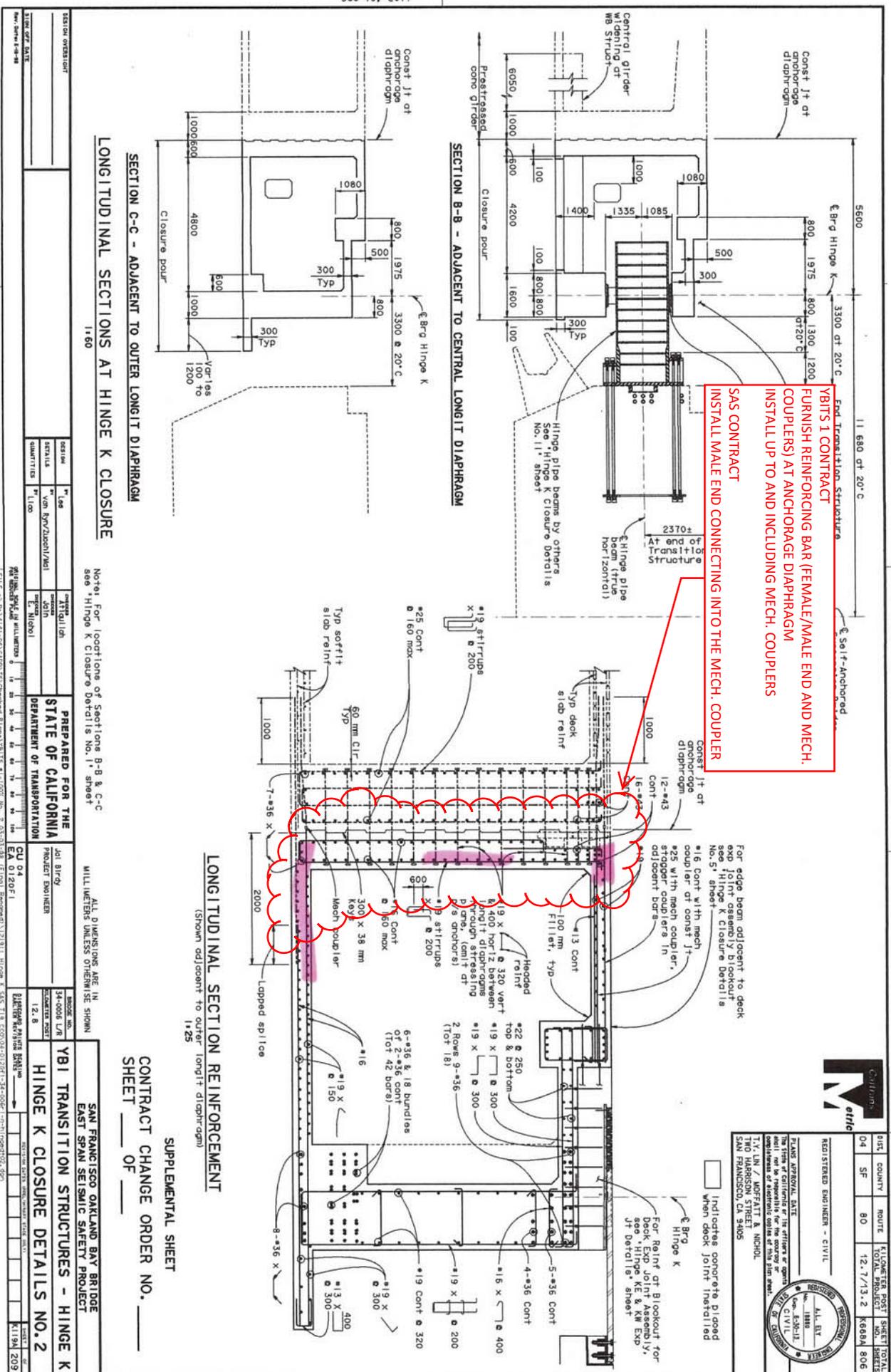
PROJECT NAME
 SAN FRANCISCO OAKLAND BAY BRIDGE
 EAST SPAN SEISMIC SAFETY PROJECT

CONTRACT NO.
 04-0120F4

SHEET NO.
 6674

TOTAL SHEETS
 806

DATE PLOTTED
 12/19/2011



SECTION B-B - ADJACENT TO CENTRAL LONGIT DIAPHRAGM

SECTION C-C - ADJACENT TO OUTER LONGIT DIAPHRAGM

LONGITUDINAL SECTION REINFORCEMENT
 (Shown adjacent to outer longitudinal diaphragm)

SUPPLEMENTAL SHEET
 CONTRACT CHANGE ORDER NO. ___
 SHEET ___ OF ___

Notes: For locations of Spottone B-B & C-C see Hinge K Closure Details No. 1 sheet

SECTION ORIGINATOR	DESIGNER	DATE	PROJECT NO.	PROJECT NAME
YBTS 1 CONTRACT	YBTS 1 CONTRACT	12/19/2011	04-0120F4	YBI TRANSITION STRUCTURES - HINGE K
DATE	BY	CHECKED	DATE	BY
12/19/2011	YBTS 1 CONTRACT	YBTS 1 CONTRACT	12/19/2011	YBTS 1 CONTRACT
PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION SAN FRANCISCO OAKLAND BAY BRIDGE EAST SPAN SEISMIC SAFETY PROJECT HINGE K CLOSURE DETAILS NO. 2				

LAST UPDATED: 01/06/12

Metric

SHEET NO.	TOTAL SHEETS
04	806

REGISTERED ENGINEER - CIVIL

PLANS APPROVAL DATE: 12/19/2011

REGISTERED PROFESSIONAL ENGINEER: A.L. HU

REGISTERED PROFESSIONAL ENGINEER: T.M. LIN / MOFFATT & MCDONALD

REGISTERED PROFESSIONAL ENGINEER: T.M. HARRISON, STREET SAN FRANCISCO, CA 94105

Indicates concrete placed when deck joint installed

Dec 19, 2011