Reconstruction Structure - Yerba Buena Island (Contract No. 04-4029)

The as-built drawings, which are contained in these CDs, are scanned from drawings of the existing structure for the convenience of the contractor and as a means to convey to the contractor the available information regarding the existing structure. It is to be understood that no claim is being made as to the accuracy or completeness of the said information and that the State of California or its officers or agents shall not be responsible for the manner in which the contractor interprets and uses this information or for the accuracy, currency or completeness of these scanned as-built drawings. The contractor shall be responsible to obtain, at the contractor's expense, any additional information that the contractor deems necessary for completely and accurately assessing the existing conditions of the structure. The contractor shall not be entitled to any compensation for any claim arising from inaccuracy or insufficiency of these as-built drawings or in anyway related to these drawings.

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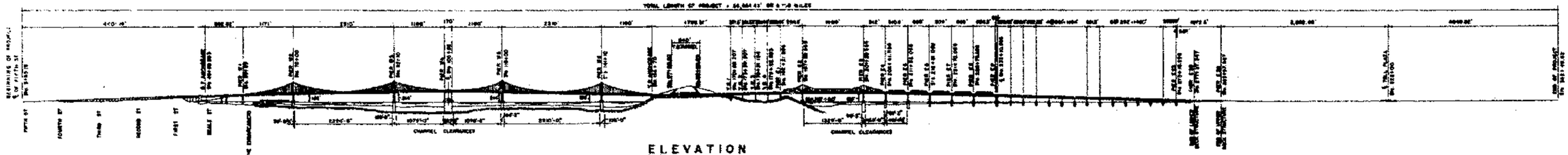
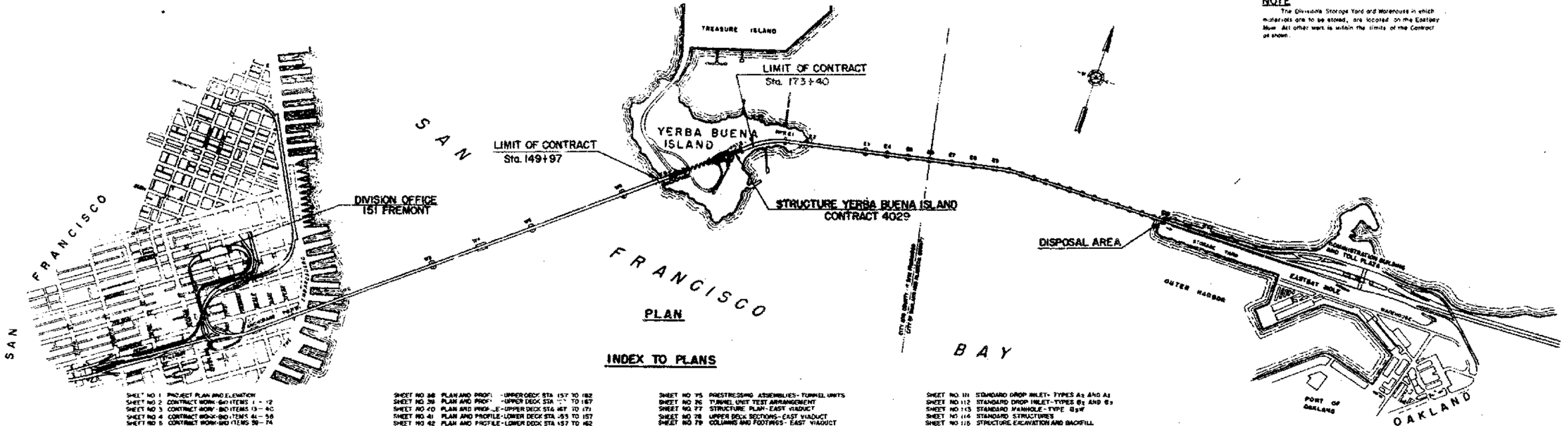
PROJECT ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960

DIRECTOR OF PUBLIC WORKS



ELEVATION



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NOTE

The Division's Storage Yard and Warehouse in which materials are to be stored, are located on the Eastbay Mole. All other work is within the limits of the Contract as shown.

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0 6 INS 1 2 3 4 5 10 INS
SCALE IN INCHES

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
PROJECT PLAN AND ELEVATION

MARK	DATE	REVISION	BY	CH'K
1	6-1-64	As-built overhead revisions	L.J.S.	RMZ

SCALE 1"=1000' | BRIDGE 34-25, 34-03, 34-04 | SHEET NO. 1 | DRAWING C-4029-1

NO	BID ITEM	QUAN.	UNIT	DESCRIPTION
1	installing State-furnished signs.	330.65 △1	square feet	Shall conform to the requirements of Section 64 and shall consist of installing relocated signs and new State-furnished signs that are to remain in place upon completion of the work as shown on the plans including furnishing and installing all supports, fastenings and other materials incidental thereto. The Contractor shall submit plans for installation of signs for the Engineer's approval.
2	removing existing traffic stripe.	6,664.4 △1	linear feet	Where shown on the plans or directed by the Engineer, existing traffic stripe and existing roadway markings shall be removed by sandblasting, burning, or other approved methods. Removing traffic stripe shall be measured and paid for as linear feet of removing existing four-inch traffic stripe, not including gaps, and removing existing roadway markings shall be measured and paid for as equivalent area of traffic stripe.
3	permanent traffic stripe.	26,301.0 △1	linear feet	Shall consist of furnishing and applying traffic stripe which is to remain in place upon completion of the work as shown on the plans and as specified. White traffic line lacquer shall conform to State Specification 35-G-95, shall be applied to clean dry surfaces in accordance with the requirements of Sections 32 and 33, and shall be measured and paid for as linear feet of four-inch permanent traffic stripe, not including gaps. Roadway markings, which are to remain in place upon completion of the work, shall be measured and paid for as equivalent area of traffic stripe.
4	removing and storing rails and track fastenings (573,000 pounds rails and 195,000 pounds fastenings).	192,400 △1	pounds	Shall consist of removing and storing all rails, track fastenings, and all appurtenant metal not included in other bid items. All track and tie fastenings and fittings including rail guard brackets and other appurtenant attachments are included in this item except those specifically included in bid Items 5, 6, 9, and 10. Contact rail shall be cut at welded joints with a power saw. Cutting with a chisel or gas torch will not be permitted. Rails shall be freed of all attachments and different sizes shall be stored in separate stacks. Guard rails shall be stored in separate stacks from running rails. The Contractor shall remove from the rails and store all copper bonding wire and contact bars, and full compensation therefor shall be included in the price paid for this item.
5	removing and storing frogs.	4	each	Shall consist of removing and storing frogs together with all metallic parts specially fabricated for use therewith.
6	removing and storing hand-operated switch stands.	4	each	Shall consist of removing and storing in reassembled units the hand operated switch stands as shown on the plans and as specified. Switch rods and gage plates shall be stored with the reassembled units and full compensation therefor shall be included in the price paid for removing and storing such rods and plates under the bid item for removing and storing rails and track fastenings.
7	removing and storing railroad ties.	2,010 △1	each	Shall consist of removing and storing the railroad ties, including freeing the ties of all metal and other foreign materials, as shown on the plans and as specified.
8	removing and storing lumber.	15.39 △1	thousand feet board measure	Shall consist of removing and storing all lumber, except as otherwise specifically provided, including freeing the lumber of all metal and other foreign materials, all as shown on the plans and as specified. The quantity to be paid for shall be determined from nominal widths and thicknesses and the actual lengths of the pieces removed and stored.
9	removing and storing contact rail insulator assemblies.	351 △1	each	Shall consist of removing and storing contact rail insulator assemblies including fastenings and fittings. Porcelain insulators shall be packed in excelsior filled boxes provided under the bid item for wooden storage facilities.
10	removing and storing contact rail anchor assemblies.	9 △1	each	Shall consist of removing and storing clamps, wood insulators, micarta separators, anchor plates, fastenings, and appurtenant hardware as shown on the plans and as specified.
11	removing concrete (pavement, curbs, gutters, and sidewalks).	1,337.83 △1	cubic yards	Shall consist of removing concrete pavement, curbs, gutters, and sidewalks resting directly on the ground or on a prepared base or subgrade, except as otherwise specifically designated on the plans as removing concrete (structure), all as shown on the plans and as specified. The quantity to be measured shall be computed from plan dimensions. The removal of plant-mixed surfacing on concrete pavement or structures removed shall be measured and paid for under this item.
12	removing concrete (structure).	5,344.0 △1	cubic yards	Shall consist of removing all concrete not specifically included in other bid items as shown on the plans and as specified. The quantity to be measured shall be the volume shown on the plans, except that, if no volume is shown on the plans, the volume shall be computed from plan dimensions. Concrete deck slab shall not be removed by burning.

N. C. Cash
PROJECTS ENGINEER — LICENSE 1475

DATE APPROVED JUN 22 1960

GENERAL NOTES - ALL WORK

1. Section numbers used on the plans refer to the particular Standard Specification Sections as prepared by the Division.

2. All plans used for existing construction and pertaining to the work involved and other relevant information will be made available to those interested, at the Division's office.

3. Details, dimensions and elevations of existing structures shown on the plans are from original construction drawings and are representative of typical conditions; minor variations therefrom are to be anticipated. Where new work is to join existing construction, the Contractor shall verify all controlling conditions and dimensions in the field prior to the preparation of details of the work to be submitted for the Engineer's approval.

4. Materials designated to be removed and relocated, reinstalled or stored shall be removed with all reasonable care and cleaned of all foreign material, ready for storage or re-use. Materials to be stored except materials to be reinstalled, or as otherwise provided in the bid item for removing roofed passenger shelter shall be transported to, and stored in the Division's Storage Yard on the East Bay Mole in locations to be designated and as directed by the Engineer. Any materials designated to be removed and re-used or stored which are unnecessarily damaged by the Contractor or by others while under his control, shall either be repaired to the Engineer's satisfaction or shall be replaced in kind at the Contractor's expense.

Materials designated to be stored shall be segregated according to size, type, shape or other category and shall be properly identified by tag, stencil mark, and/or other means approved by the Engineer. All bolts shall be stored with washers attached and nuts securely screwed on. Materials designated to be removed and stored will be measured for payment after they have been placed in storage and the Engineer has ascertained that they have not been unnecessarily damaged as a result of the Contractor's operations.

Stored materials designated to be installed shall be removed from storage, cleaned, and transported to the installation site and full compensation therefor shall be included in the prices paid for the items requiring the installation of such materials.

Stored materials shall not be placed over soil and water pipes. Stacks shall be grouped as shown on the plans or as designated by the Engineer and stack groups shall be separated by a distance of not less than 20 feet in each direction.

Temporary storage or stockpiling of any materials to be stored or re-used en route to their final locations as shown on the plans or as specified will not be measured but full compensation for such temporary storage or stockpiling shall be considered as included in the respective bid prices and no additional compensation will be allowed therefor.

5. Full compensation for furnishing and installing any new materials and doing all the work required to adapt new or State-furnished materials to locations shown on the plans shall be included in the prices paid for the various items of work. Wherever suitable State-furnished materials are not available, the Contractor shall provide new materials as required in accordance with the specifications.

6. Full compensation for placing ties for use as pads or spacers in stacks of stored materials shall be included in the prices paid for removing and storing the respective materials and no additional compensation will be made therefor.

7. The removal and disposal of materials not re-used or stored shall comply with the requirements of Section 10 and the following modifications.

Existing concrete in the tunnel within the lower deck roadbed area shall be removed to a depth of at least eight inches below finished grade except as otherwise shown.

Steel bars, pipe, conduit, support, and fastening stubs which project from remaining concrete as a result of removing materials under this contract shall be removed to a depth of not less than one-inch below concrete surface and the holes shall be filled with grout.

Removed concrete shall be placed in the disposal area shown on the plans as riprap extending the usable fill area. Concrete shall be broken into pieces not larger than three feet in greatest dimension and all reinforcing steel projecting therefrom shall be cut off flush.

Bar reinforcing steel removed and not embedded in concrete shall become the property of the Contractor and shall be disposed of by him outside of the Contract limits.

Materials to be disposed of shall be dumped and spread in the disposal area shown on the plans, except as otherwise specifically provided, and full compensation therefor shall be included in the prices paid for the various bid items involved.

Existing concrete slab to be removed shall be sawed to a depth of not less than 3/4-inch below the top surface along a straight line between concrete to be removed and concrete to remain and full compensation therefor shall be included in the prices paid for concrete removal. The Contractor shall take care to avoid spalling the edges of remaining concrete.

8. The cost of watering wherever required shall be included in the bid prices paid and no additional compensation will be allowed therefor.

9. The Contractor is advised that the work involved in the bid items for structure excavation and roadway excavation on Yerba Buena Island includes rock excavation.

10. Grout, including dry-pack grout, shall conform to the applicable requirements of Sections 26, 27, and 31 and the following. Pressure grouting of prestressing steel tendons shall be as specified under prestressing requirements. Grout for other purposes, including dry-pack grout, shall: consist of one part by volume of Type II portland cement to two parts of clean sand and only sufficient water to permit proper placement under the specified conditions; have a compressive strength of 3,000 psi at the end of 28 days; and match in color the adjacent concrete surfaces. Dry-pack grouting of reinforcing bars shall be such as to insure that, by the end of 28 days after placement, the resistance to bar pullout shall not be less than the ultimate tensile strength of the bar. The pullout resistance shall be determined by not less than two satisfactory tests made by the Contractor using bar and hole sizes shown on the plans and methods and procedures proposed for dry-packing the grout in place, subject to such other conditions as are specified herein. Following satisfactory tests, the same methods and procedures shall be used at the site. Full compensation for furnishing and placing grout of all types and for performing specified tests shall be included in the prices paid for the various items of work and no additional allowance will be made therefor.

11. In preparation for bonding new concrete or grout to concrete, surfaces of the existing concrete shall be roughened by wet sandblasting or, where the finished surface is to be less than one inch above the surface of existing concrete, by chipping to a minimum depth of one inch below the finished surface and flushing with a high pressure air-water jet so that a clean surface of sound concrete is exposed. The surface so exposed shall be kept continuously wet for not less than 24 hours before placing new concrete or grout and, at the time of placing, shall be clean and slightly damp, except that in areas to receive epoxy-thiokol adhesive coatings, the sandblasted or chipped areas shall be allowed to dry. Surfaces of holes drilled for dry-pack grouting of reinforcing bars shall receive the same treatment. Full compensation for preparing concrete surfaces for bonding as shown on the plans and specified shall be included in the prices paid for the various bid items and no additional compensation will be allowed therefor.

12. An epoxy-thiokol adhesive coating to bond new concrete or grout to old concrete shall be applied to existing prepared concrete surfaces as a brushed coating not less than 1/16-inch thick in areas where the finished surface is to be less than two inches above the surface of existing concrete, and shall be followed by placement of grout or concrete of 1-1/2 inch maximum slump at such times and in such a manner as to assure the most effective bond between new concrete or grout and old concrete.

Epoxy-thiokol adhesive coating shall be prepared as follows:

Description	Composition by Weight	
	Each	Combined Mix
Can A		
Shell Epon Resin 828, or equal	100%	66.7%
Can B		
Thiokol LP-3, or equal	80%	26.6%
DMP-30, or equal	20%	6.7%
	100%	100.0%

Into the combined mix of Cans A and B, add Burtur White Silica, or equal, to produce the proper consistency for application as an adhesive coating. No epoxy-thiokol adhesive shall be applied when either the ambient or concrete temperature is lower than 60° Fahrenheit. The maximum time between the mixing of epoxy-thiokol adhesive and its use shall not exceed 60 minutes.

Concrete placed on surfaces coated in this manner shall be measured and paid for under the bid items for new concrete. Full compensation for the required epoxy-thiokol adhesive coating shall be included in the prices paid for concrete, and no additional allowance will be made therefor.

13. The air-dry weight of all concrete shall be not more than 110 pounds per cubic foot at the end of 28 days, after which time the minimum compressive strength of Class L concrete shall be 3,000 psi, and of Class LX concrete, 4,500 psi. Class LX concrete shall contain not less than 7-1/2 sacks of cement per cubic yard. Lightweight aggregates shall not be crushed after expanding.

14. A one-inch by two-inch wood pour strip shall be placed inside of the forms at the top of the lower pour of all horizontal construction joints to provide a neat horizontal line for the joint.

For all Class LX concrete the falsework and forms supporting beams, slabs, or other members subject to direct bending stress shall not be removed or released in less than 21 days after the concrete has been placed, unless concrete test cylinders show a strength of not less than 4,500 psi in compression, when cured under conditions similar to those affecting the structure.

15. Concrete curing shall conform to the requirements of Section 27 except that a steam curing process yielding equal results may be used.

Methods and equipment of a steam curing process, if used, must be approved in advance by the Engineer and conform to the following requirements:

- a. Steam shall not be applied until the concrete has been continuously water cured for four hours.
- b. Steam shall be furnished to the hood in a saturated low pressure condition and distributed by a method that will produce a uniform flow of heat and moisture over the entire surface of concrete.
- c. Temperature of steam shall not exceed 165° F. and the temperature rise and fall shall not be greater than 20° F. per hour.
- d. Hoods shall be equipped with calibrated time-temperature recording devices providing permanent continuous records for each unit, at points designated by the Engineer.
- e. A certified copy of each time-temperature record covering the complete steam curing period shall be furnished to the Engineer.

16. Precast tunnel deck units shall be constructed and installed in such a manner that the riding surface of the completed deck shall conform to the straight-edge requirements of Section 25.

17. All bar reinforcing steel shall be intermediate grade conforming to the requirements of Section 28.

18. All surfaces of contact between steel to be installed and existing steel members shall be sandblast cleaned and coated with pretreatment vinyl wash primer, No. 52-G-52.

19. All exposed surfaces of ferrous materials installed under this contract (except as otherwise specifically provided) shall be cleaned and painted in accordance with the requirements of Sections 32 and 33 and the following modifications:

- a. Wrapped pipe, pipe interiors, and cast iron, except cast iron pipe, need not be sandblast cleaned or painted.
- b. All pipe in direct contact with earth including conduit under the substation shall be cleaned of all soil, oil, grease, and loose paint and rust, and coated with two coats of Inertol, Standard Thick, as made by the Inertol Company. A 24-hour drying period shall be allowed between coats.
- c. All other ferrous metal in buildings shall be sandblast cleaned, phosphatized, and painted with a factory applied baked enamel finish or, at the Contractor's option, an epoxy paint conforming to the requirements specified under the item for epoxy painting and matching ASA No. 61, light gray. Paint for all air piping in the substation, including air receiver and air compressors, shall also be capable of withstanding a working temperature of 400° F.
- d. All other ferrous metal outside of buildings and all exposed surfaces of new and reinstalled structural steel shall be cleaned and painted in accordance with Sections 32 and 33 and the following provisions: the paint system shall consist of a pretreatment vinyl wash primer, No. 52-G-52, and two coats of semi quick-drying red-lead paint primer, No. 58-G-53; sand blast cleaning or an equivalent method approved by the Engineer shall be used.

△1 See C.C.O. No. 20.

Structural steel paint surfaces damaged and structural steel surfaces exposed as a result of contract operations, shall be cleaned and painted in accordance with requirement d, above, and full compensation therefor shall be included in the prices paid for the various items of work. Paint, if sprayed on, shall be brushed out around rivet heads and exposed edges to avoid bridging over crevices and re-entrant corners and to assure even paint coats of the specified thickness.

All welding of structural steel or of reinforcing bars to structural steel shall be completed and burned areas wire brush cleaned to the satisfaction of the Engineer prior to cleaning and painting.

Full compensation for cleaning and painting materials installed shall be included in the prices paid for items requiring paint.

20. Existing electrical and mechanical systems and other utilities shall be maintained in operable condition equivalent in the opinion of the Engineer to that existing at the time construction is begun, and full compensation for such maintenance including the installation and removal of temporary facilities required to provide uninterrupted services shall be considered as included in the prices paid for the various contract items of work and no additional payment will be allowed therefor.

21. Electrical work shall conform to the requirements of Sections 60 and 61 and mechanical work shall conform to the requirements of Section 62, as modified. Full compensation for galvanizing, cleaning, and painting required for electrical and mechanical work shall be considered as included in bid prices paid for electrical and mechanical work.

22. After installation and water flushing of pipe, the Contractor shall test all steel pipe lines by hydrostatic tests made by pumping to a pressure of 300 psig, sealing inlet, and holding the pressure for four hours with a pressure drop not exceeding five psi. Allowance will be made for temperature changes during the test. Should the system not meet the test requirements, all defective parts shall be repaired or replaced by the Contractor and the test repeated at no additional cost to the State.

23. Pipe lines shown on the plans to be abandoned shall be plugged with concrete or brick and mortar and full compensation therefor shall be included in the prices paid for the various contract items of work.

24. The Contractor shall furnish and install all ferrous and non-ferrous fastenings, supports, and connections required to provide pipe, conduit, and/or cable whether new, State-furnished, or relocated, complete in place as shown on the plans and specified and full compensation therefor shall be included in the prices paid per linear foot for the respective pipe, conduit or cable items, except that the unistrut supports embedded in trench walls only shall be measured and paid for under the bid item for miscellaneous metals.

All ferrous fastenings and supports shall be hot-dip galvanized.

25. The Contractor shall furnish and install an approved insulating material between dissimilar metals to prevent galvanic action.

26. The Contractor shall submit shop drawings of metal boxes required under Bid Items 65, 69, 104, 105, and 106.

27. All piping shall conform to the applicable requirements of the American Standard Plumbing Code.

28. Full compensation for moving electrical equipment stored in the Yerba Buena Island substation as required to permit structural and other work in the substation and for furnishing all materials and doing all work required to complete the renovation of the substation and not included under any specific bid item, shall be included in the unit prices paid for the various items of work.

29. All new materials and equipment in electrical and mechanical work furnished by the Contractor shall match existing materials.

30. Full compensation for all labor and materials not shown on the plans or called for herein and for furnishing and installing materials shown on the plans but not covered under specific bid items, but which are necessary to provide the electrical and mechanical work complete and in satisfactory operating condition shall be considered as included in the prices paid for the electrical and mechanical work or units thereof and no additional compensation will be allowed therefor. The use of State-furnished materials does not relieve the Contractor of his responsibility to provide the electrical and mechanical systems complete and in satisfactory operating condition.

MARK	DATE	DESCRIPTION	BY	CH'K
△1	6-1-66	As built with revisions	GFS	EMT

REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION

STRUCTURE - YERBA BUENA ISLAND

CONTRACT WORK - BID ITEMS 1 - 12

SCALE NONE	BRIDGE 33-25, 34-03, 34-04	SHEET No. 2	DRAWING C-4029-2R

PROJECTS ENGINEER—LICENSE 1479

DATE APPROVED July 22, 1960

NO	BID ITEM	QUAN.	UNIT	DESCRIPTION
13	removing structural steel.	[illegible] △5	pounds	Shall consist of removing steel girders, stringers, and other structural steel members designated on the plans to be removed, together with their fastenings and other materials incidental thereto, all as shown on the plans and as specified, whether intended to be stored or re-used. Measurement will be by the pound, scale weight, of structural steel removed, whether or not reinstallation is required under other bid items. Steel removed and not re-used shall be stored and full compensation therefor shall be included in the price paid per pound for this item.
14	removing and relocating six-inch diameter drain tile.	711.5 △5	linear feet	Shall consist of removing, cleaning and reinstalling the six-inch diameter drain tile together with all excavation and all otherwork required to provide the drain complete in place as shown on the plans and as specified, except that furnishing and placing filter material shall be measured and paid for under the bid item for filter material. All broken tile shall be replaced by the Contractor with new tile matching the existing and full compensation therefor shall be included in the price paid for this item.
15	removing six-inch diameter cast iron pipe.	[illegible] △5	linear feet	Shall consist of removing six-inch cast iron pipe from locations shown on the plans. Pipe not to be reinstalled under the bid item for six-inch cast iron pipe shall become the property of the Contractor and shall be disposed of by him outside of the contract limits.
16	removing and storing miscellaneous iron, steel, and electrical materials.	[illegible] △5	pounds	Shall consist of removing, segregating, and storing conduit telephone boxes, radar detector, traffic signal heads, incandescent lights, junction boxes, deck drains, and all metallic materials required to be removed and stored as shown on the plans and as specified, except materials the removal of which is specifically provided for under other bid items. Measurement shall be by the pound, scale weight.
17	Clearing and grubbing		Lump Sum	Shall conform to the requirements of Section 11 except that material removed shall not be burned at the site, but shall be disposed of by the Contractor outside of the contract limits.
18	roadway excavation.	8,726.1 △5	cubic yards	Shall conform to the requirements of Section 13 and shall have Class A slopes. Full compensation for compacting the natural ground in accordance with the requirements of Section 13, Chapter II and V, in cut sections or in advance of placing embankment material, shall be included in the unit price paid for this item. For the north half of the lower deck tunnel roadway all hollows shall be filled with concrete complying with the requirements of Bid Item 32 and such concrete will not be measured but full compensation therefor shall be included in the unit price paid for this item. Excess excavated material and material unsuitable for fill or embankment shall be removed and disposed of by the Contractor and no additional compensation will be allowed therefor. Removal of rubble masonry retaining walls shall be measured and paid for under this item.
19	structure excavation.	[illegible] △5	cubic yards	Shall conform to the requirements of Section 13 and shall be measured as shown on the plans.
20	structure backfill.	[illegible] △5	cubic yards	
21	preparing Class B subgrade.	[illegible] △5	square yards	Railroad ballast in place in areas specifically designated by the Engineer shall be prepared as subgrade in accordance with the requirements of Section 15, Chapters I and III and the following modifications. a. Spreading of rock ballast to line and grade ready for subgrade treatment is included in the work. b. Loosening of subgrade to a depth of 0.5 foot, removal of rocks larger than 2-1/2 inches in greatest dimension, and bringing loosened subgrade material to a finely divided condition will not be required. c. Mixing of fines and watering will not be required. d. Relative compaction which, in the opinion of the Engineer, is equivalent to 95 percent, shall be obtained by means of a towed, variable frequency, roller type compactor as approved by the Engineer.
22	hauling railroad ballast.	480.93 △5	cubic yards	Shall consist of removing railroad ballast from concrete anchorage and viaduct deck areas and transporting and placing the ballast in other areas as rock base material. Measurement shall be by the cubic yard in the vehicle. Spreading and compacting ballast shall be as provided in Bid Item 21.
23	untreated rock base.	3,900.10 △5	tons	Shall conform to the provisions of Section 16 except that full compensation for watering shall be included in the price paid per ton for this item, and subgrade preparation shall be as provided under Bid Item 21.
24	filter material.	[illegible] △5	tons	Shall consist of furnishing and placing all filter material as shown on the plans and as specified and shall conform to the requirements of Section 49 for Type B filter material.
25	mineral aggregate (cement treated base).	[illegible] △5	tons	Shall conform to the requirements of Section 17 for Class A cement treated base.
26	Type II portland cement (cement treated base).	[illegible] △5	barrels	
27	mixing, spreading, and compacting cement treated base.	[illegible] △5	square yards	
28	mineral aggregate (plant-mixed surfacing).	[illegible] △5	tons	Plant-mixed surfacing shall conform to the requirements of Section 20 for Type A plant-mixed surfacing with 1/2-inch maximum aggregate. Bituminous binder to be mixed with mineral aggregates shall be grade 85-100 paving asphalt complying with the requirements of Section 34.
29	paving asphalt (plant-mixed surfacing).	56.80 △5	tons	Bituminous material for paint binder shall be a penetration type asphaltic emulsion complying with the requirements of Section 56. Application shall be as specified in Section 18. Pneumatic tired rollers shall be used for compacting plant-mixed surfacing.
30	asphaltic emulsion (paint binder).	7.00 △5	tons	Liquid asphalt, RC-2 (curing seal for cement treated base) shall conform to the requirements of Sections 17, 20, and 55.
31	liquid asphalt, RC-2 (curing seal for cement treated base).	[illegible] △5	tons	
32	Class L concrete (pavement, curbs, gutters, sidewalks, and conduit encasement).	[illegible] △5	cubic yards	Shall conform to the requirements of Sections 25 and 36 as modified and shall consist of Class L concrete poured on ground or on a prepared subgrade, or upon existing footings for pavement, curbs, gutters, sidewalks and conduit encasement. △3 All underground conduits except those under the substation shall be encased in concrete. Conduit encasement shall have a rectangular cross section and shall provide a minimum cover of three inches of concrete between the outside of the conduit and the outside of the concrete, and a minimum space of two inches between any two adjacent conduits. The quantity of conduit encasement concrete to be paid for shall be calculated from the minimum cross section conforming to the above requirements and the length of conduit encasement placed not including the volume of the encased conduit. Pavement concrete will be measured from plan dimensions and no allowance will be made for excess volume placed due to construction of low subgrade. Curbs or sidewalks shown on the plans to be placed integrally with structures shall be measured and paid for under Bid Item 33. Conduit encasement shall conform to applicable requirements of Section 26 for concrete with maximum coarse aggregate size of 3/4-inch.
33	Class L concrete (structure).	[illegible] △5	cubic yards	Shall conform to the requirements of Sections 26 and 27 as modified and shall consist of all concrete not specifically included under other bid items. Forms for cylindrical voids in lower deck slabs shall be subject to the Engineer's approval and shall be left in place and full compensation therefor shall be included in the unit price paid for this item. Rubber waterstop conforming to the requirements of Section 27, article (1) shall be furnished and installed as shown on the plans and full compensation therefor shall be included in the unit price paid for this item.
34	Class LE concrete (structure).	[illegible] △5	cubic yards	Shall conform to the requirements of Sections 25 and 27 as modified and shall consist of all cast-in-place concrete in Bents 40A south and 50 south and in the bridge approach and upper deck structures above the soffits of the supporting beams or girders excepting that in cast-in-place joints between coupled precast units. The Engineer may require that cement in addition to the specified minimum of 7-1/2 sacks per cubic yard be used, in which case such additional cement will be measured and paid for under Bid Item 26.
35	Sawing expansion joint in existing concrete at Pier YB-1.		Lump Sum	Shall consist of sawing, grinding, cleaning, and filling all expansion joint in existing concrete at Pier YB-1 as shown on the plans and as specified, including furnishing and placing expansion joint filler material conforming to the requirements of Section 57 and furnishing and applying pavement joint sealing compound conforming to the material requirements of Section 58. The saw cut shall be straight and accurately located. Sharp edges on the deck surface shall be ground off to a 1/2-inch radius. Full compensation for sawing and filling joints in new concrete shall be included in the prices paid for new concrete.
36	drilling holes in concrete (2-inch diameter).	[illegible] △5	linear feet	Shall consist of core drilling holes in concrete for prestressing as shown on the plans. The length of hole to be paid for shall be the center line length of hole actually drilled. Full compensation for drilling holes in concrete for any purpose other than prestressing shall be included in the prices paid for the various bid items.
37	drilling holes in concrete (3-1/2 inch diameter).	2,297.60 △5	linear feet	
38	furnishing precast tunnel deck units.	220 △4 △2	each △1	Shall conform to the requirements of Sections 27, 28, and 31, and Prestressing Requirements, and shall consist of fabricating the precast tunnel deck units, including furnishing and installing bar reinforcing steel, flexible metal tubes, Class LE concrete, and all other materials required to provide the precast units complete and ready for installation, and transporting the units to the installation site, all as shown on the plans and as specified. Each individual casting of a precast tunnel deck unit furnished and delivered as shown on the plans and as specified shall be measured and paid for as one unit. Precast tunnel deck units in addition to those used in testing precast tunnel deck unit assemblies shall not be constructed until satisfactory results have been obtained from the testing.
39	installing precast tunnel deck units.	220	each	Shall conform to the applicable requirements of Sections 27, 28, 31, and Prestressing Requirements and shall consist of preparing the ledge seats and installing thereon the concrete deck units provided under Bid Item 38 including furnishing and installing prestressing steel bars and accessories not provided under Bid Item 38, expansion joint material, cast-in-place Class LE concrete, grout and all other materials, prestressing, concreting, and grouting the tunnel deck units including diaphragms all complete in place as shown on the plans and as specified.
40	testing precast tunnel deck unit assembly.	1	each △4 △2	Testing shall be performed under a shelter in a location provided by the Contractor and approved by the Engineer. Each testing of a tunnel deck unit assembly shall consist of mounting on supporting abutments, which duplicate the actual supporting conditions, two opposed units as constructed for use in the tunnel complete with prestressing bars and accessories, placing jacks and jacking, applying an approved bond breaker to surfaces in contact with cast-in-place concrete, placing cast-in-place concrete between units, removing jacks after the cast-in-place concrete is cured, loading the assembly with a uniform load to the design stress in stages as approved by the Engineer but within three days after removal of jacks, maintaining the load in place for a period of not more than 14 days, removing the load in stages as approved by the Engineer but within a period of not more than three days, reinstalling jacks, jacking, removing cast-in-place concrete, dismantling and cleaning the units for subsequent installation, together with all work incidental thereto, all as shown on the plans and as specified. Materials and procedures shall be the same as those required for the actual installation in the tunnel except that tendons shall not be grouted in place. Full compensation for furnishing, placing, and removing materials and performing all work required for testing the precast units furnished under Bid Item 38 shall be included in the unit price paid for this item. The Contractor shall cooperate with the Engineer in allowing time for the installation of strain gages, measuring loads and deflections, and such other operations as are necessary to obtain and record test data.

DESIGN AND DETAILS REVIEWED BY [illegible]

SUPPLEMENTAL CONTRACT DRAWING

MARK	DATE	DESCRIPTION	BY	CH'K
△5	6/64	As built with revisions	BFS	[illegible]
△4	4/61	Deleted revision △2	R.A.B.	L.J.J.
△3	2/61	Revised description Bid Item 32	R.A.B.	L.J.J.
△2	2/61	Revised description Bid Item 40 and quantity Bid Item 38	R.A.B.	L.J.J.
△1	10/60	Revised description Bid Item 38	R.A.B.	L.J.J.
REVISION				

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

CONTRACT WORK-BID ITEMS 13 - 40

SCALE NONE | BRIDGE 33-25, 34-03, 34-04 | SHEET NO. 3 | DRAWING C-4029

[signature]
PROJECTS ENGINEER—LICENSE 1479

DATE APPROVED July 22, 1960

NO	BID ITEM	QUAN.	UNIT	DESCRIPTION
41	Movable traffic bridge.		lump sum	Shall conform to the applicable requirements of Sections 31 and 67 and shall consist of furnishing, installing, moving and maintaining the movable traffic bridge including the appurtenant ramps and fastenings complete and in operable condition as shown the plans and as specified and upon completion of the contract, removing, dismantling, and storing the movable bridge. The traffic wearing surfaces of the movable traffic bridge shall be sandblast cleaned and covered with an epoxy-alundum non-skid coating approved by the Engineer.
42	furnishing precast viaduct floor beam units.	354	each	Shall conform to the requirements of Sections 27, 28, and 31, and Prestressing Requirements and shall consist of fabricating the precast viaduct floor beam units, including furnishing and installing bar reinforcing steel, flexible metal tubes, Class LZ concrete, and all other materials required to provide the precast units complete and ready for installation, and transporting the units to the installation site, all as shown on the plans and as specified. Each individual casting of a precast viaduct floor beam unit furnished and delivered as shown on the plans and as specified shall be measured and paid for as one unit.
43	installing precast viaduct floor beam units.	354	each	Shall conform to the requirements of Sections 27, and 31, and the Prestressing Requirements, and shall consist of placing the precast viaduct floor beam units provided under Bid Item 42, grouting and connecting the units in place, furnishing and installing prestressing steel and accessories, Class LZ concrete in joints between coupled units, grout, precast spacer blocks, and all other materials required, tensioning bars, and all other work required to install the precast viaduct units complete in place as shown on the plans and as specified.
44	bar reinforcing steel.	764,501 △2	pounds	Shall consist of all bar reinforcing steel in cast-in-place concrete and shall conform to the requirements of Section 28. Wire mesh reinforcing steel will be measured and paid for under this item.
45	structural steel.	[illegible] △2	pounds	Shall conform to the requirements of Sections 31 and 67 and shall consist of furnishing and installing all steel girders, additions and extensions to steel floor beams, and all other steel structural members required, together with their fastenings, except as otherwise specifically provided, complete in place as shown on the plans and as specified. All shapes and plates to be furnished and installed under this item shall be ASTM Designation: A7, except as designated on the plans to be ASTM Designation: A94. The positions of bumper plates shown on the plans are the positions required for an ambient temperature of 65° F. At the time of field welding the bumper plates in place, their positions shall be adjusted, if necessary, to compensate for thermal expansion or contraction due to different ambient temperatures. Holes left in existing steel members by removal of steel designated to be removed shall be filled with bolts. High strength bearing bolts, nuts, and hardened washers shall conform to the requirements of ASTM Designation: A325, shall be as manufactured by Lamson and Sessions, Cleveland, Ohio, and shall conform to the torquing requirements for high strength bolts and all other applicable requirements of Section 31. Expansion assemblies connected to structural steel shall be hot-dip galvanized and will be measured and paid for under this Item.
46	Type 3 steel curb.	1,204.3 △2	linear foot	Shall conform to the applicable requirements of Sections 31 and 67 and shall consist of furnishing and installing hot-dip galvanized Type 3 steel curb complete in place as shown on the plans and as specified.
47	altering and reinstalling removed structural steel.	[illegible] △2	pounds	Shall conform to the requirements of Sections 31 and 67 and shall consist of reinstalling steel stringers and other bridge structural members removed under the bid item for removing structural steel which are designated to be reinstalled, including all alterations thereto except that full compensation for furnishing and installing any new materials required to provide the reinstalled steel complete in place as shown on the plans and as specified shall be measured and paid for under Bid Item 45.
48	prestressing steel bars and accessories for cast-in-place concrete.	[illegible] △2	pounds	Shall conform to the requirements of Section 31 and Prestressing Requirements and shall consist of furnishing and installing the prestressing steel bars and accessories required for cast-in-place prestressed concrete as shown on the plans and as specified. Extension of 1-1/4 inch diameter prestressed bars at existing fascia girder for north upper deck widening at columns shall be measured and paid for under this item.
49	T-1 steel.	30,481 △2	pounds	Shall conform to the applicable requirements of Sections 31 and 67 and the Prestressing Requirements, and shall consist of furnishing and installing T-1 steel together with prestressing steel bars and accessories required to provide the T-1 steel complete in place including prestressing operations as shown on the plans and as specified. Flange to web welds on T-1 steel undergirders shall be made by an automatic process conforming to the requirements of Section 67.
49	T-1 steel (Continued)			Furnishing and installing all materials other than T-1 steel and prestressing steel bars and accessories shall be measured and paid for under the bid item for structural steel.
50	3/4-inch concrete fastener assemblies.	4,209 △2	each	Shall consist of furnishing and installing, complete in place as shown on the plans and as specified, two kinds of assemblies, as follows: a. Shear lug assemblies, each consisting of one self-drilling concrete fastener, Type R34 as manufactured by Phillips Drill Company, and one 3/4-inch diameter by six-inch long machine bolt complying with the requirements of Section 31. b. Dowel assemblies, each consisting of one self-drilling Type R34 concrete fastener and one No. 6 deformed steel bar 18-inches long threaded on one end to screw into the concrete fastener, and complying with the requirements of Section 28 for intermediate grade reinforcing steel. Furnishing and installing other concrete fasteners will not be measured or paid for under this bid item but full compensation therefor shall be included in the prices paid for the various bid items for which they are required.
51	cast iron manhole frames and covers.	3,774.0 △2	pounds	Shall conform to the applicable requirements of Section 31 and shall consist of furnishing and setting to grade the cast iron manhole frames and covers complete in place as shown on the plans and as specified. The quantity to be measured shall be the pounds, scale weight, of cast iron manhole frames and covers actually installed.
52	miscellaneous metals.	49,524.0 △2	pounds	Shall conform to the applicable requirements of Sections 31 and 67 and shall consist of furnishing and installing, as shown on the plans and as specified, the following work: expansion and bearing assembly metal not connected to the structural steel freeway passenger shelters; pipe handrailings; cover plates and grating over catch basins, drop inlets, sidewalk pull boxes, valve boxes, pumps, utility trenches and vaults; ladders, ladder rungs, and pulling irons; cast iron floor drains; embedded steel channels in curbs over vaults and in substation floor; hollow metal doors and frames and sheet metal louvers; "Unistrut" supports embedded in trench walls only; and all other miscellaneous metal items required to complete the work, and not specifically included in other bid items. All ferrous metals except cast iron, hollow metal doors, and steel channel embedded in curb shall be hot-dip galvanized. Materials required to construct passenger shelters shall conform to the following requirements: Aluminum V-beam roofing sheet shall be Alcoa pattern R-5 stucco finish, with Pacific Blue Alumalure factory applied baked enamel finish, in lengths not less than 20 feet. Splicing and lapping shall be in accordance with the manufacturer's recommendations at locations approved by the Engineer. Aluminum sheet for flashing and gutters shall be flat, industrial, Alcoa pattern R-5, stucco finish with Pacific Blue Alumalure factory applied baked enamel finish. Aluminum shall be protected from contact with steel members by Aluminum pigmented asphalt paint. Bolts for securing aluminum sheet to steel members and concrete shall be 1/4-inch stainless steel alloy 305, with cadmium plate finish. Washers shall be composite aluminum and neoprene with minimum outside diameter of 5/8-inch and minimum thickness of 0.050-inch. Sheet metal screws shall be No. 12 aluminum by 3/4-inch long with Pacific Blue Alumalure factory applied baked enamel finish. Preformed rubber closures shall be as manufactured by Fabricated Products Co., West Newton, Pa., Serviced Products Co., Chicago, Illinois. Masonry anchors for fastening miscellaneous metals to concrete shall be Phillips "Redhead" self-drilling expansion fasteners. Hollow metal doors and frames and appurtenant hardware shall conform to the requirements of Section 82, Chapter II, except that measurement thereof shall be by the pound, scale weight. Locksets shall conform to Federal Specification FF-H-106a, series 161, all keyed alike and grand master keyed to existing hardware. Hinges, conforming to Federal Specification FF-H-116b shall be provided for doors as follows: 5'-0" by 11'-6" doors -- 4 No. 2068 -- 6 inch each leaf 3'-0" by 7'-0" doors -- 3 No. 2065 -- 4-1/2 inch each leaf 2'-6" by 5'-0" doors -- 2 No. 2065 -- 4-1/2 inch each leaf Pair of 5'-0" by 11'-6" doors to substation shall have cremone bolts and cylinder lock. All hardware shall have US10a finish except cremone bolts which shall be finished to match doors. Full compensation for furnishing and installing all non-metallic materials incidental to the installation of miscellaneous metal items shall be included in the unit price paid per pound for this bid item and no additional allowance will be made therefor.
53	Epoxy painting.		Lump Sum	Epoxy painting shall conform to the applicable requirements of Sections 32 and 33 and the following specifications: △1 The paint shall be applied to all exposed concrete surfaces shown on the plans to be painted between Station 155+39.92 and Station [illegible] of the lower deck roadway △2 *See C.C.O. No. 60* In addition, all exposed steel piping and other metal work under the upper deck roadway between the above mentioned stations shall be given the same epoxy paint coatings as herein specified except as otherwise shown on the plans. The surfaces to be painted shall be thoroughly cleaned by sandblasting prior to the application of the paint. All dirt, oil, grease, curing compound, paint or other deleterious substances shall be completely removed to the satisfaction of the Engineer. The surfaces shall be dried by means of compressed air or other approved means and no paint shall be applied to bare concrete surfaces when the surface moisture exceeds 15 percent. Immediately after sandblast cleaning metal surfaces shall be given a pretreatment acid wash (State Specification 52-I-05) and then primed with a metal primer which is compatible with the specified epoxy finish coats. △2 *See C.C.O. No. 45.* Epoxy resin paint such as Nitro-Dur, Kate Poxtex, Devran Chemfast 500 or approved equal will be considered as meeting the requirements of Sections 32 and 33. After the addition of the curing agent, the paint shall have a usable pot life of not less than four hours at 75° F. The paint shall be highly reflective and of a color selected by the Engineer. A minimum of two coats of epoxy resin paint shall be applied. Each coat shall be dried for at least 16 hours before the next coat is applied. The total dry thickness of the finished coating shall not be less than five mils.
54	wooden storage facilities. △2 *Item deleted. See C.C.O. No. 78.*	0 △2	thousand feet board measure	Shall consist of constructing racks and other wooden storage facilities including furnishing lumber, hardware, preservative treatment, and all incidental materials required therefor complete and ready for use as shown on the plans and as specified. All lumber shall be new Douglas fir, construction grade. Pentachlorophenol preservative treatment shall be applied in accordance with the requirements of Section 34. The Contractor shall submit shop drawings for approval by the Engineer. The quantity to be paid for shall be determined from nominal widths and thicknesses and the actual lengths of the pieces in the finished structure. Plywood will be measured as one board foot per square foot. The use of railroad ties as dunnage will not be paid for under this item.
55	Removing roofed passenger shelter.		Lump Sum	Shall consist of removing the roofed passenger shelter and restrooms shown on the plans. Materials removed shall be segregated and stored in locations on Yerba Buena Island designated by the Engineer. △2 *See C.C.O. No. 48R.*
56	metal plate guard railing.	752.3 △2	linear foot	Shall consist of furnishing and installing complete in place as shown on the plans and as specified all metal plate railing, which is to remain in place upon completion of the work, of the following types: a. metal plate guard railing conforming to the requirements of Section 41, Chapter II, except that posts shall be *reinforced concrete at 12'-6" maximum spacing.* b. metal plate bridge railing including plates and shapes, conforming to the applicable requirements of Section 31 and Section 41, Chapter II. △2 *See C.C.O. No. 47.*
57	removing metal plate guard railing.	749.2 △2	linear foot	Shall consist of removing and salvaging, in accordance with the provisions of Section 10, existing metal plate guard railing where indicated on the plans to be removed.
58	installing removed metal plate guard railing.	692.6 △2	linear foot	Shall consist of cleaning, installing, and painting metal plate guard railing removed under Bid Item 57 which is both to be reinstalled and to remain in place upon completion of the work. The work shall conform to the applicable requirements of Section 41, Chapter II, except that, at the Contractor's option, State-furnished 90-pound rail may be used for posts. Full compensation for furnishing and installing any new material required to provide the removed metal plate guard railing complete in place as shown on the plans and as specified shall be included in the unit price paid for this item and no additional allowance will be made therefor.

MARK	DATE	DESCRIPTION	BY	CH'K.
△2	[illegible]	*As built with revisions*	[illegible]	[illegible]
△1	10-60	Revised Description Bid Item 53	R.A.B.	L.J.J.
REVISION				

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION STRUCTURE-YERBA BUENA ISLAND

CONTRACT WORK- BID ITEMS 41 — 58

SCALE NONE | BRIDGE 33-25, 34-03, 34-04 | SHEET NO. 4 | DRAWING C-4029-4R

NO	BID ITEM	QUAN.	UNIT	DESCRIPTION
59	metal safety railing, Type A.	1,811.3 △1	linear feet	All safety railing shall be steel pipe with structural steel posts and shall conform to the requirements of Section 42, Chapter IV except that no painting will be required.
60	metal safety railing, Type B.	274.9 △1	linear feet	
61	removing and storing chain link fence.	401.1 △1	linear feet	Shall consist of removing and cleaning chain link fence and storing all materials not re-used under Bid Item 62, all as shown on the plans and as specified. Removed fence posts shall be cleaned of all concrete.
62	installing State-furnished chain link fence.	46.8 △1	linear feet	Shall conform to the requirements of Section 44 and shall consist of installing chain link fence and gates furnished from State-furnished materials or from materials removed under Bid Item 61. Full compensation for furnishing and installing any new materials required to provide the fence complete in place shall be included in the unit price paid for this item and no additional compensation will be allowed therefor.
63	12-inch diameter corrugated metal pipe.	707.1 △1	linear feet	Shall conform to the requirements of Section 47. Pipe shall be asbestos-bonded asphalt-dipped standard 12-inch diameter 14-gage corrugated metal pipe.
64	raised traffic bars.	32.1 △1	linear feet	Shall conform to the requirements of Section 59. The White Traffic Line Paint shall conform to the provisions of Section 32 Chapter V, for White Traffic Line Lacquer, State Specification 55-G-95.
65	Removing, renovating, and relocating 15-KV metal-clad switchgear.		Lump Sum	Shall consist of removing from storage in Yerba Buena Island substation, renovating, and installing in the substation, the three units of the 15-KV metal-clad switchgear, complete, in place, and in operable condition, as shown on the plans and as specified. The renovation shall include the following: a. removing and storing potential and current transformers, potheads, relays, instruments, switches, nameplates, pilot lights and instrument wiring from front panels except oil circuit breaker manual control switch and red and green indicator lights; b. furnishing and installing new potential and current transformers, high voltage cable clamps, ammeters, volt meters, instrument switches, indicating lamps, protective relays, nameplates, terminal blocks, and instruments wiring; c. patching unused openings in instrument panels by welding and grinding smooth, repainting exterior, and touching up unpainted interior surfaces; d. disassembling and conducting witnessed inspection of three B2B oil circuit breakers, testing operating mechanism and contact alignment, replacing insulating oil with WEMCO Type C universal oil, and running time to open and time to close tests on reassembled oil circuit breakers; e. performing witnessed dielectric test on complete reconstructed switchgear in accordance with the American Standard for Switchgear Assemblies and Metal Enclosed Bus, ASA Standard C37.20, 1955, paragraph 27-304; f. performing witnessed and certified tests and calibration on all current and voltage relays and indicating instruments furnished and installed under this item; g. after installation of the completed assembly within the substation, performing witnessed tests as follows: closing and tripping each oil circuit breaker with manually operated control handle on each unit, closing and tripping each circuit breaker with current relay contact, making tap and time dial settings on each relay and checking time of operation with three values of simulated secondary current.
66	Removing, remodeling, and relocating 275-KVA transformer.		Lump Sum	Shall consist of removing from storage, remodeling, and installing in the Yerba Buena Island substation one 275-KVA transformer complete, in place, and in operable condition as shown on the plans and as specified. Drained oil shall be disposed of by the Contractor outside of the contract limits. Covers, bushings, core and coil assemblies and all miscellaneous parts shall be removed from tanks and terminal chambers. Excessively corroded parts shall be replaced with new parts. Tanks, terminal chambers and covers shall be sandblast cleaned. Tanks shall be checked for leaks by compressed air method and all leaks shall be patched by welding and grinding welds to a smooth finish. Primary terminal chamber shall be enlarged and primary and secondary terminal chambers shall be modified for bottom entry with 4-inch rigid metal conduits. New oil temperature indicators shall be installed with alarm contacts and 3/4-inch rigid metal conduit connections to secondary terminal chambers. All unused holes in terminal chambers shall be welded closed and ground smooth. Tank interiors shall be painted with pretreatment vinyl wash primer, No. 52-G-52, and one coat of semi quick-drying red lead paint primer and paint shall be allowed to dry at least 72 hours before coming in contact with oil. Existing coils shall be removed from cores and new windings installed for 300 KVA, 3 phase, 60 cycle, 12,000-volt delta primaries with two 2-1/2 percent taps above and two 2-1/2 percent taps below rated voltage and for 480-volt delta secondary transformers. Cable clamps shall be provided for a single No. 1/0 AWG conductor on each primary terminal and for a single

NO	BID ITEM	QUAN.	UNIT	DESCRIPTION
66	(Continued)			500-MCM conductor on each secondary terminal. Immediately prior to reinstallation, coil and core assemblies shall be oil impregnated at 29 inches Hg vacuum for four hours. New bushings and cover gaskets, Westinghouse WEMCO Type C universal oil or approved equal, and new nameplates shall be furnished and installed. Insulating oil shall not exceed 50° C. rise at 300-KVA continuous operation in 40° C. ambient temperature. The following tests shall be conducted by the Contractor when ordered by the Engineer and in his presence. a. Check coil voltage, tap ratios, and terminal markings. b. Conduct primary high potential tests at twice the rated voltage plus 1,000 volts for 60 seconds at completion of vacuum process. c. Conduct megger tests of primary and secondary coil terminals, phase to phase and phase to ground. d. Conduct high voltage breakdown test of insulating oil.
67	temporarily installing State-furnished 25-KVA lighting transformers.	7 △1	each	Shall consist of modifying, installing, and later removing and storing the State-furnished 25-KVA transformers for supplying temporary power to the San Francisco-Oakland Bay Bridge fire station. The transformers are single phase, oil filled, self-cooled 25-KVA, with 4,160-KV primaries, and 120/240 volt secondaries, and will be delivered by the State to the installation site. High and low voltage junction boxes shall be developed to permit the required conduit entries as shown on the plans and shall be furnished by the Contractor for primary and secondary connections. The Contractor shall also furnish and install 5-KV oil fuse cut-outs and molded case air circuit breaker switchgear suitable for the temporary power distribution as shown on the plans. After all the temporary services have been concluded the transformers shall be disconnected (primary and secondary protective devices removed), transported to, and stored in the Division's Warehouse on the East Bay Mole. All other materials furnished by the Contractor for temporary installation shall remain the property of the Contractor and shall be removed from the contract limits. Oil fuse cut-outs shall be G & W size FC 31, style B, Catalog No. FC 31B-EC.
68	Sixty-cell lead-acid battery and rack.		Lump Sum	Shall consist of furnishing and installing Gould-National Batteries Inc., Plante Type NPH 13, 60-cell lead-acid battery and three step steel rack and fuse cabinet with 50 ampere two-pole, E-frame air circuit breaker all complete, in place, and in operable condition, as shown on the plans and as specified, and shall relocate existing equipment to other installations of the Project. Existing battery cells shall become the property of the Contractor and shall be disposed of by him outside of the contract limits (60 cells).
69	Low voltage control center.		Lump Sum	Shall consist of furnishing and installing the low voltage control center including main and feeder circuit breakers, magnetic starters and contactors, control devices and auxiliary relays, self-regulating battery charger, 45-KVA dry type transformer, and A.C. and D.C. distribution panel boards, complete in place and in operable condition, as shown on the plans and as specified. The control center shall be Westinghouse Class 11-350 totally enclosed, free standing type, composed of basic unit structures 20 inches wide, 20 inches deep and 90-3/8 inches high. The basic unit structures shall be joined to form one complete connected assembly. The structures shall be fabricated from 11-gage sheet metal and 2 inch x 2 inch x 1/8 inch structural angles so as to permit front or rear installations. The entire assembly shall be furnished with two continuous horizontal wiring raceways, one at the top and one at the bottom. Each 20-inch wide unit shall be furnished with a vertical wiring space equipped with cable tie supports. The main bus shall be rated at 600 amperes and shall consist of three 1/4-inch x 2-inch copper bus bars supported at the top of each structure with bus supports. Each 20-inch wide unit, unless otherwise shown on the plans, shall be furnished with three 1/4-inch x 1-1/2 inch copper vertical buses to distribute three phase power to each feeder circuit breaker and starter unit. All magnetic contactors or circuit breakers shall be built in interchangeable modular units. All units shall be line plug-in lock-out type, with silver plated pressure type disconnecting stabs. Provisions shall be made to padlock each individual starter or contactor unit in the disconnected position. Individual 480/120-volt starter control transformers shall be provided for each contactor. Each circuit shall have a suitable card holder to designate the purpose of the circuit. The motor control center shall be constructed in compliance with the National Electrical Manufacturer's Association Standards for Type B, Class II construction. The magnetic contactors shall be Westinghouse, size two, Type M-230, Class 15-825 with three normally open and one normally closed auxiliary contacts and 120 volt coils. The magnetic starters shall be Westinghouse, size four, full voltage, "Life-Line," Class 11-200 with three overload relays and three normally open and one normally closed auxiliary contacts and 120 volt coils.

NO	BID ITEM	QUAN.	UNIT	DESCRIPTION
69	(Continued)			Circuit breakers shall be Westinghouse Type AB with operating mechanisms. Control transformers shall be 480/120 volt Westinghouse Type LC, 300 volt amperes, for size two contactors, and Type MTB, 500-volt amperes, for size four starters. The automatic transfer switch shall be Automatic Switch Co., Catalog No. 4618 for A.C. normal source to D.C. emergency source, 60 ampere, continuous duty. The rectifier cut-out relay shall be Automatic Switch Co., Catalog No. 5620 with 120 volt A.C. coil. The self-regulating battery charger shall consist of a full wave selenium rectifier unit, isolating transformer, regulating reactors, pilot auxiliary rectifier, terminal board, volt-meter, ammeter, voltage control rheostat, fuses, and capacitor. Input shall be 120/240 volts, single phase, 60 cycle A.C. and output for 60-cell lead-acid station battery at 2.13 to 2.17 volts per cell. Charging rate shall be 0.6 to 6.0 amperes. The self-regulating battery charger shall be Westinghouse "Rectomatic." The 45-KVA transformer shall be Westinghouse Type [illegible], 480 volts to 120/240 volts, single phase, with two five-percent full-current below-normal taps. The photo-electric cell auxiliary relays shall be Square D, Type DO with ten contacts. The time clock with astronomic dial shall be General Electric Co., T3A-40.
70	removing and storing bracket mounted sodium vapor luminaires.	24	each	Shall consist of removing, disassembling, transporting, and storing bracket mounted, single unit, sodium vapor luminaires, including brackets, as shown on the plans and as specified. Luminaires, isolating transformers, and other appurtenances shall be stored in the Key System Car Inspection Building.
71	removing pole-mounted sodium vapor luminaires.	27	each	Shall consist of removing from its present installation site each existing pole-mounted sodium vapor luminaire including its lamps, pole, isolating transformers, and all other appurtenant equipment, all as shown on the plans and as specified.
72	installing State-furnished pole-mounted sodium vapor luminaires.	29	each	Shall consist of each permanent installation of a State-furnished pole-mounted sodium vapor luminaire together with its lamps, poles, isolating transformers, and other appurtenances, including furnishing and installing bases, fastenings, connections, and all other new materials required to provide the installation complete in place as shown on the plans.
73	fluorescent luminaires.	158 △1	each	Shall consist of furnishing and installing fluorescent luminaires, including all mounting brackets, hangers and fastenings, secondary wiring, and all other materials required to provide the luminaire installations complete, in place, and in operating condition as shown on the plans and as specified except that primary wiring and conduit will be measured and paid for under the respective items for such work. Each luminaire shall be provided with two spare lamps in addition to the two installed. All ferrous parts shall be hot-dip galvanized. All exposed metal work shall be cleaned and painted as shown on the plans, and full compensation therefor shall be included herein. The Contractor shall submit shop drawings of the metal enclosure to the Engineer for his approval before starting work. Prior to installation, a sample of the luminaires to be installed shall be submitted to the Engineer for approval. After installation, the lamps shall be oriented as directed by the Engineer to provide the best illumination.
74	removing and storing electrical cable and wire.	43,995.0 △1	pounds	Shall consist of removing and storing all electrical cable and wire designated to be removed together with its supports and fastenings as shown on the plans and as specified. Cable and wire less than 20 feet in length shall be stored in bins in the warehouse. Cable and wire over 20 feet in length shall be continuously reeled on reels provided under Bid Item 54. Measurement shall be by the pound, scale weight of wire and cable actually removed and stored, whether or not reinstallation is required under other bid items.

PROJECTS ENGINEER—LICENSE 1478

DATE APPROVED JULY 22, 1960

MARK	DATE	DESCRIPTION	BY	CH'K
△1	6-1-66	As built with revisions	AFS	EHZ
		REVISION		

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

CONTRACT WORK-BID ITEMS 59 – 74

SCALE NONE | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 5 | DRAWING 04029-5R

NO	BID ITEM	QUAN.	UNIT
75	installing State-furnished high voltage cable, Type A.	0	linear feet
76	installing State-furnished high voltage cable, Type Q.	888.1	linear feet
77	installing State-furnished low voltage cable, Type K.	4,568.0	linear feet
78	installing State-furnished low voltage cable, Type U.	1,298.0	linear feet
79	installing State-furnished communication and signal cable, Type E.	1,828.0	linear feet
80	installing State-furnished communication and signal cable, Type M.	1,868.0	linear feet
81	installing State-furnished communication and signal cable, Type S.	6,098.7	linear feet
82	installing State-furnished communication and signal cable, Type T.	1,659.3	linear feet
83	high voltage cable, Type A.	11,848.8	linear feet
84	high voltage cable, Type P.	4,348.5	linear feet
85	high voltage cable, Type R.	6,184.6	linear feet
86	low voltage cable, Type L.	6,998.1	linear feet
87	communication and signal cable, Type G.	4,317.6	linear feet
88	communication and signal cable, Type P.	2,179.9	linear feet
89	202-pair No. 22 AWG paper-lead telephone cable.	216.0	linear feet
90	500 MCM RHW building wire.	180.3	linear feet
91	one-conductor TW, 600-volt, No. 1 AWG building wire.	715.2	linear feet

DESCRIPTION

Cable and wiring materials, construction and tests, unless otherwise noted or subsequently specified, shall conform to the requirements of IPCEA Standard S-19-81, Third Edition, March 1959, entitled "Rubber-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy", and the Association of Edison Illuminating Companies' "Solid-Type Impregnated Paper-Insulated, Lead Covered Cable Specifications", Ninth Edition. All new cable shall be as manufactured by any of the following manufacturers: The Anaconda Wire and Cable Company; the Construction Materials Division of the General Electric Company; the Okonite Company; the Rome Cable Corporation; and the General Cable Company.

All tests, as specified by the aforementioned regulating agencies and herein, shall be made, certified, and submitted for approval. Samples and supplemental data shall be submitted for all stock cables and wiring materials demonstrating that these meet the specifications. Statements of compliance with specifications will not be considered sufficient. All the above information shall be submitted in duplicate for the Engineer's approval; and any material purchased, labor performed, or delay to the work prior to approval shall be the liability of the Contractor.

Where polyethylene is specified the material used shall be as manufactured by E. I. Du Pont de Nemours & Co., Inc.; (1) Alathon 3-BMC-10 or Bakelite DFD 6005 for insulation of special construction cables of the high-voltage electrical power distribution category and (2) Alathon 3-BMC-10 or Bakelite DFD 6005 for insulation of special construction or stock cables of the 600-volt insulation level, or below. The thickness of polyethylene insulation shall be neither less than 97 percent nor more than 145 percent of the nominal thickness specified, and shall be concentric around the conductor or conductors as shown on the plans. No additives will be permitted in the manufacture of the insulation of the polyethylene insulated cables. The thickness of polyvinyl chloride jacket shall be neither less than 95 percent nor more than 120 percent of the nominal thickness specified and shall be concentric around the conductor or conductors, as shown on the plans.

See C.C.O. No. 21.

Semiconducting bedding and copper shielding tapes on the 15-KV polyethylene insulated power cable shall be as manufactured by The Anaconda Wire and Cable Company "Semiliner Shielding Bedding".

In addition to the aforementioned factory tests for cables, where polyethylene is used in cable of the high voltage power distribution class, corona-voltage extinction level tests shall be performed on reel lengths of the power cable. Such tests shall show extinction levels of not less than 125 percent of the operating voltage shown on the plans. Where rubber is used for insulation of high voltage cable, such material shall be butyl rubber with a K factor of not less than 20,000.

Cable splices shall be located in manholes and junction boxes or in the utility trench, tunnel, and curb. All cable and wiring installation work, pulling, splicing, and terminating operations shall be performed in the presence of the Engineer. Information and necessary drawings for all such operations shall be submitted to the Engineer for approval before actual installation. Where cable ends are to be left dormant, a watertight seal shall be applied to the ends and a sufficient length of cable left to make future splices.

Armor, where specified, shall be an interlocking type of bronze armor with a tensile strength of not less than 40,000 psi. Bronze armor shall be commercial bronze of uniform cross section and free from defects. The width and thickness shall be as required by AIA Bulletin CS.15—1956 UDC 621.315.22. Bronze interlocking armor shall be applied by such means as will insure tight fitting and firm contact between the armor and underlying material and shall be applied helically so that there will be a minimum overlap of at least 50 percent. Continuously welded corrugated bronze armor sealed-in cable with the bronze conforming to the specifications for the bronze of the interlocking armor as stated above will be accepted as an approved equal to the bronze interlock armored cable.

The paper-lead telephone cable shall be General Cable Co., Type 2280-85.

Prior to completion and acceptance of the work, the following tests shall be made on all cable and wiring installations in the presence of the Engineer: Continuity of each circuit; check for grounds in each circuit; megger each circuit between circuit and ground (insulation resistance shall not be less than the values specified in article 110-19 of the National Electrical Code); functional tests in which it is demonstrated that each and every part of the wiring system functions as intended; and an applied high voltage D.C. test of the new cables installed equivalent to 80 percent of the comparable factory test. For existing cables installed, a high voltage D.C. test shall be applied equal to twice the operating voltage plus 1,000 volts for 5-KV, or plus 100 volts for 600-volt cable.

All Type TW wire shall be manufactured as required by Column B, Table 1, Appendix 1 of the IPCEA Standard and shall meet Machine Tool Electrical Standards.

All No. 8 AWG wire and larger shall be stranded.

Two-conductor twisted-pair No. 16 AWG duct type telephone wire shall be rubber insulated neoprene jacketed, as manufactured by the General Cable Co., Alphadust No. K-162-20C-DR.

The Contractor shall install Brady B-184 aluminum foil tape wire markers on all conductors at each terminal point within the Yerba Buena Island Substation and new connections at Substation 3, and 3/4-inch round brass tags on all conductors at vaults, terminals, and intermediate boxes of curb trench installations, other boxes, and bridge cable connections.

Wire and cable shall be measured in a straight line along the slope from center to center of splice, junction or termination.

RHW wire shall be manufactured as required by Section 3.13 of the IPCEA Standards.

NO	BID ITEM	QUAN.	UNIT	DESCRIPTION
92	one-conductor TW, 600-volt, No. 6 AWG building wire.	3,090.2	linear feet	See previous column.
93	one-conductor TW, 600-volt, No. 8 AWG building wire.	22,696.5	linear feet	
94	one-conductor TW, 600-volt, No. 10 AWG building wire.	9,981.3	linear feet	
95	one-conductor TW, 600-volt, No. 12 AWG building wire.	[illegible]	linear feet	
96	two-conductor twisted pair No. 16 AWG duct-type telephone wire.	3,196.9	linear feet	
97	installing State-furnished copper bonding wire and grounding tie.	[illegible]	pounds	Shall consist of installing State-furnished 500-MCM insulated and No. 4/0 bare copper cable including splices, connections, and furnishing and installing all new materials required to provide the bonding and grounding systems complete in place and in operating condition as shown on the plans and as specified.
98	3/4-inch diameter metal conduit.	16,267.7	linear feet	Shall consist of furnishing and installing hot-dip galvanized rigid (or where shown on the plans, flexible) steel conduit of the nominal diameters shown on the plans. The material and work shall conform to the requirements of the NEC Sections 346 and 350. All bends in conduit shall have not less than the radius specified in Table 346-10 of the NEC for conductors with lead sheathing, unless otherwise shown on the plans or unless larger radius bends are required to conform to the provisions of the IPCEA Standards for pulling cable under tension. Conduit shall be measured along the center line to the nearest tenth of a foot. Full compensation for the cost of furnishing and installing all fittings, supports, clamps, and other materials required to provide the conduit runs complete in place shall be included in the prices paid per linear foot for conduit. In lieu of wrapping, two coats of Inertol, Standard Thick, as manufactured by the Inertol Company, will be considered as meeting the requirements of Section 61 for corrosion-resisting protective covering on conduit in direct contact with earth.
99	1-1/2 inch diameter metal conduit.	14,264.8	linear feet	
100	2-1/2 inch diameter metal conduit.	144.8	linear feet	
101	four-inch diameter metal conduit.	6,153.8	linear feet	
102	four-inch diameter asbestos-cement conduit.	5,284.1	linear feet	Shall consist of furnishing and installing four-inch diameter asbestos-cement conduit complying with the requirements of Federal Specifications W-C-00571 (GSA-FSS) for Type I duct, complete in place as shown on the plans and as specified. Measurement shall be along the center line to the nearest tenth of a foot. All bends in conduit for cable shall have not less than the radius specified in the National Electrical Code for field bends in conduit for conductors with lead sheath, except where larger radius bends are required to conform to the provisions of the IPCEA Standards for pulling cable under tension.
103	utilities tunnel lighting devices.	36	each	Shall consist of furnishing and installing industrial vapor-tight fixtures (Appleton No. 68061) with 100 watt lamps, switch bodies (Appleton No. 7921), switch body covers (Appleton No. 8111), and toggle switches (125 volt-15 amp., "T" rated, any standard manufacturer), together with their fastenings and connections, complete in place and in operating condition as shown on the plans and as specified.
104	roadside electrical service boxes.	10	each	Shall consist of furnishing and installing the roadside electrical services boxes complete in place including electrical outlets, telephone jacks, permanent telephone connections, and all other connections and fastenings as shown on the plans and as specified.
105	low voltage transformer service boxes.	4	each	Shall consist of furnishing and installing galvanized steel enclosures together with 3-KVA transformer, primary and secondary circuit breakers, power and communication cable terminal blocks, telephone outlets, and all necessary internal wiring, complete in place and in operating condition as shown on the plans and as specified.
106	Miscellaneous electrical work.		Lump Sum	Shall consist of furnishing and installing the photo-electric cell and all metal boxes required to provide the electrical work complete in place as shown on the plans and as specified, except as specifically included in other items of electrical work. The photo-electric cell shall be Fisher-Pierce Company, Series 83300C or Line Material Company, Tabet type WTL-T1001 cell with load contacts rated 30 amperes at 120 volts A.C.

DATE APPROVED July 22, 1960

NO	BID ITEM	QUAN.	UNIT	DESCRIPTION
107	air compressors.	5	each	Shall consist of furnishing and installing: air compressors, Schramm 80TCE, 210 cfm free air at 125 psig, complete with air filters; 2-1/2 inch air intake silencers, Schramm 2425-2-1/2; corrugated flexible metal hose connections, Universal U-200, 2-1/2 inch, stainless steel 304, single braided, with stainless steel 150 pound flanges, 18 inches face to face; oil filters and oil gages; motors, General Electric NEMA Type MG-1-421, 60 hp, three phase, 60 cycle, induction type, 208-220/440 volt, 1175 rpm, Code E, 40° C. maximum rise continuous rating, air-cooled, drip-proof, for direct connection to compressors; capacitors, Westinghouse, Type IDF, 15-KVAR, 480-volt, three phase, complete with 12-inch by 12-inch by 6-inch junction boxes; safety devices, low oil pressure high water temperature, suitable for automatic starting and complete with brackets, wiring, and piping; cooling units, standard type, including all necessary accessories; thermostatic control for make-up water 194°F, Schramm H-2249, with Schramm H-2248 thermometer; piping to thermostatic control, 1/2-inch Type K hard copper water tube; piping from thermostatic control, 1/2-inch Type K soft copper water tube; 1/2-inch Lunkenheimer 2230 gate valve; safety valves, bronze pop type, factory set to discharge at 210 cfm at 150 psig; orifice plate flanges, 2-1/2 inch, 300 psi, suitable for any size orifice; steel pipe, 2-1/2 inch diameter, schedule 40, galvanized, ASTM Designation: A53 with flanged fittings and slip-on welding flanges, galvanized after fabrication; valves, fittings, hot dip galvanized supports and fastenings; incidental wiring and piping; connections; mountings, including vibration pads; and all other work and materials required to provide the compressors complete, in place, and in operable condition as shown on the plans and as specified. All motors shall be the product of the same manufacturer, and shall be assembled and tested on the compressors before shipment.
108	removing and reinstalling 3/4-inch diameter wrapped steel water pipe.	44.2	linear feet	Shall conform to the applicable requirements of Sections 62 and 67 and shall consist of disconnecting and removing existing pipes of the designated types and sizes where located less than 18 inches below finished roadway grade, and reinstalling the pipe not less than 18 inches below finished roadway grade including valves, fittings, and all other new materials required to provide the pipe lines complete in place, flush-cleaned, tested and in operating condition as shown on the plans and as specified, except that structure excavation and structure backfill shall be measured and paid for under the respective bid items for such work. Portions of the pipe which are removed and not reinstalled shall be stored. The quantity to be measured shall be the linear feet along the center line of reinstalled pipe line. The pipe shall be laid on a three-inch bed of material complying with the requirements for structure backfill. Damaged wrapping shall be replaced and new pipe shall be wrapped by methods and with materials matching the original. Removing and reinstalling fire hydrants will not be measured but full compensation therefor shall be included in the price paid per foot for Bid Item 110.
109	removing and reinstalling 2-1/2 inch diameter wrapped steel water pipe.	17.5	linear feet	
110	removing and reinstalling six-inch diameter wrapped steel fire protection pipe.	23.7	linear feet	
111	installing State-furnished four-inch diameter steel water pipe.	2,144.5	linear feet	Shall consist of installing State-furnished four-inch diameter schedule 80 black steel pipe with available State-furnished fittings including: removing and transporting pipe and fittings from storage; cutting off and beveling ends of pipe and fittings; cleaning pipe and fittings of all soil, oil, grease, weld slag, loose paint, and loose rust, plugging holes by welding; removing sharp projections; making welded joints; painting; and furnishing and installing all new valves, expansion joints, welding flanges, tube-turn fittings, traps, incidental piping and cocks, and all other materials required to provide the pipe lines complete in place, flush-cleaned and tested, as shown on the plans and as specified. Welding shall conform to the requirements of Section 67. Pipe will be measured along the center line in place to the nearest tenth of a foot.

SUPPLEMENTAL CONTRACT DRAWING

MARK	DATE	DESCRIPTION	BY	CHK.
2	6-66	*As built with revisions*		
1	10-60	Revised Bid Item 85, and Descriptions Bid Items 85 and 111.	R.A.B.	L.J.J.

REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
CONTRACT WORK-BID ITEMS 75 – 111

SCALE NONE | BRIDGE 33-25, 34-03, 34-04 | SHEET NO. 6 | DRAWING C-4029-6

NO	BID ITEM	QUAN.	UNIT	DESCRIPTION
112	galvanizing and installing State-furnished four-inch diameter steel fire-protection pipe.	2,112.1 △	linear foot	Shall conform to the requirements of Sections 67 and 87 and shall consist of galvanizing and installing State-furnished four-inch diameter schedule 40 black steel pipe with available State-furnished fittings as shown on the plans and as specified including: cutting off and beveling ends of pipe and fittings; alesaning pipe and fittings of all dirt, oil, grease, mill slag, paint and rust by methods which will provide surfaces suitable for galvanizing; plugging holes in pipe walls by welding; removing sharp projections; making welded joints and threaded joints as shown on the plans; and furnishing and installing new valves, welding flanges, tube-turns and other fittings, traps, anchors, supports, test and drain pipes and all other new materials required to provide the pipe lines complete, in place, flush-cleaned, painted and tested, as shown on the plans and as specified. All ferrous materials except valves shall be galvanized in accordance with the requirements of Section 75 for hot-dip galvanizing of structural steel. Galvanized surfaces damaged by welding shall be repaired by wire-brush cleaning to remove all traces of welding flux and loose or cracked spelter and painted with two coats of zinc oxide-zinc dust paint conforming to the requirements of Federal Specifications TT-P-151b, one part zinc oxide to four parts zinc dust, by weight, is a suitable vehicle. Unused pipe shall be returned to storage and full compensation for the costs thereof shall be included in the unit price paid for this item. Threaded ends of pipe to be re-used shall be chased four turns beyond the end of the existing thread. Pipe joint compound shall be used in making up threaded joints.
113	one-inch diameter schedule 40 galvanized steel pipe.	2,378.0 △	linear foot	Pipe shall be schedule 40, ASTM Designation: A53, either Grade A or Grade B, galvanized steel pipe and screwed joints shall have recessed couplings unless otherwise shown on the plans. All pipe, fittings, supports and all other ferrous materials, except valves, shall be hot-dip galvanized. Valves for one-inch diameter pipe shall be bronze; valves for six-inch diameter pipe shall be iron bodied. The price paid per linear foot shall include full compensation for furnishing and installing all pipe, valves, fittings, expansion joints, flanges, traps and all other materials required to provide the pipe line complete, in place, including galvanizing, cleaning, painting, and hydrostatic testing, all as shown on the plans and as specified.
114	six-inch diameter schedule 40 galvanized steel pipe.	1,342.0 △	linear foot	
115	sprinkler heads.	236	each	Shall consist of furnishing and installing the sprinkler heads complete in place and in operable condition as shown on the plans and as specified. The sprinkler heads shall be Underwriters' approved pendent type, lead and wax coated, automatic sprinklers with temperature rating of 212°F, as manufactured by the Grinnell Company, Inc. The Contractor shall furnish and install above designated by the Engineer a standard size cabinet containing six additional sprinkler heads and one special sprinkler wrench, and full compensation therefor shall be included in the unit price paid for sprinkler heads actually installed.
116	Flow detectors and alarm system.		lump sum	Shall consist of furnishing and installing the flow detectors and alarm system including: Edwards No. 341, four-inch vibrating 125-volt D.C. bell; Lunkenheimer No. 1436 gate valve; Marsh type S, 8PSR, meter, 0-250 lb. sprinkler gage with recalibrator; McDonnell No. 7Sh flow switch mounted on one-inch Tee-inlet; Square D No. 7021L, fuse cabinet with two fire-alarm plug fuses; Square D class 7001, type PO-2, 125-volt D.C. double-pole open type relay; Square D class 9001, type CR-7, two-pole maintained contact selector switch; Square D class 9001, type TP1PRG, 120-volt red pilot light with glass color cap; Square D class 9001, type TP1PWG, white pilot light with glass color cap; ICM-10-24-C 16 gage steel equipment enclosure with hinged door and red enamel finish; and all other materials required, but not specifically included in other bid items, to provide the flow detectors and alarm system complete in place and in operable condition as shown on the plans and as specified. After installation, the flow detectors and alarm system shall be subjected to tests in accordance with the standards of the National Board of Fire Underwriters for the installation of sprinkler systems as recommended by the National Fire Protection Association. Should the system not meet the test requirements, all defective parts shall be repaired or replaced by the Contractor and the tests repeated, all at no additional cost to the State.

NO	BID ITEM	QUAN.	UNIT	DESCRIPTION
117	four-inch diameter cast iron pipe.	182.1 △	linear foot	Pipe shall conform to the requirements of AWWA Designation: A74 for cast iron pipe coated with coal tar pitch except that, at the Contractor's option, six-inch cast iron pipe reserved without damage under Bid Item 15 and cleaned bore-and-ender of all trash, soil, sand and other foreign material may be used in lieu of new six-inch pipe. Pipe shall be laid with bell ends up-grade in a trench excavated to the line and grades established by the Engineer on a bed of material meeting the requirements for structure backfill placed and compacted to provide adequate support for the pipe. Full compensation for furnishing and installing gaskets, fastenings, connections, a clearance in each riser, fittings, and all other materials required to provide the pipe lines complete in place as shown on the plans and as specified shall be included in the price paid per linear foot for these items.
118	six-inch diameter cast iron pipe.	1417.7 △	linear foot	
119	Miscellaneous mechanical work.		lump sum	Shall consist of installing water meter, connecting water system to incoming water main, furnishing and installing the galvanized air receiver tank and all ferrous and other metallic piping incidental thereto, auxiliary air receiver; pilot valves, sacrificers, traps, fittings, supports, fastenings and all other materials not included in other bid items but required to provide the compressed air system complete in place and in operable condition as shown on the plans and as specified.
120	ceramic tile	1,753.85 △	square foot	Shall consist of removing existing tile, preparing concrete surfaces, and furnishing and setting ceramic tile complete in place as shown on the plans and as specified and shall conform to the requirements of Section 59 and the following modifications: a. All concrete surfaces to receive tile shall be thoroughly roughened and cleaned by sandblasting or chipping. b. The concrete surfaces shall then be thoroughly wet down and then sprayed-on-coat with a 2:1 mixture of portland cement and silica, coarse sand. c. A scratch coat shall then be applied to the concrete surfaces, not less than 12 hours after soaking and not less than 24 hours before setting tiles. The scratch coat shall consist of one part by volume of portland cement to four parts by volume of clean sharp sand and shall be finished to a true and level surface of uniform depth. While still plastic, the scratch coat shall be deeply scored with horizontal and vertical lines not further than one inch apart. d. New tile shall be of the same size, shape, glaze, and color as existing tile on the tunnel walls, and the setting pattern and joints shall match existing. e. Trimmers and special shapes shall be used as required to conform to the plans.

W. C. Paik
PROJECTS ENGINEER—LICENSE 1479
DATE APPROVED July 22, 1960

MARK	DATE	REVISION DESCRIPTION	BY	CH'K
△	8-1-60	As built with revisions	AFS	WMT

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
CONTRACT WORK-BID ITEMS 112 - 120

SCALE NONE | BRIDGE 33-25 34-05 34-04 | SHEET No. 7 | DRAWING C-4029-7R

PROJECTS ENGINEER—LICENSE 1479

DATE APPROVED July 22, 1960

PRESTRESSING REQUIREMENTS

A. General

All prestressing work shall be done in accordance with the applicable requirements of Sections 31 and 67, as shown on the plans and as specified.

The Contractor shall submit detail drawings to the Engineer for approval showing complete details of materials, proposed equipment, and procedures for the prestressing work.

All prestressing steel and accessories shall at all times after fabrication be free of dirt, grease, and other deleterious substances, and shall be continuously protected from abrasion, rust, or other corrosion.

Prestressing steel and accessories, excluding metal enclosures, shall be assigned individual lot numbers for each size or diameter and for each mill heat, and shall be tagged for identification at the site.

Samples of prestressing steel and accessories, as specified herein, shall be furnished by the Contractor for testing and approval by the Engineer. Materials shall not be used until the samples have been approved. All samples shall be accompanied by a certification from the vendor that the samples were taken from and are representative of each lot number to be furnished and shall be identified by the lot number from which taken.

Hydraulic jacks used for tensioning shall have accurately calibrated pressure gages to determine the force on the prestressing steel at any time during tensioning operations. The Contractor shall maintain the accuracy of all equipment. Certified calibration curves shall accompany each piece of equipment.

Installation and prestressing operations shall not be conducted except in the presence of the Engineer.

Tensioning and retensioning procedures shall be such that, tension being applied may be determined at any time by jack gage readings and measured steel elongations.

B. Concrete Prestressing

Tensioning of steel bars for concrete prestressing shall be performed in such stages, and in such sequences as to obtain nearly uniform distribution of stress and minimize local stress concentrations during any stage of the operations.

Upon completion of tensioning and retensioning operations upon any group of bars, the stress in each bar in the group shall be the initial tension called for on the plans. In the tunnel units, all the prestressing bars in one pair of coupled units shall constitute a group, and in the viaduct units all bars between two consecutive deck expansion joints shall constitute a group. The Contractor shall include in the details submitted to the Engineer for approval a series of tensioning schedules giving the order of tensioning the individual bars in each group of bars.

No bars shall be tensioned until all concrete to be stressed by such tensioning has attained a minimum compressive strength of 4,500 psi, nor until it has been determined that the bar moves freely in its enclosure.

1. Materials

Prestressing Bars shall consist of heat-treated or cold worked high tensile alloy steel with the following properties.

PROPERTIES OF BARS

Property	Nominal Diameter of Bars, inches	
	1-1/8	1-1/4
Area, square inches	0.994	1.227
Weight, pounds per linear foot (for payment)	3.362	4.172
Minimum ultimate tensile strength, psi	145,000	145,000
Minimum yield strength at 0.2 percent offset, psi	130,000	130,000
Minimum elongation at rupture in 20 diameters, percent	4	4
Minimum reduction of area at rupture percent	15	15

Bars shall be fabricated within the permissible tolerances for heat-treated alloy bars specified in ASTM Designation: A434. Each bar shall be proof-stressed to not less than 130,000 psi. Bars shall be full length without splices except as shown on the plans.

Accessories shall consist of bearing plates, couplers, and anchorage assemblies (grip nuts, bushings, and washers), and metal enclosures (steel pipes and/or flexible tubing and sheet metal coupler housings).

Bearing plates shall be fabricated from steel of ASTM Designation: A242.

Grip nuts, couplers, and their bushings shall be Howlett grip type fabricated from steel of AISI Designation: 8620 and shall be case hardened and tempered.

Washers for grip nuts shall be fabricated from steel of AISI Designation: 1040. Each anchorage assembly and coupler assembly shall develop without exceeding the yield point of any part therein, the respective minimum strengths of 144,000 pounds for 1-1/8 inch diameter bars and 178,000 pounds for 1-1/4 inch diameter bars. *See C.C.O. No. 91.* (revision 1)

All grip nuts and couplers and their bushings and washers shall be magnetic particle inspected by the "Magna-Glo" process.

Steel pipe for metal enclosures shall be schedule 40 conforming to ASTM Designation: A53, Grade A or Grade B. Flexible metal tube enclosures shall be Duoflex as manufactured by Flexico Products Incorporated.

Samples shall be furnished by the Contractor as follows.

For bars, not less than two five-foot lengths of each diameter from each lot.

For anchorage assemblies and couplers, not less than two complete assemblies of each for each diameter of bar.

Grout for bar enclosures shall be portland cement and water and shall be of a suitable consistency for pumping with specified high pressure grouting equipment and shall develop a strength in compression of not less than 3,000 psi in 28 days. An intrusion admixture may be used subject to the Engineer's approval.

2. Installation

Preparation and Equipment.—Two-inch and 1-1/2 inch holes through existing concrete shall be drilled with core drilling equipment. The deviation of hole center line from the location shown on the plans shall not exceed 1/4-inch except at Bent YB-1 where the deviation at any point shall not exceed 1/2-inch plus 1/16-inch times the distance in feet along the drilled hole measured from the outside face of column.

Holes required to be cut in existing steel beams to pass prestressing bars shall be drilled, and shall be accurately located. Prior to drilling holes the Contractor shall submit for approval detail plans showing exact locations and sizes of holes required.

Tunnel deck units shall be supported by shoring at the tunnel wall and the center of the tunnel. Supports shall be so constructed as to permit jacking of the units without significant restraint from the supports.

All metal enclosures shall be accurately located and firmly secured and be sufficiently rigid to resist displacement or deformations during the concrete placing operations. Each enclosure shall be thoroughly cleaned by blowing out with compressed air prior to grouting. All metal enclosures shall be mortar tight.

Equipment for grouting enclosures shall be capable of producing a pressure of at least 2,000 psi.

Prestressing Viaduct Floor Beam Units.—The bars shall be tensioned by jacking simultaneously from both ends of each bar except that column bars and all bars less than 30 feet in length may be tensioned from one end. Tensioning shall proceed in the order set forth in the approved tensioning schedules for the units being prestressed. Immediately after initial tensioning of each group of bars has been completed they shall be retensioned to the initial stress in the scheduled order.

Prestressing Tunnel Deck Units.—The bars in tunnel deck units shall be tensioned by jacking apart from the center the two units of a coupled pair of units. The work shall be so conducted that all the bars in a coupled pair of units will be equally stressed so that the correct position and alignment of units are maintained. The jacks shall hold the stress until the center gap between the units has been filled with Class 1E concrete and that concrete has attained a minimum compressive strength of 4,500 psi. Subject to the approval of the Engineer, admixtures to decrease shrinkage or to accelerate setting may be used.

3. Measurement and Payment

Prestressing Steel and Accessories for Cast-In-Place Concrete shall be measured and paid for under Bid Item 16 and as follows.

The weight of prestressing steel bars to be measured for payment shall be computed by multiplying the length of bar determined from dimensions shown on the plans, allowing four inches beyond the bearing face of the grip nut at each anchorage by the unit weight specified herein. Full compensation for furnishing such additional length of bar as may be required for gripping or for other reasons shall be considered as included in the unit price paid per pound for prestressing steel bars measured as above specified.

Prestressing steel accessories shall be measured for payment as provided in Section 31 for measurement of structural steel.

The unit price paid per pound for prestressing steel and accessories for cast-in-place concrete shall include full compensation for furnishing all labor, materials, samples and their testing, tools, and equipment, and doing all the work involved in prestressing the cast-in-place concrete, including all materials and work incidental thereto.

Drilling of Holes in Concrete for prestressing shall be measured and paid for as specified under Bid Items 36 and 37.

Prestressed, Precast Concrete Units shall be paid for at unit prices for furnishing and for installing the precast units, under Bid Items 38, 39, 40, 42, and 43, which prices shall include full compensation for all work involved in or incidental to prestressing of precast concrete units as shown on the plans and as specified.

C. Steel Floor Beam Prestressing

1. Materials

Steel Undergirders shall be fabricated of T-1 steel having the following properties.

Minimum ultimate tensile strength, psi...	115,000
Minimum yield strength at 0.2 percent offset, psi............	100,000
Minimum elongation at rupture in 2-inches, percent............	18
Minimum reduction in area at rupture, percent............	50
Charpy keyhole impact test in accordance with ASTM Designation: A300 at minus 50 degrees Fahrenheit foot pounds............	15
Modulus of Elasticity, psi............	30,000,000
Heat treatment—wash quench between temperatures, degrees Fahrenheit.....	1650 to 1750
Temper between temperatures, degrees Fahrenheit............	1100 to 1275

Bend Test - cold bend 180 degrees at an inside radius of twice the thickness of plate without showing visible cracks. (revision 1)

Prestressing Bars for Steel Floor Beams shall be 1-1/8 inch diameter high-tensile alloy steel with the same properties as the bars used for prestressing concrete described under Section B, article 1 of these prestressing requirements.

Prestressing Steel Accessories for Steel Floor Beams shall consist of bearing plates, grip nuts and spherical nuts with their bushings and washers, all having the same properties as the similar accessories used for prestressing concrete and described in Section B, article 1 of these prestressing requirements.

Samples and Testing.—Samples of T-1 steel shall consist of two pieces two feet long of each thickness used taken from each mill heat and each heat treating charge and shall be tagged with the identifying numbers of the mill heat and heat treating charge from which they are taken. Test coupons from plate samples shall be prepared in accordance with the requirements of ASTM Designation: A6 and shall be tested in accordance with the applicable requirements of ASTM Designation: A370.

Each T-1 plate sample shall be given a minimum of one longitudinal ultimate tensile strength test and one longitudinal bend test.

2. Fabrication and Installation

Welding procedures and sequences shall be such as to minimize residual stresses in the undergirder, and shall be submitted to the Engineer for approval before starting work.

The cambered undergirder shall be lifted into contact at its center, with the bottom flange of the floor beam and bolted in place at the center with high-strength bearing bolts. The undergirder shall then be stressed by jacking simultaneously from the top ends of the four prestressing bars until the camber has been straightened out of the undergirder and the entire top flange is in contact with the bottom flange of the floor beam being prestressed. The undergirder shall then be bolted tight to the floor beam by high-strength bearing bolts.

3. Measurement and Payment

Prestressing steel bars and their accessories for steel floor beam prestressing shall be paid for at the price per pound bid for T-1 steel. The weight of prestressing steel bars to be measured for payment shall be computed by multiplying the length of bar determined from dimensions shown on the plans, allowing four inches beyond the bearing face of the grip nut at each anchorage, by 3.362 pounds per linear foot. Accessories for prestressing steel bars and all T-1 steel shall be measured for payment as provided in Section 31 for measurement of structural steel. High strength bearing bolts, nuts, and washers, and new ASTM Designations: A7 and A94 steel required for floor beam prestressing shall be measured and paid for under Bid Item 45. No payment will be made under Bid Items 13 or 47 for work required on portions of structural steel which are shown on the plans to remain in place, but full compensation for all such work shall be included in the unit prices paid under Bid Items 45 and 49.

The price paid per pound for T-1 steel under Bid Item 49 shall include full compensation for furnishing all materials, samples, labor, tools and equipment and doing all the work involved in fabricating, installing, stressing and painting the T-1 steel undergirders complete, in place, as shown on the plans and as specified, including all materials and work incidental thereto. Full compensation for samples and their testing shall be included in the price paid per pound for T-1 steel actually installed, all as shown on the plans and as specified.

MARK	DATE	DESCRIPTION	BY	CHK.
1	6-1-64	*As built with revision.*	*cfc.*	[illegible]

REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE- YERBA BUENA ISLAND

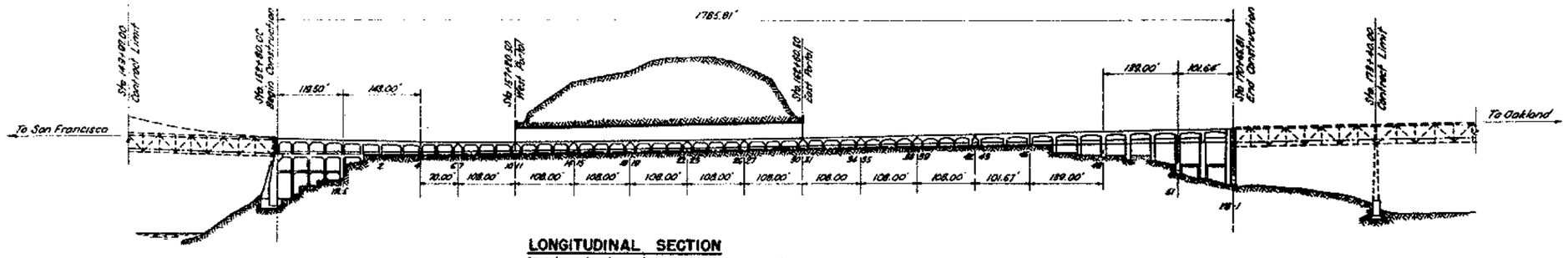
CONTRACT WORK-PRESTRESSING REQUIREMENTS

SCALE NONE | BRIDGE 33-25 34-03 34-04 | SHEET No. 8 | DRAWING C-4029-BR

TRACED | DESIGN AND DETAILS REVIEWED BY [illegible] 7-20-60

McKaat
PROJECTS ENGINEER

DATE APPROVED July, 28, 1960



LONGITUDINAL SECTION
(Existing structure at & SFOBB)

TABULATION OF QUANTITIES

NO	BID ITEM	UNIT	BENT NUMBERS / LENGTH OF SECTION: YA-1	YA-5	4	6 7	10 11	14 15	18 19	22 23	26 27	30 31	34 35	38 39	42 43	45	48	51	198	Island Roadwork	Total Payment Estimate
1	Installing Study Remarkable signs	EA	54.5	0	7.5	0	2.5	0	0	3.0	0	0	12.0	6.0	14.0	14.0	0	1.0		5.00	5.00
2	Preserve existing traffic stripe	LF	573	302	0	0	0	0	0	0	0	0	0	0	0	391	433	201		1,400	4,000
3	Permanent traffic stripe	LF	642	941	705	1085	1098	1086	1086	1086	1088	1048	1357	1152	340	237	193	106		1,406	14,200
4	Removing and storing rock and rock Reference	Lbs.	31,350	62,310	30,240	46,260	34,460	46,640	33,140	47,160	53,340	44,670	43,070	39,380	39,380	42,330	23,340	44,730		0	790,000
5	Removing and storing flags	Ea	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0		0	4
6	Removing and storing hand operated switch stands	Ea	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0		0	1
7	Removing and storing railroad rail	Ea	148	168	90	128	126	168	164	119	132	118	130	125	118	189	188	62			2,000
8	Removing and storing Number	Each	0.85	0.55	0.25	0.20	0.41	0.41	0.53	0.62	0.76	0.59	0.75	0.89	2.35	3.10	2.83	0.40		0	1.00
9	Removing and storing contact rail insulator assemblies	Ea	22	28	18	30	26	30	30	30	26	16	24	19	16	27	27	24		6	350
10	Removing and storing gunlock rail anchor assemblies	Ea	1	0	0	0	0	2	0	1	2	1	1	1	0	2	0	0		0	11
11	Removing concrete (pavement curbs, gutters and sidewalk)	CY	0	60	70	115	115	115	115	115	115	117	116	125	111	19	18	0	80		1,400
12	Removing concrete (structure)	C.Y.	80	396	662	468	394	398	385	395	395	456	359	551	311	175	303	179	2		5,300
13	Removing structural steel	Lbs.	0	42,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		42,000
14	Removing and relocating 20 inch diameter drain pile	LF	0	0	0	0	0	90	108	108	108	118	108	70	0	0	0	0	18		900
15	Removing 24 inch diameter cast iron pipe	LF	0	52	0	174	0	0	0	0	0	83	0	0	116	10	0	0	0		1.0
16	Removing and storing miscellaneous mechanical and electrical materials	Lbs.	8,148	5,963	1,482	5,193	919	915	2863	918	952	4,496	4,309	6,885	3,193	2,685	7,089	3,967		500	61,000
17	Clearing and grubbing	LS	0	0	0	0	0	0	0	0	0	0	0	0.02	0.03	0.03	0	0		0.00	1
18	Roadway excavation	CY	0	35	65	247	385	429	425	424	471	411	378	269	230	271	0	0		3,556	7,600
19	Structure excavation	CY	5	388	59	30	86	72	80	81	82	137	250	453	309	278	60	0		1,800	3,500
20	Structure backfill	CY	3	308	6	90	0	0	27	28	26	42	243	382	199	125	69	0		1,180	2,600
21	Preparing class B subgrade	SY	0	308	234	241	361	361	361	361	361	361	361	361	357	463	209	0		0	4,800
22	Hauling railroad ballast	CY	49	67	0	0	0	0	0	0	0	0	0	0	0	0	97	107		0	440
23	Salvaging rock base	T	0	1182	582	916	963	916	915	916	916	916	916	1041	865	726	251	0		0	1,200
24	Filter material	T	0	1	4	"	16	17	18	18	18	18	18	8	0	"	0	0		106	250
25	Slurry seal path (cement treated base)	T	0	0	0	0	0	0	0	0	0	0	0	35	70	105	0	0		1,390	2,200
26	Type II portland cement (cement treated base)	Bbl	0	0	0	0	0	0	0	0	0	0	50	80	70	90	50	50		340	800
27	Minor, corrective and compacting cement treated base	SY	0	0	0	0	0	0	0	0	0	0	0	100	100	300	0	0		48.2	1,000
28	Mineral aggregate (plant mixed surfacing)	T	0	0	0	0	0	0	0	0	0	0	0	20	40	30	0	0		8.2	230
29	Penna asphalt (plant mixed surfacing)	T	0	0	0	0	0	0	0	0	0	0	0	0.3	0.5	0	0	0		1.8	30
30	Asphaltic emulsion (paint binder)	T	0	0	0	0	0	0	0	0	0	0	0	0.01	0.01	0.03	0	0		0.46	0.5
31	Liquid asphalt MC-2 (curing seal for cement treated base)	T	0	0	1	0	0	0	0	0	0	0	0	01	01	03	0	0		4.5	12
32	Class C concrete (lean-mixed curbs, gutters, sidewalks and planted areas, walls)	CY	0	222	108	167	170	167	167	167	167	167	176	201	187	161	47	9		121	2,400
33	Class C concrete (structure)	CY	156	176	15	82	22	20	20	62	82	93	236	244	135	189	167	478		478	2,040
34	Class 1E concrete (structure)	CY	3	79	167	0	0	0	0	0	0	99	238	384	247	315	316	304		87	2,800
35	Sawing expansion joint in existing concrete slab (Item 78)	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0		1
36	Drilling holes in concrete (2" diameter)	LF	0	0	0	0	0	0	0	0	0	0	0	600	535	765	765	485	0		5,170
37	Drilling holes in concrete (3¼" diameter)	LF	0	0	0	0	0	0	0	0	0	0	360	360	337	457	457	299	0		2,730
38	Furnishing pennant human block units	Ea	0	0	30	30	16	28	28	28	28	30	0	0	0	0	0	0	0		220
39	Installing pennant human block units	Ea	0	0	30	30	28	28	28	28	28	30	0	0	0	0	0	0	0		220
40	Raising pennant human block unit assembly	Ea	0	0									0	0	0	0	0	0	0		1
41	Movable traffic Bridge	LS	0	0				1					0	0	0	0	0	0	0		1
42	Furnishing precast product floor beam units	Ea	0	0	0	0	0	0	0	0	0	0	56	56	52	72	72	46	0		554
43	Installing precast product floor beam units	Ea	0	0	0	0	0	0	0	0	0	0	56	56	52	72	72	46	0		554
44	Bar reinforcing steel	Lbs	2,400	29,400	16,400	8,100	8,100	8,100	8,100	8,100	8,100	13,600	88,300	154,000	85,600	110,200	112,900	61,800	60,500		780,000
45	Structural steel	Lbs	8,850	75,280	0	0	0	0	0	0	0	0	0	0	0	0	0	1,890	0		84,000
46	Type 3" steel cord	LF	0	0	0	60	216	216	216	216	216	60	0	0	0	0	0	0	0		1,800
47	Altering and reinstalling removed structural steel	Lbs	16,400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		16,400
48	Pre-stressing steel bars and accessories in cast in place concrete	Lbs	0	5,080	5,080	0	0	0	0	0	0	0	0	16,180	2,180	2,820	14,856	6,880	0		57,000
49	7:1 piles	Lin	1,180	32,810	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		34,000
50	6" concrete footwear assemblies	Ea	0	163	135	30	87	87	87	87	87	87	70	181	651	514	745	688	406		4,300
51	Cast iron ea. hole frames and covers	Lbs	0	920	0	0	0	0	0	0	0	0	0	0	1240	0	0	0	1,640		4,200
52	Miscellaneous metals	Lbs	180	2,660	1300	3,780	3,510	3,310	3,500	3,310	3,310	3,460	2,870	1,940	3,440	49.5	1,830	930	5,250		42,000
53	Epoxy painting	LS	0	0	0.04	0.07	0.04	0.07	0.04	0.04	0.04	0.04	0.03	0.07	0.07	0.02	0.08	0.08	0.03		1
54	Wooden storage facilities	MFBM																	0		6.0
55	Removing radical passenger platter	LS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		1
56	Metal safety rail type	LF		800															360		960
57	Removing one-rail safety fence railing	LF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	810		810
58	Installing re-erected one-rail safety fence railing	LF																	810		810
59	Metal safety railing Type A	LF	0	146	148	161	0	0	0	0	0	0	156	166	168	116	139	278	228		1,846
60	Metal safety railing Type B	LF	0	0	0	0	0	0	0	0	0	0	0	94	92	144	3	7	0		340

MARK	DATE	REVISION	DESCRIPTION	BY	CHK
2	5-1-64		As built without revision.	cfc	RWC

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO - OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

CONTRACT QUANTITIES - BID ITEMS 1 TO 60

SCALE 1"=100' | BRIDGE 33-25 34-03 34-04 | SHEET No. 9 | DRAWING C-4029-9R

LONGITUDINAL SECTION
(Existing structure at ℄ SFOBB)

DATE APPROVED July 22, 1960

TABULATION OF QUANTITIES

No.	BID ITEM	Unit	YA1–YA5	YA5–4	4–6 7	6 7–10 11	10 11–14 15	14 15–18 19	18 19–22 23	22 23–26 27	26 27–30 31	30 31–34 35	34 35–38 39	38 39–42 43	42 43–45	45–48	48–51	51–YB1	Island Roadwork	Total Engineer's Estimate
	LENGTH OF SECTION																			
61	Removing and storing chain link fence	L.F.	0	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	360	400
62	Installing State-furnished chain link fence	L.F.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20
63	[illegible]" diameter corrugated metal pipe	L.F.	0	5	186	0	0	0	0	0	0	0	0	110	100	139	90	0	286	850
64	Raised traffic bars	L.F.	0	0	0	0	0	0	0	0	0	0	0	40	0	0	0	0	0	40
65	Removing, renovating and relocating [illegible] kV metal-clad switchgear	L.S.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
66	Removing, renovating and relocating 225-kVA transformer	L.S.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
67	Temporarily installing State-furnished 25-kVA lighting transformers	Ea.	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
68	Sixty-cell lead acid battery and rack	L.S.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
69	Low voltage control center	L.S.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
70	Removing and storing bracket-mounted sodium vapor luminaires	Ea.	1	2	2	2	1	2	1	2	1	2	1	1	2	2	1	1	0	24
71	Removing pole-mounted sodium vapor luminaires	Ea.	0	2	2	2	0	0	0		0	2	2	2	2	2	2	2	3	27
72	Installing State-furnished pole-mounted sodium vapor luminaires	Ea.	1	1	2	2	0	0	0	0	0	4	4	2	2	4	2	2	3	29
73	Fluorescent luminaires	Ea.	17	15	8	12	14	14	12	12	14	12	5	5	4	6	6	4	0	160
74	Removing and storing electrical cable and wire	Lbs.	3450	3770	2960	2920	2920	2920	2920	2920	2920	2920	2920	2920	3320	3750	3750	2440	1300	52,000
75	Installing State-furnished high voltage cable, Type "A"	L.F.	0	0	0	0	237	432	432	432	172	0	0	0	0	0	0	0	0	1,700
76	Installing State-furnished high voltage cable, Type "Q"	L.F.	268	145	71	109	109	109	109	109	109	109	109	109	25	0	0	0	0	1,600
77	Installing State-furnished low voltage cable, Type "H"	L.F.	440	450	73	337	337	337	337	337	337	337	340	337	810	433	433	485	0	6,200
78	Installing State-furnished low voltage cable, Type "U"	L.F.	268	144	71	109	109	109	109	109	109	109	109	109	35	0	0	0	0	1,500
79	Installing State-furnished communication and signal cable, Type "Z"	L.F.	180	155	71	109	109	109	109	109	109	109	119	109	115	140	100	108	0	1,860
80	Installing State-furnished communication and signal cable, Type "W"	L.F.	180	155	71	10	109	109	109	109	109	109	119	109	115	140	100	108	0	1,860
81	Installing State-furnished communication and signal cable, Type "S"	L.F.	261	144	71	109	109	109	109	109	109	109	109	109	103	140	140	360	0	2,200
82	Installing State-furnished communication and signal cable, Type "T"	L.F.	261	144	71	109	109	109	109	109	109	109	109	109	103	140	140	360	0	2,200
83	High voltage cable, Type "A"	L.F.	3920	2306	1,312	2,100	625	0	0	0	287	660	650	660	624	876	876	624	1200	17,000
84	High voltage cable, Type "T"	L.F.	390	435	215	330	330	330	330	330	330	330	330	330	1,220	425	425	920	0	6,400
85	High voltage cable, Type "Q"	L.F.	0	0	0	0	0	0	0	0	0	0	0	0	183	556	556	1005	0	2,300
86	Low voltage cable, Type "L"	L.F.	240	286	140	216	216	216	216	216	216	216	216	216	800	420	420	550	0	4,800
87	Communication and signal cable, Type "G"	L.F.	486	286	140	216	216	216	216	216	216	216	216	216	540	280	280	444	0	4,400
88	Communication and signal cable, Type "P"	L.F.	360	144	71	109	109	109	108	109	109	109	109	109	104	140	140	360	0	2,300
89	50-pair No. 19 AWG paper-lead telephone cable	L.F.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	230	230
90	500 MCM bare building wire	L.F.	0	0	0	0	0	0	0	0	0	0	0	0	130	0	0	0	0	130
91	One-conductor TW, 600 volt, No. 1 AWG building wire	L.F.	0	0	0	0	0	0	0	0	0	0	0	0	500	0	0	0	0	50
92	One-conductor TW, 600 volt, No. 4 AWG building wire	L.F.	0	0	0	0	0	0	0	0	0	0	0	0	2,400	0	0	0	800	3,200
93	One-conductor TW, 600 volt, No. 8 AWG building wire	L.F.	1630	430	840	1,300	1,300	1,300	1,300	1,300	1,300	1,300	1,500	2,400	2,000	1,700	1,700	700	0	22,000
94	One-conductor TW, 600 volt, No. 10 AWG building wire	L.F.	0	175	210	384	340	384	55	0	260	384	200	300	280	300	208	0	0	3,300
95	One-conductor TW, 600 volt, No. 12 AWG building wire	L.F.	0	80	0	0		0		0	0	0	240	480	1,380	530	160	0	2060	5,000
96	Two-conductor twisted pair No. 16 AWG ... telephone wire	L.F.	0	250	850	550	[illegible]	540	250	0	425	550	350	325	1,000	500	350	0	960	7,000
97	Installing State-furnished copper bonding wire and grounding fittings	Lbs.	360	420	210	330	[illegible]	330	330	330	330	330	330	330	690	420	420	310	0	6,000
98	1¼" diameter metal conduit	L.F.	750	366	420	648	657	648	517	432	592	656	365	1,115	1,824	860	800	210	0	11,000
99	1½" diameter metal conduit	L.F.	393	1,109	805	913	93	0	0	0	153	723	883	883	1,643	1,202	1,202	1,103	373	12,000
100	2½" diameter metal conduit	L.F.	40	0	0	0	0	0	0	0	0	0	0	0	170	0	0	0	0	210
101	4" diameter metal conduit	L.F.	500	80	180	432	432	432	432	432	432	432	400	216	340	800	50	610	200	6,600
102	4" diameter asbestos-cement conduit	L.F.	1300	1,750	0	0	0	0	0	0	0	0	0	0	0	0	1,340	1,260	0	5,650
103	Utilities Tunnel lighting devices	Ea.	0	0	2	0	0	0	0	0	0	0	4	5	13	7	3	0	0	34
104	Roadside electrical service boxes	Ea.	0	1	0	0	1	0	1	0	1	0	1	1	2	1	1	0	0	10
105	Low voltage transformer service boxes	Ea.	0	1	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	4
106	Miscellaneous electrical work	L.S.	0.10	0	0	0	0	0	0	0	0	0	0	0	0.80	0	0	0.10	0	1
107	Air compressors	Ea.	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5
108	Removing and reinstalling [illegible]" diameter wrapped steel water pipe	L.F.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200	200
109	Removing and reinstalling [illegible]" diameter wrapped steel water pipe	L.F.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	80	80
110	Removing and reinstalling 6" diameter wrapped steel fire protection pipe	L.F.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	380	380
111	Installing State-furnished [illegible]" diameter steel water pipe	L.F.	120	145	70	110	110	110	110	110	110	110	110	150	450	140	140	105	0	2,200
112	Salvaging and installing State-furnished [illegible]" diameter steel fire protection pipe	L.F.	0	0	0	280	220	220	220	220	220	280	150	110	80	0	0	0	0	2,040
113	1" diameter schedule 40 galvanized steel pipe	L.F.	0	0	0	342	343	343	343	343	343	343	0	0	0	0	0	0	0	2,400
114	6" diameter schedule 40 galvanized steel pipe	L.F.	120	145	70	110	110	110	110	110	110	110	114	110	190	140	140	105	0	1,800
115	Sprinkler heads	Ea.	0	0	20	28	28	28	28	28	28	28	0	0	0	0	0	0	0	216
116	Flow detector and alarm system	L.S.	0	0	0.25	0	0	0	0	0	0	0.25	0	0	0.50	0	0	0	0	1
117	4" diameter cast iron pipe	L.F.	0	0	0	0	0	0	0	0	0	0	0	0	63	0	85	2	0	150
118	6" diameter cast iron pipe	L.F.	0	60	30	188	0	0	0	0	0	140	53	81	38	0	44	0	0	580
119	Miscellaneous mechanical work	L.S.	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
120	Ceramic tile	S.F.	0	0	0	0	324	334	334	334	324	0	0	0	0	0	0	0	0	1,650

SCALE IN INCHES

MARK	DATE	DESCRIPTION	BY	CHK.
1	6-1-64	As built without revision	cfc	RWI

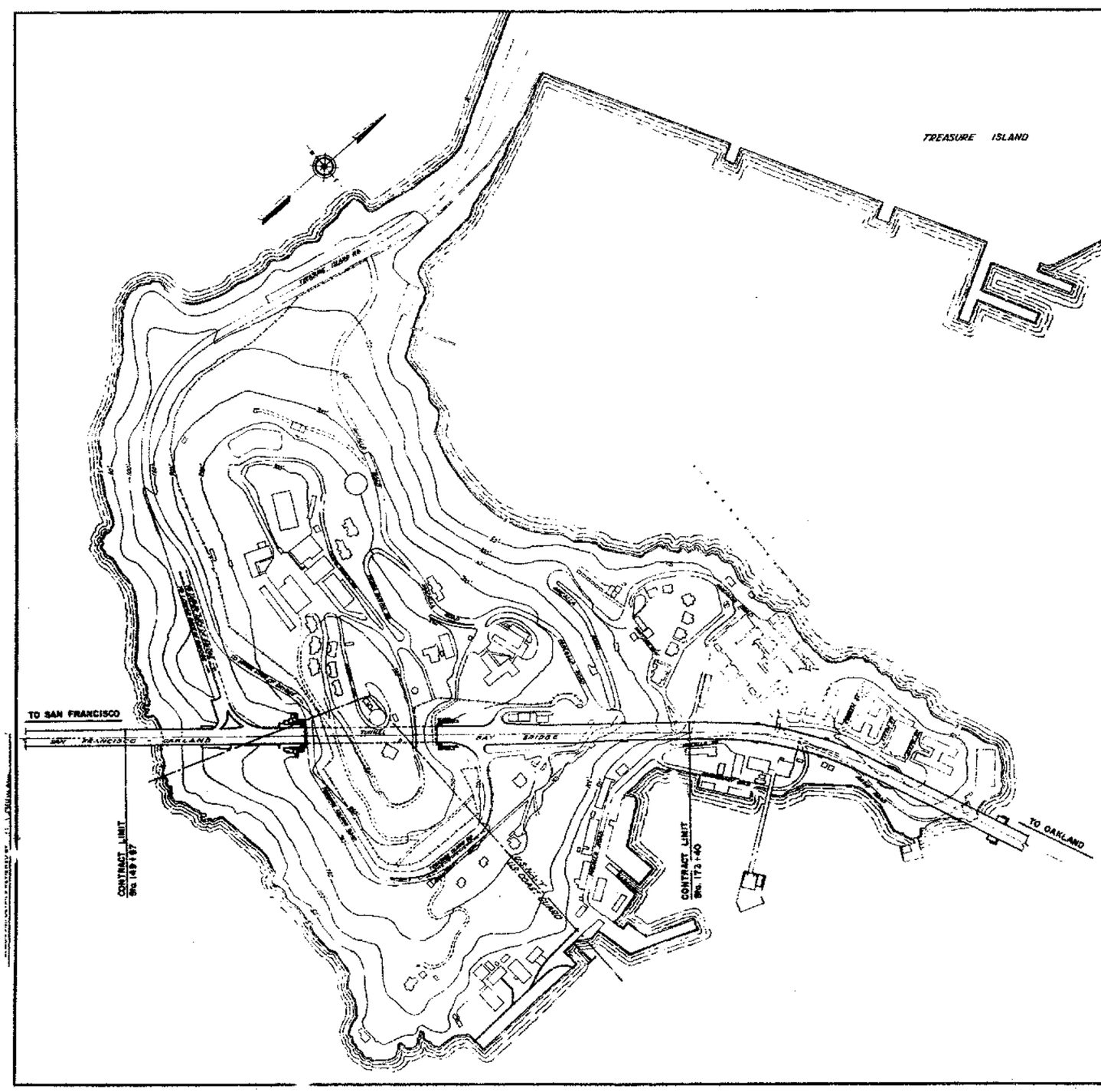
REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
CONTRACT QUANTITIES - BID ITEMS 61 TO 120

SCALE 1" = 100' | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 10 | DRAWING C-4029-10R

DESIGN AND DETAILS REVIEWED BY



LEGEND FOR DETAILS

- New concrete
- Existing concrete
- Steel
- Grout
- Wood
- Expansion joint material
- Subgrade (graded earth or rock)
- Existing earth or rock
- Earth fill
- Gravel or untreated rock base
- Cement treated base
- Railroad ballast
- Plant-mixed surfacing (P.M.S.)
- Concrete removal (Removal sheets only)
- Shear lugs

(For abbreviations see Sheet No 37)

GENERAL DESIGN NOTES

LIVE LOAD: H20-S16-44 of the A.A.S.H.O.

DEAD LOADS: Existing concrete (Reinforced) = 150 pcf
New lightweight concrete (Reinforced) = 120 pcf

DESIGN STRESSES: (except as noted)

1. Reinforced Concrete: A.A.S.H.O. 1957 Standard Specifications for Highway Bridges (Modified)
   a. Existing Concrete: f'_c = 3000 psi; f_c = 1200 psi, n = 10
   b. New Lightweight Concrete: f'_c = 4500 psi; f_c = 1800 psi, n = 15
   c. Reinforcement: Intermediate grade - Section 1.4.12
2. Structural Steel: A.A.S.H.O. 1957 Standard Specifications for Highway Bridges (Modified)
   a. A7-57T Structural Carbon Steel: Section 1.4.2
   b. A-94-44 Structural Silicon Steel: Section 1.4.8
   c. "T1" High Strength Structural Steel: f_t = 45000 psi, f_y = 100000 psi
3. Prestressed Concrete: Tentative Recommendations for Prestressed Concrete - Joint Committee ACI-ASCE (Modified)
   a. Existing Concrete: f'_c = 4500 psi, f_c = 1800 psi, n = 8
   b. New Lightweight Concrete: f'_c (cast in place) = 4500 psi f_c = 1800 psi n = 15
      f'_c (precast) = 4500 psi, f_c = 1800 psi n = 5
   c. Prestressing Bars: f_t = 87000 psi, f_y = 485000 psi.
   d. Prestressing Bearing Plates: A 242-55 High Strength Low Alloy Structural Steel.

REINFORCEMENT: Embedment of reinforcement in the bottom of the footings shall be 3" clear and for slabs shall be 1" clear. At all other locations embedment shall be 2" clear to the outside of any bar except as otherwise noted on the plans.

DATUM PLANE: Elevation datum is S.F.O.B.B. 1935 M.L.L.W. Datum (3.100' below U.S.C.&G.S. sea level datum of 1929.)

DATE APPROVED July 22, 1960

0 5 TNS 10 TNS
SCALE IN INCHES

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

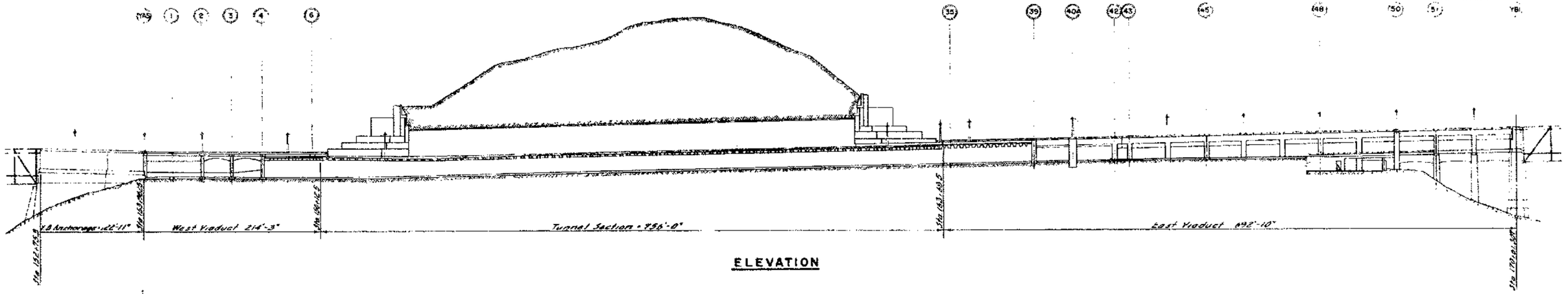
SAN FRANCISCO-OAKLAND BAY BRIDGE REGONSTRUCTION STRUCTURE-YERBA BUENA ISLAND

LOCATION PLAN

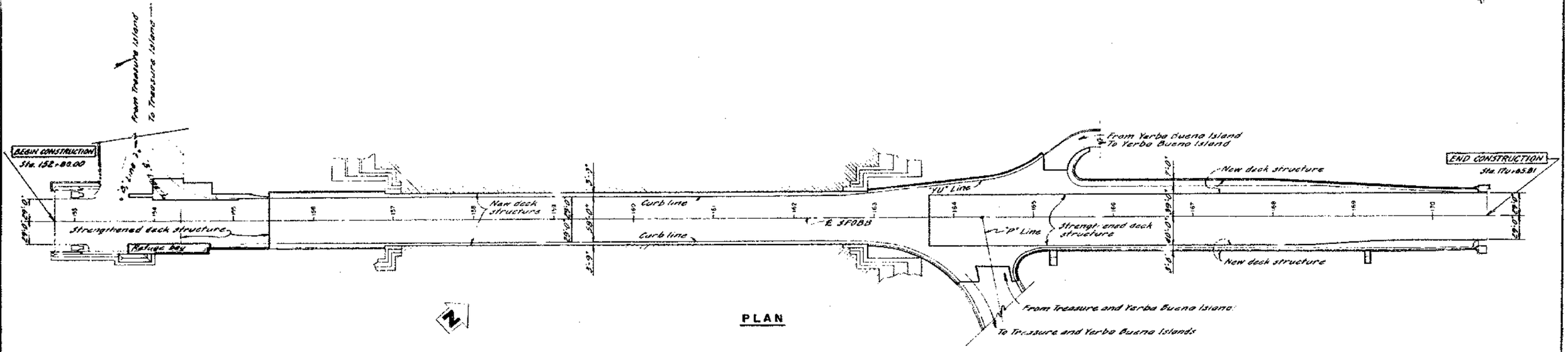
MARK	DATE	DESCRIPTION REVISION	BY	CHK
1	6-1-64	As built without revision.	c/c	Calif

SCALE 1" = 200' | BRIDGE 33-03 34-03 34-04 | SHEET No. 11 | DRAWING C-4029-11 R

DATE APPROVED: JULY 22, 1950



ELEVATION



PLAN

SCALE IN FEET

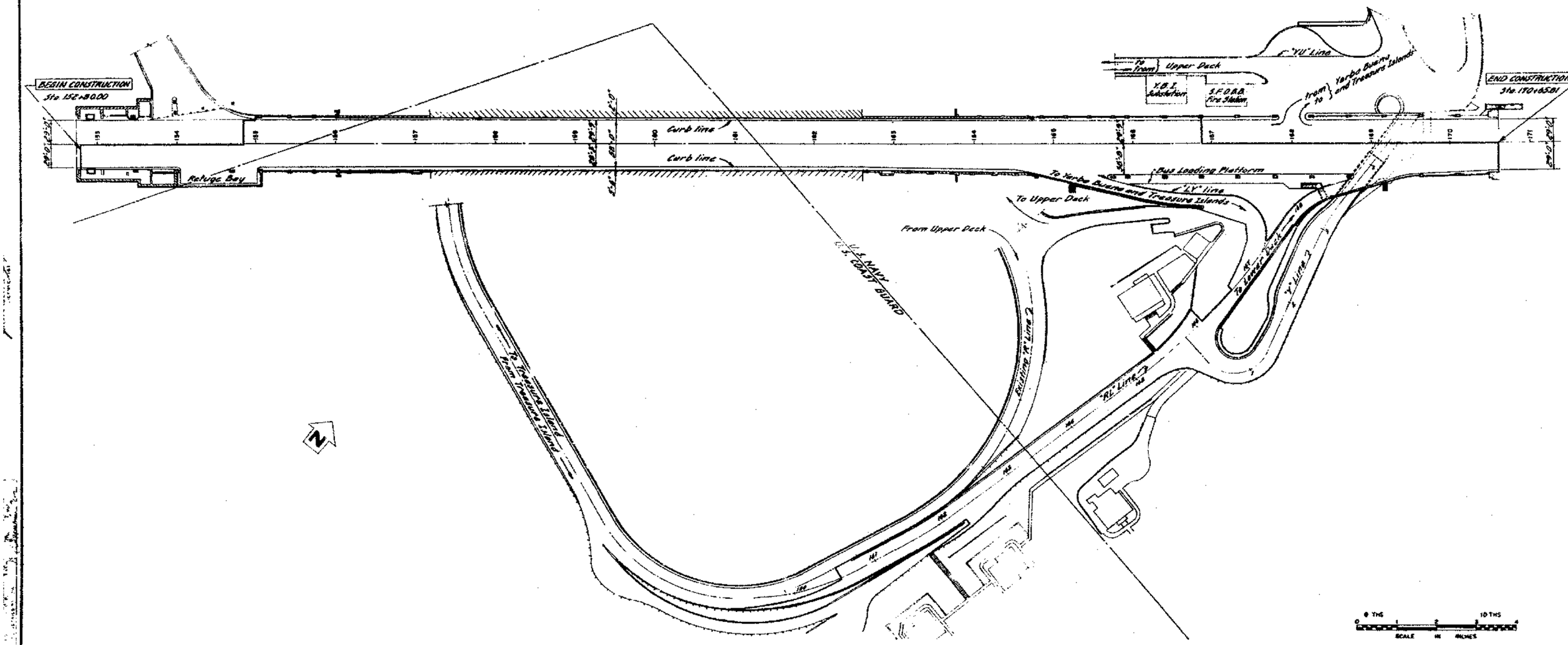
MARK	DATE	DESCRIPTION REVISION	BY	CH'K.
1	6-1-64	As built without revision.	etc	RWT.

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

GENERAL PLAN - UPPER DECK

SCALE 1" = 50'-0" | BRIDGE 33-28, 33-29, 34-03, 34-04 | SHEET No 12 | DRAWING C-4029-28

DATE APPROVED July 22, 1960



PLAN

MARK	DATE	DESCRIPTION	BY	CHK.
1	6-1-64	As built without revision.	cfc	[illegible]

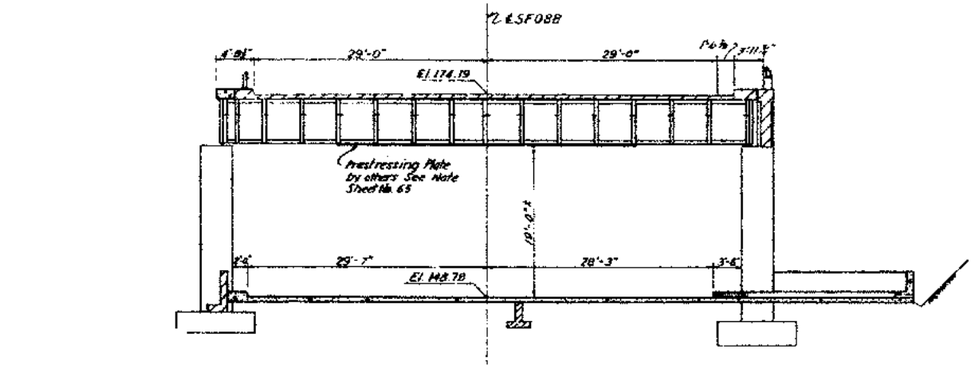
REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

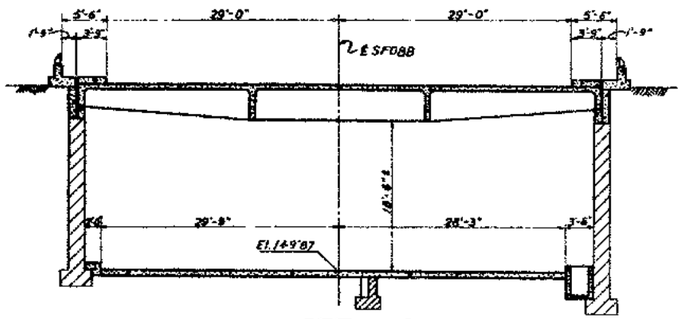
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

GENERAL PLAN - LOWER DECK

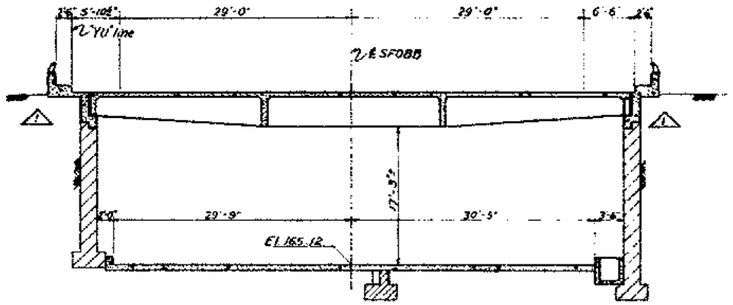
SCALE 1" = 50'-0" | BRIDGE 33-25, 34-03, 34-04 | SHEET NO. 13 | DRAWING C-4029-13R



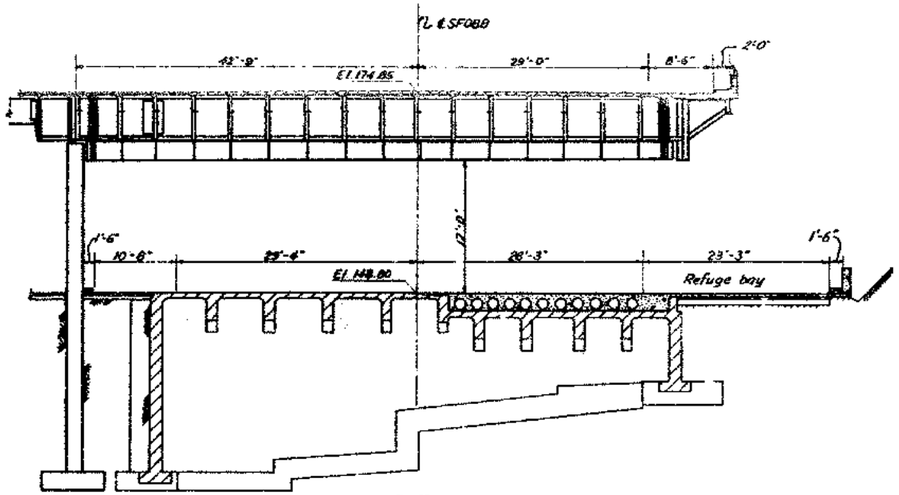
BENT 3



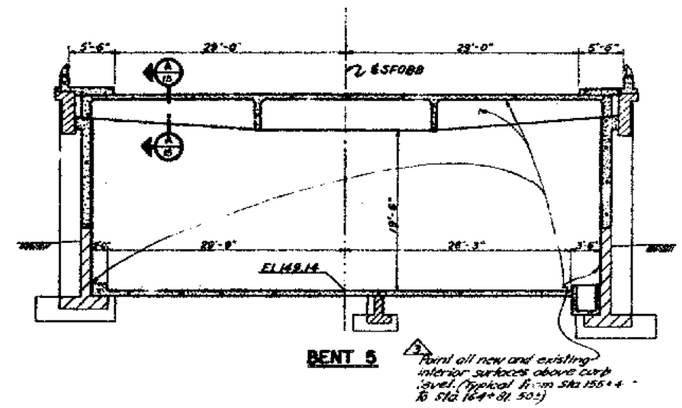
BENT 8



BENT 33

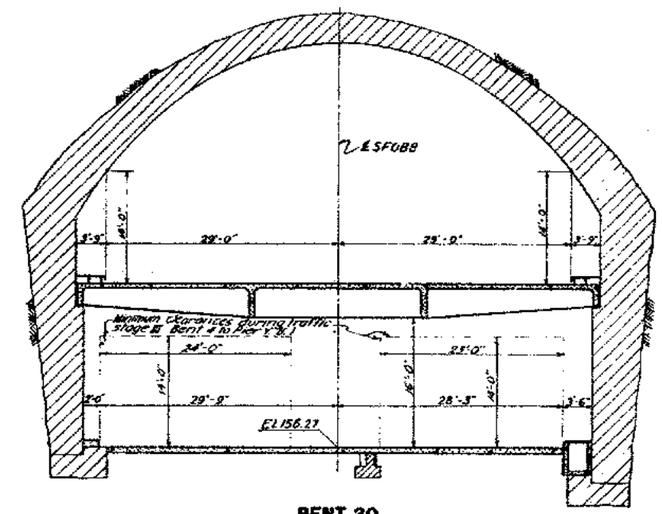


BENT 1

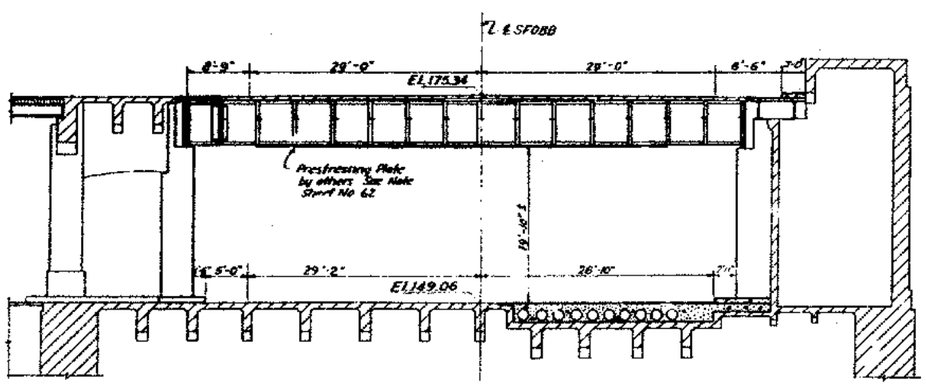


BENT 5

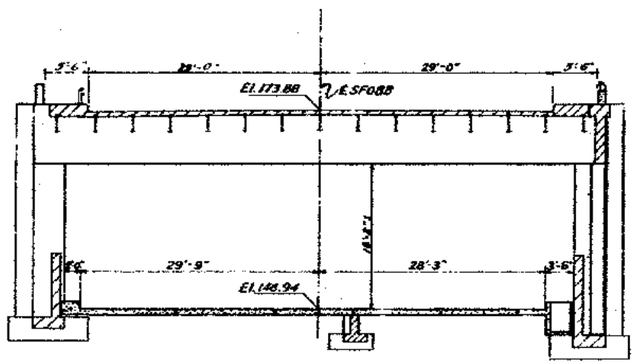
Point all new and existing interior surfaces above curb level. (Typical from Sta. 155+4 to Sta. 164+81.50±)



BENT 20
(Typical tunnel section)



YA-5



BENT 4

LOCATION KEY

NOTES

Sections are drawn only at such bents as required to show typical conditions and dimensions. Intermediate sections are similar to those shown.

8 THS 10 THS
0 1 2 3 4
SCALE IN INCHES

MARK	DATE	DESCRIPTION	BY	CHK
3	6-1-64	As built with revision.	cfc	EWL
2	8-9-62	Revised walls - Bent 8	EJL	HV
1	1-4-62	Revised walls - Bent 33	RHR	CS

REVISION

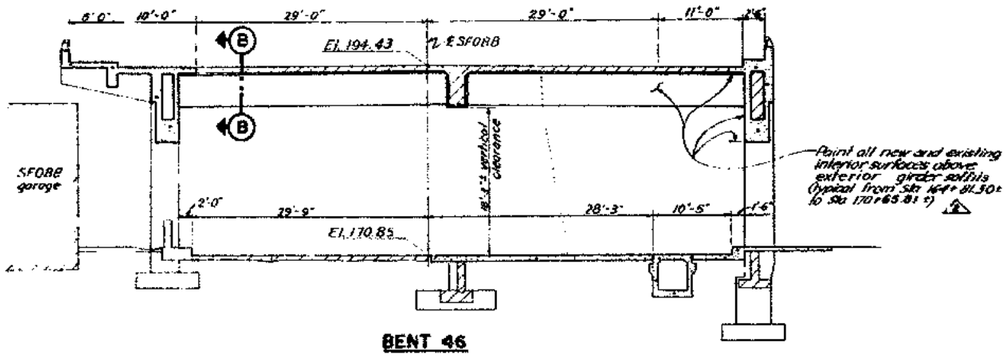
SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

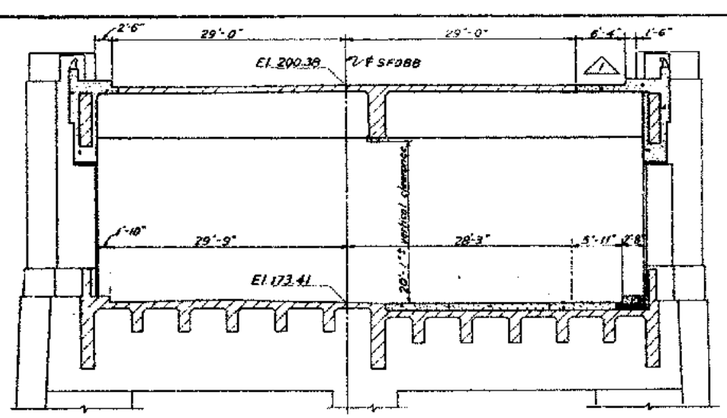
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

STRUCTURE SECTIONS-BENT YA-5 TO BENT 33

SCALE 1/8" = 1'-0" | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 14 | DRAWING C-4029-14R

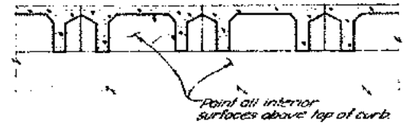


BENT 46

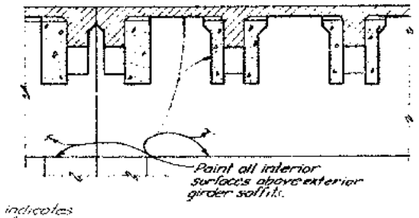


PIER Y.B. 1

DATE APPROVED July 22, 1960

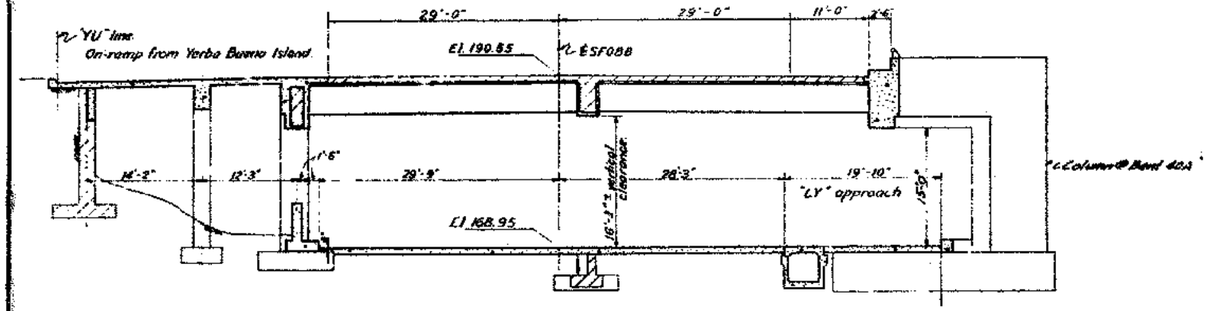


SECTION A-A
Scale: ¼"=1'-0"

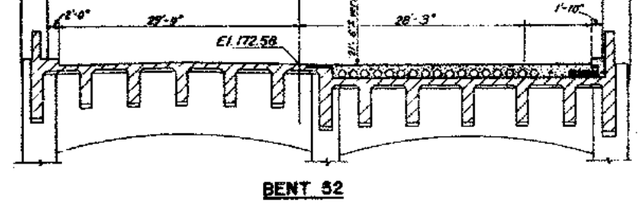


Note:
Heavy line indicates painted surface.

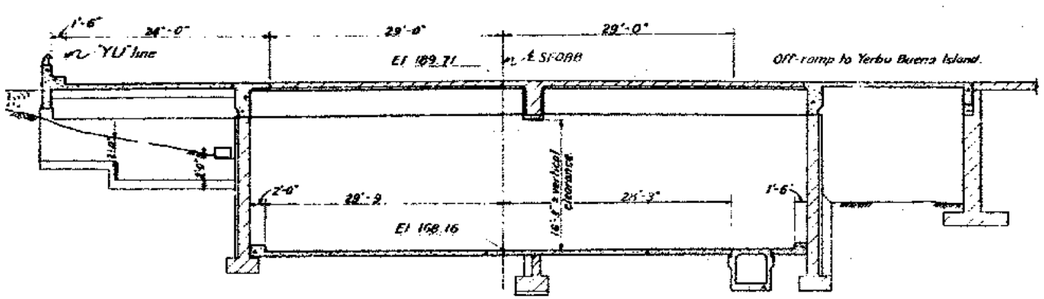
SECTION B-B
Scale: ¼"=1'-0"
PAINTING DETAIL



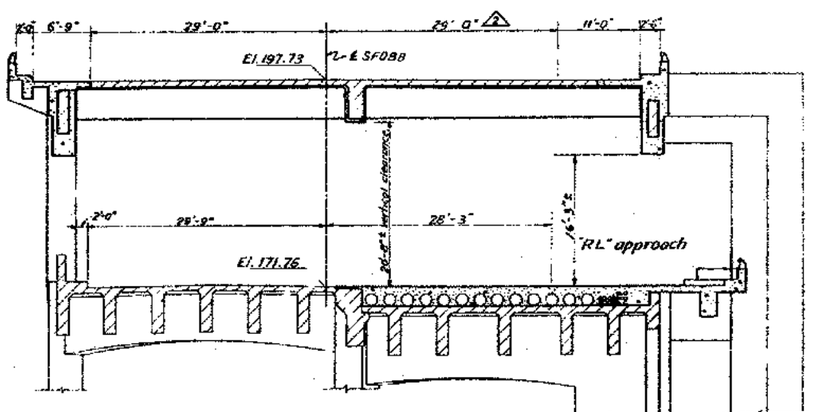
BENT 40



BENT 52



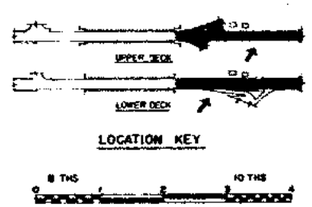
BENT 38



BENT 50

NOTES

1 Sections are drawn only at such bents as required to show typical conditions and dimensions. Intermediate sections are similar to those shown.



SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
STRUCTURE SECTIONS - BENT 38 TO PIER Y.B.1

MARK	DATE	REVISION	BY	CHK
2	6-1-64	As built with revision.	cfc	EMT
1	10-10-61	Revise curb details for south side Pier Y.B.-1	RSR	CS

UNLESS NOTED SCALE ½"=1'-0"
BRIDGE 33-29 34-03 34-04
SHEET No. 15
DRAWING C-4029-15 R

PROJECTS ENGINEER LICENSE 1475

DATE APPROVED July 22, 1960

From Treasure Island

To Treasure Island

To San Francisco

Refuge Bay

AUTOS ONLY

To / From Yerba Buena Island

To Oakland

UPPER DECK

From Treasure Island

To Treasure Island

To San Francisco

Refuge Bay

During peak hours: mixed traffic
During other hours: trucks only

MIXED TRAFFIC

From Yerba Buena and Treasure Islands

To Yerba Buena and Treasure Islands

To / From Upper Deck

"YU" Line

Yerba Buena Substation

S.F.O.B.B. Fire Station

To Oakland

LOWER DECK

To Upper Deck

Area south of abutment from Bent 44 to 48 to be closed to traffic only during placing of R.C.C. pavement in this area. Traffic to be detoured through Bent 47 to 48 on the north side.

From Upper Deck

To Treasure Island

From Treasure Island

Island Roadwork

MAJOR CONSTRUCTION

S.F.O.B.B.

Upper Deck:
a. Construction of refuge bay at Yerba Buena Anchorage from Bent YA-4 to 2.

Lower Deck:
a. Construction of roadway south of center columns including utilities trench and utilities tunnel.
b. Installation and relocation of mechanical and electrical facilities.
c. Construction of refuge bay at Yerba Buena Anchorage from Bent YA-5 to 3.
d. Construction of columns, south side, Bent 38 to 52.

Island Roadway: Beginning at Island roadwork.

TRAFFIC

S.F.O.B.B.

Upper Deck:
a. Traffic to remain as is, except detour all lanes to the north from Sta. 153 to 165+50.

Lower Deck:
a. Traffic to remain as is.
b. Minimum vertical clearance of 16' to be maintained.

Island connections:
West:
a. Traffic to remain as is.

East:
a. Traffic to be routed around and through work area so that ingress and egress to and from all Navy and Coast Guard quarters and areas is kept open at all times.

LEGEND

Construction Areas

Direction of traffic

0 1HS 10 1HS

SCALE IN INCHES

MARK	DATE	DESCRIPTION / REVISION	BY	CHK
1	6-1-64	As built without revision	clc	RWL

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

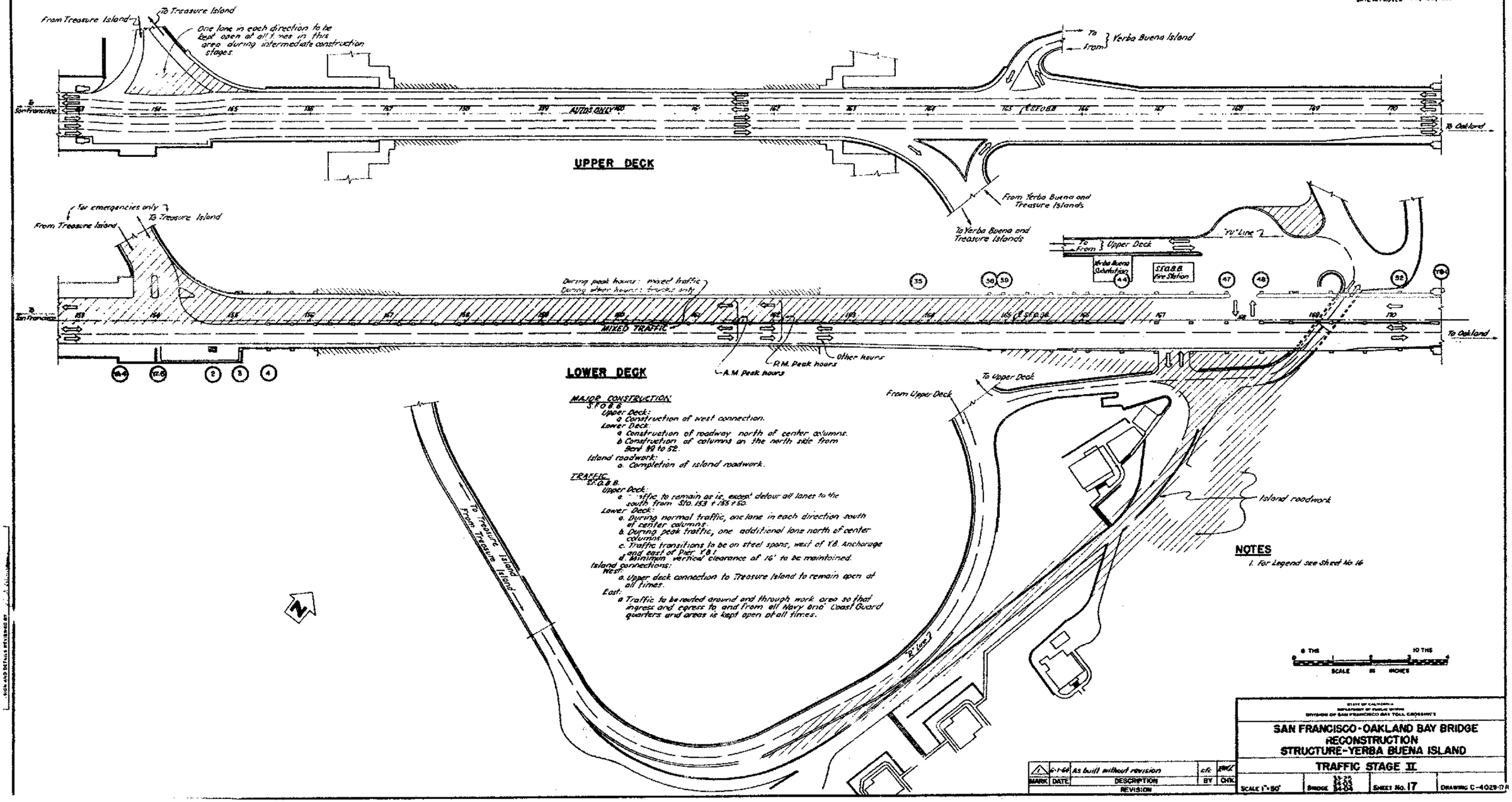
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION STRUCTURE-YERBA BUENA ISLAND

TRAFFIC STAGE 1

SCALE 1"=50' | BRIDGE 54-23 54-24 54-25 | SHEET NO. 16 | DRAWING C-40-29-16R

PROJECTS ENGINEER — LICENSE 5670

DATE APPROVED July 22, 1960



NOTES

1. For Legend see Sheet No. 16

MARK	DATE	DESCRIPTION / REVISION	BY	CHK
1	6-1-64	As built without revision	cfc	RWZ

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION STRUCTURE-YERBA BUENA ISLAND

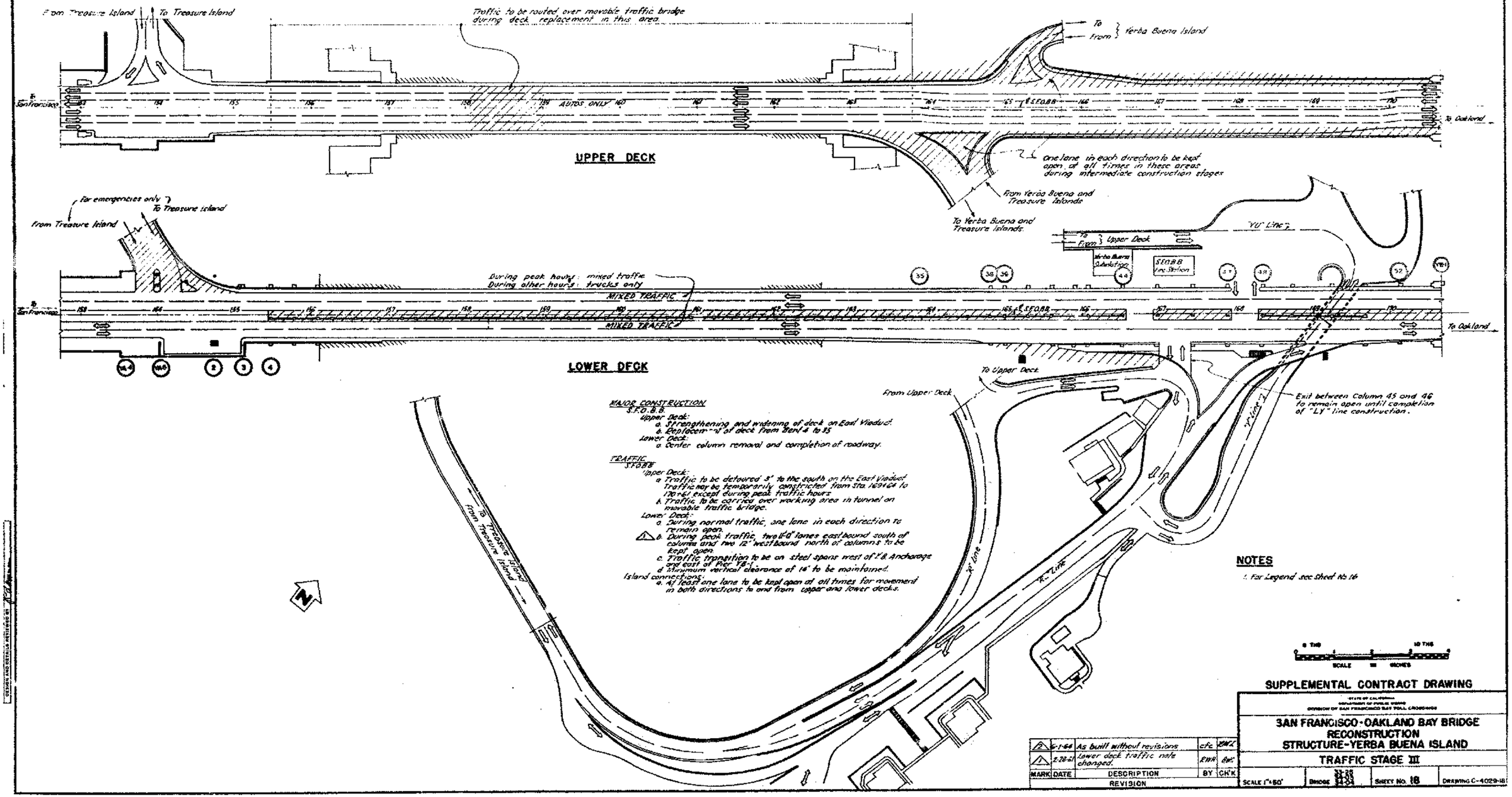
TRAFFIC STAGE II

SCALE 1"=50' | BRIDGE 34-25 34-03 34-04 | SHEET No. 17 | DRAWING C-4029-17 R

SIGNS AND DETAILS REVISED BY

PROJECTS ENGINEER LICENSE 1478

DATE APPROVED July 22, 1960



MAJOR CONSTRUCTION
S.F.O.B.B.
Upper Deck:
a. Strengthening and widening of deck on East Viaduct.
b. Replacement of deck from Bent 4 to 35
Lower Deck:
a. Center column removal and completion of roadway.

TRAFFIC
S.F.O.B.B.
Upper Deck:
a. Traffic to be detoured 3' to the south on the East Viaduct. Traffic may be temporarily constricted from Sta. 169+64 to 170+61 except during peak traffic hours.
b. Traffic to be carried over working area in tunnel on movable traffic bridge.
Lower Deck:
a. During normal traffic, one lane in each direction to remain open.
b. During peak traffic, two 11'-0" lanes eastbound south of columns and two 12' westbound north of columns to be kept open.
c. Traffic transition to be on steel spans west of Y.B. Anchorage and east of Pier Y8-1.
d. Minimum vertical clearance of 14' to be maintained.
Island connections:
a. At least one lane to be kept open at all times for movement in both directions to and from upper and lower decks.

NOTES

1. For Legend see Sheet No. 16

0 THS 10 THS
SCALE IN INCHES

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

TRAFFIC STAGE III

MARK	DATE	DESCRIPTION	BY	CH'K
2	6-1-64	As built without revisions	cfc	RWL
1	2-28-61	Lower deck traffic note changed.	RWA	BWC

REVISION

SCALE 1"=50' | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 18 | DRAWING C-4029-18

PROJECT ENGINEER LICENSE 1670

DATE APPROVED July 22, 1960

TREASURE ISLAND ROAD

ROCK LINE

Elect. junction box

Traffic detector

Traffic control box

ECMP-2

2" Water hydrant

Riser

Valve box

18" C.M.P.

W.U.T. conduits

Risers 5-#6 conduits

2" risers

12" water main

6" C.M.P.

6" C.I.P.

Elec. Mole-J

W.U.T. M.H.

2 barrel outfall

4" C.I.P.

W.U.T. conduits

W.U.T. box

Temporary ¾" water line

Temporary telephone cable

2" Match line

W.U.T. pull box

Elect. junction boxes

2" Hyd.

2" Riser

R.R.

6" C.I. Drains

N 68° 00' 45" E

2" Water Valve & Riser

2" Partial face

Main drain 10" C.I.P.

Invert 3'0" below top of R.R. rail

Concrete clean out box

R.R. track

8" C.I.P.

C.B.

8" Riser

4" C.I.P. elevated to avoid

4" C.I.P. Risers

6" C.I.P.

6" French drain

Remove and relocate 6" conduits

Temporary ¾" water line

Temporary telephone cable No. 1

C.B.

2 barrel outfall

NOTES

1. See Sheet No. 59 for foundation layout.
2. See Sheet No. 21 for notes.
3. W.U.T. conduits shall be protected from damage during the excavation and construction of the footing of Bent 1-North.

LEGEND

- Existing column and footing remain.
- Remove portion of column shown on plans.
- Construct new column and footing.
- Construct column addition as shown on plans.
- Indicates elevation of bottom of footing.
- Bent numbers

0 1 2 3 4 5 6 7 8 9 10 FEET

SCALE IN INCHES

LOCATION KEY

UPPER DECK

LOWER DECK

MARK	DATE	DESCRIPTION REVISION	BY	CHK
2	6-1-64	As built with revision.	c/c	RMT

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

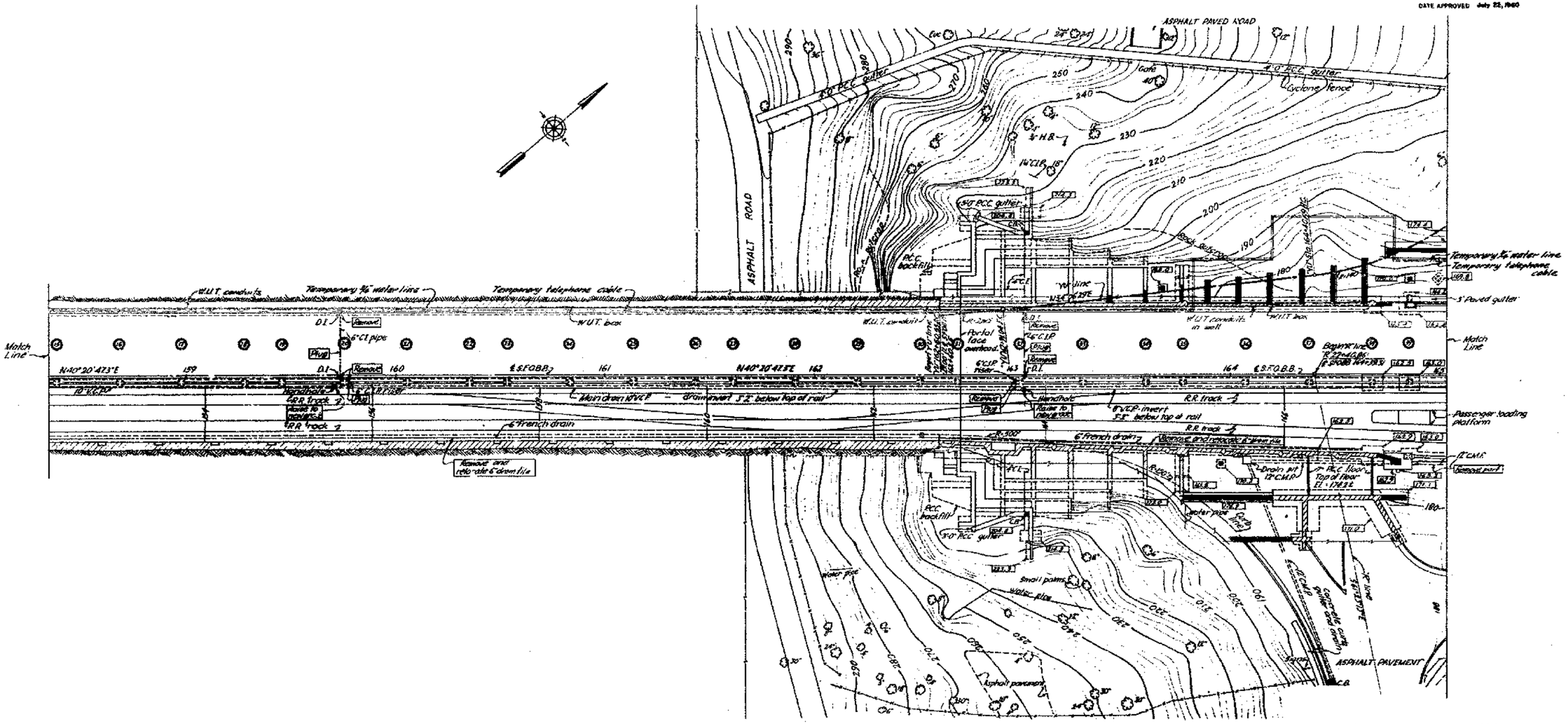
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

TOPOGRAPHY AND FOUNDATION PLAN-WEST

SCALE 1" = 20'-0"	BRIDGE	33-25 34-05 34-04	SHEET NO. 19	DRAWING C-40E9-19-1

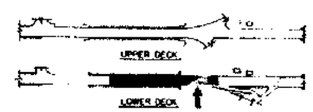
PROJECT ENGINEER LICENSE 1479

DATE APPROVED July 22, 1960



NOTES

1. For legend, see sheet No. 19.
2. For foundation layout, see Sheet No. 77.
3. For other notes, see Sheet No. 21.



LOCATION KEY

MARK	DATE	DESCRIPTION	BY	CHK
1	6-1-64	As built without revision.	cfc	

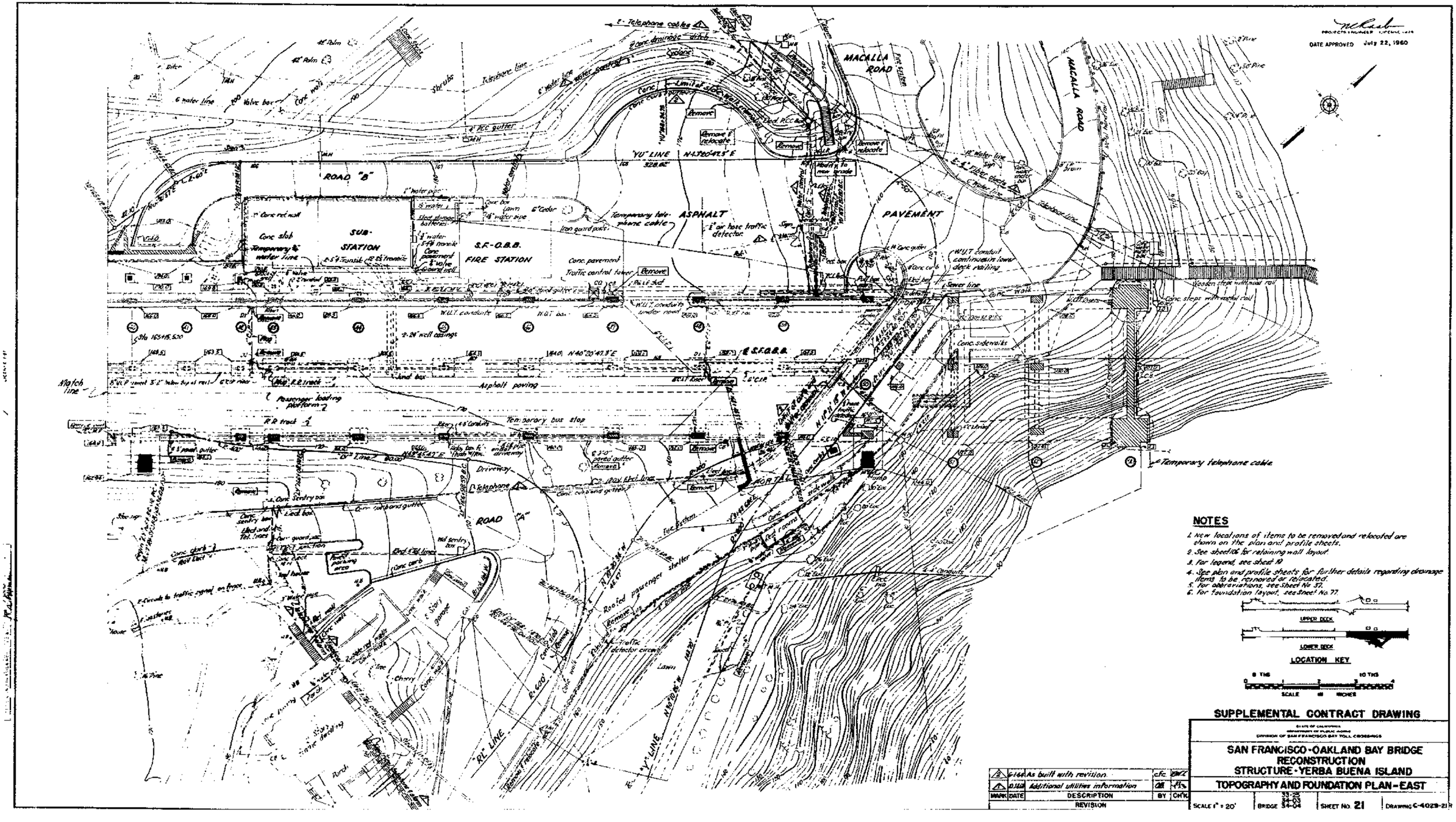
REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION - SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

TOPOGRAPHY AND FOUNDATION PLAN - TUNNEL

SCALE 1" = 20' | BRIDGE 33-25 34-03 34-04 | SHEET No. 20 | DRAWING C-4029-20R



DATE APPROVED July 22, 1960
MACALLA ROAD
ROAD "B"
SUB-STATION
S.F.-O.B.B. FIRE STATION
ASPHALT PAVEMENT
"YU" LINE
Temporary telephone cable
Asphalt paving
Temporary bus stop
Passenger loading platform
Match line
ROAD "A"
Roofed passenger shelter
Traffic detector circuit
Lawn
"RL" LINE
"Y" LINE
Temporary telephone cable
NOTES
1. New locations of items to be removed and relocated are shown on the plan and profile sheets.
2. See sheet 106 for retaining wall layout.
3. For legend, see sheet 19.
4. See plan and profile sheets for further details regarding drainage items to be removed or relocated.
5. For abbreviations, see Sheet No. 37.
6. For foundation layout, see Sheet No. 77.
UPPER DECK
LOWER DECK
LOCATION KEY
SCALE IN INCHES
SUPPLEMENTAL CONTRACT DRAWING
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
TOPOGRAPHY AND FOUNDATION PLAN-EAST
As built with revision
Additional utilities information
MARK DATE DESCRIPTION BY CH'K
REVISION
SCALE 1" = 20'
BRIDGE 33-25 34-03 34-04
SHEET NO. 21
DRAWING C-4029-21R

DATE APPROVED July 22, 1960

NOTES

1. New locations of items to be removed and relocated are shown on the Plan and Profile sheets.

UPPER DECK

LOWER DECK

LOCATION KEY

SCALE IN INCHES

S.F.O.B.B. M.L.L.W. Datum

SUPPLEMENTAL CONTRACT DRAWING

MARK	DATE	REVISION	BY	CH'K.
2	6-1-64	As built with revision	cf'c	CHIEF
1	8-11-60	Additional utilities information	GB	[illegible]

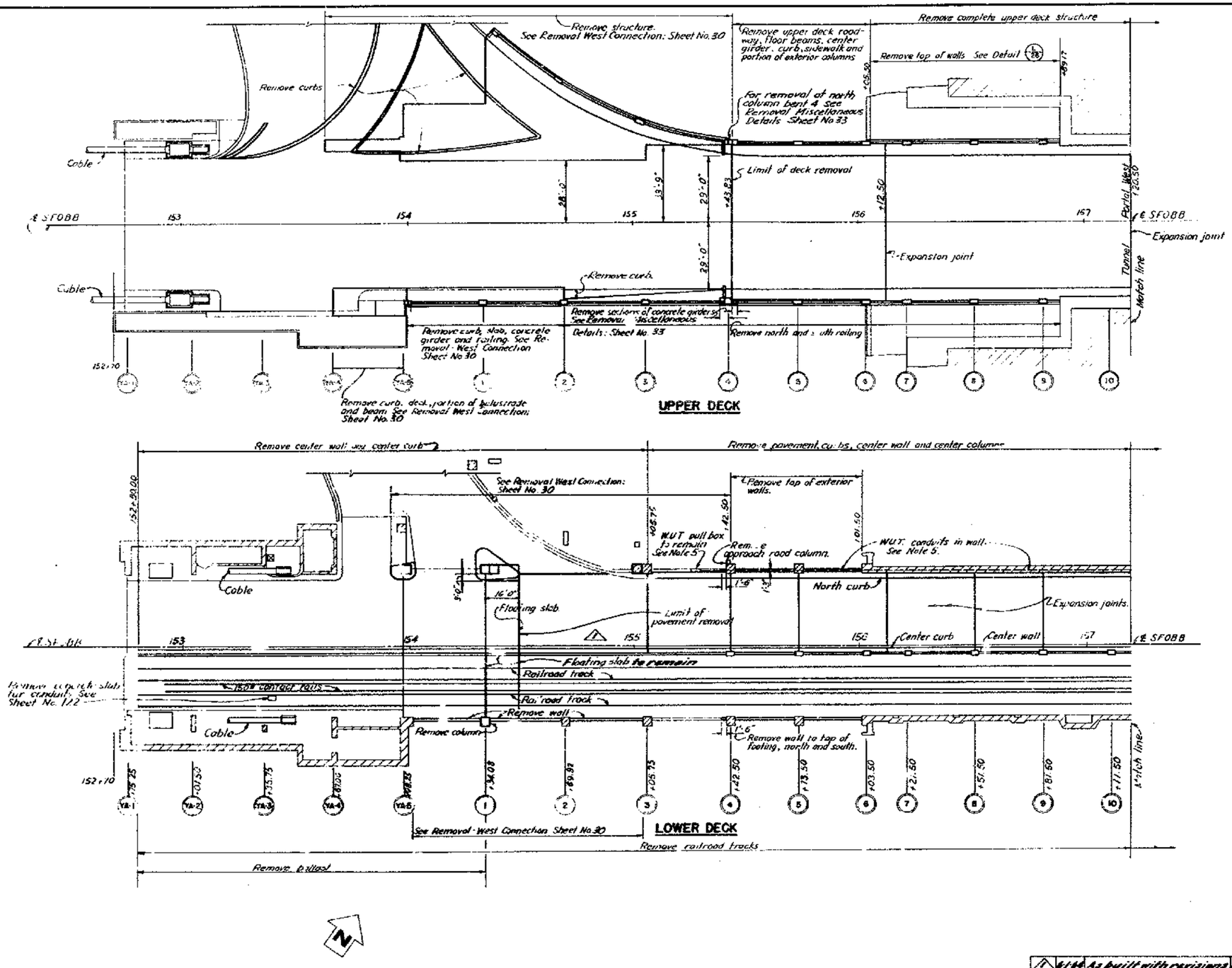
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

TOPOGRAPHY "RL" LINE

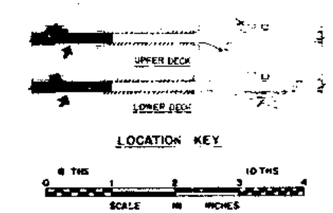
SCALE 1"= 20' | BRIDGE 33-04 | SHEET NO. 22 | DRAWING C-4029-22R

DATE APPROVED July 22, 1960



NOTES:

1. For removal details see Sheet No's 26 through 33.
2. For track details and fastenings see Sheet No's 34 and 35.
3. For storage area see Sheet No. 36.
4. For construction stages see Sheet No. 1, 17 and 16
5. Attention is called to Western Union cable lines which must be kept intact and operable during entire construction period
6. Legend for details see Sheet No. 11.



LOCATION KEY

SCALE IN INCHES

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

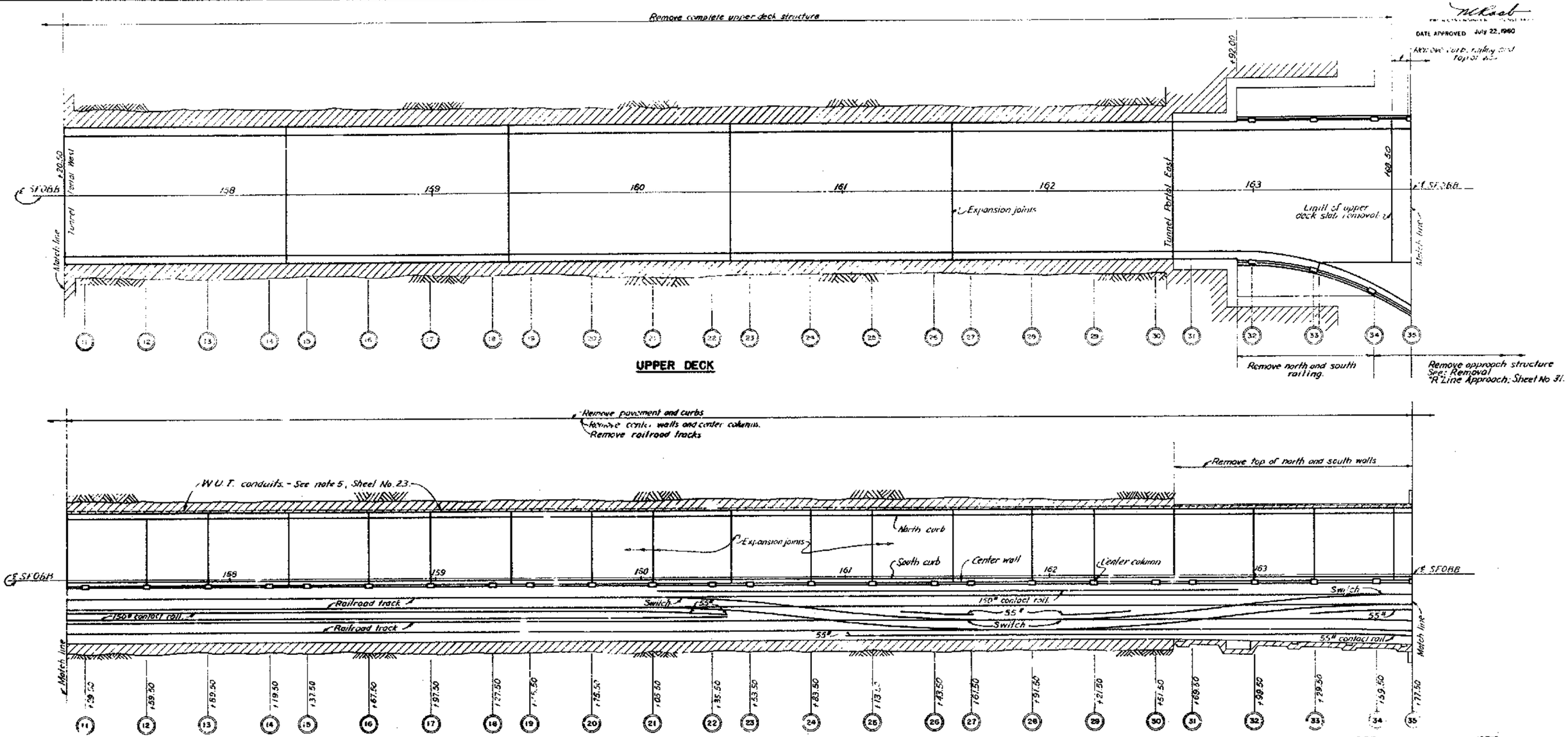
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION STRUCTURE - YERBA BUENA ISLAND

REMOVAL PLAN - STA. 153 TO 157

MARK	DATE	DESCRIPTION	BY	CH'K
1	6-1-66	As built with revisions		

REVISION

SCALE 1" = 20' | BRIDGE 33-25, 34-03, 34-04 | SHEET No 23 | DRAWING C-4029-25R



NOTES:

1 See note on Sheet No. 23.

MARK	DATE	DESCRIPTION	BY	CH'K
1	6-1-64	As built without revisions	BFS	[illegible]

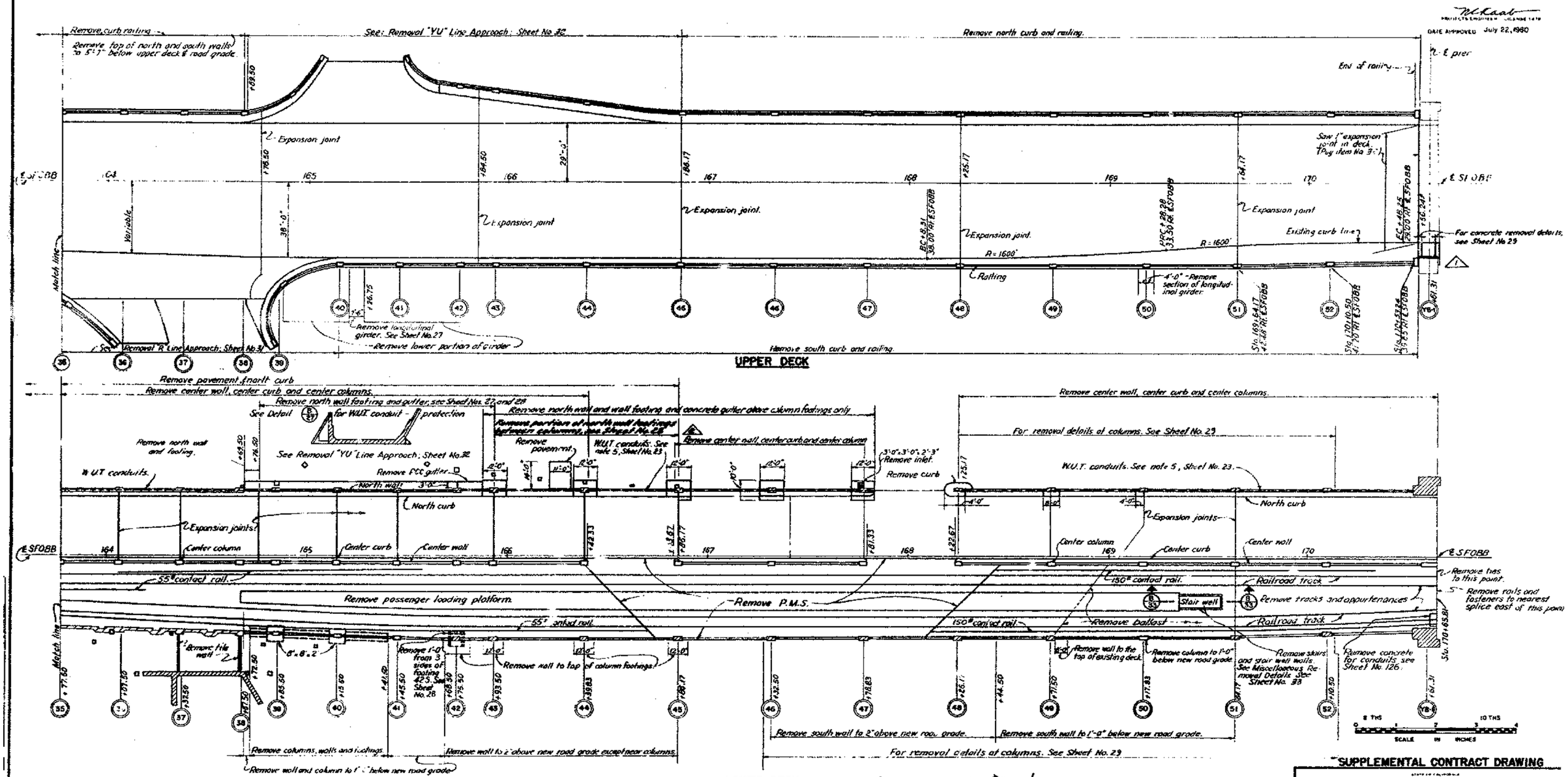
REVISION

DIVISION SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION STRUCTURE - YERBA BUENA ISLAND

REMOVAL PLAN - STA. 157 TO 164

SCALE: 1" = 20' | BRIDGE 33-25, 34-03, 34-04 | SHEET No 24 | DRAWING C-4028-24R



NOTE:
See notes on Sheet No. 23.

LOCATION KEY

MARK	DATE	DESCRIPTION	BY	CH'K.
2	6-1-64	As built with revisions	GFS	EKE
1	10-10-61	Revise removal details for south side Pier Y.B.-1	PSR	CS

REVISION

DATE APPROVED July 22, 1960

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

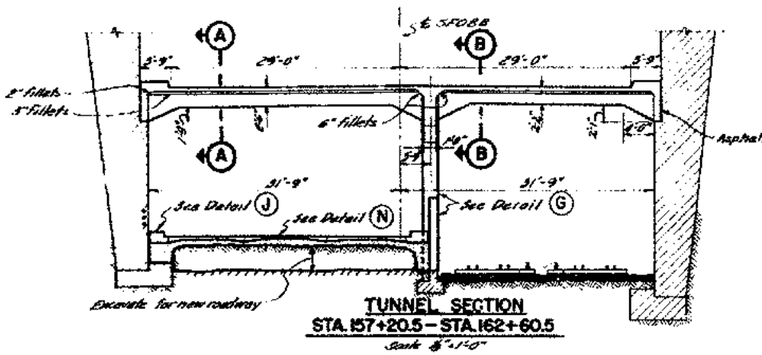
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

REMOVAL PLAN - STA. 164 TO STA. 171

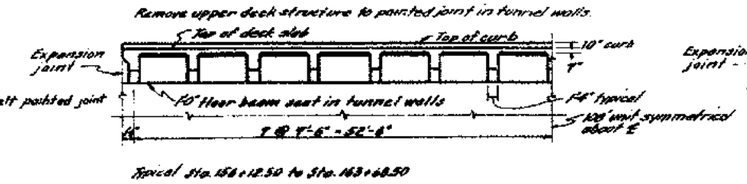
SCALE 1" = 20' | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 25 | DRAWING C-4025

PROJECTS ENGINEER LICENSE 1470

DATE APPROVED July 22, 1960

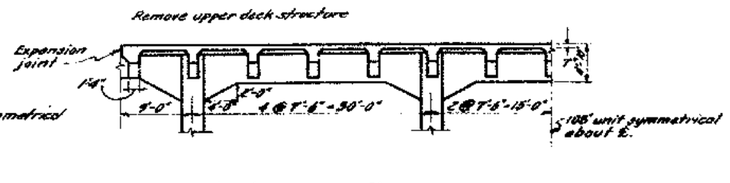


TUNNEL SECTION
STA. 157+20.5 – STA. 162+60.5
Scale: 1" = 1'-0"



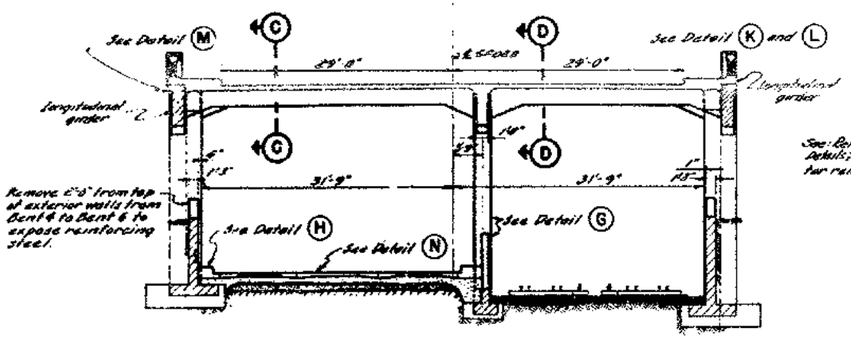
Typical Sta. 158+12.50 to Sta. 163+68.50

SECTION A-A
Scale: 1" = 1'-0"

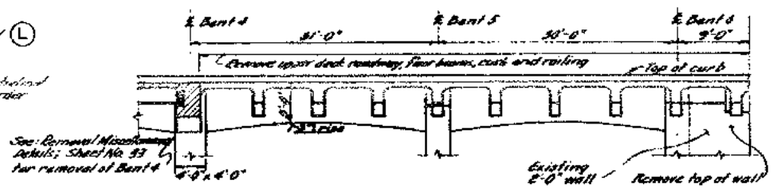


Typical Sta. 156+12.50 to Sta. 163+68.50

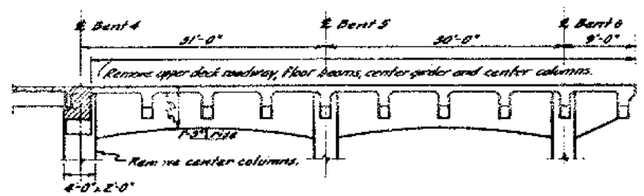
SECTION B-B
Scale: 1" = 1'-0"



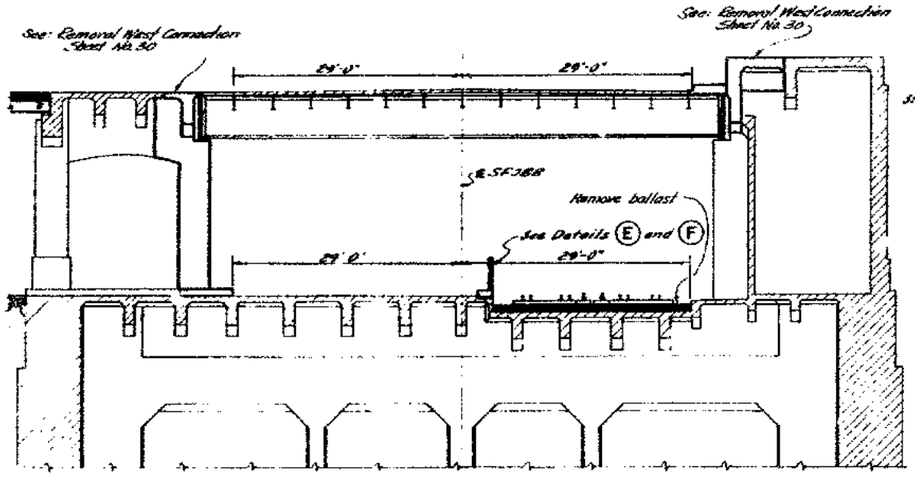
BENT 5
Scale: 1" = 1'-0"



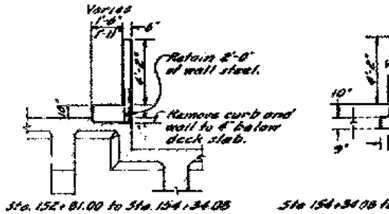
SECTION C-C
Removal on south side similar
Scale: 1" = 1'-0"



SECTION D-D
Scale: 1" = 1'-0"

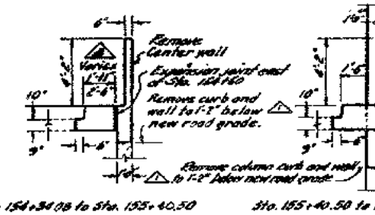


BENT YA-5
Scale: 1" = 1'-0"



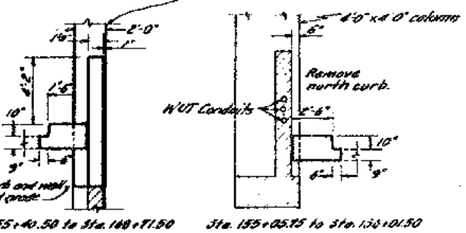
Sta. 152+81.00 to Sta. 154+34.08

DETAIL E
Scale: 1" = 1'-0"



Sta. 154+34.08 to Sta. 155+40.50

DETAIL F
Scale: 1" = 1'-0"

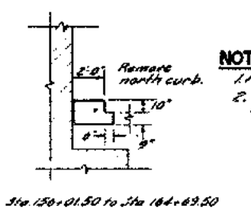


Sta. 155+40.50 to Sta. 158+71.50

DETAIL G
Scale: 1" = 1'-0"

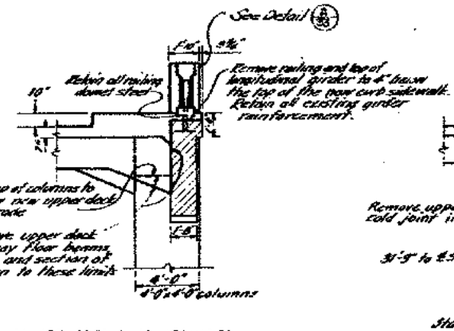
Sta. 155+05.75 to Sta. 158+01.50

DETAIL H
Scale: 1" = 1'-0"



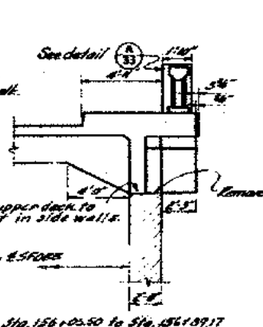
Sta. 156+01.50 to Sta. 164+69.50

DETAIL J
Scale: 1" = 1'-0"



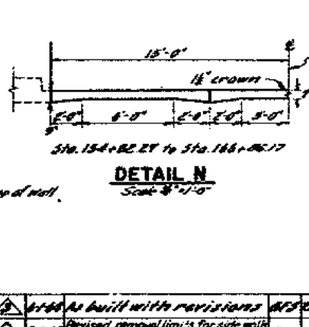
Sta. 155+46.83 to Sta. 156+09.50

DETAIL K
DETAIL M (Opposite hand)
Scale: 1" = 1'-0"



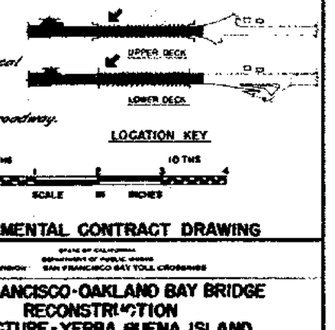
Sta. 156+05.50 to Sta. 156+89.17 north and south

DETAIL L
Scale: 1" = 1'-0"



Sta. 154+82.27 to Sta. 158+96.17

DETAIL N
Scale: 1" = 1'-0"



Remove lower deck roadway.

NOTES
1. For notes see Sheet No. 23
2. For Removal Plan see Sheet Nos. 23 and 24

SUPPLEMENTAL CONTRACT DRAWING

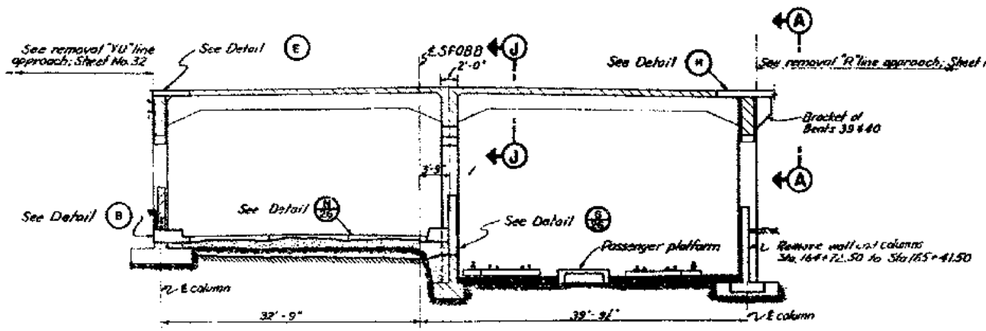
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION: SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
REMOVAL DETAILS – STA. 153 TO STA. 163

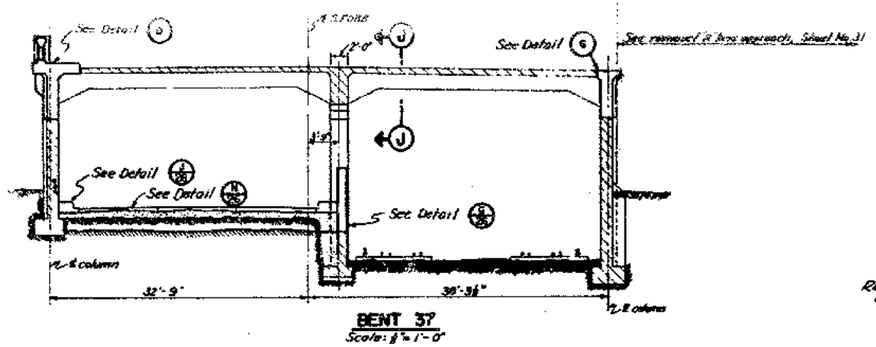
MARK	DATE	DESCRIPTION	BY	CHK
3	4-1-63	As built with revisions	AFS	DMZ
2	8-9-62	Revised removal limits for side walls from sta 156+05.50 to sta 156+89.17	E.M.L.	H.F.
1	6-14-61	Lowered removal limits for center wall and columns	BB	JTB

REVISION

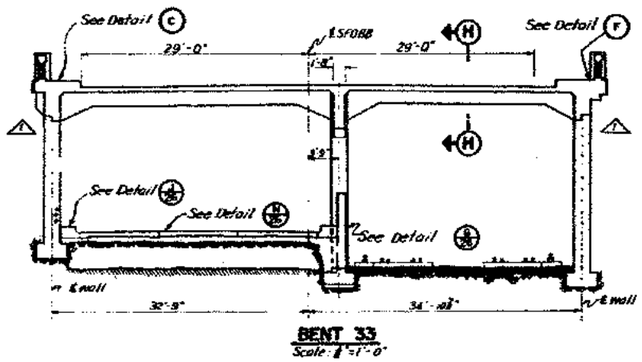
SCALE AS SHOWN | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 26 | DRAWING C-4009-26R



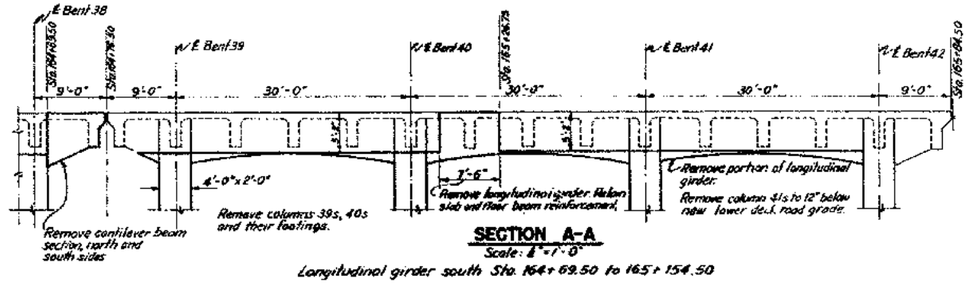
BENT 39
Scale: ⅛"= 1'-0"



BENT 37
Scale: ⅛"=1'-0"

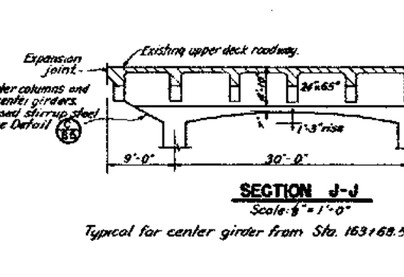


BENT 33
Scale: ⅛"=1'-0"

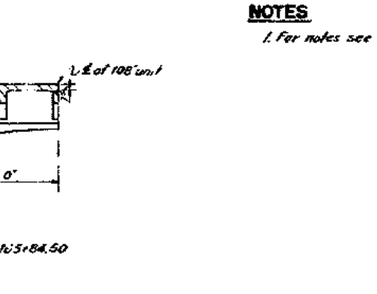


SECTION A-A
Scale: ⅛"=1'-0"

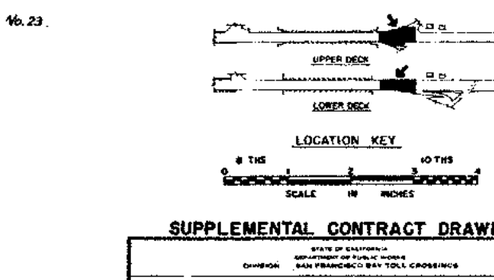
Longitudinal girder south Sta. 164+69.50 to 165+154.50



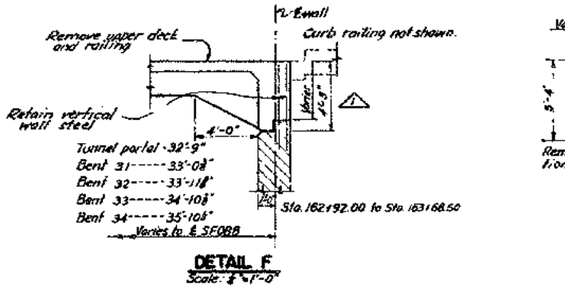
DETAIL C
Scale: ½"=1'-0"



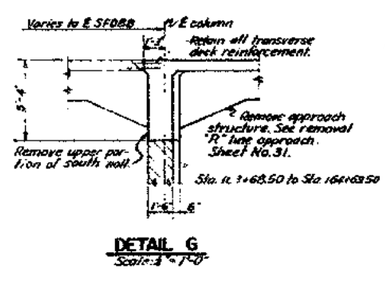
DETAIL D
Scale: ½"=1'-0"



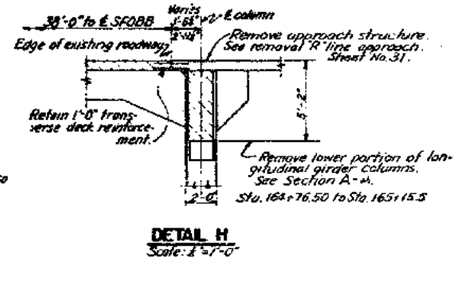
DETAIL E
Scale: ½"=1'-0"



DETAIL F
Scale: ½"=1'-0"



DETAIL G
Scale: ½"=1'-0"



DETAIL H
Scale: ½"=1'-0"

SECTION J-J
Scale: ⅛"=1'-0"

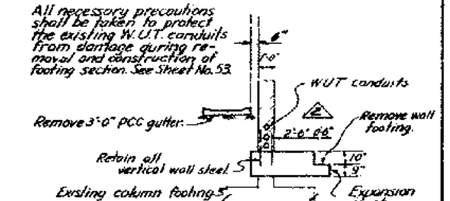
Typical for center girder from Sta. 163+68.50 to Sta. 165+84.50

NOTES

1. For notes see Sheet No. 23.

DATE APPROVED July 22, 1980

All necessary precautions shall be taken to protect the existing W.U.T. conduits from damage during removal and construction of footing section. See Sheet No. 53.



DETAIL B
Scale: ½"-1'-0"

SUPPLEMENTAL CONTRACT DRAWING

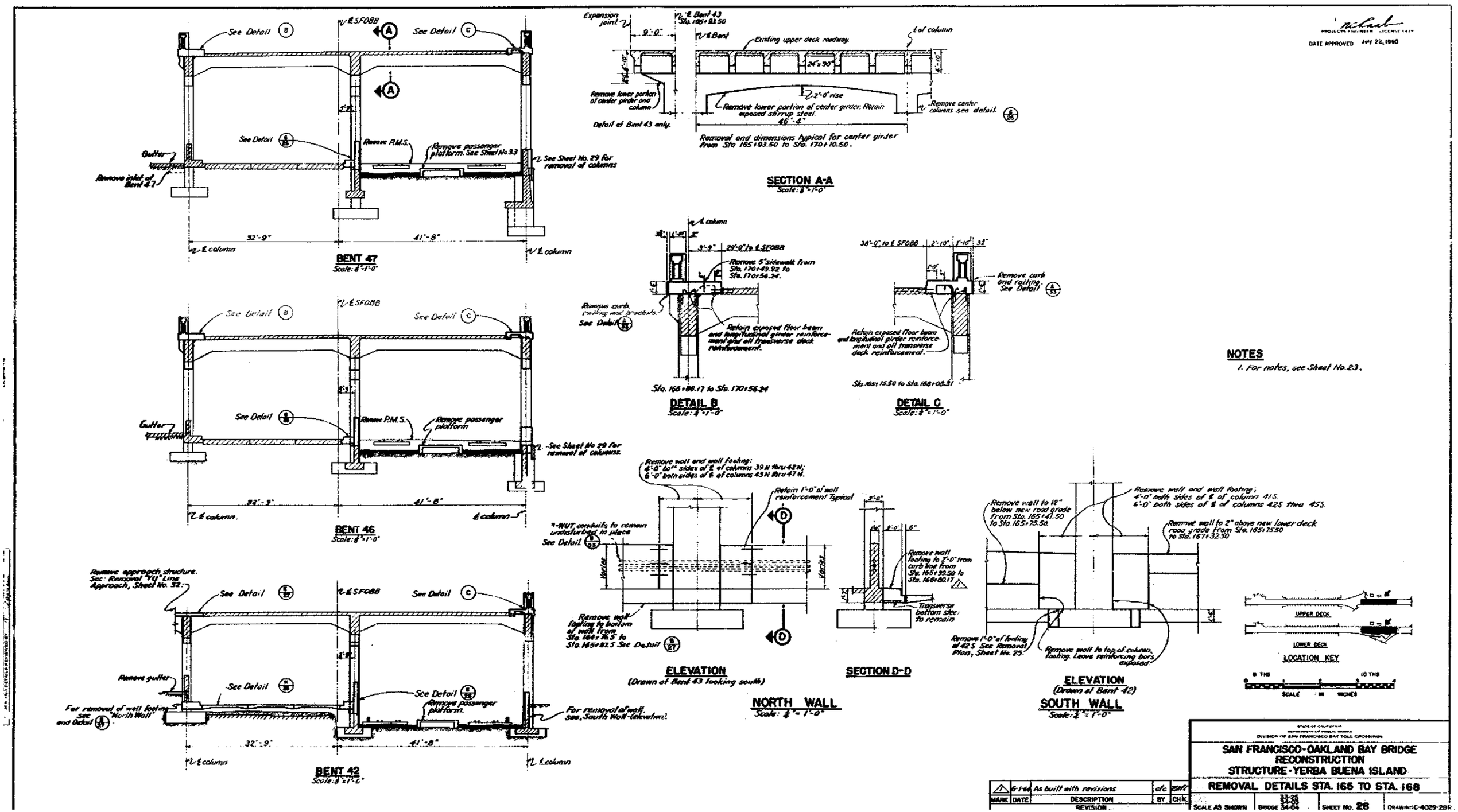
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

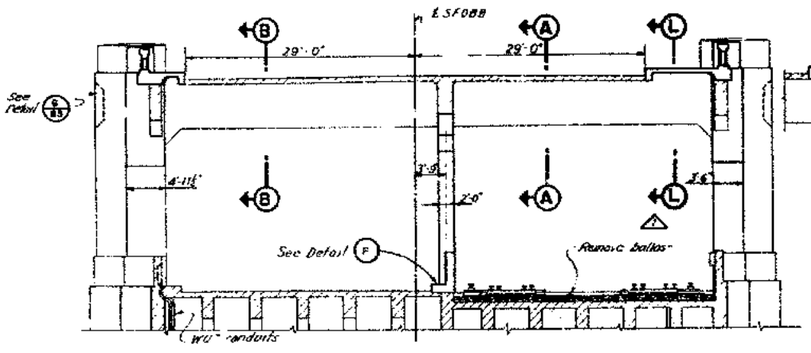
REMOVAL DETAILS STA. 163 TO STA. 165

MARK	DATE	DESCRIPTION REVISION	BY	CHK
4	4-1-86	As built with revisions	RFS	EMD
3	11-1-82	Revised removal Sta. 162+92.00 to Sta. 163+68.50	RHR	CS

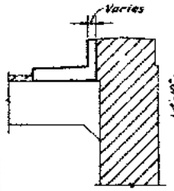
SCALE AS SHOWN | BRIDGE 34-04 | SHEET No. 27 | DRAWING C-67790:026



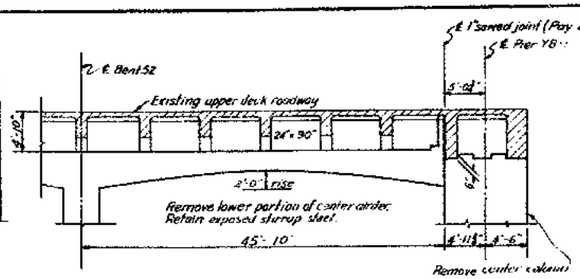
PROJECT ENGINEER LICENSE 1429
DATE APPROVED July 22, 1960
See Detail B
See Detail C
℄ SFOBB
Gutter
Remove inlet at Bent 47
Remove P.M.S.
Remove passenger platform. See Sheet No. 33
See Sheet No. 29 for removal of columns
32'-9"
41'-8"
℄ column
BENT 47
Scale: 1/8"=1'-0"
Expansion joint
9'-0"
℄ Bent 43 Sta. 165+93.50
℄ Bent
Existing upper deck roadway
℄ of column
24"x30"
2'-0" rise
Remove lower portion of center girder and column
Remove lower portion of center girder. Retain exposed stirrup steel.
Remove center columns see detail.
46'-4"
Detail of Bent 43 only.
Removal and dimensions typical for center girder from Sta. 165+93.50 to Sta. 170+10.50.
SECTION A-A
Scale: 1/8"=1'-0"
℄ column
29'-0" to ℄ SFOBB
Remove 5" sidewalk from Sta. 170+49.92 to Sta. 170+56.24.
Remove curb, railing and brackets. See Detail
Retain exposed floor beam and longitudinal girder reinforcement and all transverse deck reinforcement.
Sta. 165+88.17 to Sta. 170+56.24
DETAIL B
Scale: 1/4"=1'-0"
38'-0" to ℄ SFOBB
Remove curb and railing. See Detail
Retain exposed floor beam and longitudinal girder reinforcement and all transverse deck reinforcement.
Sta. 165+15.50 to Sta. 168+08.51
DETAIL C
Scale: 1/4"=1'-0"
NOTES
1. For notes, see Sheet No. 23.
See Detail B
See Detail C
Gutter
Remove P.M.S.
Remove passenger platform
See Sheet No 29 for removal of columns.
32'-9"
41'-8"
℄ column
BENT 46
Scale: 1/8"=1'-0"
Remove wall and wall footing: 4'-0" both sides of ℄ of columns 39N thru 42N; 6'-0" both sides of ℄ of columns 43N thru 47N.
Retain 1'-0" of wall reinforcement Typical
3-WUT conduits to remain undisturbed in place See Detail
Varies
Remove wall footing to bottom of wall from Sta. 164+76.5 to Sta. 165+82.5 See Detail
ELEVATION
(Drawn at Bent 43 looking south)
Remove wall footing to 2'-0" from curb line from Sta. 165+99.50 to Sta. 168+80.17
Transverse bottom steel to remain.
SECTION D-D
NORTH WALL
Scale: 1/4"=1'-0"
Remove wall to 12" below new road grade from Sta. 165+41.50 to Sta. 165+75.50.
Remove wall and wall footing; 4'-0" both sides of ℄ of column 41S. 6'-0" both sides of ℄ of columns 42S thru 45S.
Remove wall to 2" above new lower deck road grade from Sta. 165+75.50 to Sta. 167+32.50
Remove 1'-0" of footing at 42S See Removal Plan, Sheet No. 25.
Remove wall to top of column, footing. Leave reinforcing bars exposed.
ELEVATION
(Drawn at Bent 42)
SOUTH WALL
Scale: 1/4"=1'-0"
UPPER DECK
LOWER DECK
LOCATION KEY
SCALE IN INCHES
Remove approach structure. See: Removal "YU" Line Approach, Sheet No. 32.
See Detail
Remove gutter
For removal of wall footing see "North Wall" and Detail
Remove passenger platform.
For removal of wall, see, South Wall (elevation)
32'-9"
41'-8"
℄ column
BENT 42
Scale: 1/8"=1'-0"
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
REMOVAL DETAILS STA. 165 TO STA. 168
1 6-1-64 As built with revisions
MARK DATE DESCRIPTION BY CHK
REVISION
SCALE AS SHOWN
BRIDGE 33-25 34-03 34-04
SHEET No. 28
DRAWING C-4029-28R



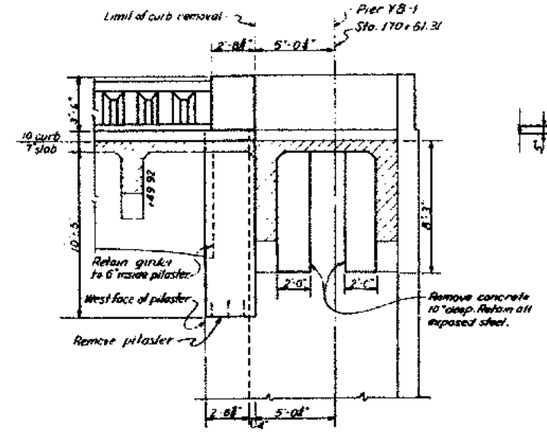
PIER Y.B.1
Scale: ⅜"=1'-0"



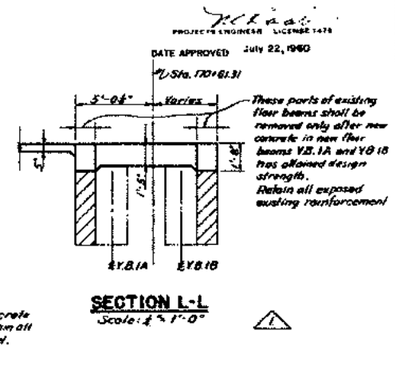
PIER Y.B.1
Scale: ⅜"=1'-0"



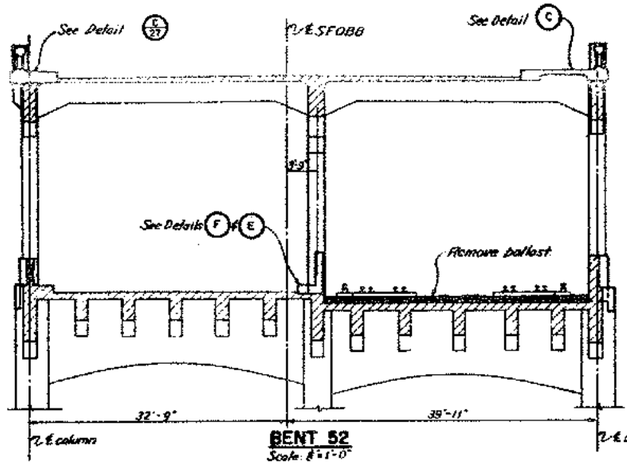
SECTION A-A
Scale: ⅜"=1'-0"



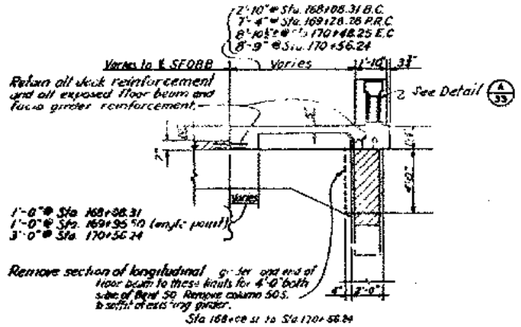
SECTION B-B
North side shown, south side similar.
Scale ⅜"=1'-0"



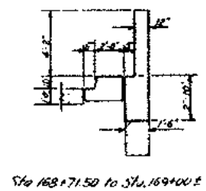
SECTION L-L
Scale: ⅜"=1'-0"



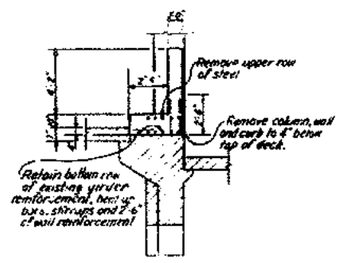
BENT 52
Scale: ⅜"=1'-0"



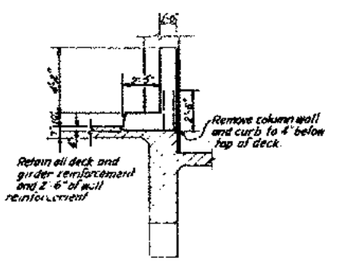
DETAIL C
Scale: ⅜"=1'-0"



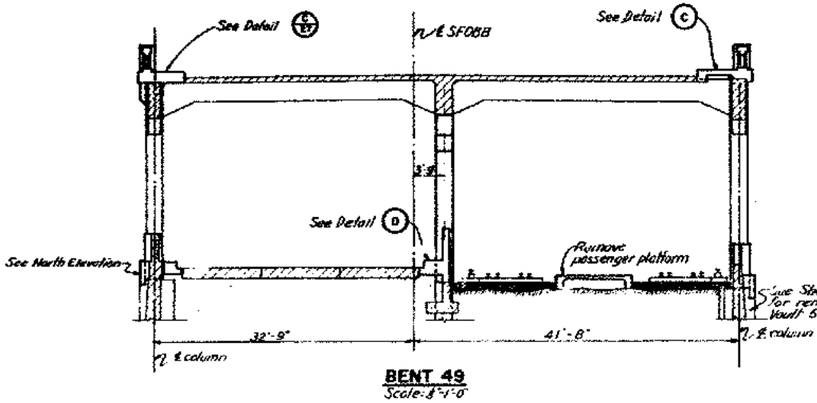
DETAIL D
Scale: ⅜"=1'-0"



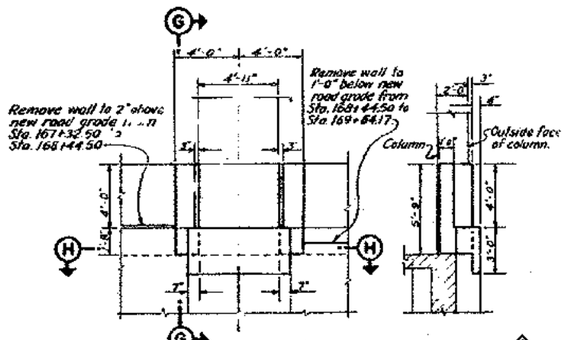
DETAIL E
Scale: ⅜"=1'-0"



DETAIL F
Scale: ⅜"=1'-0"

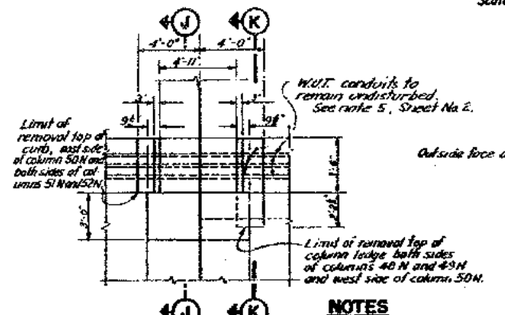


BENT 49
Scale: ⅜"=1'-0"

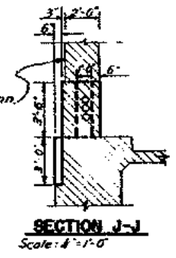


SOUTH ELEVATION
Scale ⅜"=1'-0"

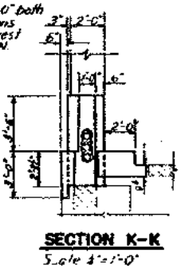
SECTION G-G
Scale: ⅜"=1'-0"



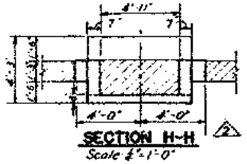
NORTH ELEVATION
Brown at Bent 50
Scale: ⅜"=1'-0"



SECTION J-J
Scale: ⅜"=1'-0"



SECTION K-K
Scale ⅜"=1'-0"

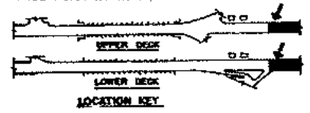


SECTION H-H
Scale ⅜"=1'-0"

Remove wall on both sides of columns.
Remove 3" steps from both sides of columns.
Remove 6" step from outside face of columns.
Retain exposed reinforcement

Remove wall on both sides of column.
Remove 3" steps from both sides of columns.
Remove 6" step from outside face of column.
Remove all exposed reinforcement

NOTES
1. See notes on Sheet No. 23.



LOCATION KEY

SOUTH COLUMNS 46, 47, 48, 49, 51 AND 52

NORTH COLUMNS 48 TO 52

MARK	DATE	DESCRIPTION	BY	CHK
		REVISION		
2	6-1-64	As built with revision	cfc	WMT
1	6-10-60	Revised removal details for south side Pier Y.B.-1	PSR	CS

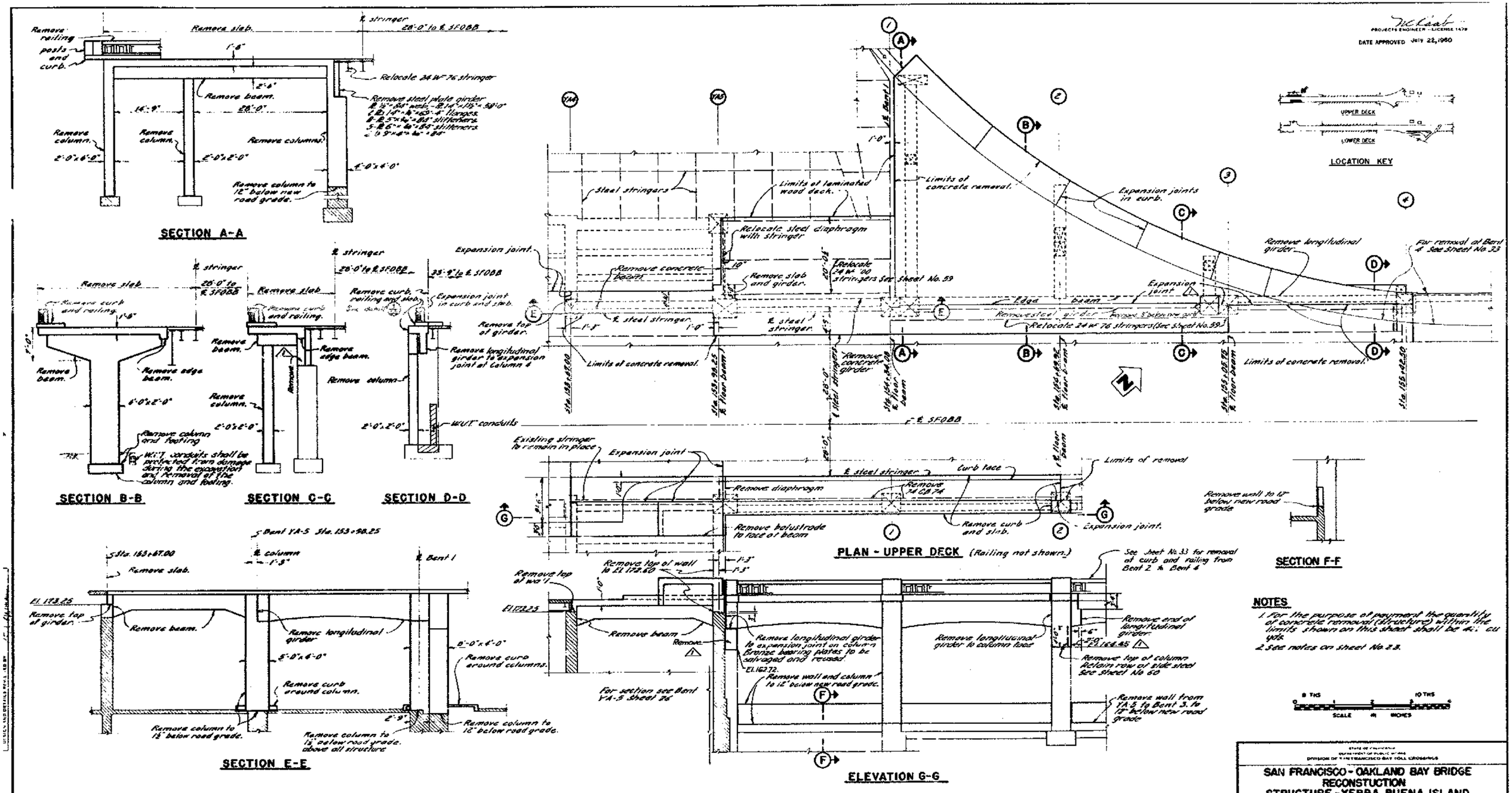
SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO-BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

REMOVAL DETAILS STA. 168 TO 171

SCALE As Shown	BRIDGE 34-05 34-03 34-04	SHEET No. 29	DRAWING C-4029-29



NOTES

1. For the purpose of payment the quantity of concrete removal (structure) within the limits shown on this sheet shall be 4[illegible] cu yds.
2. See notes on sheet No. 23.

SCALE IN INCHES

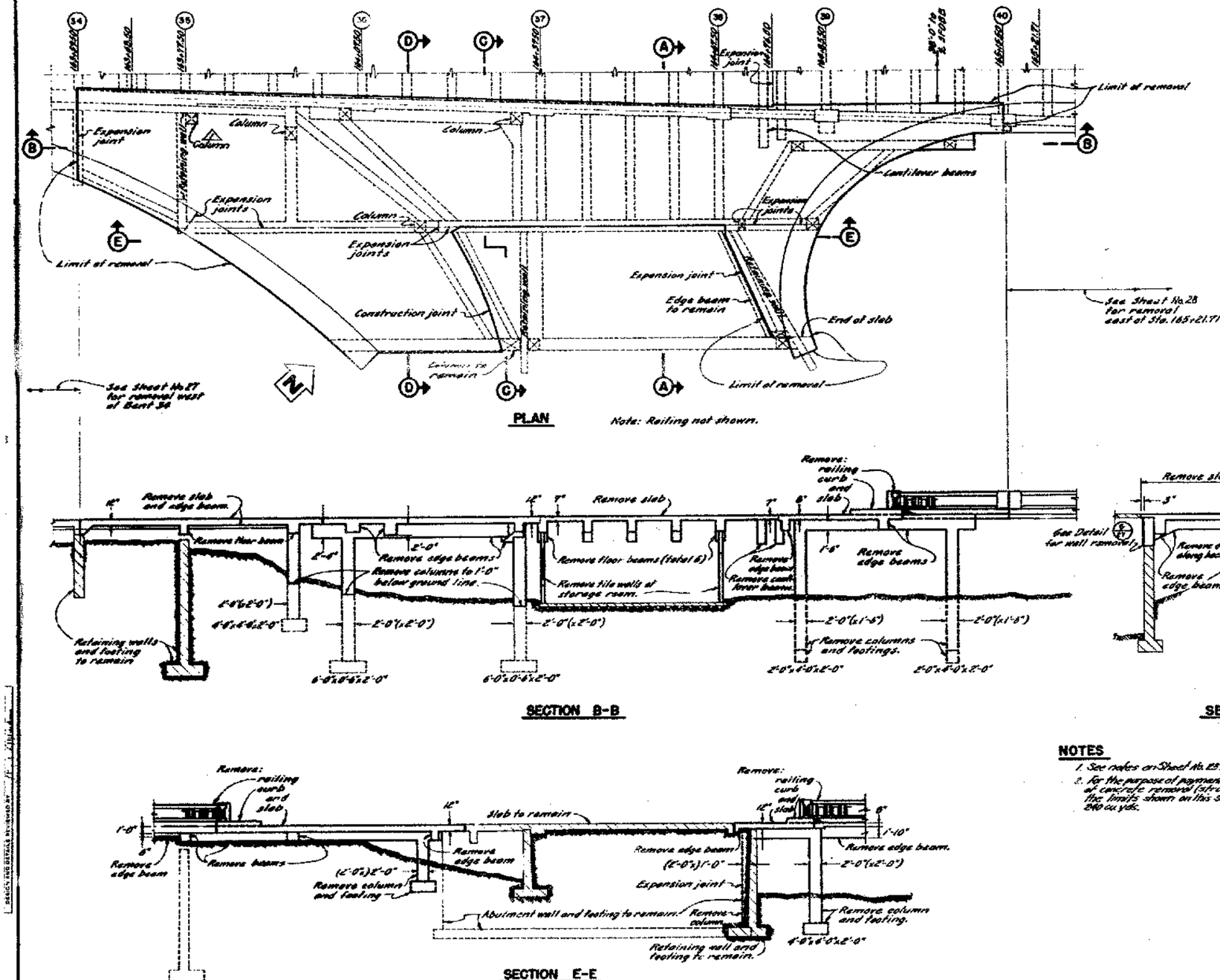
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

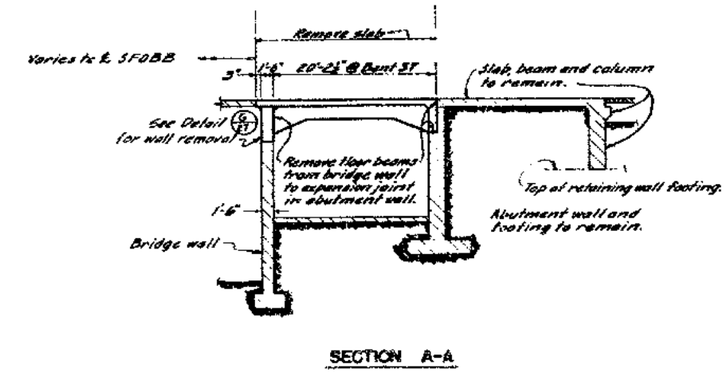
SAN FRANCISCO - OAKLAND BAY BRIDGE RECONSTUCTION
STRUCTURE - YERBA BUENA ISLAND
REMOVAL - WEST CONNECTION

MARK	DATE	DESCRIPTION	BY	CHK
1	6-1-64	As built with revisions.	cfc	[illegible]

REVISION

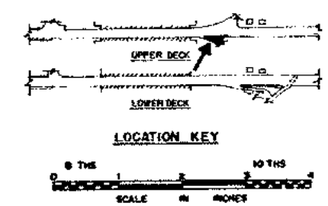
UNLESS NOTED SCALE 1/8" = 1'-0" | BRIDGE 33-25 34-03 34-04 | SHEET No. 30 | DRAWING C-4029-30R





NOTES

1. See notes on Sheet No. 28.
2. For the purpose of payment the quantity of concrete removal (structure) within the limits shown on this sheet will be 240 cu. yds.



DATE APPROVED July 22, 1960

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
REMOVAL-"R" LINE APPROACH

MARK	DATE	DESCRIPTION	BY	CHK
1	6-1-64	As built with revision	cfc	[illegible]

REVISION

SCALE 1/8" = 1'-0" | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 31 | DRAWING C-6029-31R

DATE APPROVED July 22, 1960

Note:
1. For the purpose of payment the quantity of concrete removal(structure) within the limits shown on this sheet shall be 270 cu. yds
2. See notes on sheet No. 22.

End of curb and railing
Wing walls to remain
End of curb and railing
Abutment D
Expansion joint
Limit of removal
Abutment E
Bent F
Remove column and beam.
Remove column and beam.
Bent C
Bent A
Bent B
Bent G
Bent H
Bent I
Bent J
Bent K
Bent L
Expansion joints in curb
Limit of removal
Limit of removal
Asphalt painted joint
Asphalt painted joint
Dowels
Dowels
Dowels
Expansion joints
Cantilever beams. Limit of removal
See Sheet No. 27 for removal east of Bent 38.
See Sheet No. 28 for removal east of Bent 45.

PLAN Note: Railing not shown.

Remove railing to end of curb.
Remove curb and slab.
Remove slab.
Remove slab and curb.
Remove railing to end of curb.
Expansion joint
Remove edge beam
Remove floor beam
Remove edge beam.
Remove cantilever beams.
Remove floor beams (total 5).
Remove cantilever beams.
Remove edge beam.
Remove beams
Remove beams.
Remove column and footing.
Remove column.
Remove column and footing.
Remove column to 2" below top of pavement.
Remove column and footing to top of Bent H footing
Remove column to top of footing.
Remove column to 2" below top of pavement.
Top of footing.
Top of footing.
Top of footing.
Top of footing.

SECTION A-A

Remove slab
Remove floor beams from longitudinal girder (or col. face) to expansion joint in abutment.
Limit of removal.
Abutment wall and footing to remain.
Column.

SECTION B-B

UPPER DECK
LOWER DECK

LOCATION KEY

SCALE IN INCHES

Remove:
railing
10" curb
12" slab
Remove slab
Remove top of wall to 1'-6" below the top of new pavement.
Top of wall
Remove edge beams.
12" floor beam seat in wall.
Asphalt painted joint
Dowels
Remove top of wall 1'-6" below top of new pavement.
Asphalt painted joint
Abutment wall and footing to remain.
Remove abutment E and footing.

ELEVATION C-C **SECTION D-D**

Remove:
railing
10" curb
1'-8" slab
1'-2" edge beam
1'-2" floor beam and column.
29'-6" to E 3+08.8
Limit of removal
Existing longitudinal girder.

BENT I
SECTION E-E
Note: Remove at Bents B, G, H and J similar

Remove:
railing
10" curb
Slab
1'-2" edge beam
1'-2" floor beam
Asphalt painted joint.
Remove column to 1'-0" below ground surface.

BENT C
SECTION F-F
Bent F opposite.

MARK	DATE	REVISION	BY	CHK
1	6-1-64	As built without revision	clk.	Self

STATE OF CALIFORNIA
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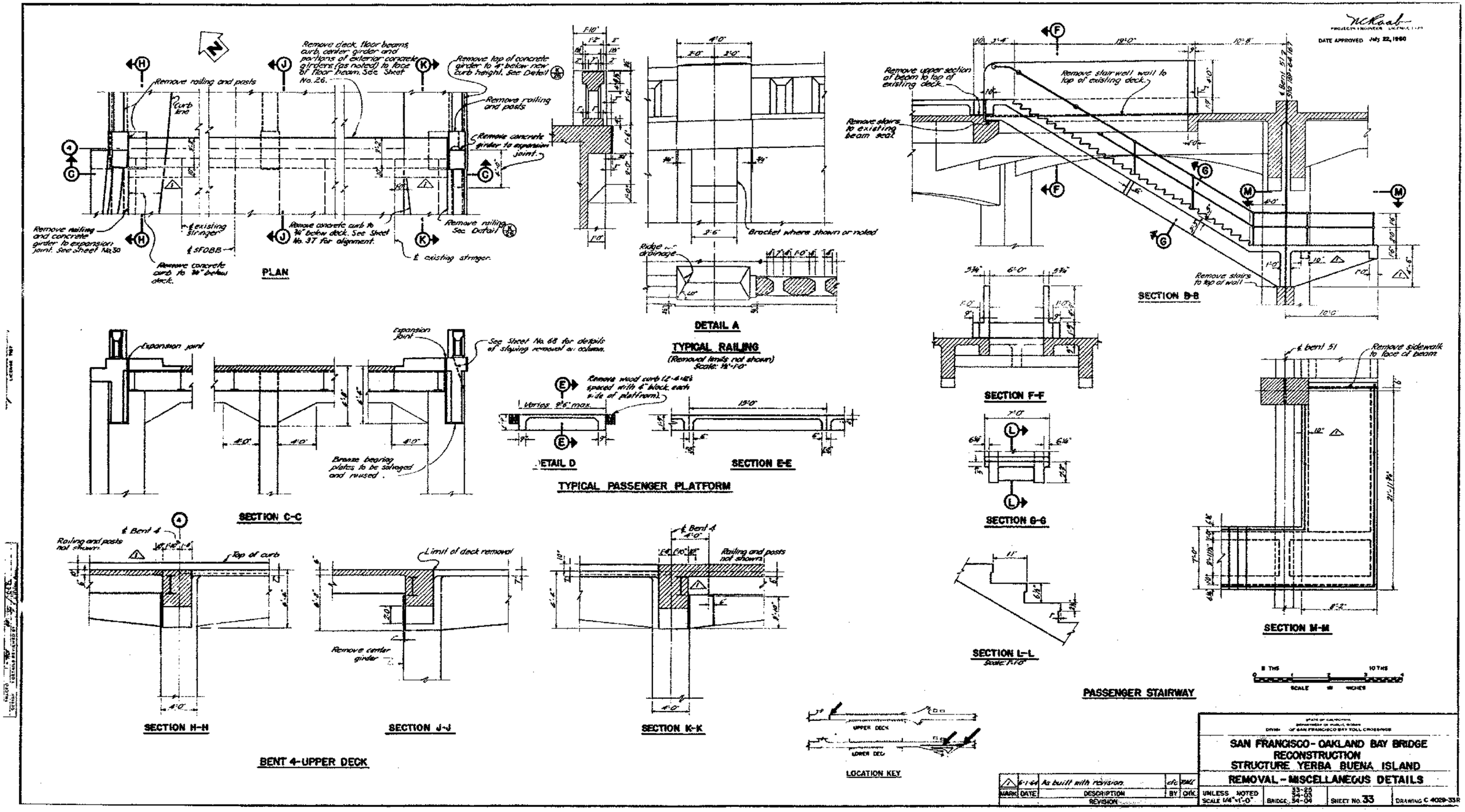
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
REMOVAL - "YU" LINE APPROACH

SCALE 1/8"=1'-0" | BRIDGE 33-25 34-03 34-04 | SHEET No 32 | DRAWING C-4029-32F



DATE APPROVED July 22, 1960

MARK	DATE	DESCRIPTION	BY	CHK.
1	6-1-64	As built with revision.	cfc	RML

REVISION

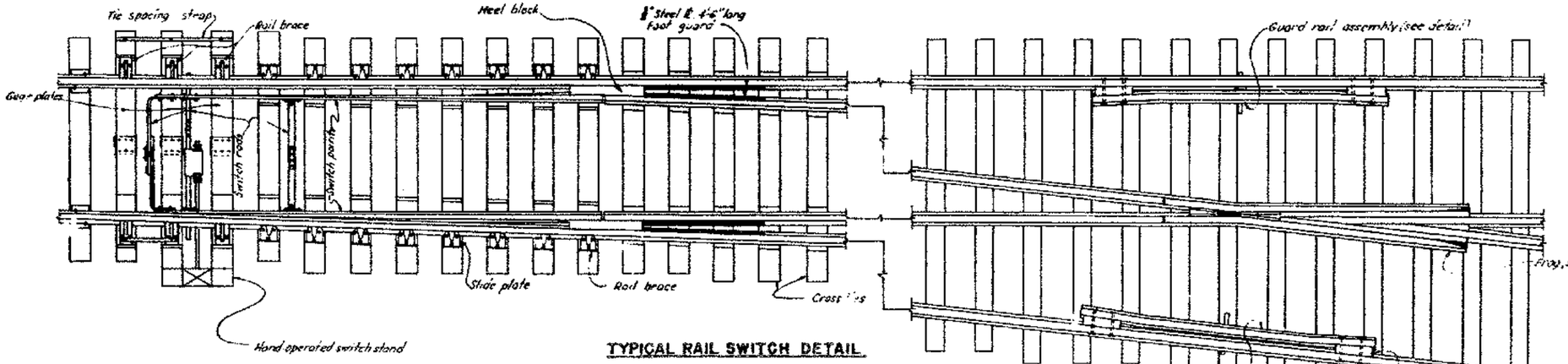
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO - OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND

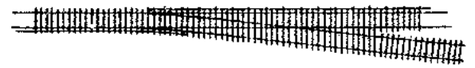
REMOVAL - MISCELLANEOUS DETAILS

UNLESS NOTED SCALE 1/4"=1'-0" | BRIDGE 33-25 34-03 34-04 | SHEET No. 33 | DRAWING C 4029-33R

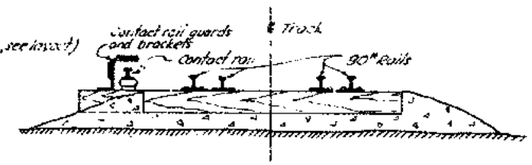
PROJECTS ENGINEER - LICENSE 1476
DATE APPROVED July 22, 1960



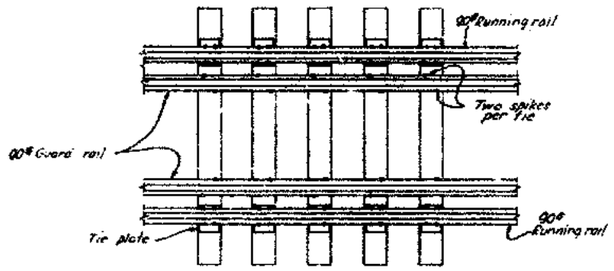
TYPICAL RAIL SWITCH DETAIL



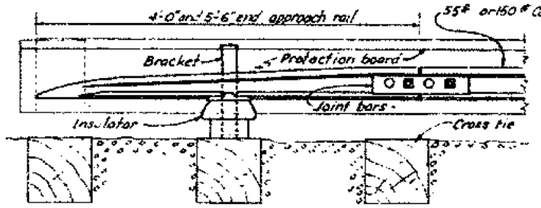
TYPICAL SWITCH LAYOUT
Scale 1"=20'



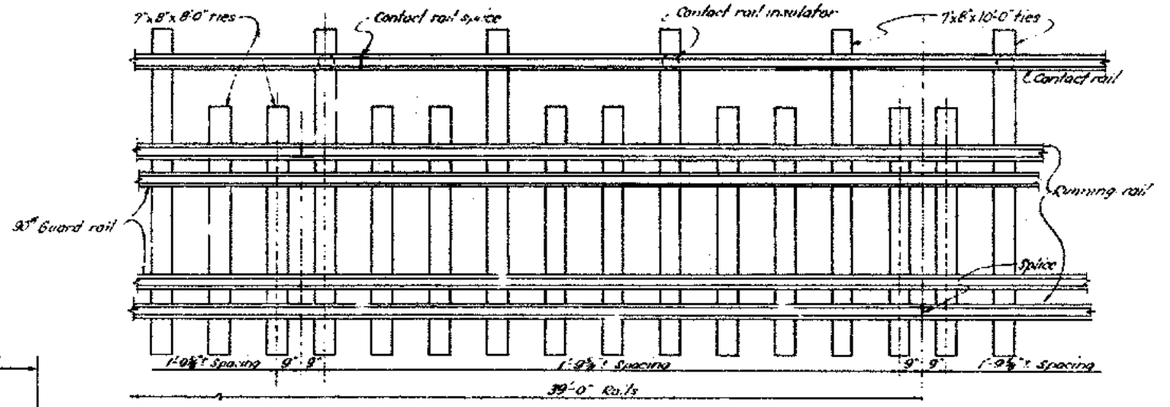
TYPICAL TRACK SECTION



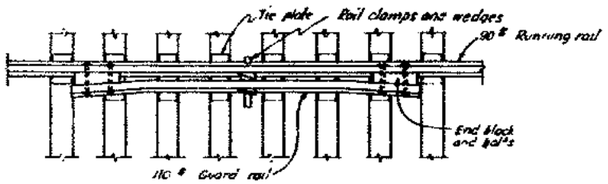
SAFETY GUARD RAIL LAYOUT



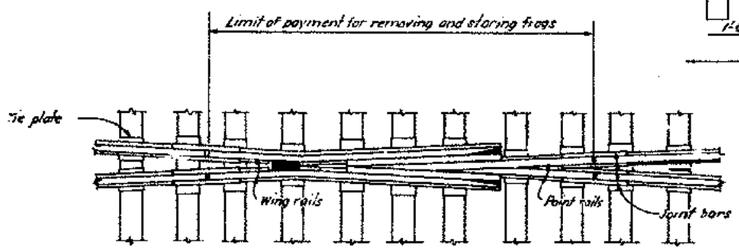
CONTACT RAIL END APPROACH ASSEMBLY
Store in separate stacks in yard
Scale 1½"=1'-0"



TYPICAL TRACK LAYOUT



GUARD RAIL ASSEMBLY
(Opposite Frogs)



FROG LAYOUT

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

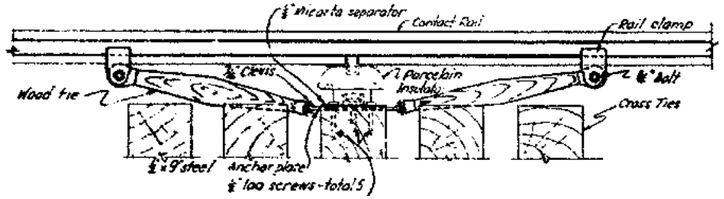
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

REMOVAL — TRACK DETAILS

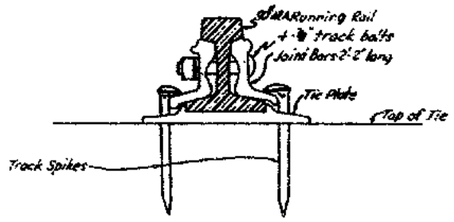
MARK	DATE	DESCRIPTION	BY	CHK.
△	6-1-64	As built without revision	cfc	GMF

UNLESS NOTED
SCALE 1/2"=1'-0"
33-25
34-03
BRIDGE 34-04
SHEET No. 34
DRAWING C-4029-34R

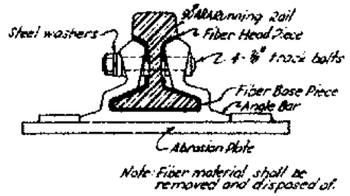
PROJECTS ENGINEER – LICENSE 1479
DATE APPROVED July 28, 1960



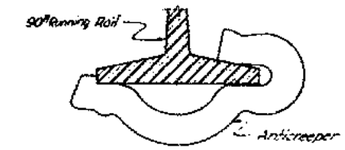
TYPICAL CONTACT RAIL ANCHOR ASSEMBLY
Scale 1½" = 1'-0"



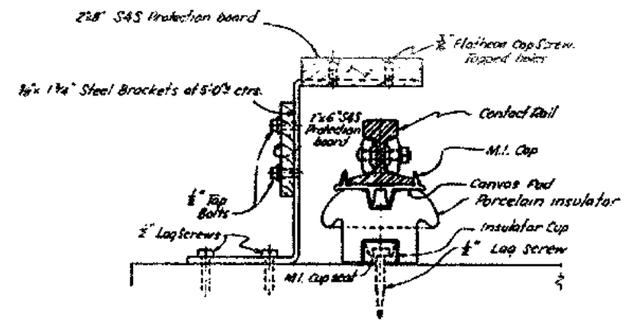
RUNNING RAIL JOINT DETAIL
(At tie plate)



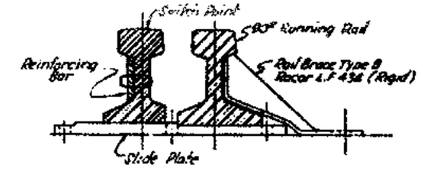
INSULATED RAIL JOINT DETAIL



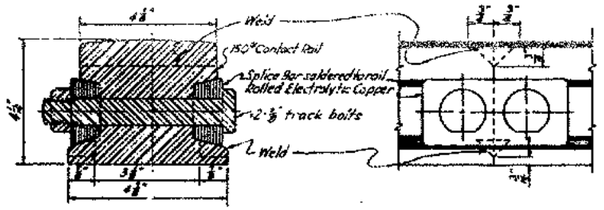
ANTICREEPER
(RAIL ANCHOR)
Half Scale



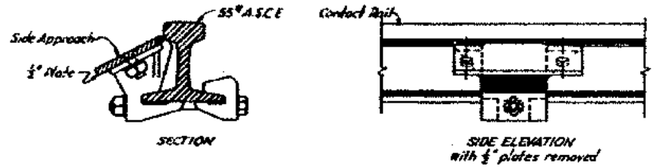
DETAIL OF CONTACT RAIL FACILITIES



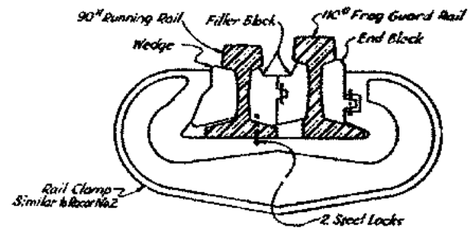
RAIL BRACE ASSEMBLY DETAIL



150 LB. CONTACT RAIL SPLICE
Half Scale



DETAILS OF SIDE APPROACH



RAIL CLAMP AND WEDGES

0 6 THS 1 2 3 10 THS 4
SCALE IN INCHES

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

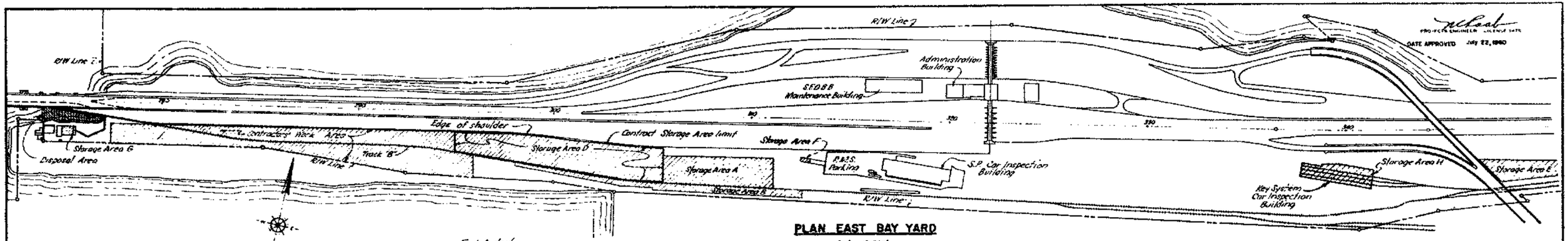
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE–YERBA BUENA ISLAND

REMOVAL – TRACK FASTENINGS

MARK	DATE	DESCRIPTION	BY	CH'K
1	6-1-64	As built without revision	cfc	RWL

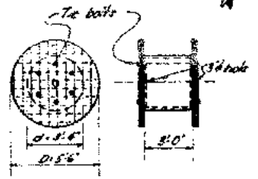
REVISION

Unless Noted SCALE 3" = 1'-0" | BRIDGE 33-25 34-03 34-04 | SHEET NO 35 | DRAWING C-4029-35R



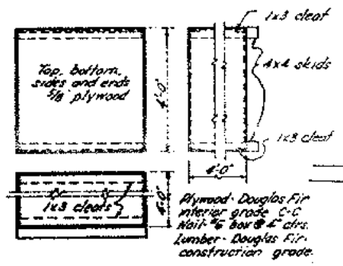
PLAN EAST BAY YARD

Scale 1" = 200'



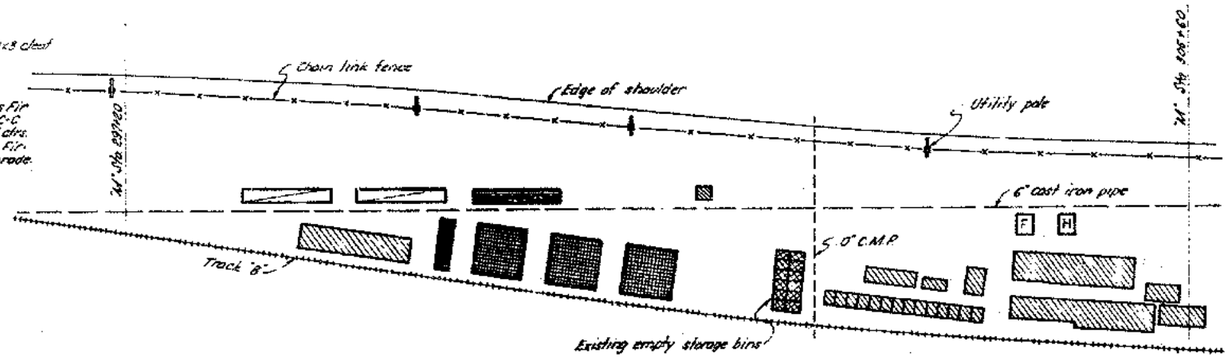
CABLE REEL

Scale 1/4" = 1'-0"



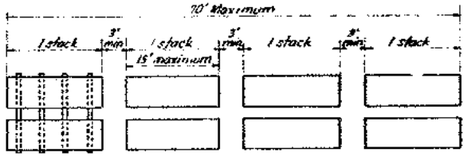
INSULATOR STORAGE BOXES

Scale: 1/8" = 1'-0"



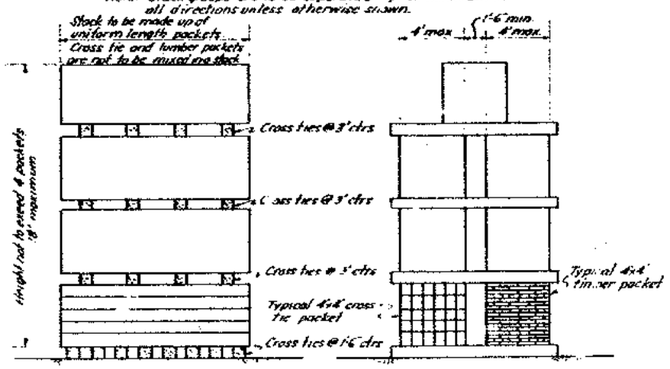
CONTRACT STORAGE AREA D

Scale 1" = 50'



PLAN FOR TYPICAL STACK GROUP

Note: Stack groups are to be separated by 20' minimum in all directions unless otherwise shown.

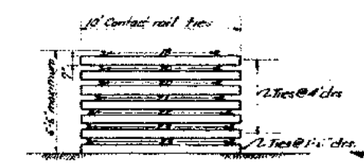


STACK ELEVATION

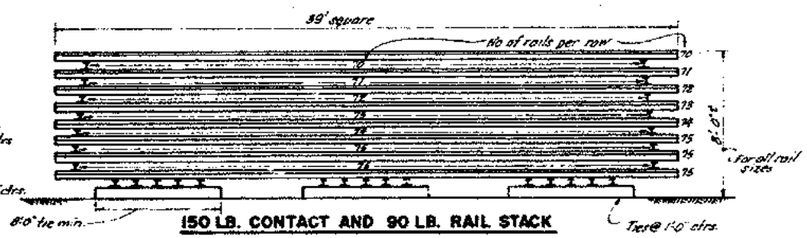
STACK CROSS SECTION

TYPICAL CROSS TIE AND LUMBER STORAGE

Scale 1/4" = 1'-0"



55 LB CONTACT RAIL STACK



150 LB. CONTACT AND 90 LB. RAIL STACK

Note: Detail drawn for 90# rails. Rails of respective sizes shall be kept in separate stacks; also 90# running rails and guard rails are to be stockpiled in separate stacks. Foundation pressure shall not exceed 2000# / ft². The number of rails in this contract will not form complete rail stacks.

TYPICAL STORAGE FOR RAILS

Scale: 1/4" = 1'-0"

LEGEND

- Rail stacks
- Railroad ties
- Lumber
- Existing empty bins - for miscellaneous storage
- F Frogs
- H Hand operated switch stands and switch rods.
- Existing material to remain in place
- Disposal area.
- Storage area.
- Railroad track

NOTES

1. Store cable reels and insulator storage boxes in Storage Area H as directed by the Engineer.
2. Store rail fastenings (bolts), contact rail insulator assembly fittings, contact rail anchor assemblies; bare copper and insulated cable (lengths under 20 ft.), and anchor bolts and angles in existing bins in Storage Area H as directed by the Engineer.
3. Store removed structural steel, which is not to be reused, in locations as directed by the Engineer.
4. Store all other items in Storage Areas D or F as shown, or as directed by the Engineer.
5. During the progress of this work other Contractors will be storing materials in the storage areas shown. Attention is directed to the Specific Provisions regarding cooperation with other Contractors.

0 1 2 3 4 — 0 THS 10 THS — SCALE IN INCHES

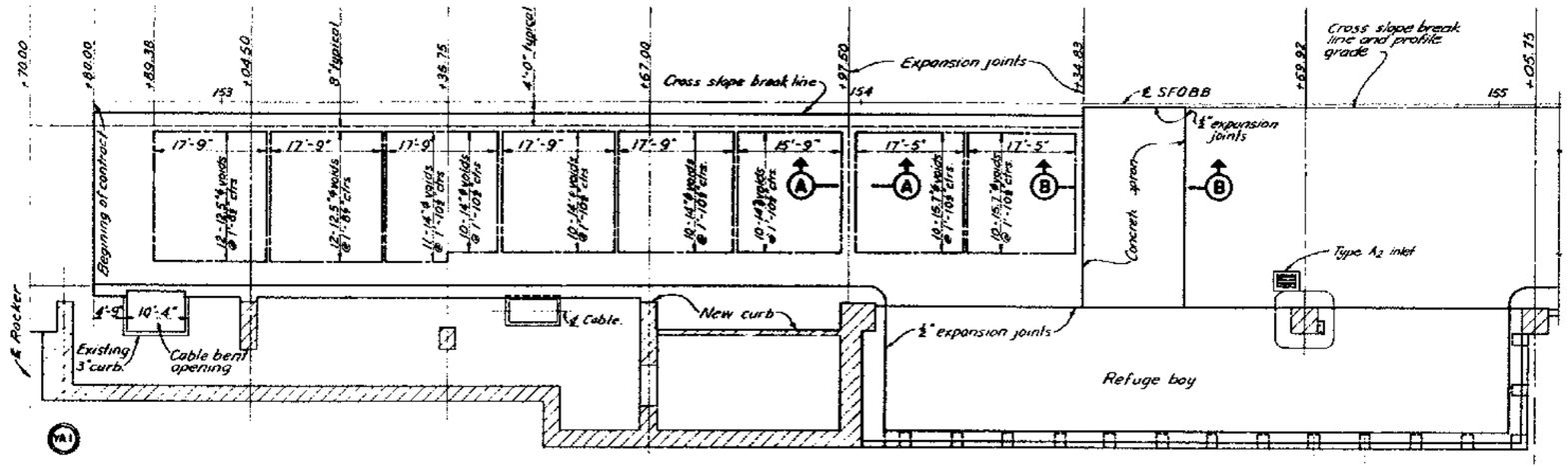
MARK	DATE	DESCRIPTION	BY	CK'D
1	6-1-64	As built without revision	cfc	RMC

REVISION

SAN FRANCISCO - OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

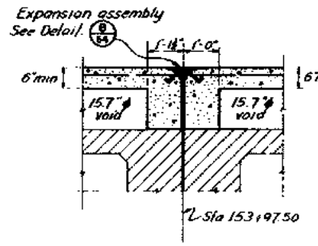
STORAGE AREA LAYOUT

SCALE As Shown | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 36 | DRAWING C-4028-36R

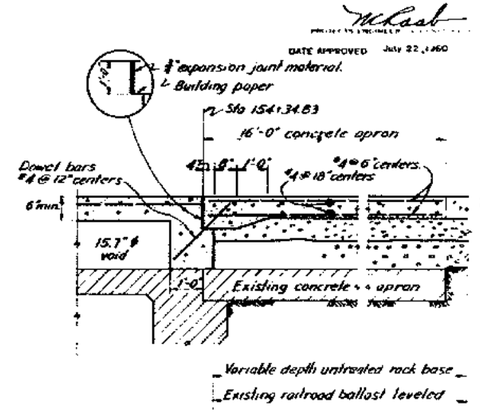


PART PLAN BENT YA-1 TO BENT 3
Scale: 1" = 10'-0"

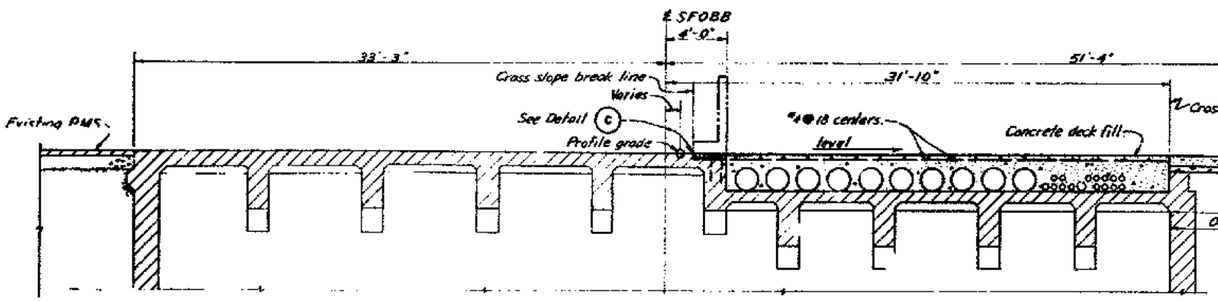
8'-0" Typical curb seat spacing.



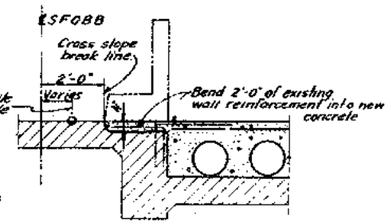
SECTION A-A
Scale: ½" = 1'-0"



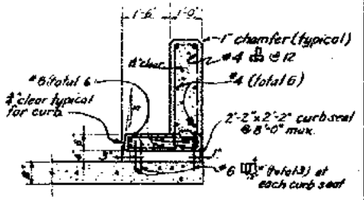
SECTION B-B
Scale ½" = 1'-0"



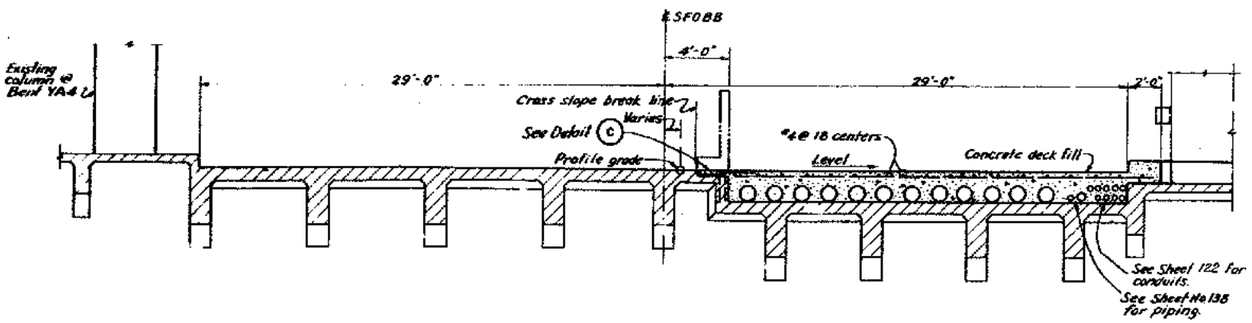
STA. 153+97.50 TO STA. 154+34.33
Scale: ¼" = 1'-0"



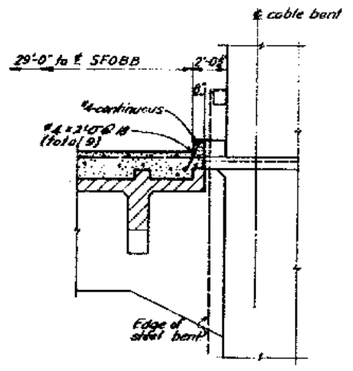
DETAIL C
Scale ½" = 1'-0"



DETAIL D
Scale: ½" = 1'-0"



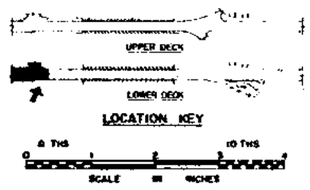
STA. 152+80.00 TO STA. 153+97.50
Scale: ¼" = 1'-0"



STA. 152+84.75 TO STA. 152+95.09
Scale: ¼" = 1'-0"
(Cable bent opening)

NOTES

1. All voids to be parallel to ℄ SFOBB. Plug ends of voids with mortar tight plugs. Voids shall be held firmly in position while placing concrete.
2. See Plan and profile sheets for alignment and grades.
3. All expansion joints ends be filled with premolded expansion joint filler

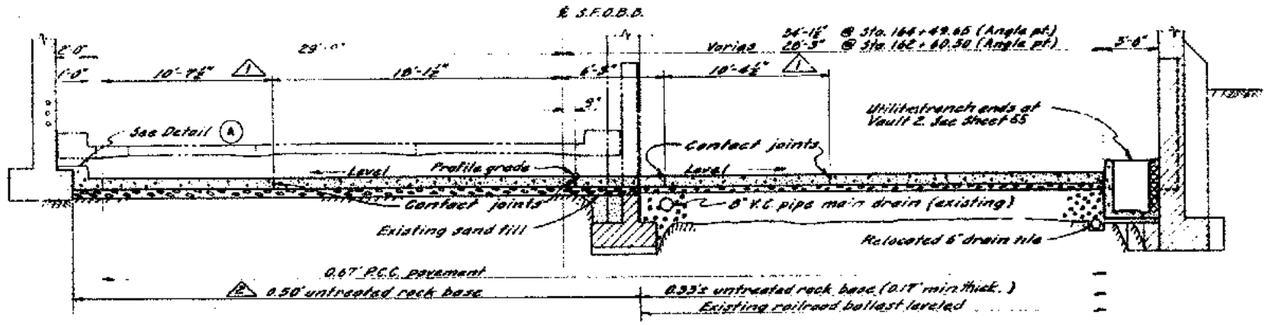


MARK	DATE	DESCRIPTION / REVISION	BY	CH'K.
1	6-1-64	As built without revision	ofc	SWZ

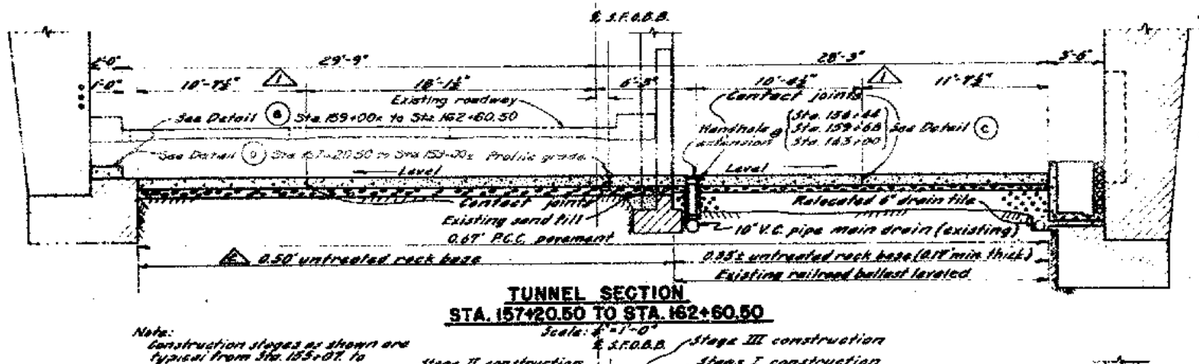
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
LOWER DECK ROADWAY — STA. 153 TO 154

SCALE AS SHOWN | BRIDGE 33-23 34-03 34-04 | SHEET No. 51 | DRAWING C-4029-51R

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960

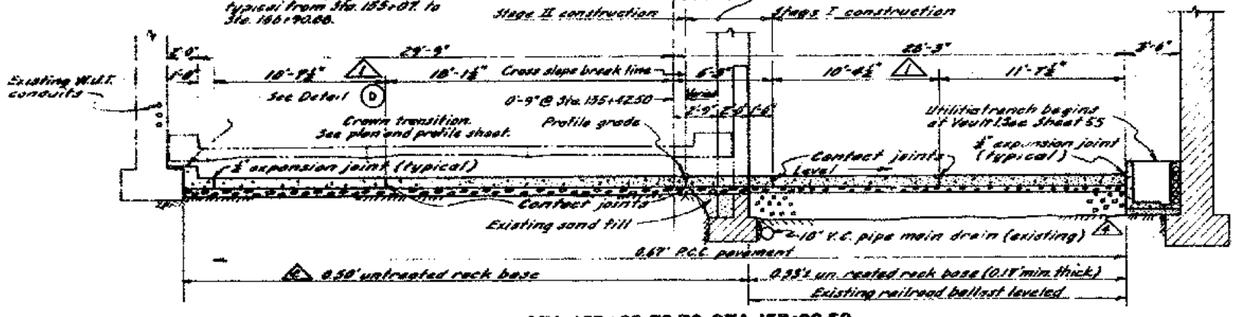


STA. 162+60.50 TO STA. 164+69.50
Scale: ¼"=1'-0"

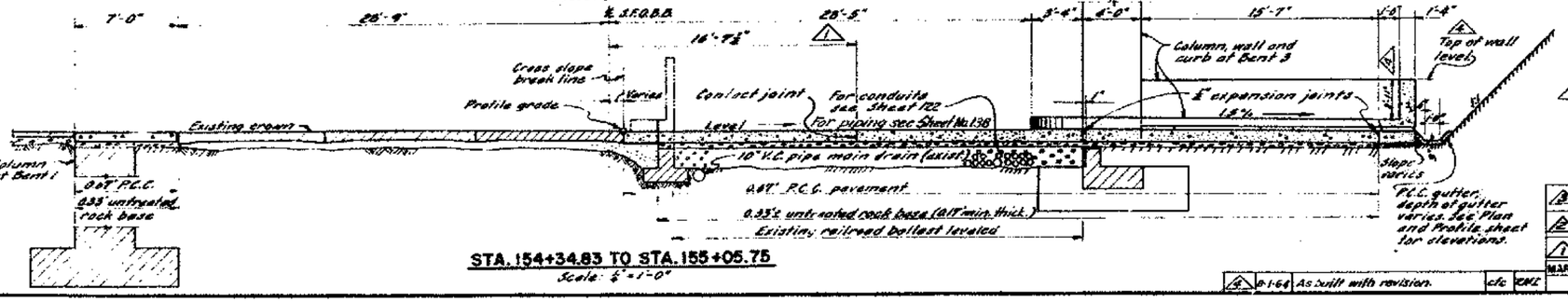


TUNNEL SECTION
STA. 157+20.50 TO STA. 162+60.50
Scale: ¼"=1'-0"

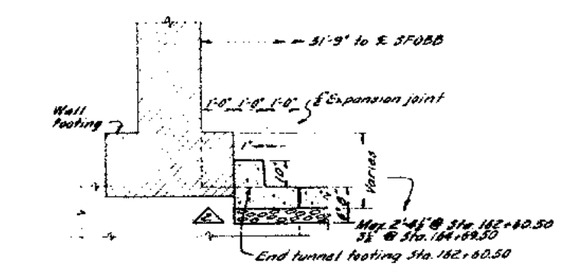
Note: Construction stages as shown are typical from Sta. 155+07. to Sta. 160+90.66.



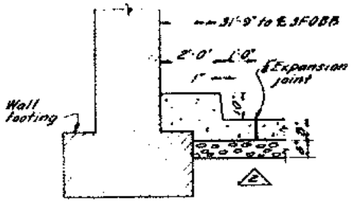
STA. 155+05.75 TO STA. 157+20.50
Scale: ¼"=1'-0"



STA. 154+34.83 TO STA. 155+05.75
Scale: ¼"=1'-0"

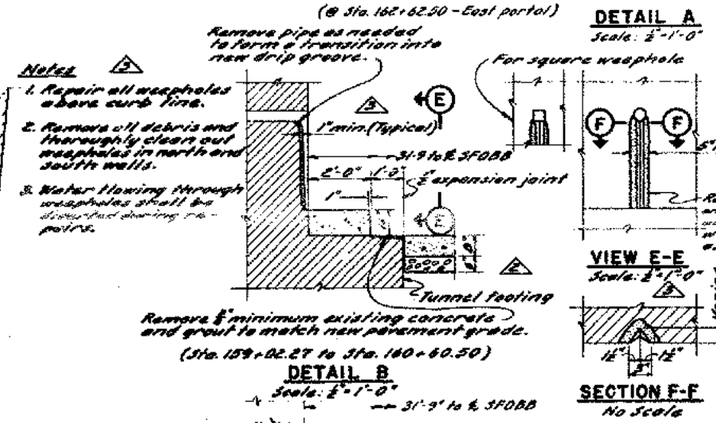


(@ Sta. 162+62.50 - East portal)

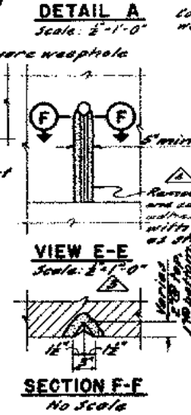


(@ Sta. 164+69.50)

DETAIL A
Scale: ½"=1'-0"

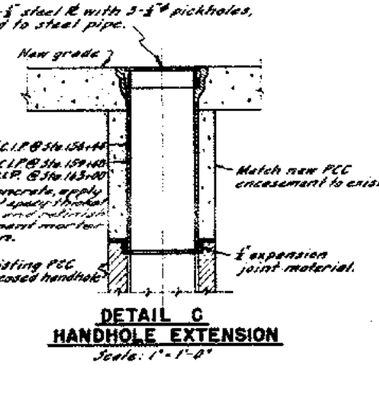


DETAIL B
Scale: ½"=1'-0"

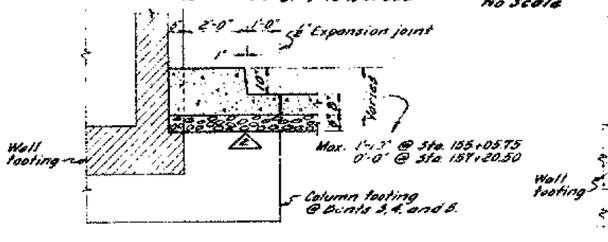


VIEW E-E
Scale: ½"=1'-0"

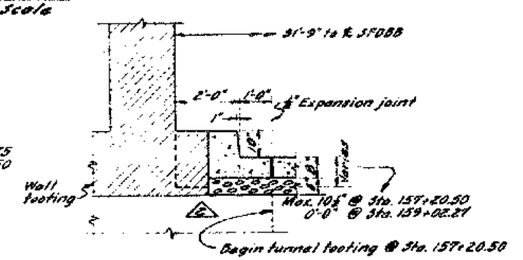
SECTION F-F
No Scale



DETAIL C
HANDHOLE EXTENSION
Scale: 1"=1'-0"

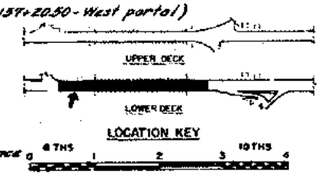


(@ Sta. 154+99.75)



(@ Sta. 157+20.50 - West portal)

DETAIL D
Scale: ½"=1'-0"



NOTES:

1. See notes on Sheet No. 51.
2. All pavement joints noted as contact joints shall be constructed in accordance with the detail on Sheet No. 114 titled "Longitudinal and Transverse Contact Joints for P.C.C. Pavement," except that a ¾" minimum projection of the bar north of joint ℄ will be allowed for the bent in the contact joint located 2'-3" south of ℄ S.F.O.B.B.

MARK	DATE	DESCRIPTION	BY	CH'K
4	4-25-62	Weephole repair details added.	F.J.C.	H.V.
3	6-14-61	Untreated rock base added at North roadway.	R.W.N.	B.W.C.
2	5-20-61	Pavement joints revised.	A.F.S.	A.M.C.
1	9-1-60	As built with revision.	C.F.C.	C.M.C.

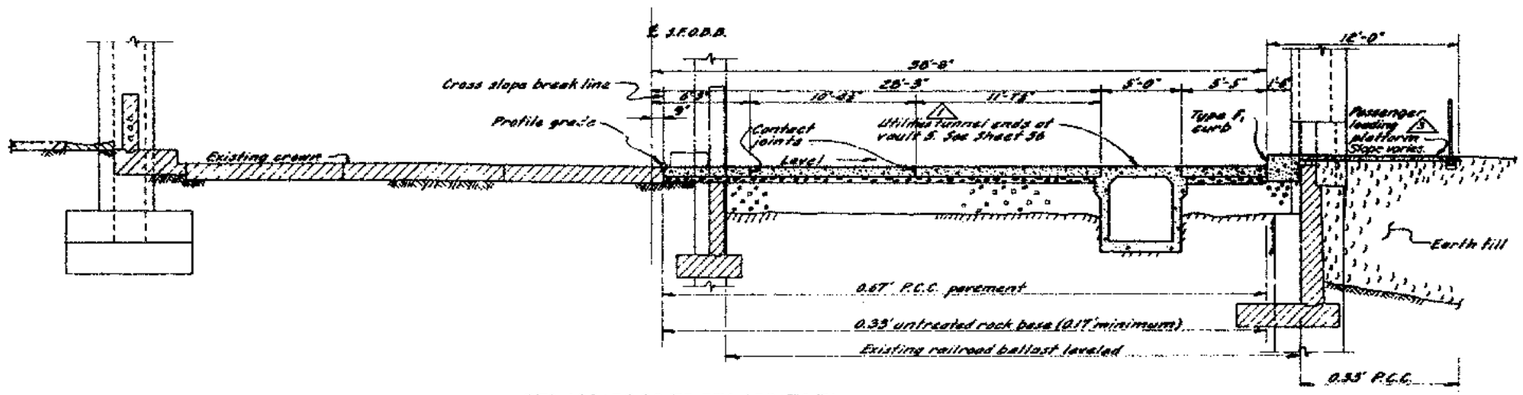
REVISION

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

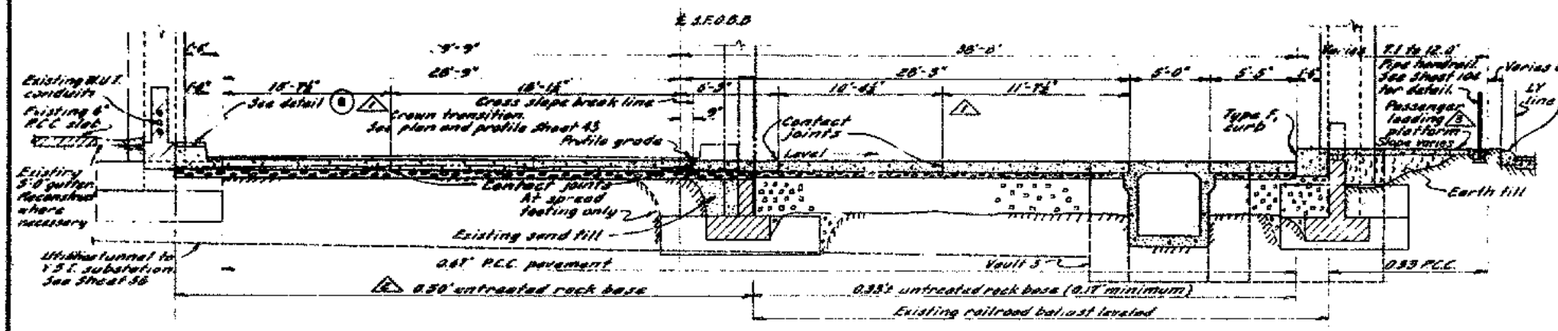
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
LOWER DECK ROADWAY - STA. 154 TO 165

SCALE AS SHOWN | BRIDGE 33-29, 34-03, 34-04 | SHEET NO. 52 | DRAWING C-4029-52R



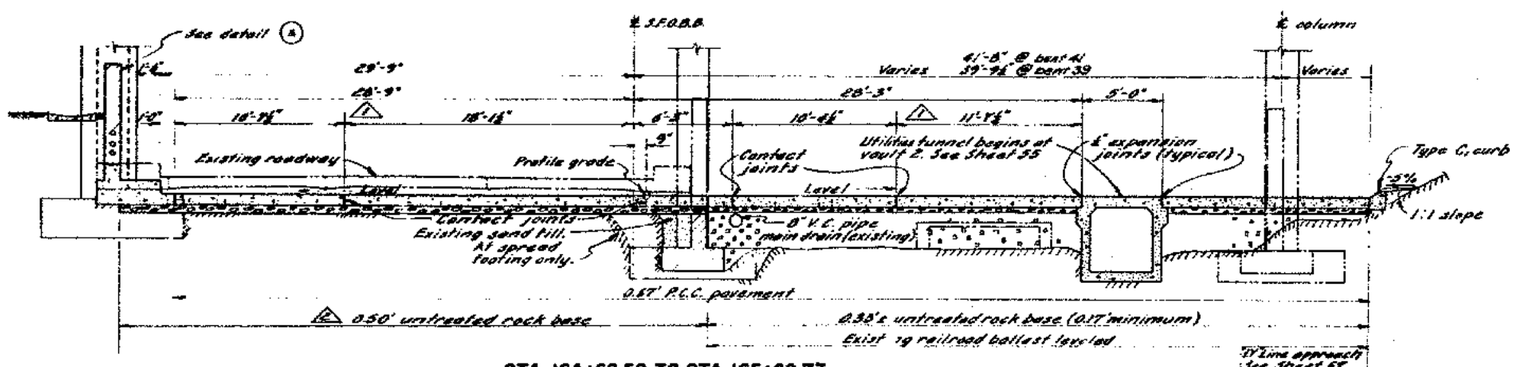
STA. 166+90.88 TO STA. 168+74.71

Scale: ¼"-1'-0"



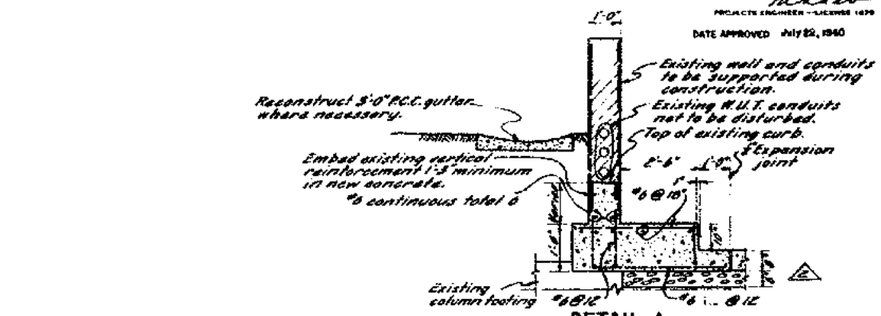
STA. 165+68.73 TO STA. 166+90.88

Scale: ¼"-1'-0"



STA. 164+69.50 TO STA. 165+68.73

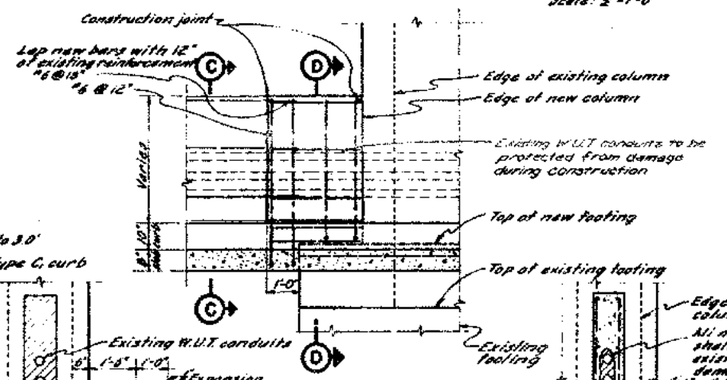
Scale: ¼"-1'-0"



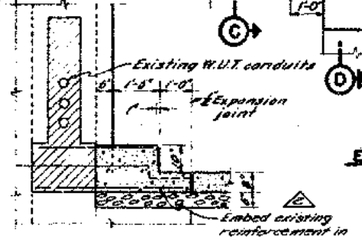
DETAIL A

△3 Sta. 164+76.30 to Sta. 165+99.50

Scale: ¼"-1'-0"

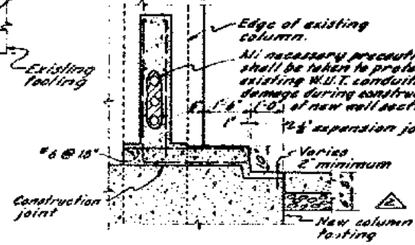


ELEVATION



SECTION C-C

△5 Sta. 165+99.50 to Sta. 166+33.83
Sta. 166+45.83 to Sta. 166+80.17



SECTION D-D

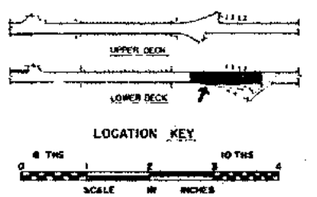
DETAIL B

Scale: ¼"-1'-0"

NOTES

1. See notes on Sheet No. 51.

△ 2. All pavement joints noted as contact joints shall be constructed in accordance with the detail on Sheet No. 114 titled "Longitudinal and Transverse Contact Joints for P.C.C. Pavement," except that a 6" minimum projection of tie bar north at joint ℄ will be allowed for tie bars in the contact joint located 6'-3" south of ℄ S.F.O.B.B.



SUPPLEMENTAL CONTRACT DRAWING

MARK	DATE	DESCRIPTION REVISION	BY	CH'K
△3	6-1-64	As built with revision.	c/c	BMC
△4	8-1941	Untreated rock base added at North roadway.	AWH	BMC
△5	2-1941	Pavement joints revised.	AFS	BMC

STATE OF CALIFORNIA — DEPARTMENT OF PUBLIC WORKS — DIVISION OF BRIDGES — SAN FRANCISCO-BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

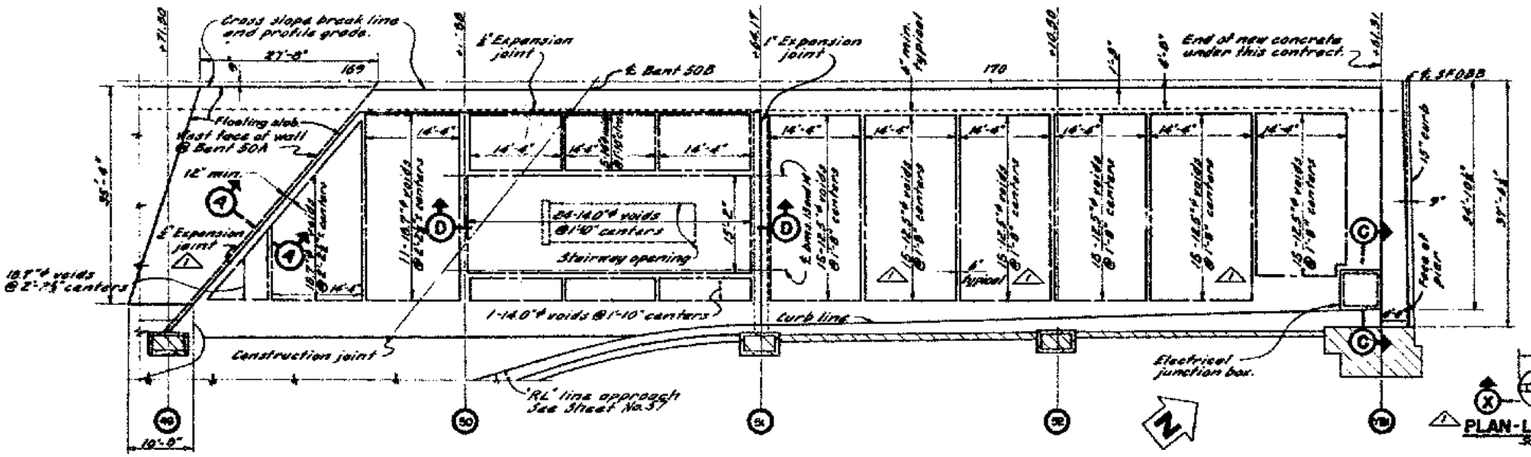
LOWER DECK ROADWAY – STA. 165 TO 169

SCALE AS SHOWN | BRIDGE 33-65 34-65 | SHEET NO 53 | DRAWING C-4028-53R

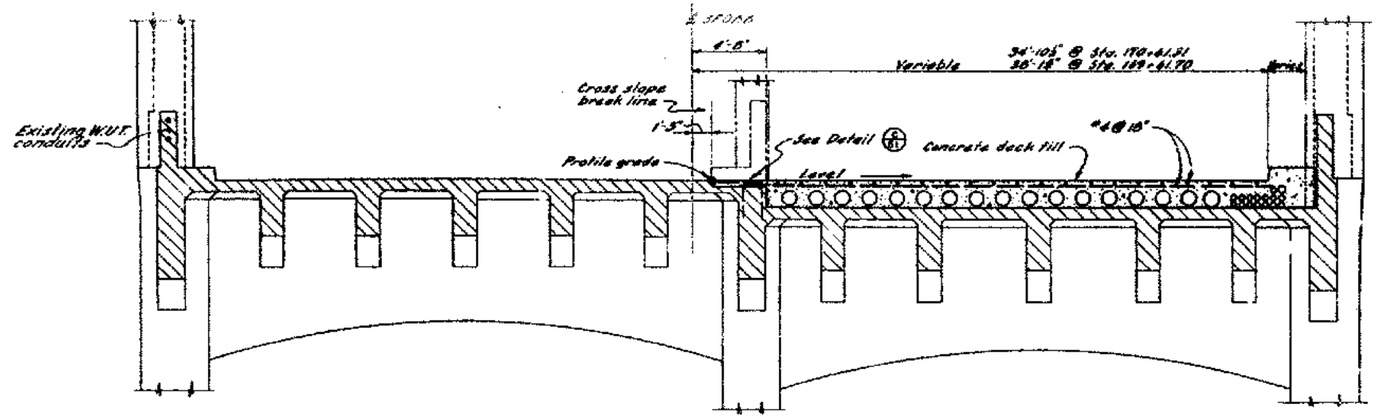
DETAILS AND DETAILS REVIEWED BY

PROJECTS ENGINEER LICENSE 1478

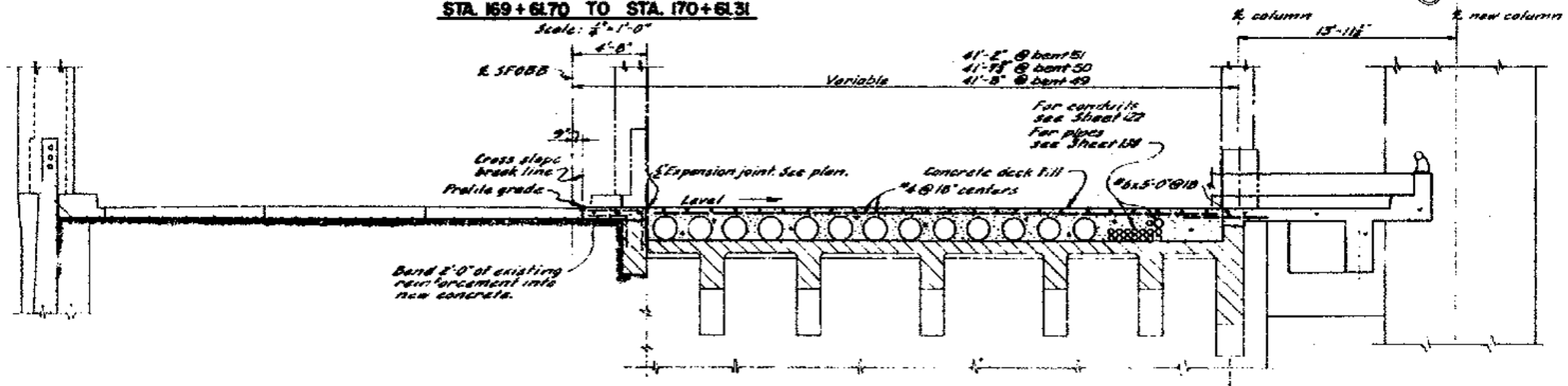
DATE APPROVED July 22, 1960



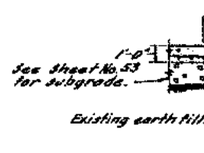
PART PLAN - BENT 49 TO PIER YB-1
Scale: 1"=10'-0"

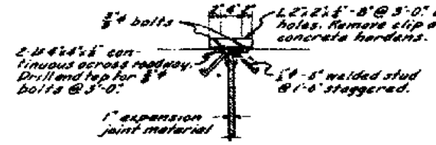


STA. 169+61.70 TO STA. 170+61.31
Scale: ½"=1'-0"



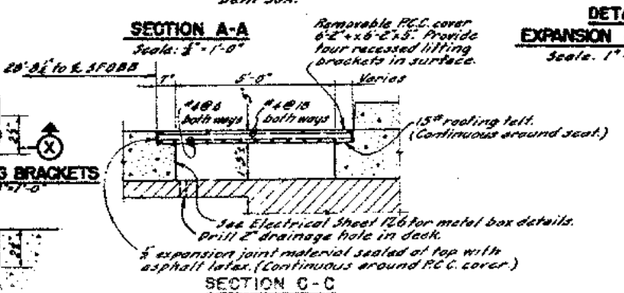
STA. 168+74.71 TO STA. 169+61.70
Scale: ½"=1'-0"



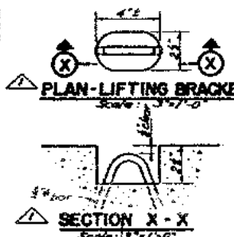


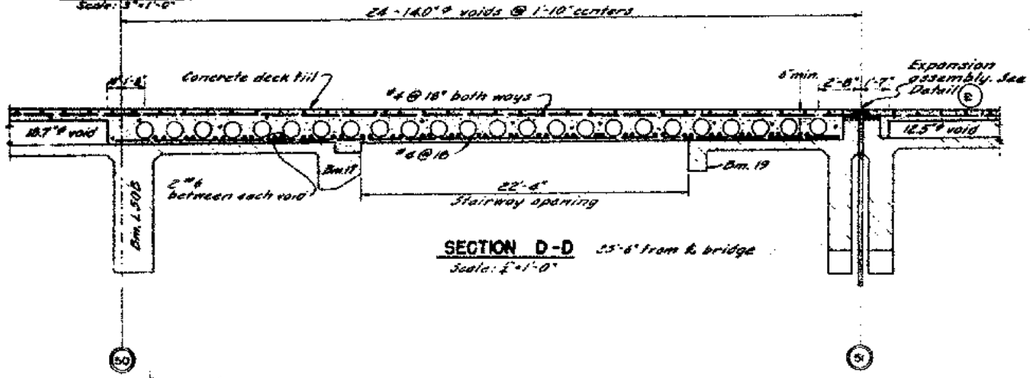
DETAIL B
EXPANSION ASSEMBLY
Scale: 1"=1'-0"

SECTION A-A
Scale: ½"=1'-0"



SECTION C-C
Scale: ½"=1'-0"





SECTION D-D 25'-6" from ℄ bridge
Scale: ½"=1'-0"

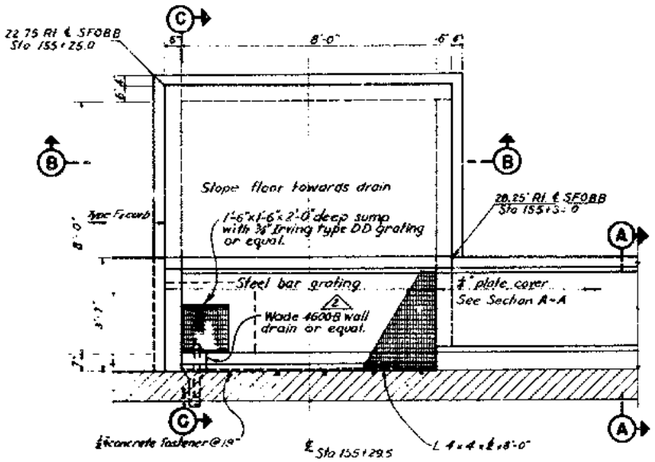
NOTES:
1. All voids parallel to ℄ S.F.O.B.B. except as shown near stairway opening. Plug ends of voids with mortar tight plugs. Voids shall be held firmly in position while placing concrete.
2. See notes on Sheet No. 51.

LOCATION KEY

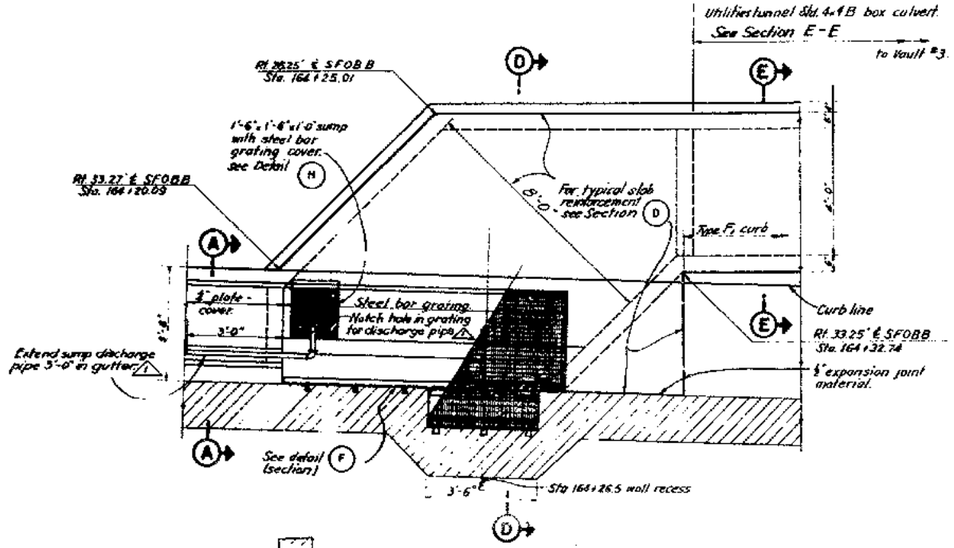
MARK	DATE	DESCRIPTION / REVISION	BY	CHK.
1	6-1-64	As built with revision.	cfc	BWL

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
LOWER DECK ROADWAY - STA 169 TO 171

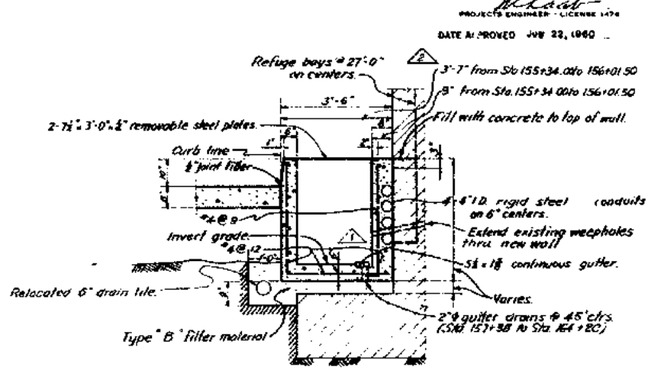
SCALE AS SHOWN | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 54 | DRAWING C-4029-54



PLAN VAULT 1 ⚠1

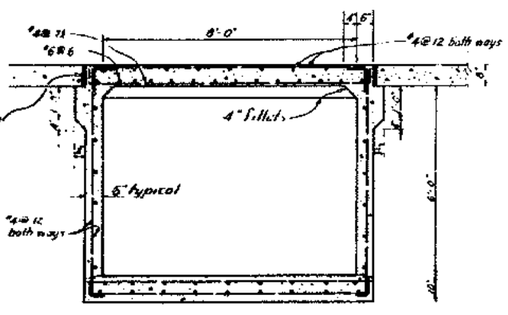


PLAN - VAULT 2

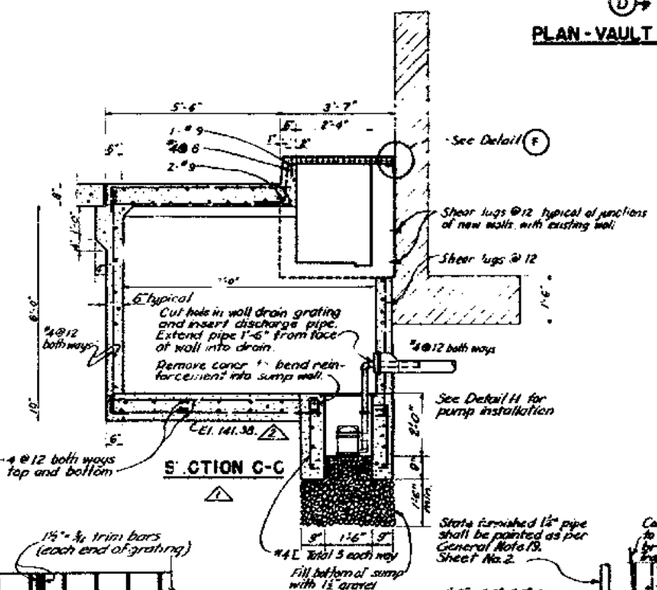


SECTION A-A
UTILITIES TRENCH

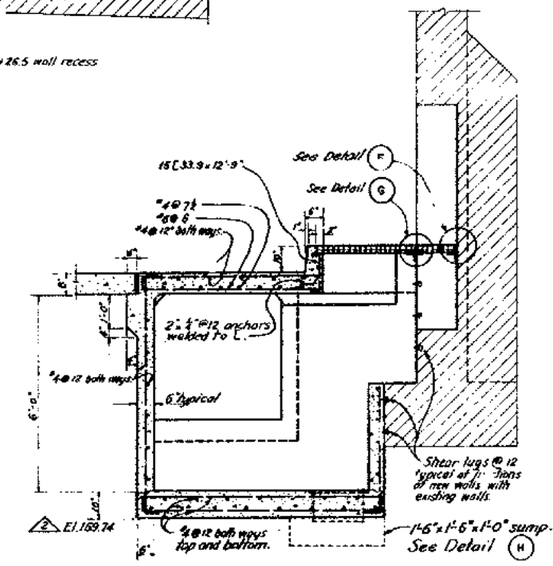
(Typical detail Sta. 155+34.00 to 164+20.09)



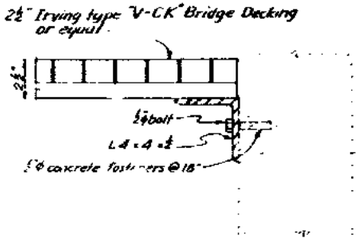
SECTION B-B



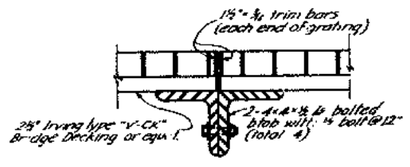
SECTION C-C ⚠1



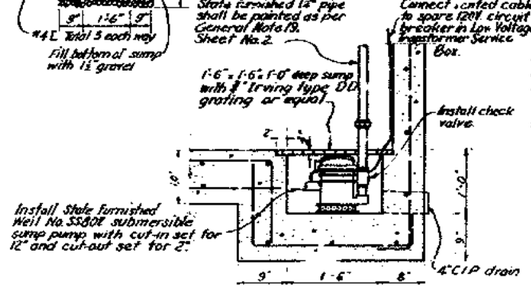
SECTION D-D



DETAIL F
Scale 3"=1'-0"



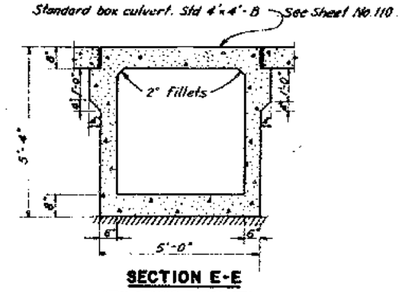
DETAIL G
Scale: 3"=1'-0"



DETAIL H ⚠1
Scale: 1"=1'-0"

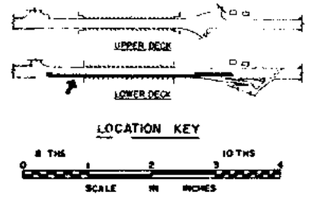
NOTES:

1. For lower deck roadway excavation and pavement see sheet Nos. 51 to 54
2. For structure excavation, see sheet No. 115.
3. For location of utilities see Sheet Nos. 125 and 140.
4. All grating sections to weigh a maximum of 150 lbs, so as to be removable by hand.
5. For alignment and grades of utilities tunnel and utilities trench, see Plan and profile sheets.



SECTION E-E
UTILITIES TUNNEL

(Typical detail Sta. 164+32.74 to 166+22.00
Sta. 166+32.00 to 168+45.50) ⚠2



SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

STRUCTURAL DETAILS - VAULTS 1 AND 2

MARK	DATE	DESCRIPTION	BY	CH'K
		REVISION		
⚠2	6-1-64	As built with revision.	eft	JWD
⚠1	3-1-61	Added sump in Vault 1 & Pumps in Vaults 1 and 2	R.C.	JL

UNLESS NOTED
SCALE 1/2"=1'-0"
BRIDGE 33-25 34-03 34-04
SHEET No. 55
DRAWING C-4029-556

NOTES

1. See notes on Sheet No. 55

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

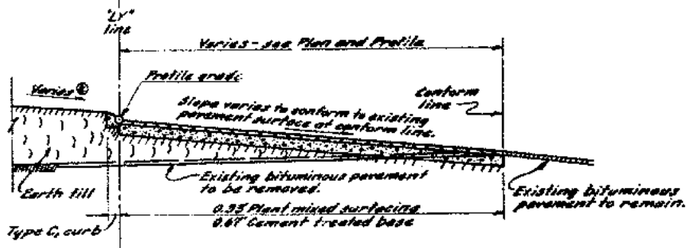
SAN FRAN JISCO - OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

STRUCTURAL DETAILS - VAULTS 3,4 AND 5

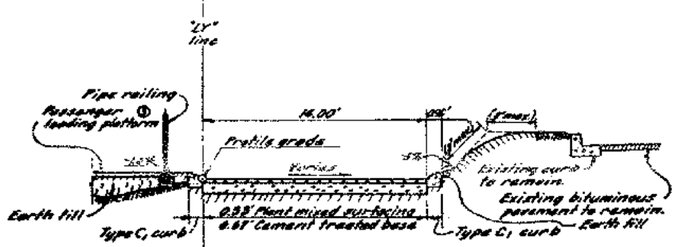
MARK	DATE	DESCRIPTION	BY	CHK
2	6-L-64	As built with revisions	J.L.S.	
1	2-21-62	Added pump in sump of vault 3	R.C.	J.S.

REVISION

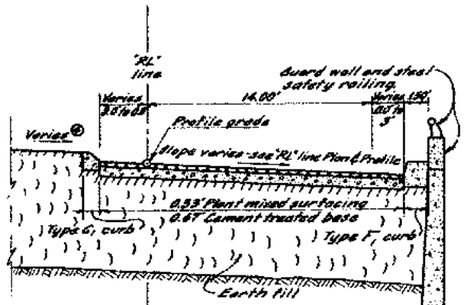
UNLESS NOTED SCALE 1/2" = 1'-0" | BRIDGE 33-25, 34-03, 34-04 | SHEET No 56 | DRAWING C-4029-56R



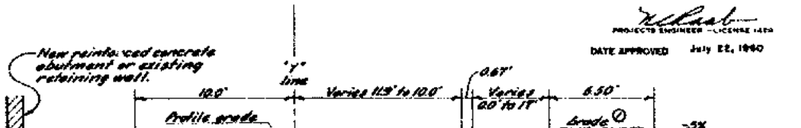
"LY" STA. 166+91 TO "LY" STA. 168+16



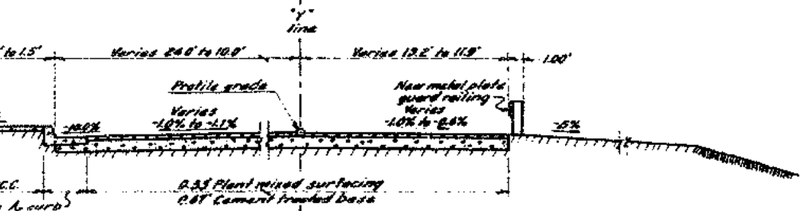
"LY" STA. 166+39 TO "LY" STA. 166+91



"RL" STA. 167+23 TO "RL" STA. 168+48

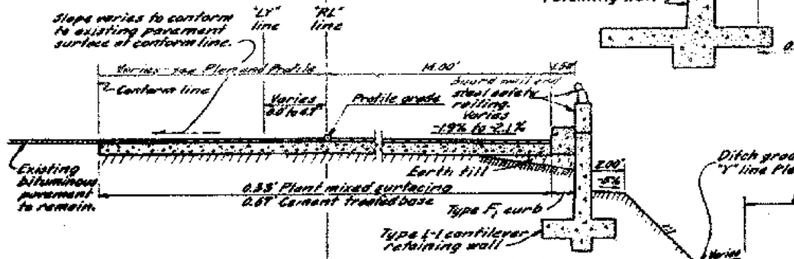


"Y" STA. 3+38 TO "Y" STA. 4+16



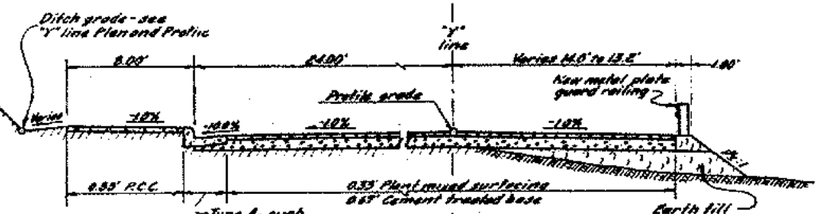
"Y" STA. 2+76 TO "Y" STA. 3+38
ON LEFT

"Y" STA. 3+05 TO "Y" STA. 3+38
ON RIGHT



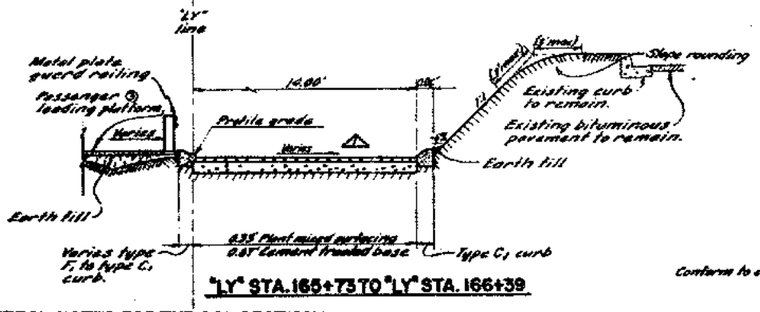
"RL" STA. 166+58 TO "RL" STA. 167+23
ON LEFT

"RL" STA. 167+15 TO "RL" STA. 167+23
ON RIGHT

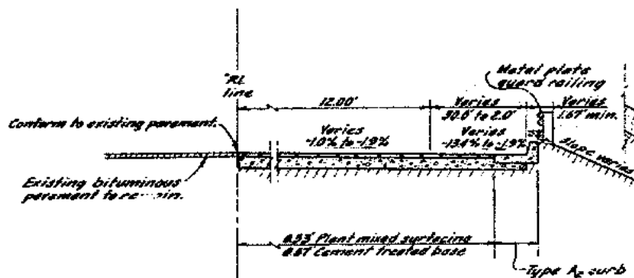


"Y" STA. 2+32 TO "Y" STA. 2+76
ON LEFT

"Y" STA. 2+32 TO "Y" STA. 3+05
ON RIGHT

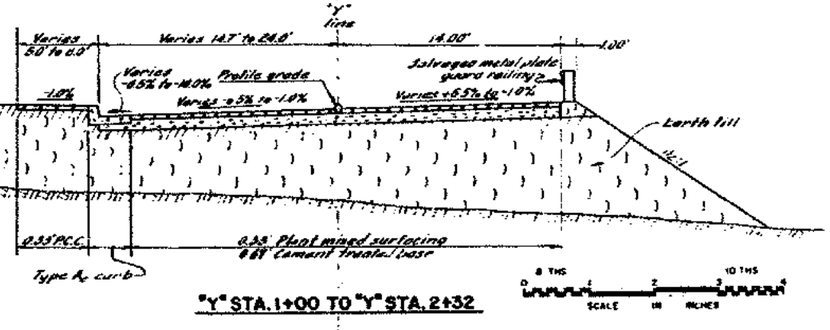


"LY" STA. 165+73 TO "LY" STA. 166+39



"RL" STA. 166+10 TO "RL" STA. 166+58
ON LEFT

"RL" STA. 165+99 TO "RL" STA. 167+15
ON RIGHT



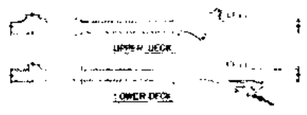
"Y" STA. 1+00 TO "Y" STA. 2+32

GENERAL NOTES FOR TYPICAL SECTIONS

1. Range of stations shown on each section are for general location purpose only.
2. All cement treated base shall be Class A.
3. Details of metal plate bridge railing are shown on Sheet No. 106.
4. Details of metal plate guard railing are shown on Sheet No. 114.
5. Details of pipe railing are shown on Sheet No. 104.
6. "RL" line section are drawn at right angles to the "RL" line. "Y" line sections are drawn at right angles to the "Y" line.

NOTES

① Grade lines are given as elevations on the plan view of the Plan and Profile Sheets.
② Area left of "LY" line curb and left of "RL" line curb shall be properly graded to match the right edge of passenger loading platform.
③ For dimensions of passenger loading platform See Plan and Profile sheets and Sheet Nos. 93, 94, 103.



LOCATION KEY

PROJECT ENGINEER — LICENSE NO.

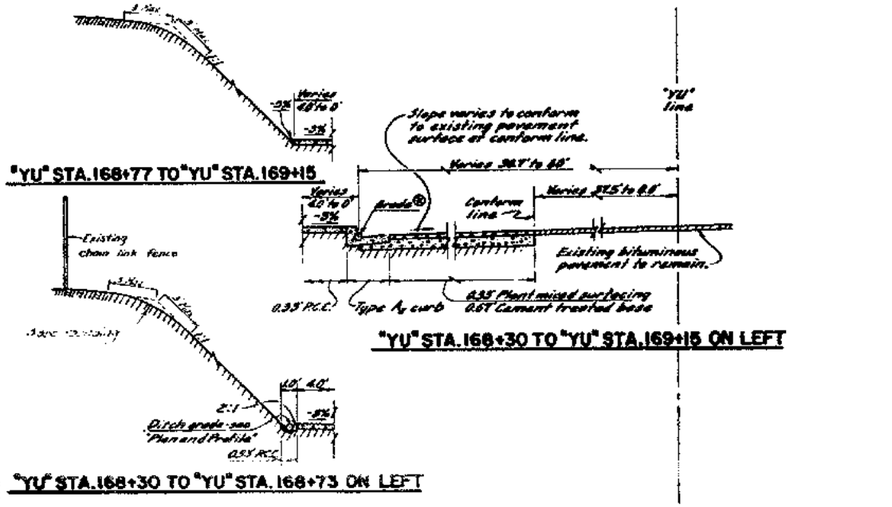
DATE APPROVED July 22, 1960

MARK	DATE	DESCRIPTION	BY	CH'K
		REVISION		
1	6-1-60	As built with revision	J.S.S.	DMC

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

TYPICAL SECTIONS - "LY", "RL" AND "Y" LINES

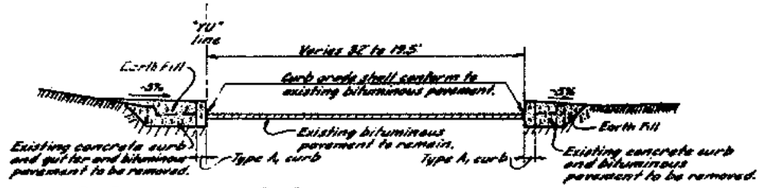
SCALE 3/4"=1'-0" | BRIDGE 33-25, 34-03, 34-04 | SHEET NO. 57 | DRAWING 64029-57R



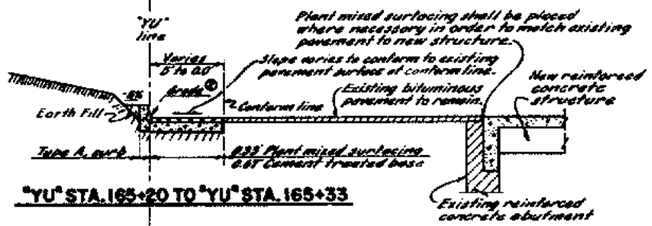
"YU" STA. 168+77 TO "YU" STA. 169+15

"YU" STA. 168+30 TO "YU" STA. 169+15 ON LEFT

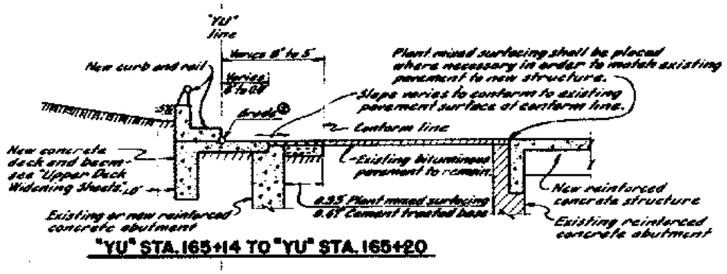
"YU" STA. 168+30 TO "YU" STA. 168+73 ON LEFT



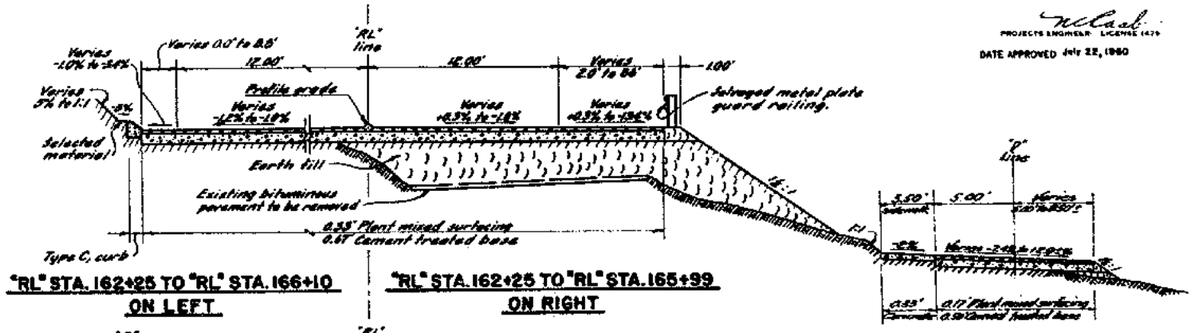
"YU" STA. 165+33 TO "YU" STA. 165+92



"YU" STA. 165+20 TO "YU" STA. 165+33



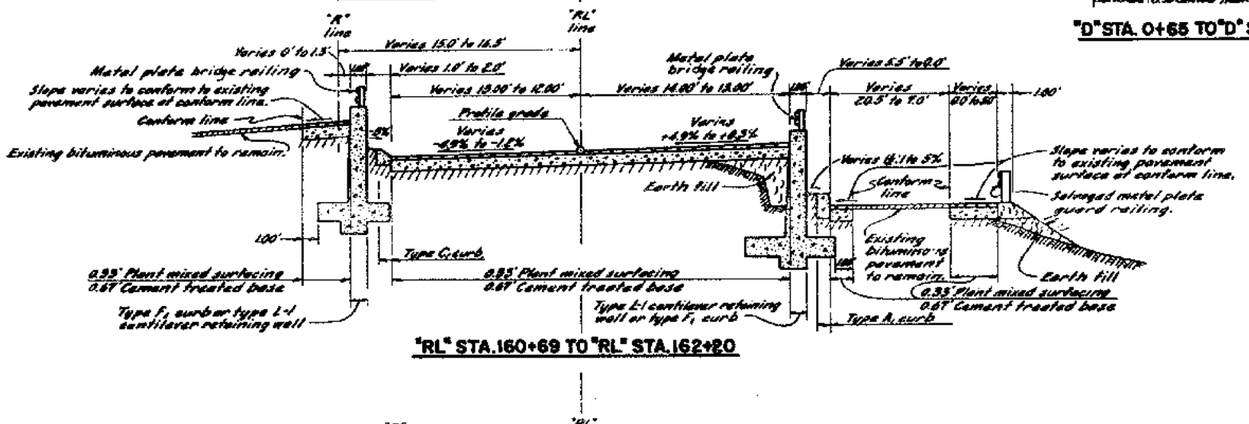
"YU" STA. 165+14 TO "YU" STA. 165+20



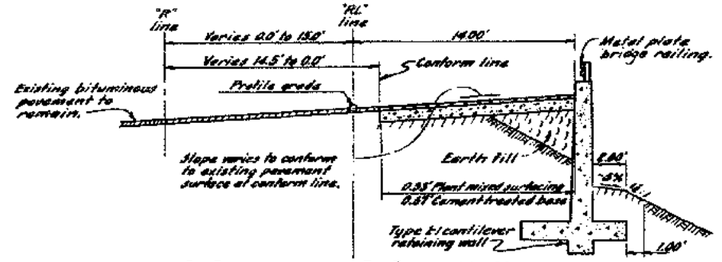
"RL" STA. 162+25 TO "RL" STA. 166+10 ON LEFT

"RL" STA. 162+25 TO "RL" STA. 165+99 ON RIGHT

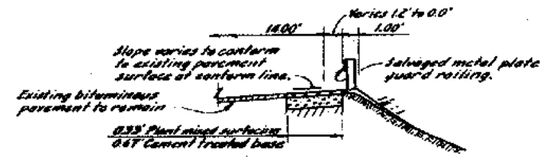
"D" STA. 0+65 TO "D" STA. 0+00



"RL" STA. 160+69 TO "RL" STA. 162+20



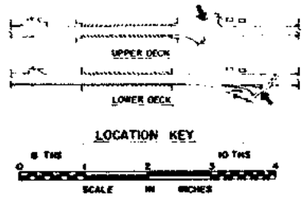
"RL" STA. 159+90 TO "RL" STA. 160+69



"RL" STA. 159+12 TO "RL" STA. 159+90 ON RIGHT

NOTES

1. Range of stations shown on each section are for general location purposes only.
2. Grade lines are given as elevations on the plan view of the "Plan and Profile" sheets.



PROJECTS ENGINEER LICENSE 1479

DATE APPROVED July 22, 1960

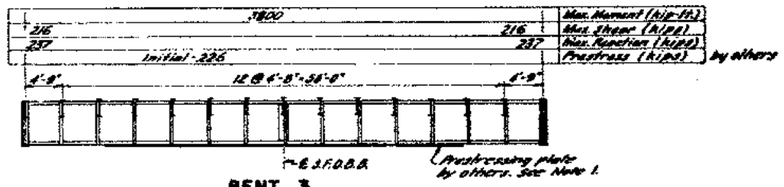
DIVISION OF SAN FRANCISCO-BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
TYPICAL SECTIONS - "YU" AND "RL" LINES

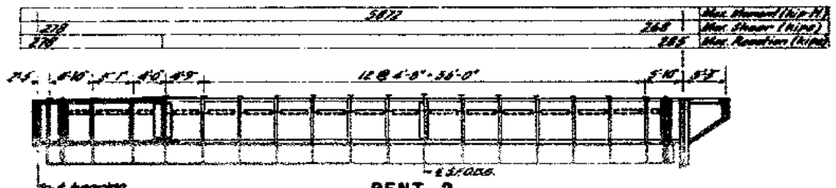
MARK	DATE	DESCRIPTION / REVISION	BY	CH'K
1	4/64	As built without revisions	L.L.S.	BMC

SCALE: 1" = 4'-0" | BRIDGE 33-25 34-03 34-04 | SHEET NO 58 | DRAWING C-4029-58R

PROJECTS ENGINEER - LICENSE 1474
DATE APPROVED July 22, 1960

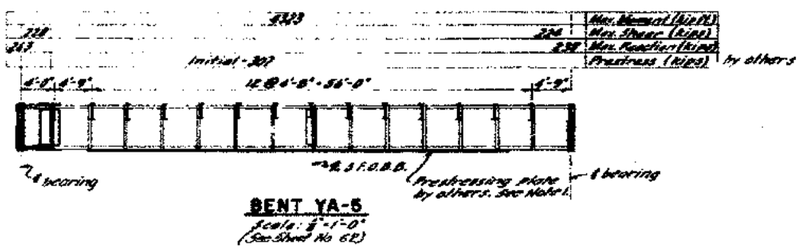


BENT 3
Scale: $\frac{3}{8}$"-1'-0"
(See Sheet No. 65)

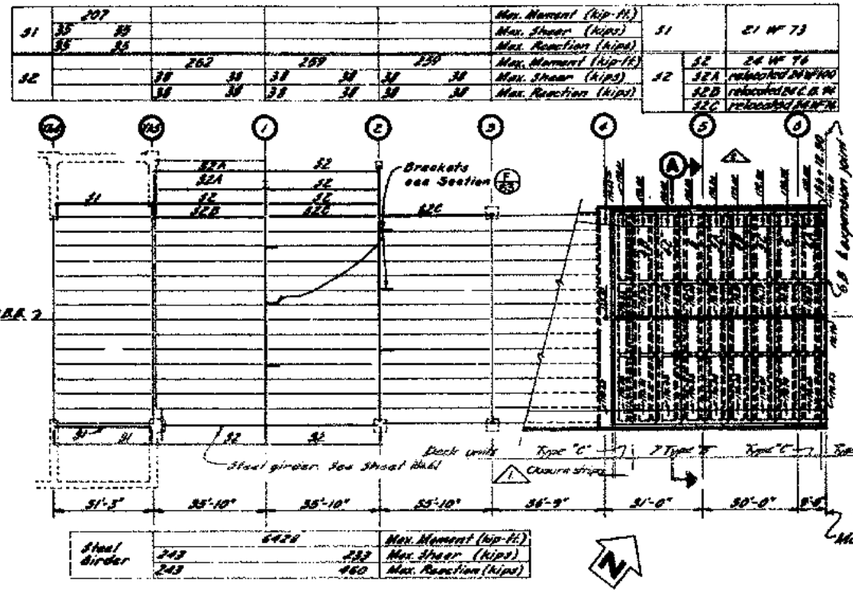


BENT 2
Scale: $\frac{3}{8}$"-1'-0"
(See Sheet No. 64)

BENT 1
Scale: $\frac{3}{8}$"-1'-0"
(See Sheet No. 63)



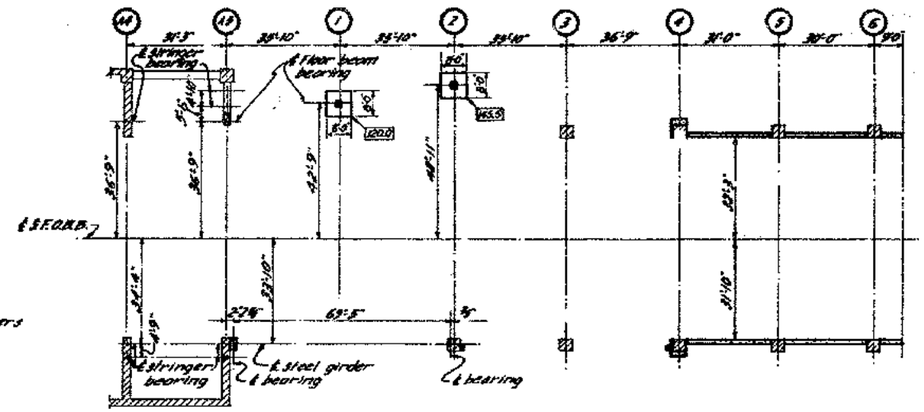
BENT YA-5
Scale: $\frac{3}{8}$"-1'-0"
(See Sheet No 62)



Deck Unit No.	Length	Deck Unit No.	Length
4A thru 6	32'-9"	4A thru 6	32'-4"
6A and 6B	32'-3"	Keed 6B	32'-3"

SECTION A-A
scale: $\frac{3}{8}$"-1'-0"

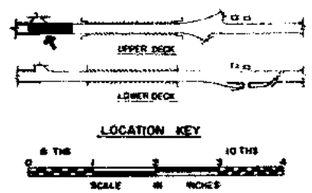
FRAMING PLAN
Scale: 1"-20'-0"



SUPPORT PLAN
Scale: 1"-20'

NOTES

1. Prestressing plates on floor beams YA-5 and 3 will be furnished and installed under Contract 4029 before other modifications to floor beams YA-5, 2 and 3 are begun. The 4029 Contractor shall notify the Engineer sufficiently in advance of the estimated starting date of his modification operations so that the erection of the prestressing plates can be completed.
2. See Sheet Nos. 72, 73 and 74 for Tunnel Deck Units.
3. See Sheet No. 68 for Floor beam Bent 4.
4. See Sheet Nos 66 and 67 for deck slab reinforcement.



SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

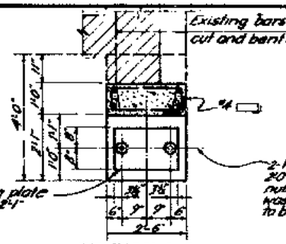
STRUCTURE PLAN AND SECTIONS-WEST VIADUCT

MARK	DATE	DESCRIPTION / REVISION	BY	CHK.
4	6-1-62	As built with revisions	LLS	EMT
3	8-7-62	Revise type C unit and add closure strip.	JKK	CS

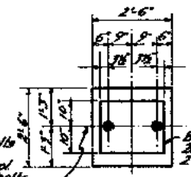
SCALE AS SHOWN | BRIDGE 33-25, 34-03, 34-04 | SHEET NO 59 | DRAWING C4029-59-R

PROJECTS ENGINEER — LICENSE 1479

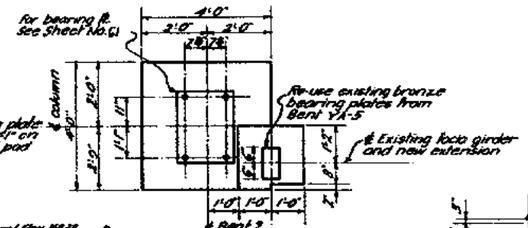
DATE APPROVED July 22, 1960



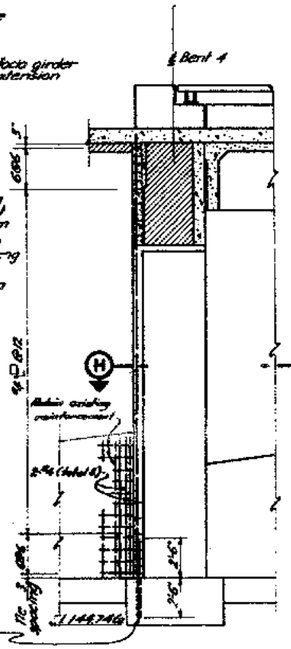
SECTION A-A
Scale: 1½"=1'-0"



PLAN B-B
Scale: ½"=1'-0"

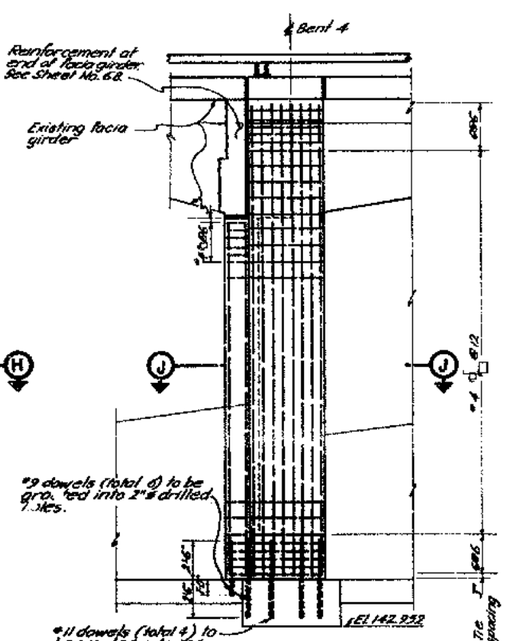


SECTION C-C
Scale: ½"=1'-0"

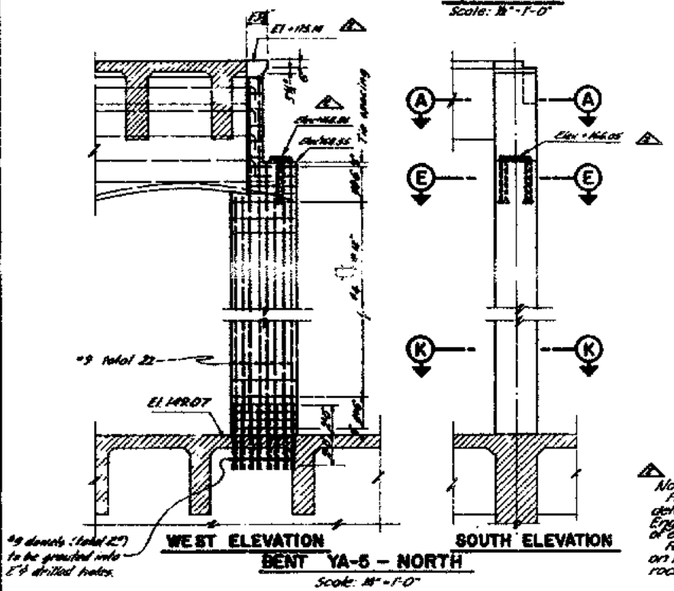


SOUTH ELEVATION
BENT 2 - SOUTH
Scale: ½"=1'-0"

SOUTH ELEVATION
BENT 4 - NORTH
Scale: ½"=1'-0"

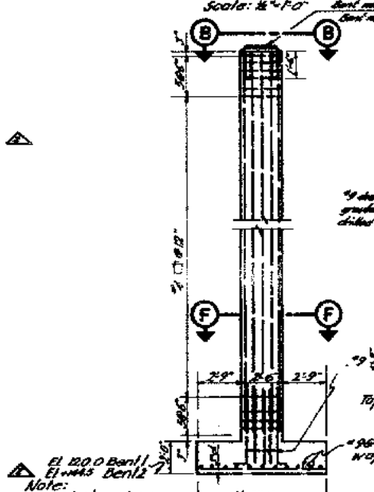


SOUTH ELEVATION
BENT 4 - SOUTH
Scale: ½"=1'-0"

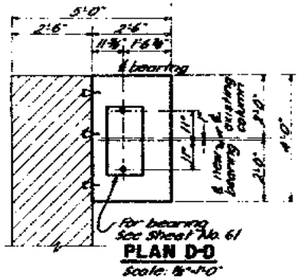


WEST ELEVATION
BENT YA-5 - NORTH
Scale: ½"=1'-0"

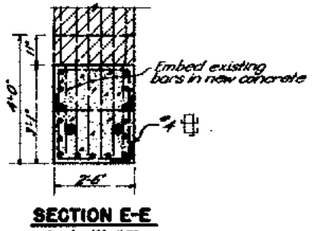
SOUTH ELEVATION
Scale: ½"=1'-0"



SOUTH ELEVATION
BENT 1 AND 2 - NORTH
Scale: 1"=1'-0"

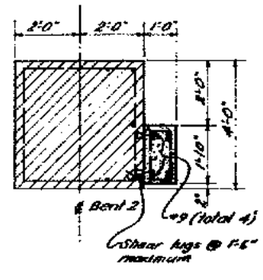


PLAN D-D
Scale: ½"=1'-0"

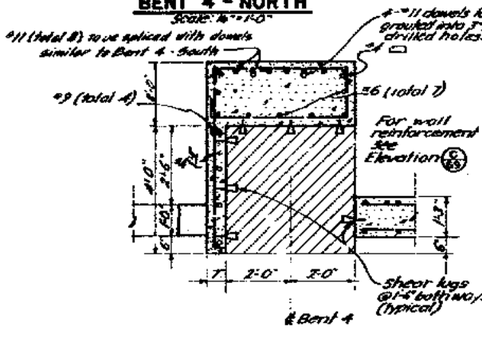


SECTION E-E
Scale: ½"=1'-0"

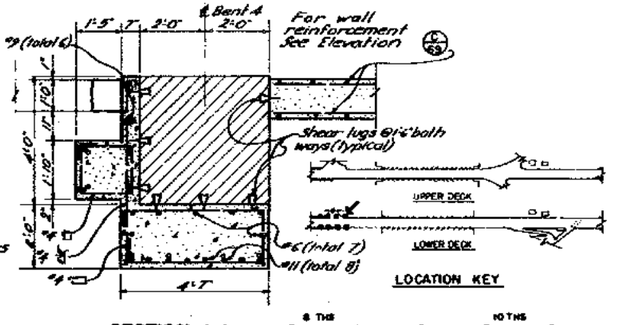
SECTION F-F
Scale: ½"=1'-0"



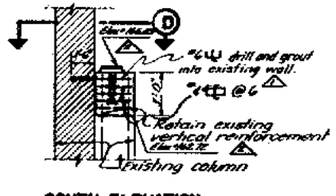
SECTION G-G
Scale: ½"=1'-0"



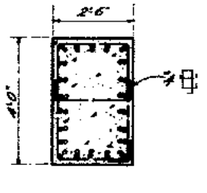
SECTION H-H
Scale: ½"=1'-0"



SECTION J-J
Scale: ½"=1'-0"



SOUTH ELEVATION
BENT YA 5 - SOUTH
Scale: ½"=1'-0"



SECTION K-K
Scale: ½"=1'-0"

MARK	DATE	REVISION	BY	CH'K.
2	6-1-60	As built with revisions	CLS	EWC
1	10-11-60	Tiles added to top of Bent YA-5, south	CB	PC

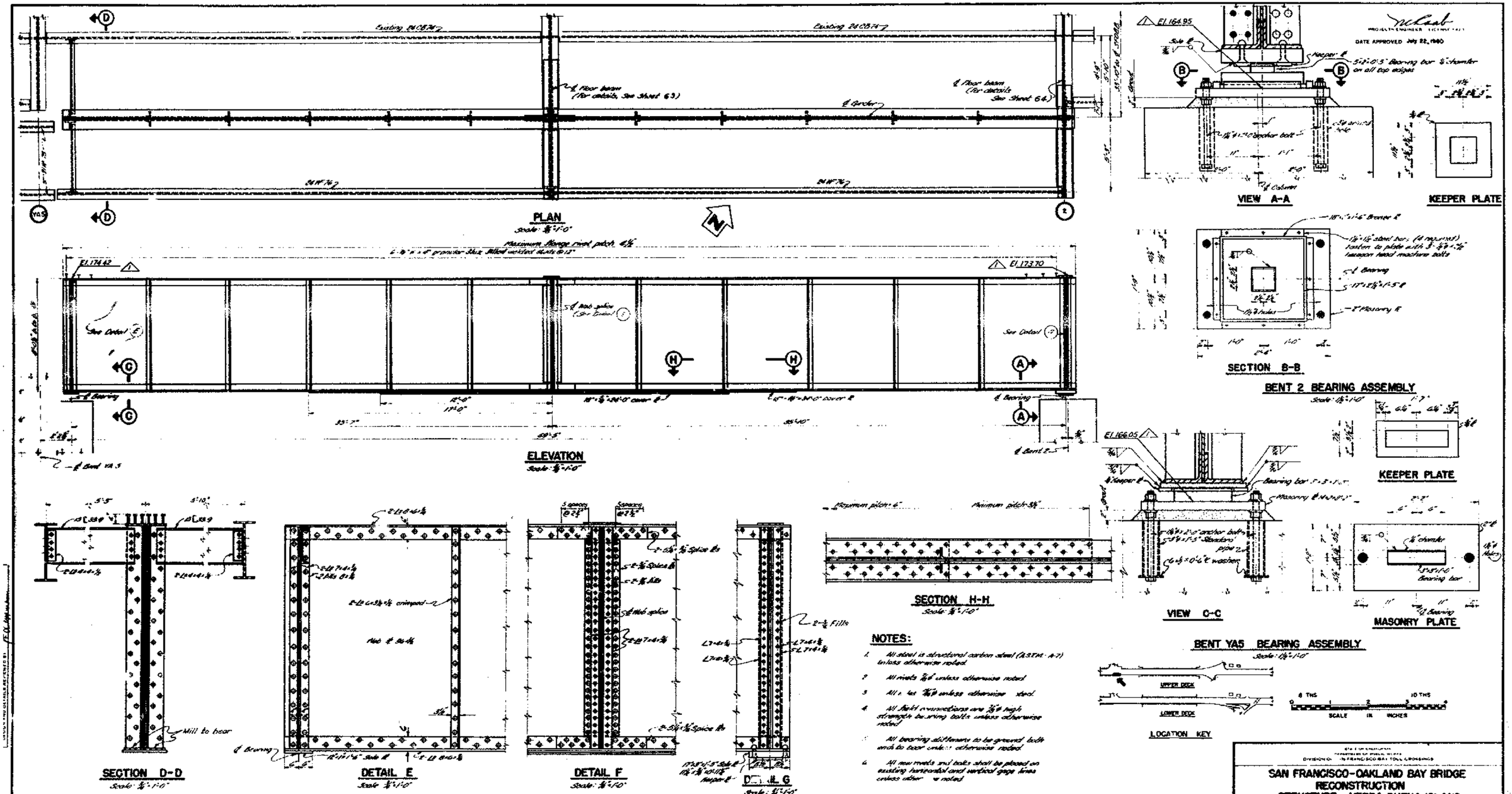
SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

COLUMNS-WEST VIADUCT

SCALE AS SHOWN | BRIDGE 33-25 / 34-03 / 34-04 | SHEET No. 60 | DRAWING C-4029-60R



NOTES:

1. All steel is structural carbon steel (A.S.T.M. A-7) unless otherwise noted.
2. All rivets 7/8" ϕ unless otherwise noted.
3. All [illegible] unless otherwise noted.
4. All field connections are 7/8" ϕ high strength bearing bolts unless otherwise noted.
5. All bearing stiffeners to be ground both ends to bear unless otherwise noted.
6. All new rivets and bolts shall be placed on existing horizontal and vertical gage lines unless otherwise noted.

MARK	DATE	DESCRIPTION	BY	CHK.
1	6-1-64	As built with revision.	cfc	BMC

REVISION

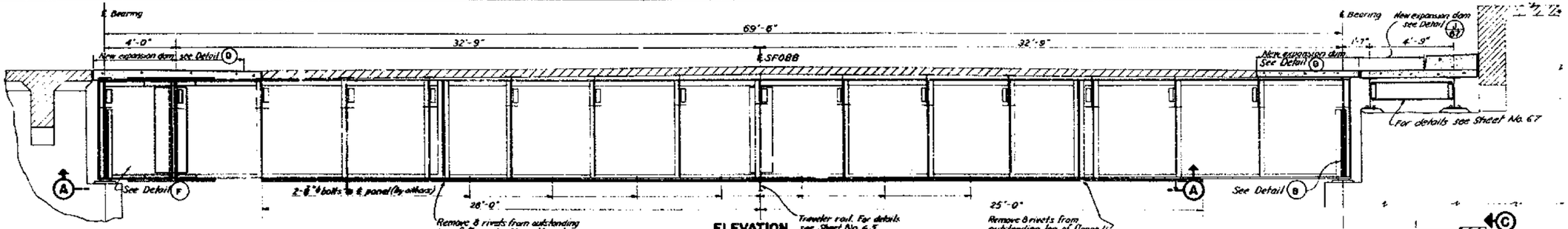
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

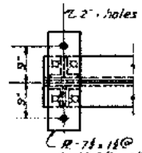
STEEL GIRDER - BENT YA-5 TO BENT 2

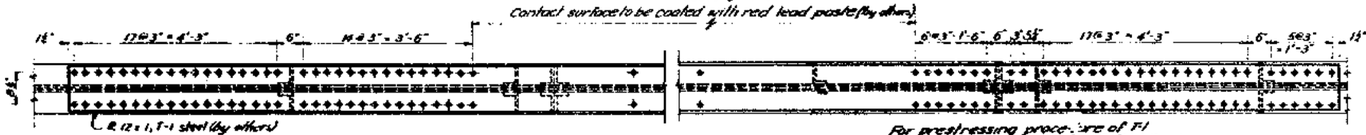
SCALE AS SHOWN | BRIDGE 33-25 34-03 34-04 | SHEET NO 61 | DRAWING C-4029-61R

M. Cash
PROJECTS ENGINEER -LICENSE 1476
DATE APPROVED July 22, 1960



ELEVATION
Scale ⅛"=1'-0"

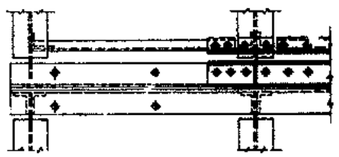


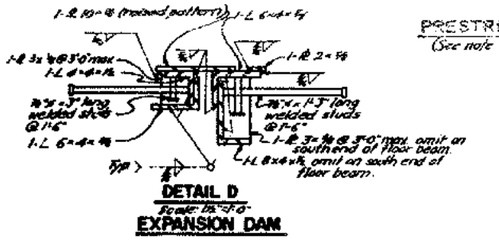


VIEW A-A

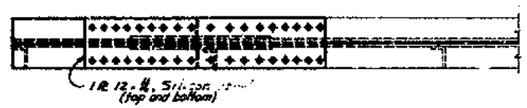
PRESTRESSING PLATE (by others)
(See note Sheet No. 39)

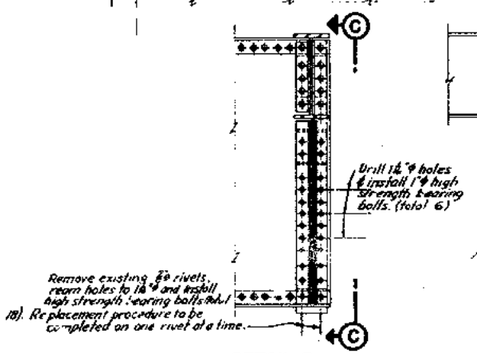
For prestressing procedure of PL shoe plate, see Sheet No. 65 (by others)



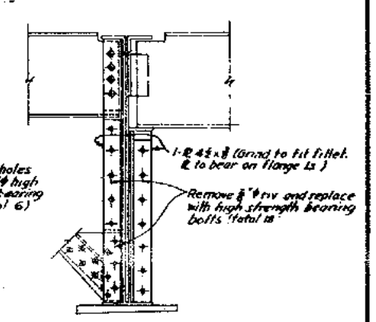


DETAIL D
Scale ½"=1'-0"
EXPANSION DAM



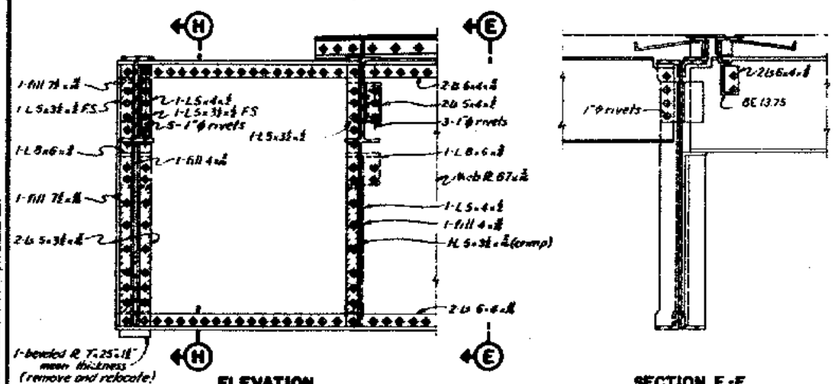


DETAIL B



VIEW C-C

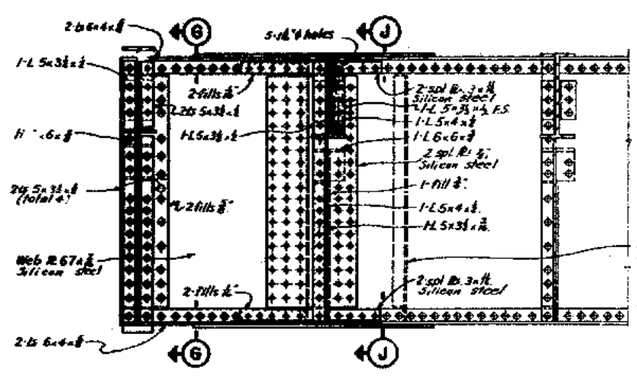
SOUTH BEARING



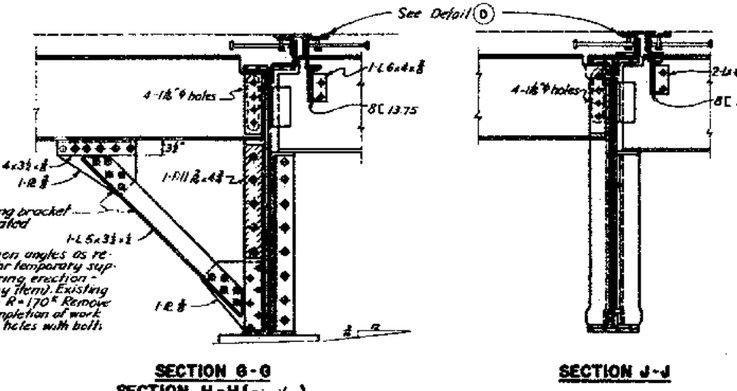
ELEVATION

SECTION E-E

EXISTING FLOOR BEAM DETAILS



DETAIL F



SECTION G-G
SECTION H-H (similar)

SECTION J-J

FLOOR BEAM SPLICE AND NORTH EXTENSION

NOTES
1. For notes see Sheet No. 61

LOCATION KEY

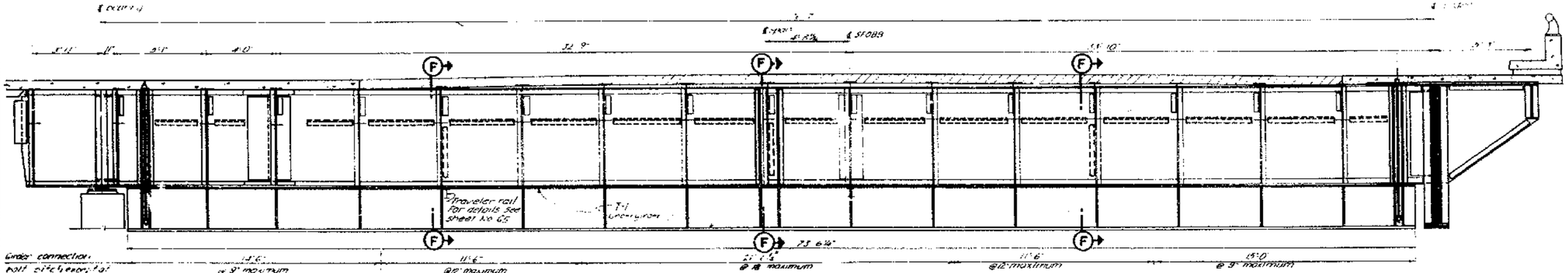
MARK	DATE	DESCRIPTION REVISION	BY	CH'K.
1	6-1-64	As built without revision	cfc	GWZ

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
FLOOR BEAM - BENT YA-5

UNLESS NOTED SCALE 3/4"=1'-0" | BRIDGE 33-55, 54-05, 54-04 | SHEET No. 62 | DRAWING C-4029-62

DATE APPROVED JULY 22, 1960

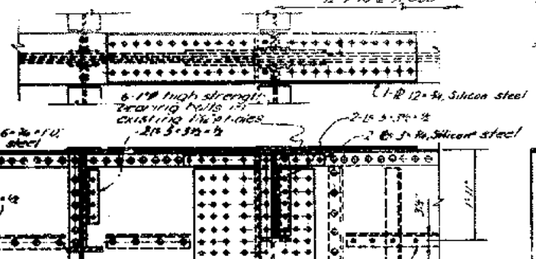


ERECTION NOTES

1. Place new footing and column on the north side of pier. Beam 2 Shore East beam near existing bearings. Avoid shoring removal working at each end simultaneously.
3. Erect new span 3 (see name plate on side of box beam).
4. Splice extensions to the north end of the East and West girders and the girder on the south side of the pier beam. Attach new longitudinal and bearing stiffeners.
5. Drill flange holes at the center and ends of existing floor beam as required for prestressing operations (note slotted holes at ends).
6. Erect new cross girder and make center connection to bottom flange of the existing floor beam.
7. Provide flange guides spaced at 6'-0 maximum to stay the compression flange of the cross girder during prestressing operations and prior to final placement of bolts.
8. Tension prestressing bars at both ends and on both flanges simultaneously.
9. Drill holes in bottom flange of existing floor beam and install ¾" high strength bearing bolts.
10. Remove shoring.

ELEVATION

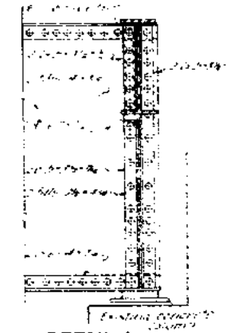
Scale ¾"=1'-0"

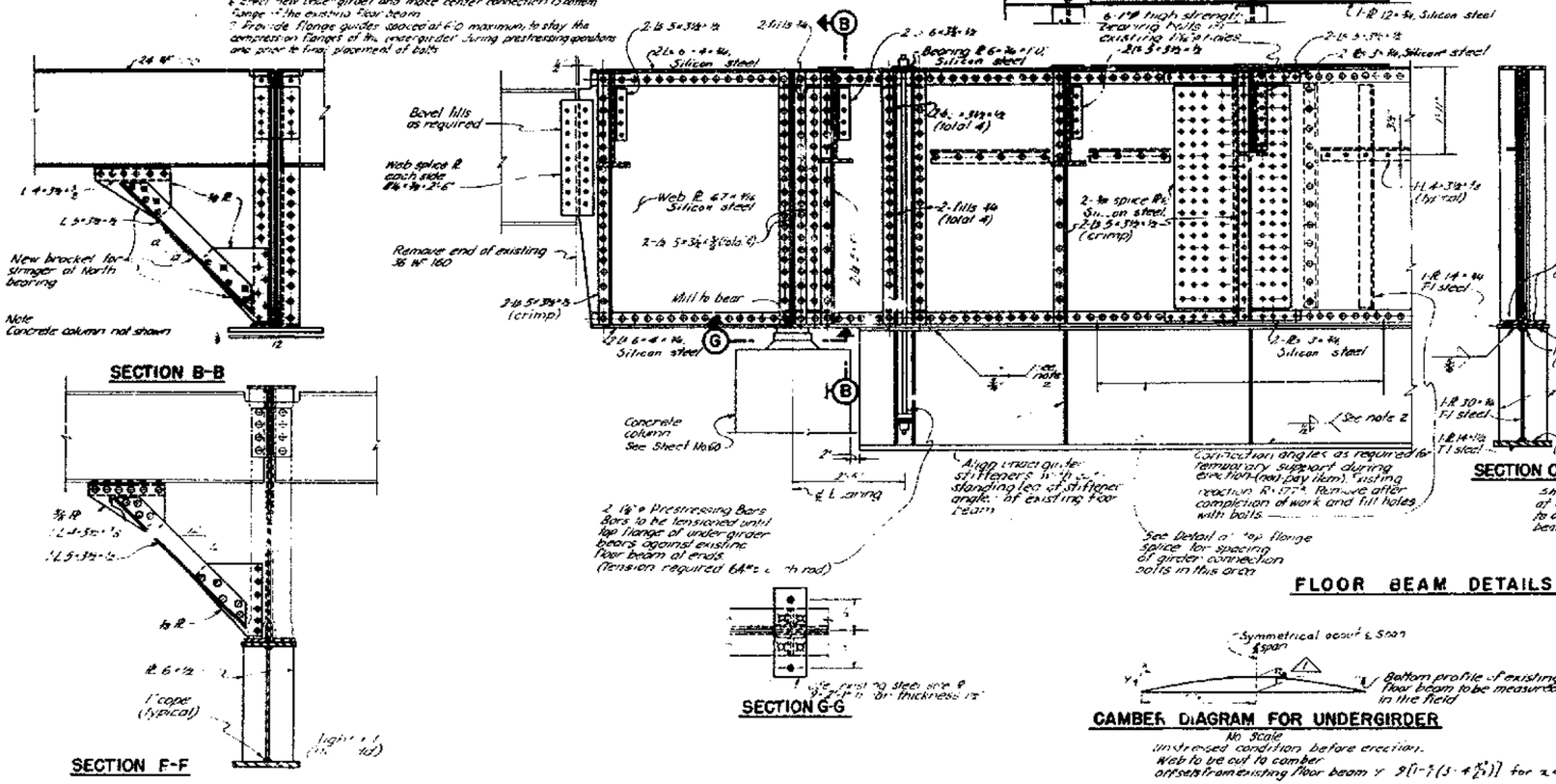


NOTES

1. See notes on sheet No 61
2. Full penetration, machine operated, full automatic submerged arc welds are required for web to flange connections of FT steel undergirder.
3. Details of welds and welding procedure to be submitted for approval before starting to weld

DETAIL A
EXISTING FLOOR BEAM BEARING





FLOOR BEAM DETAILS

CAMBER DIAGRAM FOR UNDERGIRDER

No Scale

Unstressed condition before erection. Web to be cut to camber offsets from existing floor beam $y = 9(1-\frac{1}{3}(3-\frac{x}{L/2})^2)$ for $x < L/2$

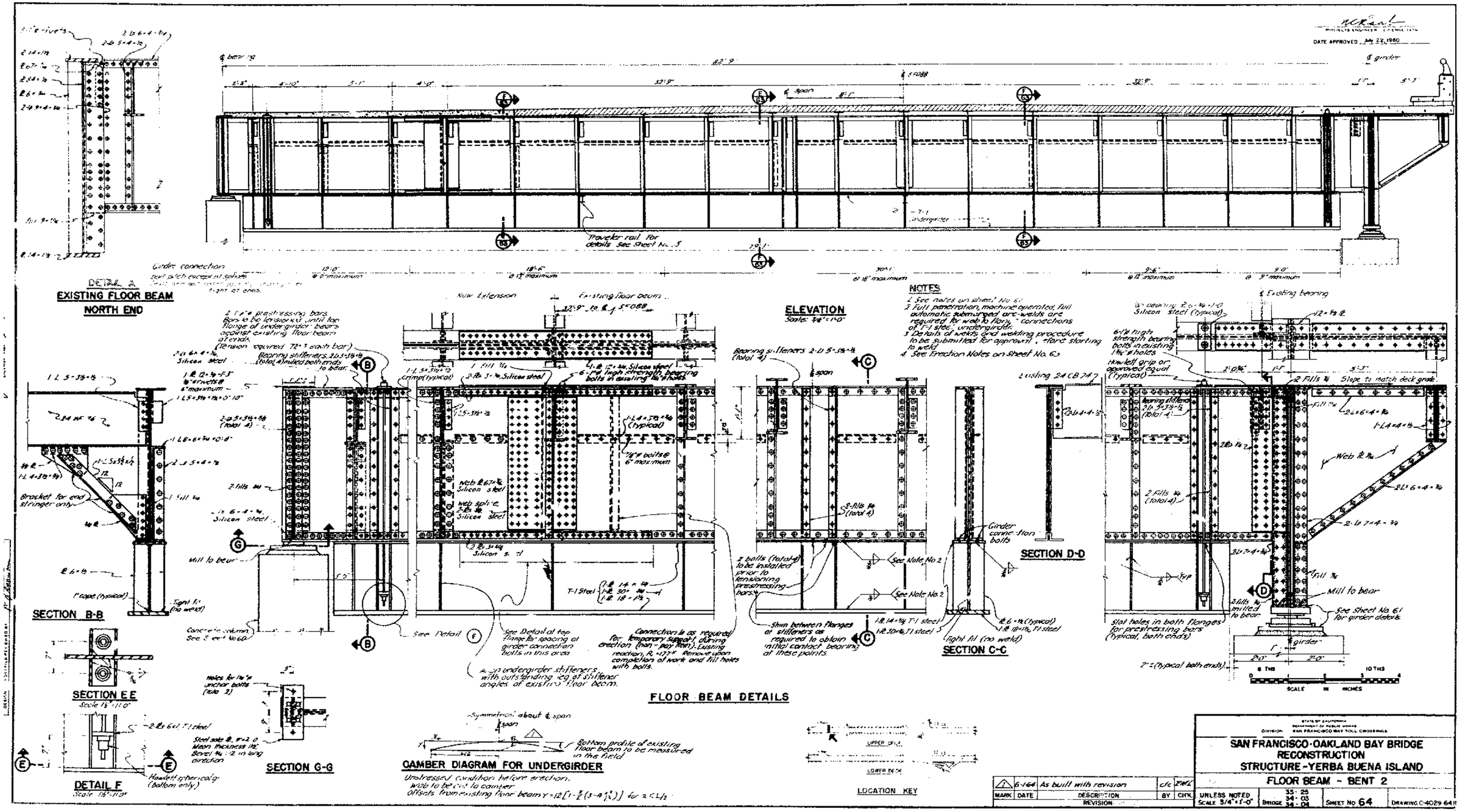
MARK	DATE	DESCRIPTION / REVISION	BY	CHK
1	6-1-64	As built with revision	clc	EMH

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE- YERBA BUENA ISLAND

FLOOR BEAM - BENT 1

UNLESS NOTED | 33 25 / 34 03
SCALE 3/4"=1'-0" | BRIDGE 34 04 | SHEET No. 63

Drawing C-4029-63R



MARK	DATE	DESCRIPTION	BY	CHK
1	6-1-64	As built with revision	cfc	EWL

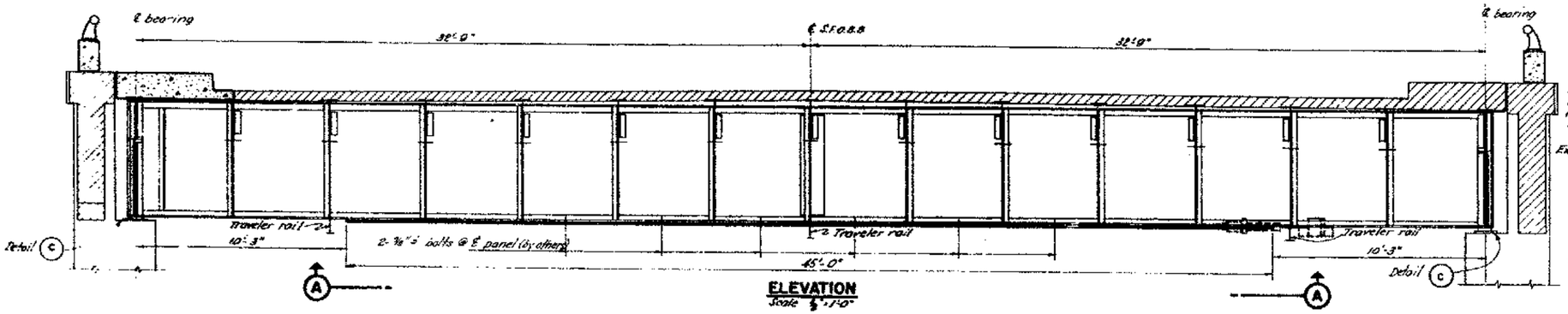
REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION SAN FRANCISCO BAY TOLL CROSSINGS

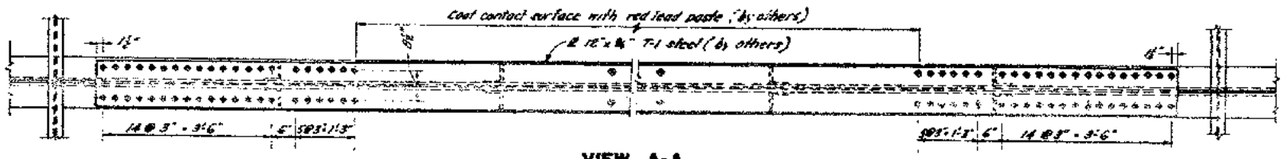
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
FLOOR BEAM - BENT 2

UNLESS NOTED SCALE 3/4" = 1'-0" | BRIDGE 33-25, 34-03, 34-04 | SHEET No 64 | DRAWING C-4029-64R

DATE APPROVED July 22, 1960

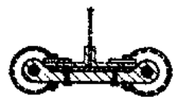


ELEVATION
Scale ½"=1'-0"

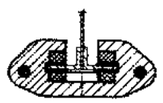


VIEW A-A
Scale ½"=1'-0"

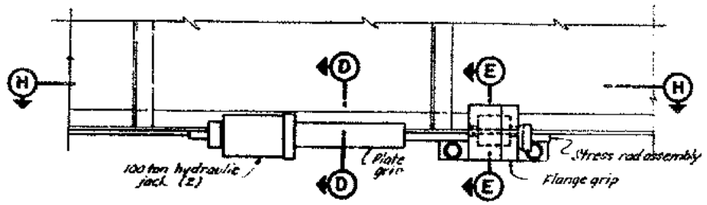
PRESTRESSING PLATE (by others)



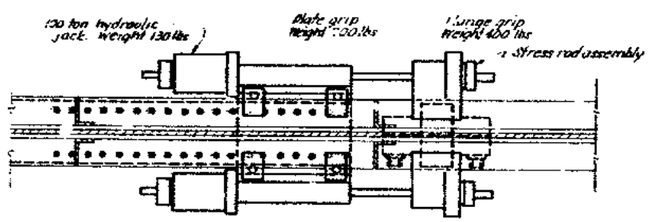
SECTION D-D
Scale 1"=1'-0"



SECTION E-E
Scale 1"=1'-0"



ELEVATION



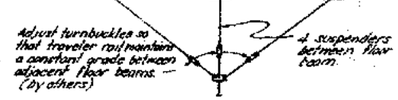
SECTION H-H

PRESTRESSING DEVICE
Make furnished for use by others
Sc 1"=1'0"

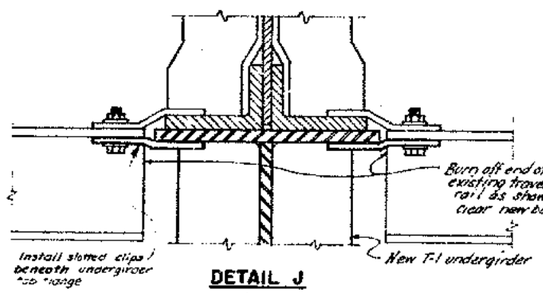
PROCEDURE FOR INSTALLING AND PRESTRESSING STEEL COVER PLATES

1. Apply to the entire contact surface of the cover plate, except in the area of end connection bolts, sufficient red lead paste to fill the void which remains between cover plate and floor beam after prestressing and bolting.
2. Bolt one end of cover plate to floor beam, installing high strength bearing bolts in all holes.
3. Attach prestressing device to other end of cover plate and tension to the required initial prestress. (See Sheet No. 59.)
4. Using the tensioned cover plate as a template, drill holes in the floor beam flange through all accessible cover plate end connection holes and install high strength bearing bolts.
5. Remove stressing device, drill remaining end connection holes and install high strength bearing bolts.
6. Using the tensioned cover plate as a template, drill holes in the floor beam flange through all cover plate stitch bolt holes and install high strength bearing bolts.

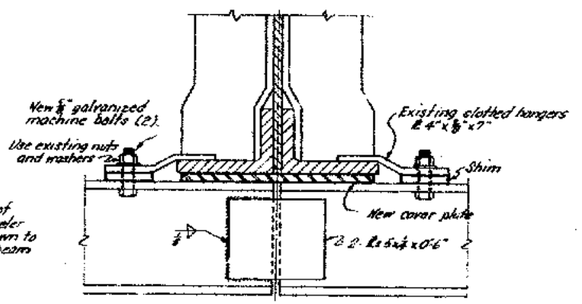
by others



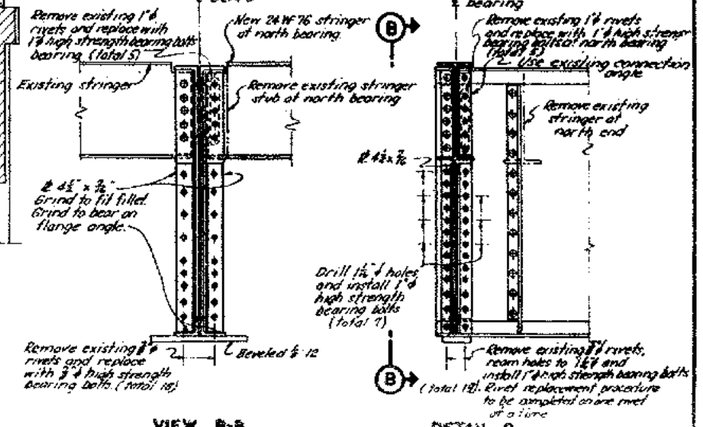
SECTION F-F



DETAIL J
Bents 1 and 2
Scale 3"=1'-0"



DETAIL K
Bents YA-5 and 3
Scale 3"=1'-0"
(by others)

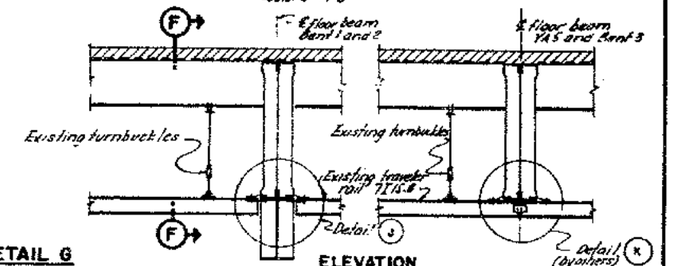


VIEW B-B

DETAIL C

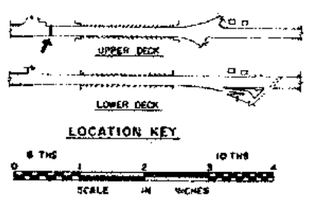
DETAIL G
TRAVELER RAIL RELOCATION
Typical from Bent YA-4 to Bent 4
Scale ½" = 1'-0"

NORTH BEARING
South bearing similar except as noted.
Scale ½" = 1'-0"



ELEVATION

NOTES
1. See sheet No. 61.

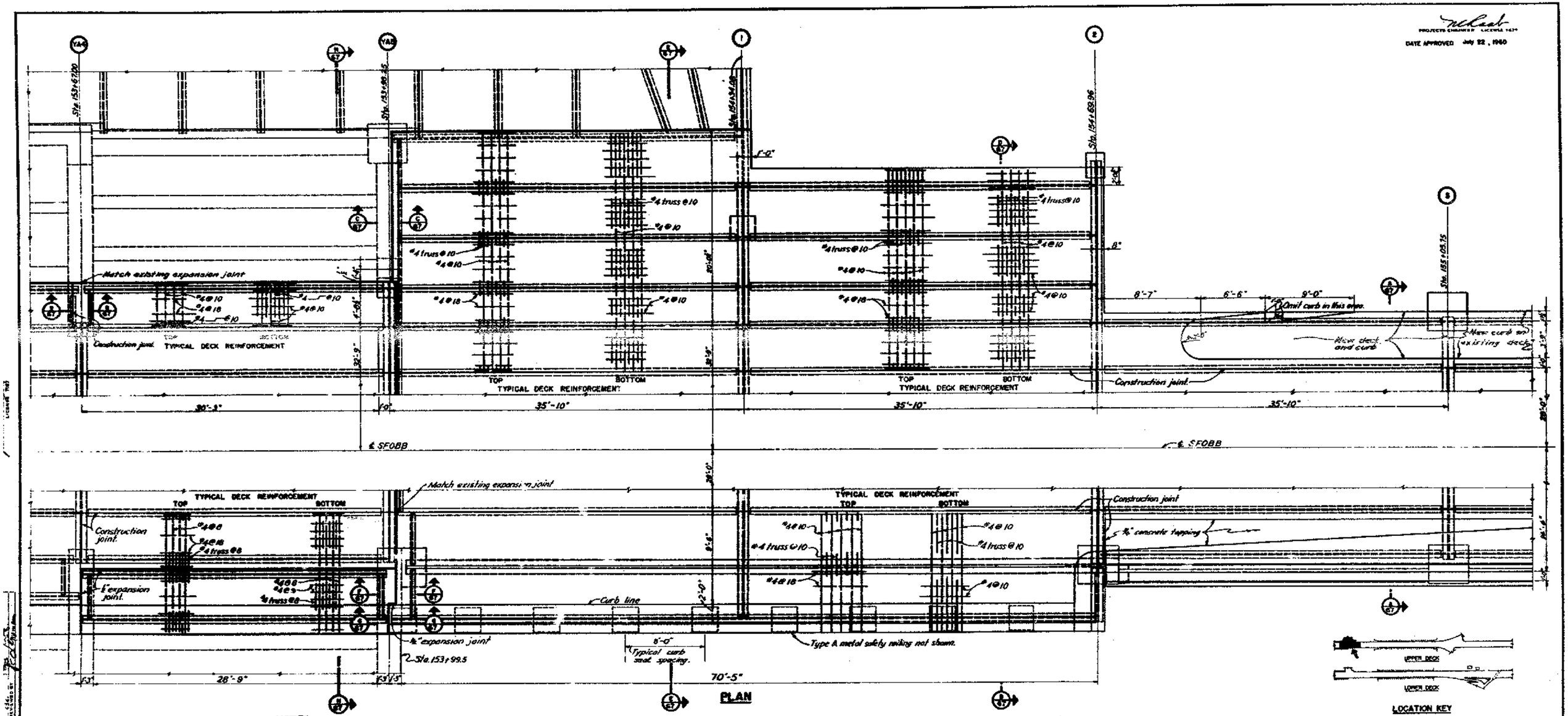


MARK	DATE	DESCRIPTION		
1	6-1-64	As built without revision	cfc	xref

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

FLOOR BEAM - BENT 3



NOTES

1. See Plan & Profile sheets for alignment, grades and drainage details.
2. See Sheet No. 67 for concrete reinforcement and for stringer & diaphragm locations
3. For steel framing plan, see Sheet No. 59.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

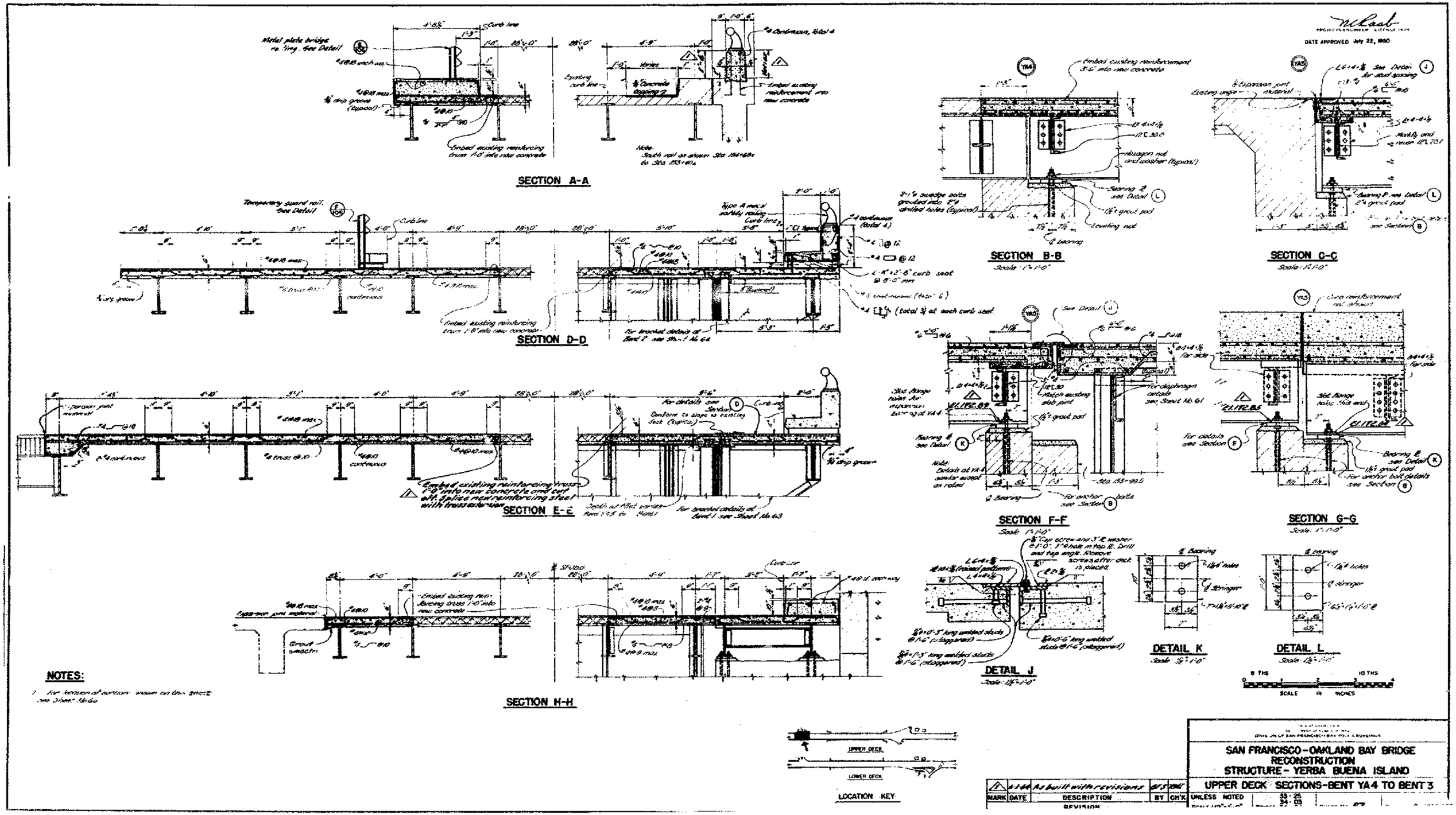
SAN FRANCISCO - OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

UPPER DECK PLAN - BENT YA-4 TO BENT 3

MARK	DATE	DESCRIPTION	BY	CH'K
1	6-1-64	As built without revisions	GFS	PWZ

REVISION

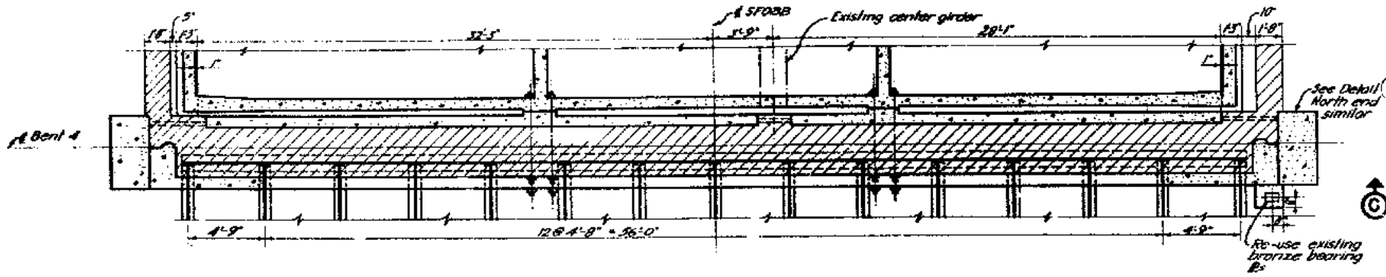
UNLESS NOTED SCALE 1/4" = 1'-0" | BRIDGE 53-25 34-03 34-04 | SHEET No. 66 | DRAWING C-4029-66R



DATE APPROVED July 22, 1930
SECTION A-A
SECTION B-B
Scale: 1"=1'-0"
SECTION C-C
Scale: 1"=1'-0"
SECTION D-D
SECTION E-E
SECTION F-F
Scale: 1"=1'-0"
SECTION G-G
Scale: 1"=1'-0"
SECTION H-H
DETAIL J
Scale: 1½"=1'-0"
DETAIL K
Scale: ½"=1'-0"
DETAIL L
Scale: 1½"=1'-0"
SCALE IN INCHES
NOTES:
1. For location of sections shown on this sheet see Sheet No. 66
UPPER DECK
LOWER DECK
LOCATION KEY
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
UPPER DECK SECTIONS-BENT YA4 TO BENT 3
MARK
DATE
DESCRIPTION
BY
CH'K
REVISION
UNLESS NOTED
33-25
34-03

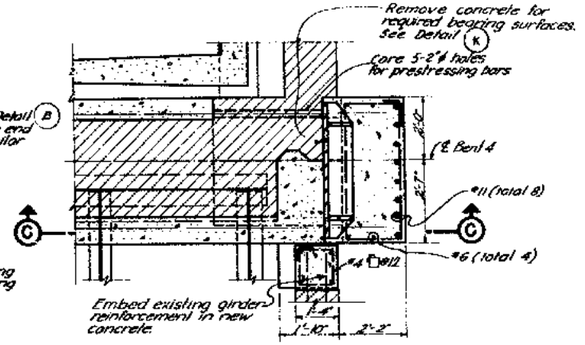
PROJECT ENGINEER

DATE APPROVED July 28, 1960



SECTION A-A

Scale: 1/4"=1'-0"



DETAIL - B

Scale: 1"=1'-0"

CONSTRUCTION SEQUENCE

Work to be done during Traffic Stage I

1. Shore and remove portion of south fascia girder as shown west of Bent 4

2. Shore fascia girder and core holes through east side of south column as required for passage of prestressing bars, and remove concrete from column for end-anchorage

3. Shore and core holes through center girder for passage of prestressing bars.

4. Place concrete between south end-anchorage and existing center girder

Work to be done during Traffic Stage II.

5. Remove north fascia girder west of Bent 4

6. Shore fascia girder and core holes through east side of north column as required for passage of prestressing bars, and remove concrete from column for end-anchorage.

7. Place concrete between north end-anchorage and existing center girder.

Remainder of work

8. When concrete has reached strength of 4500 psi, tension the prestressing bars to 133 kips per bar

9. Remove existing center column just prior to installing last 4 adjacent tunnel deck units.

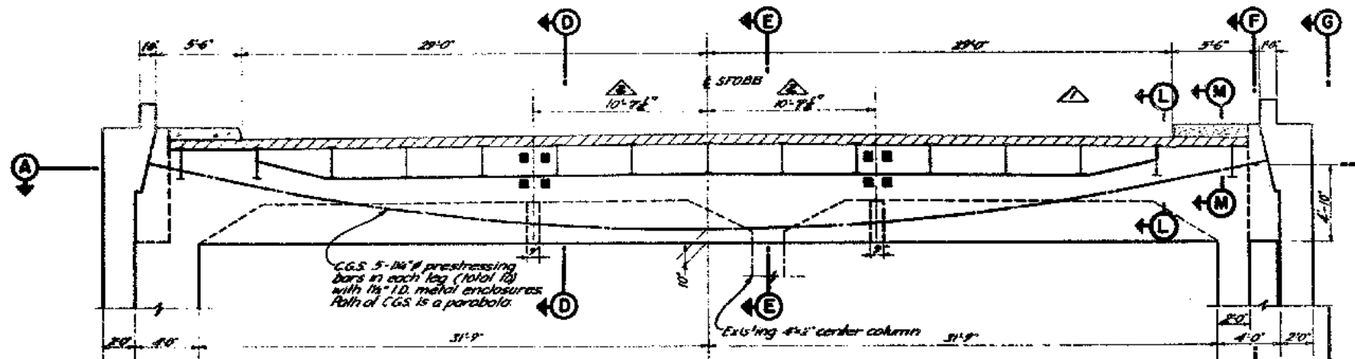
10. Install and stress remaining tunnel deck units.

11. Core holes through Bent 4 beam for passage of diaphragm prestressing bars, and tension bars as shown on Sheet No 75.

12. Place concrete on outside faces of north and south columns to enlarge columns and cover end-anchorages.

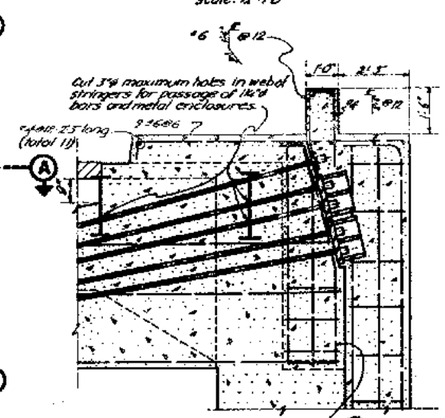
Closure at Bent 4

13. Install, stress, cast center section, and core tunnel deck unit 4A to design strength.



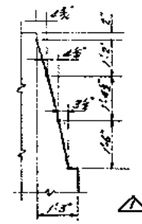
ELEVATION

Scale: 1/4"=1'-0"



SECTION C-C

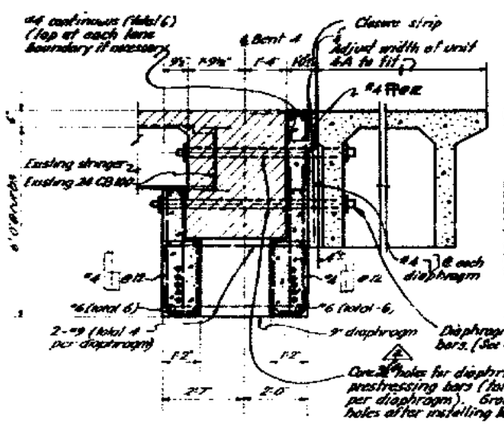
Scale: 1½"=1'-0"



DETAIL K

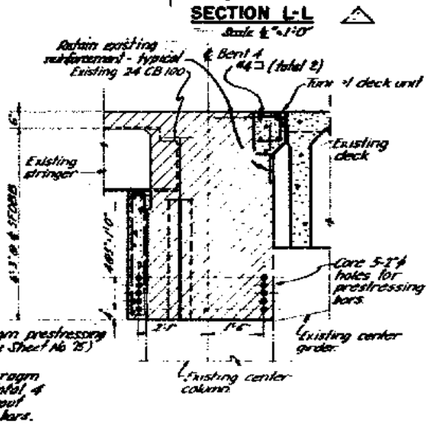
BEARING SURFACES

Scale: 1½"=1'-0"



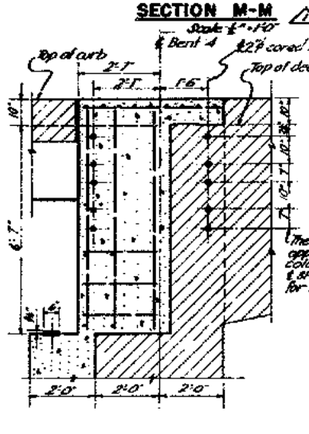
SECTION D-D

Scale: 1½"=1'-0"



SECTION E-E

Scale: ½"=1'-0"

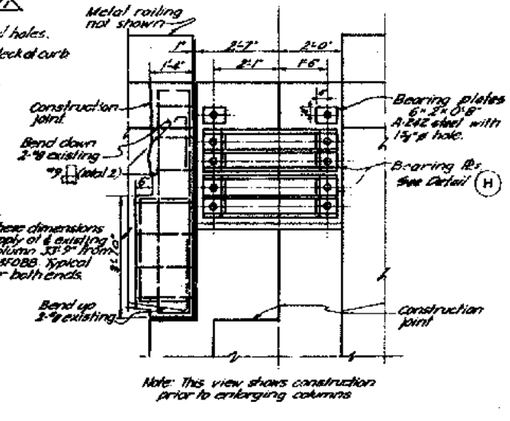


SECTION L-L

Scale: ½"=1'-0"

SECTION M-M

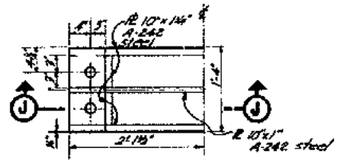
Scale: ½"=1'-0"



ELEVATION G-G

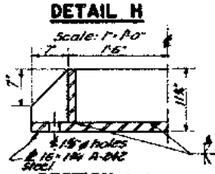
Scale: 1"=1'-0"

Note: This view shows construction prior to enlarging columns



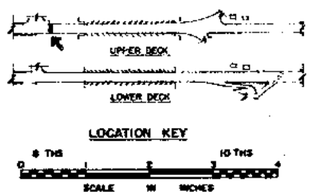
DETAIL H

Scale: 1"=1'-0"



SECTION J-J

Scale: 1"=1'-0"



SUPPLEMENTAL CONTRACT DRAWING

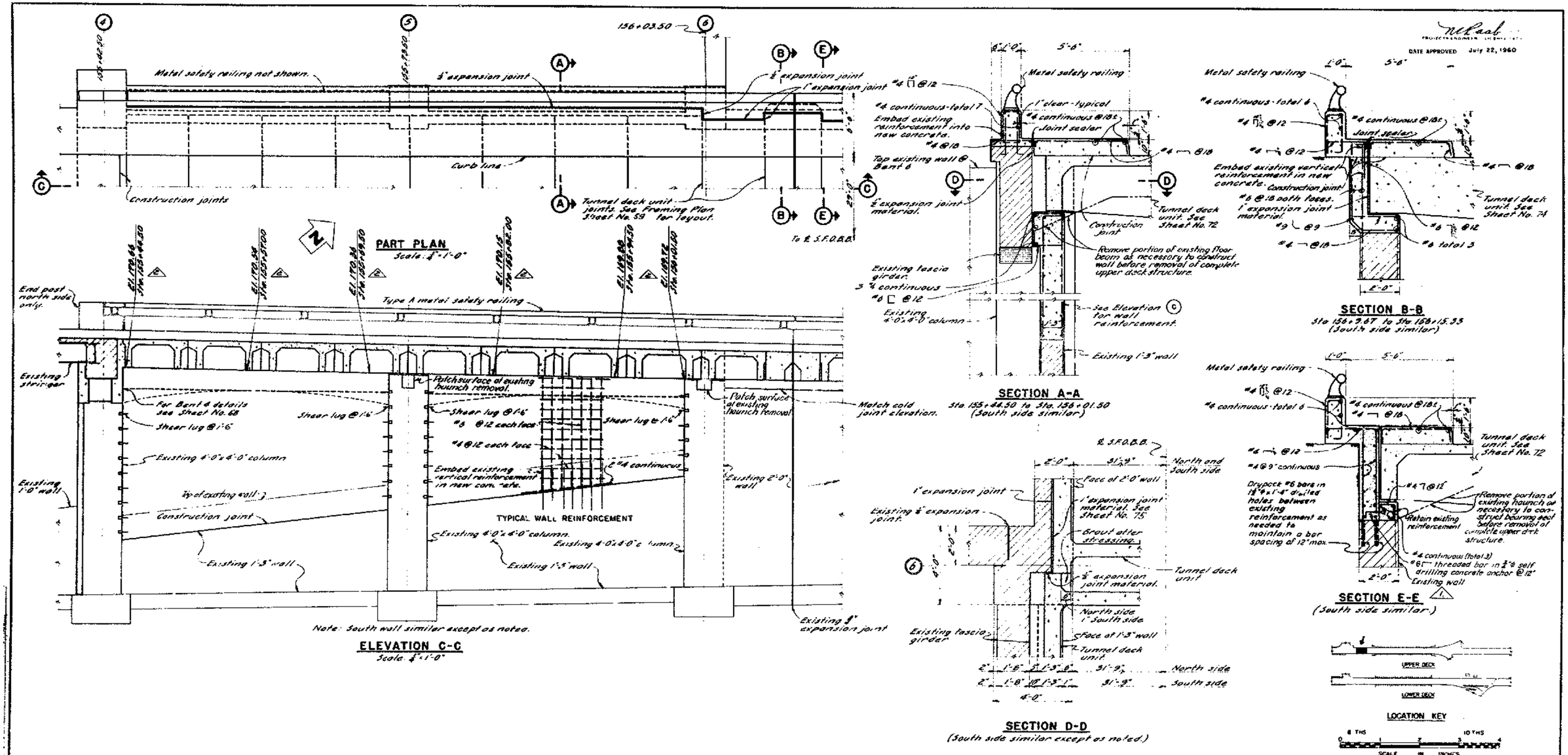
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO – OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
FLOOR BEAM – BENT 4

MARK	DATE	DESCRIPTION REVISION	BY	CHK
2	1-66	As built with revisions	APS	RMC
1	2/1/62	Closure strip details	FTL	C.S.

SCALE AS SHOWN | BRIDGE 54-04 | SHEET No 68 | DRAWING C-4029-68R

54-26
54-28



NOTES

1. For removal of existing concrete see Sheet No. 26
2. For conduits in curbs see Sheet No. 121

MARK	DATE	DESCRIPTION	BY	CH'K
2	6-1-64	As built with revisions	BFS	RWL
1	8-9-62	Revised details of Section E-E	FJL	H.V.

REVISION

SUPPLEMENTAL CONTRACT DRAWING

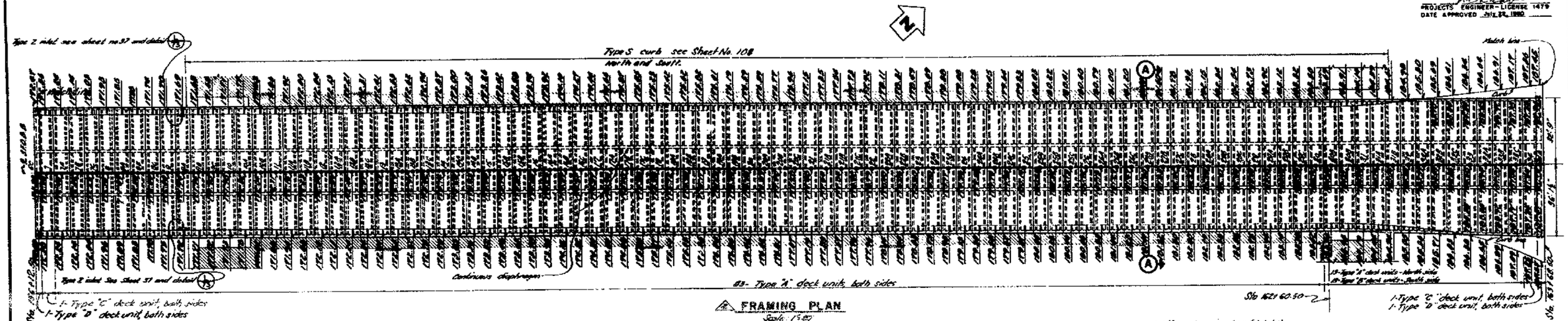
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

UPPER DECK-BENT 4 TO BENT 6

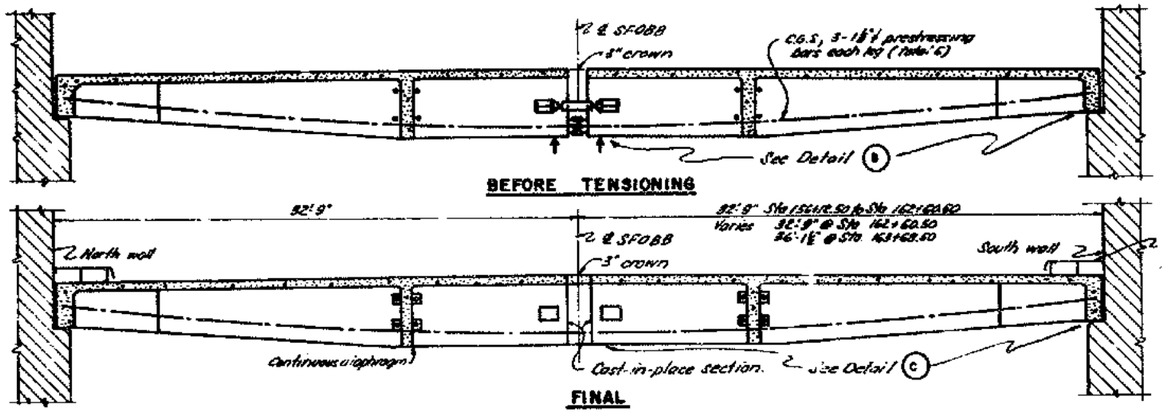
UNLESS NOTED SCALE 1/2"=1'-0" | BRIDGE 33-25, 34-03, 34-04 | SHEET NO 69 | DRAWING C-4029-69R

DATE APPROVED July 22, 1960

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1980



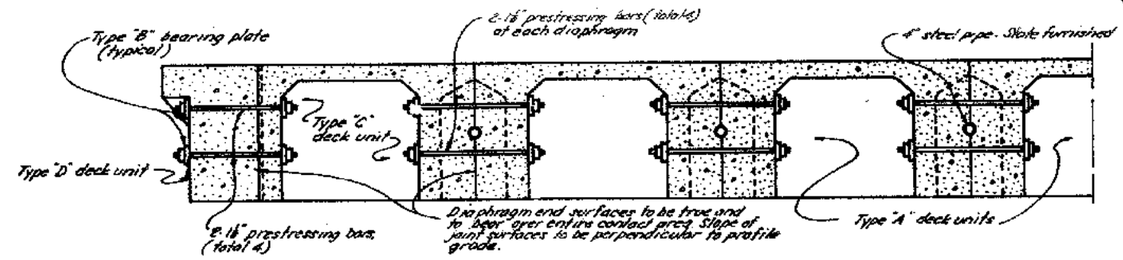
FRAMING PLAN
Scale: 1/8"=1'-0"



BEFORE TENSIONING

FINAL

SECTION A-A
Scale: ¼"=1'-0"



LONGITUDINAL SECTION AT DIAPHRAGM
Scale: ¼"=1'-0"

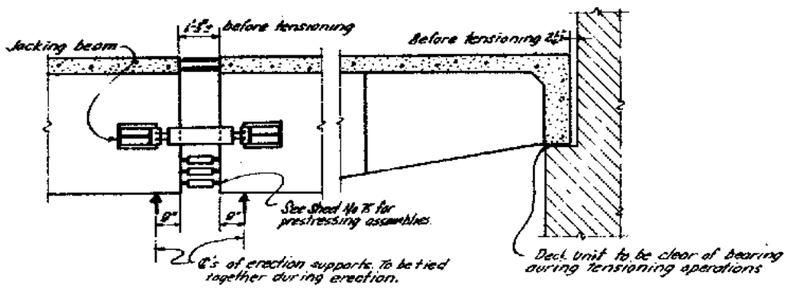
ERECTION PROCEDURE

1. Shore center girder to assure stability of remaining existing deck after removal of floor beams in working area.
2. Place movable bridge over working area, with wheels on sound floor beams and/or previously erected deck units.
3. Remove one or two floor beams from wall to wall, including section of center girder.
4. Prepare bearing area.
5. Erect one pair of precast deck units at a time. Place on erection supports, which permit small horizontal movement during prestressing. Adjust to proper elevation.
6. Couple prestressing bars. Place jack. Apply jacking force of approximately 45 kips per bar. Measure strains of the bars to check uniformity of stress.
7. Reduce jacking force to approximately 2 kips per bar. Check all couplers and tighten if necessary.
8. Apply full initial prestress 115 kips per bar. Shim jacks to prevent loss of prestress during curing of cast-in-place section.
9. Form, reinforce and cast concrete section between units. Pressure grout bar enclosures.
10. Join newly erected deck unit with previously erected unit. Install and tension diaphragm prestressing bars to 115 kips per bar.
11. Repeat steps 5 through 10 with the next pair of deck units.
12. Advance movable bridge so that rear wheels will rest on recently erected deck unit.
13. Repeat Steps 3 to 12.
14. Remove jacks and shoring when cast-in-place section has attained a compressive strength of 4500 psi.

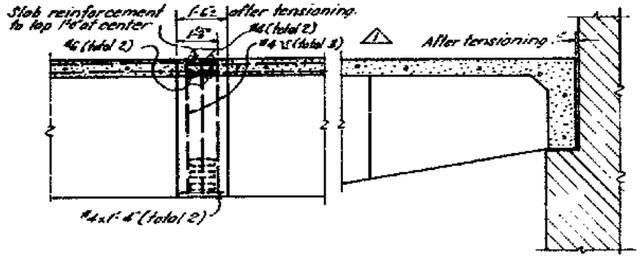
NOTES

1. See Plan and Profile Sheets for alignment and grades.
2. See Sheet No. 59 for continuation of Tunnel Deck Units west of tunnel.
3. See Sheet Nos. 72, 73 and 74 for precast deck units.
4. See Sheet No. 75 for prestressing assemblies.
5. Type A Tunnel Deck Units weigh 20 tons.
6. See Sheet Nos. 69 and 91 for bearing details outside of tunnel portals.

0 8 THS 1 2 3 10 THS 4
SCALE IN INCHES



DETAIL B
Scale: ½"=1'-0"



DETAIL C
Scale: ½"=1'-0"

Designates as built elevations on bronze carriage bolts.

Designates as built elevations on yellow paint spots.

As built elevations are shown at center line of each tunnel deck unit. As built elevations for tunnel deck units 4A through 6B are shown on Sheet No. 59.

MARK	DATE	DESCRIPTION	BY	CHK
2	6-1-80	As built with revisions	BFS	RMC
1	10-26-61	Added slab reinforcement for concrete section between units.	RSR	CS

REVISION

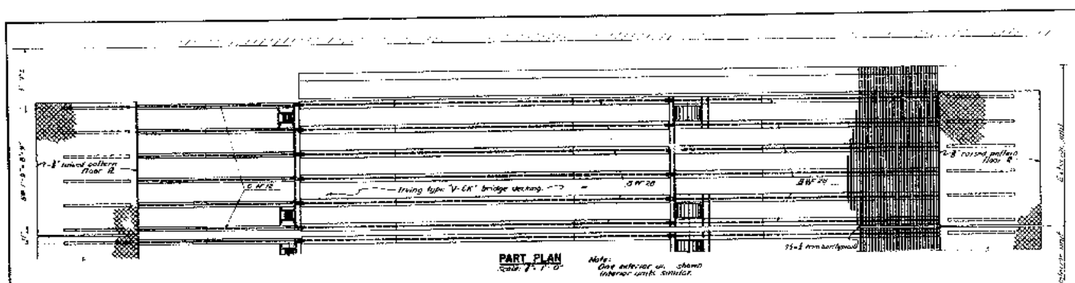
SUPPLEMENTAL CONTRACT DRAWING

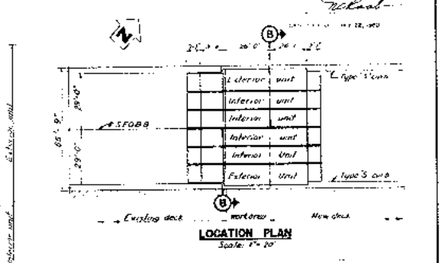
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

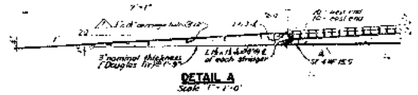
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

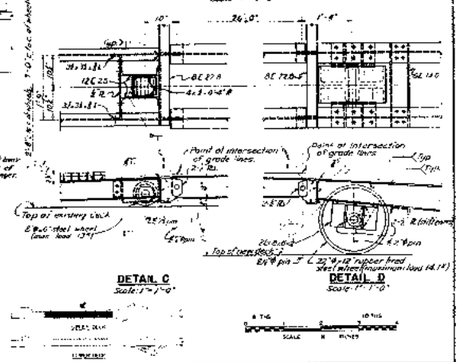
STRUCTURE PLAN AND SECTIONS — TUNNEL

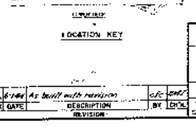
SCALE AS SHOWN | BRIDGE 33-25, 34-03, 34-04 | SHEET No 70 | DRAWING C-4029-70R











NOTES:

1. The moveable bridge is released to operate a safe, continuous 38'-0" wide roadway over its entire length, which being achieved from one roadway arm to the other, is made to move from one bearing to another in such a way that the entire bridge moves as a unit (only during initial operations and final abandonment may the individual leafs be operated).
2. Layout of steel work is designed for one half of one of the 3 spans of the American Approach to the San Francisco Bridge.
3. This drawing is intended to show the character and extent of the moveable bridge structure. The contractor may modify the details of sheets, in particular, to any substitution better adapted to his approved shop for the method of operation proposed to be adopted, but the contractor shall use the necessary attachment to structural steel work, concrete, and other appurtenances necessary to secure a safe operation of the bridge under traffic, including both railroad and highway.
4. Construction shall not start until detailed shop drawings of the moveable bridge have been approved by the Engineer.
5. All bolts, 3/4" in diameter unless noted.
6. All existing devices to be removed by contractor and delivered to storage.

MARK	DATE	DESCRIPTION	BY	CHK
1	6-1-66	As built with revisions		

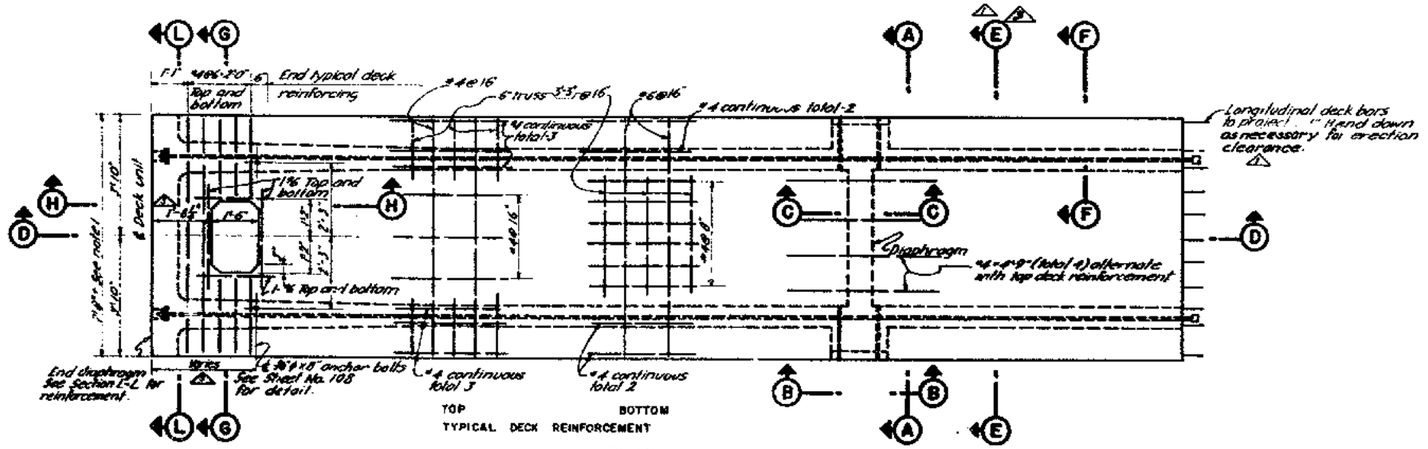
REVISIONS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
MOVABLE TRAFFIC BRIDGE

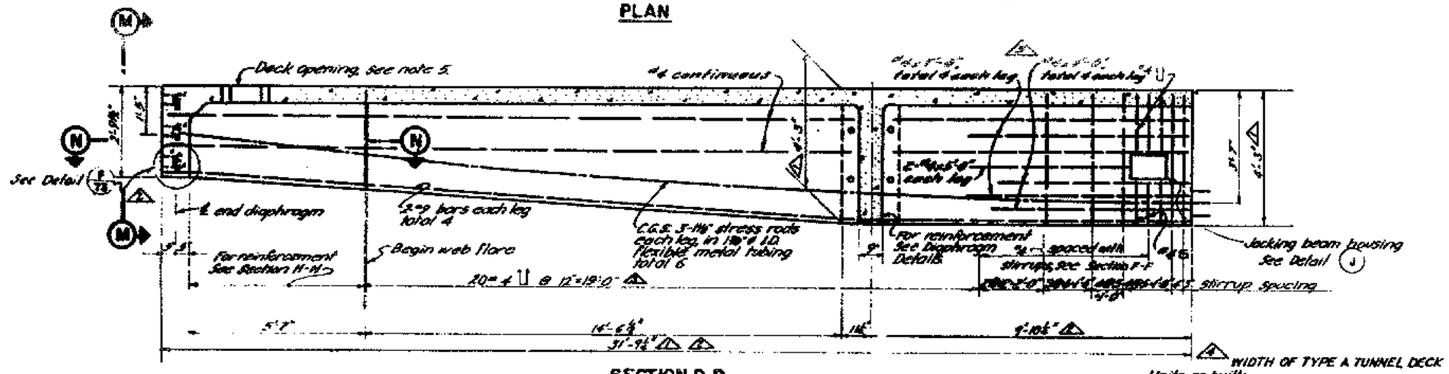
SCALE AS SHOWN | EPOCH 54 55 | SHEET NO. 21 | C-4029-7(18)

PROJECTS ENGINEER LICENSE 1474

DATE APPROVED July 22, 1960



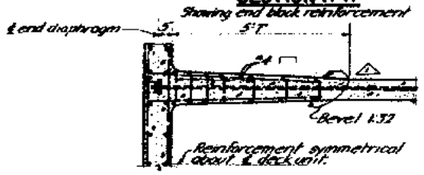
PLAN



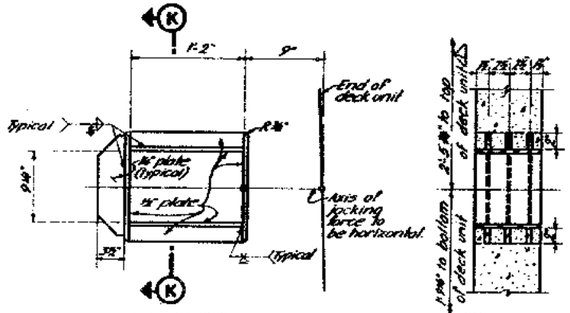
SECTION D-D
Showing main reinforcement only

WIDTH OF TYPE A TUNNEL DECK
Units as built:
28B thru 27A (north and south) 7'-0½"
25C thru 21 (north only) ---- 7'-8¼"
24A thru 20C (south only) ---- 7'-8¼"
17C thru 16C (north only) ---- 7'-8¼"
13A thru 7A (north and south) 7'-8"

SECTION H-H
Showing end block reinforcement



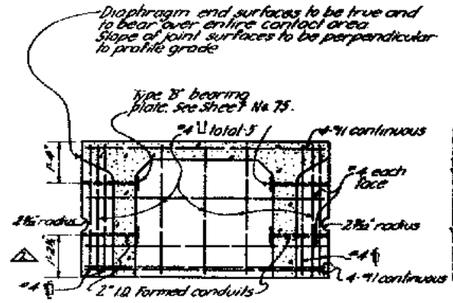
SECTION N-N



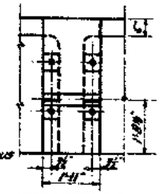
ELEVATION
Scale: 1½"=1'-0"

SECTION K-K
Scale: 1½"=1'-0"

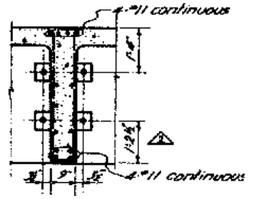
DETAIL J
JACKING BEAM HOUSING



SECTION A-A

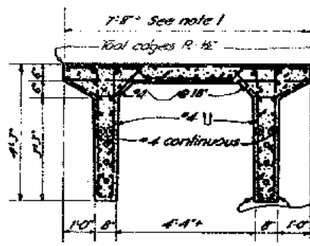


END VIEW B-B

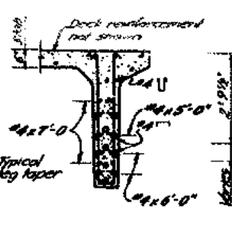


SECTION C-C

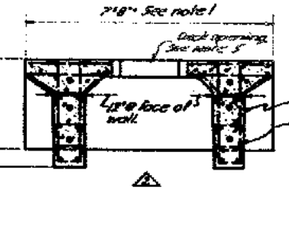
DIAPHRAGM DETAILS
(Deck reinforcement not shown)



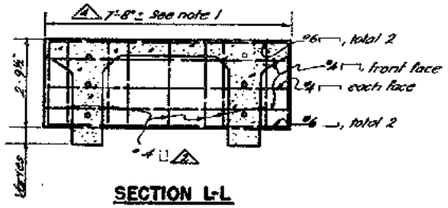
SECTION E-E
(Typical cross section)



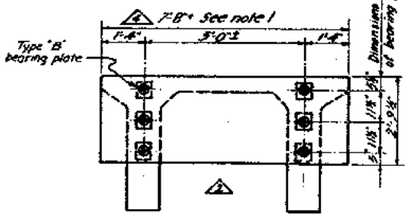
SECTION F-F



SECTION G-G



SECTION L-L



END VIEW M-M
Reinforcement not shown

LOCATION KEY

NOTES

1. Width of deck units to be adjusted to required overall length of deck along profile grade.
2. All re-entrant corners to be rounded to a 4" radius.
3. For prestressing assemblies and bearing details, see Sheet No. 75.
4. One pair of deck units shall be prepared for testing. For testing arrangement, see Sheet No. 76.
5. Type 'A' Tunnel Deck Units 7A thru 9 (North and South) will have no deck openings nor anchor bolts. See Detail (A-5) for deck openings in units 9A (North and South).

MARK	DATE	DESCRIPTION	BY	CHK.
		REVISION		
4	5-1-64	As bui t with revision	cfc	RWC
3	8-8-63	Added reinforcement around jacking beam and section relocation.	FSR	CS
2	5-8-61	Revised bearing details and lengths of units to allow for tunnel wall variations. Revised diaphragm bar locations.	RB	RWC
1	4-6-61	Additional dimensions and section relocation.	CS	CHK

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

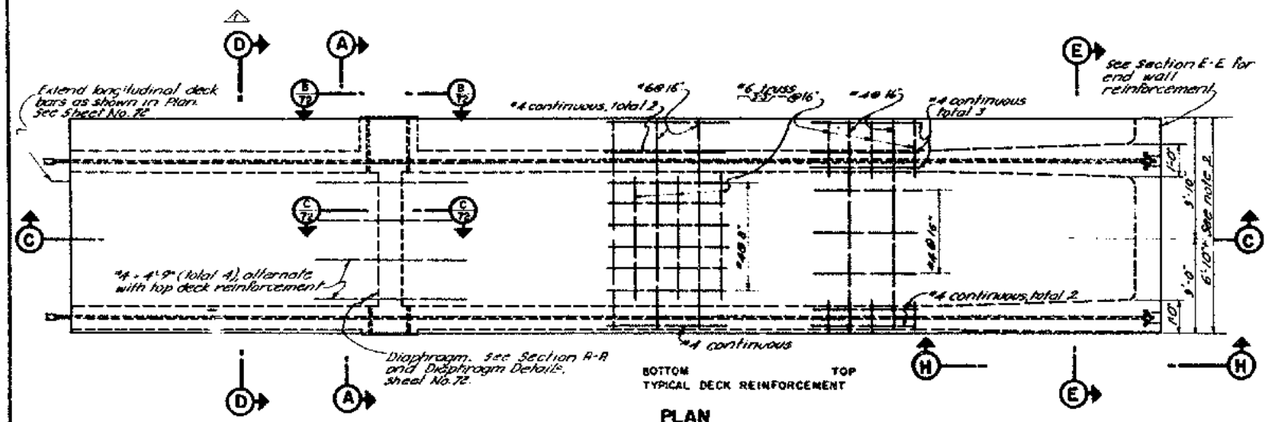
TUNNEL DECK UNIT - TYPE A

UNLESS NOTED SCALE 1/2" = 1'-0"

BRIDGE 33-25, 33-03, 34-04

SHEET No. 72

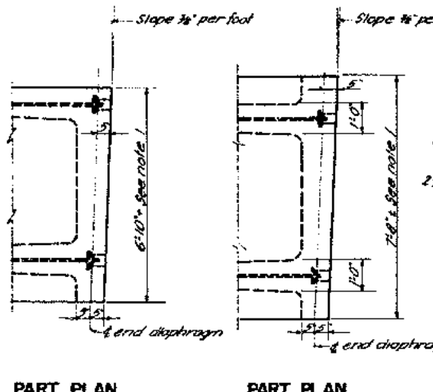
DRAWING C-1025-729



TYPICAL DECK REINFORCEMENT

PLAN

Showing Tunnel Deck Unit, type C @ Bent "4, South. Other type C units shown on Framing Plan, Sheet No. 70 are similar, except @ Bent "54, South.

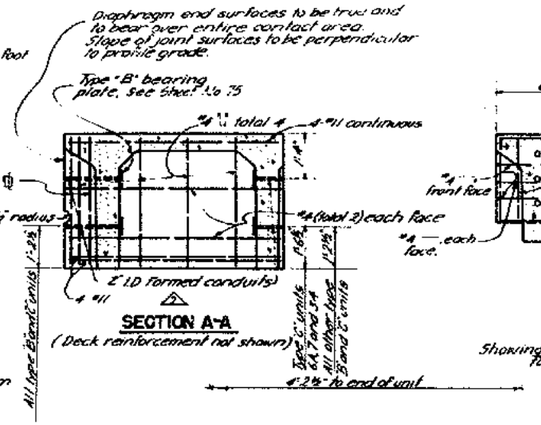


PART PLAN

Showing deck unit type C South end of Unit "54

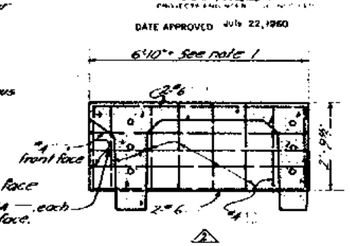
PART PLAN

Showing deck unit type B South end of units 30A to 33C



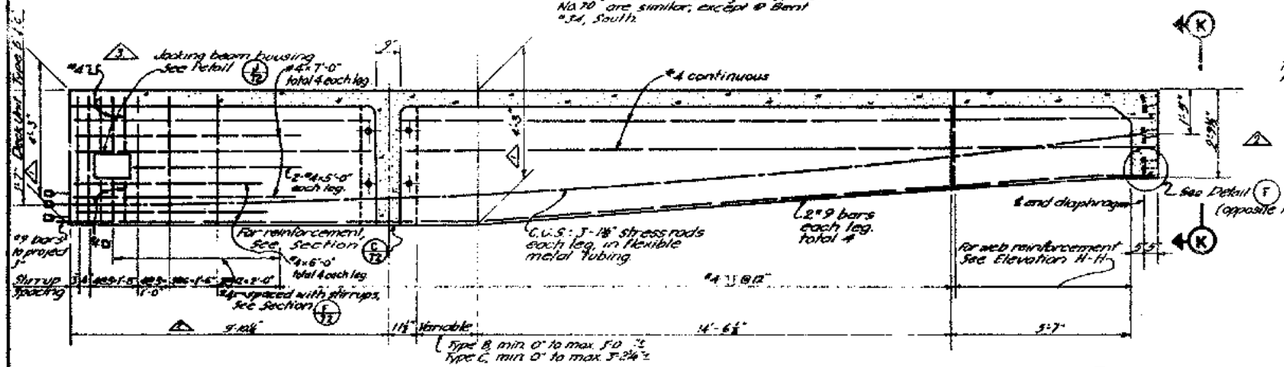
SECTION A-A

(Deck reinforcement not shown)



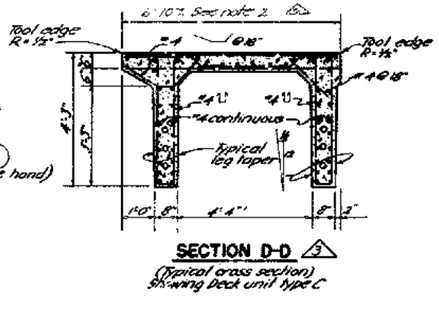
SECTION B-B

Showing end diaphragm reinforcement for Deck Unit type C



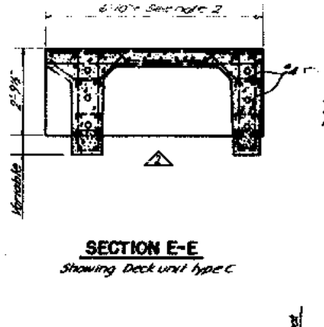
SECTION C-C

Shown for Tunnel Deck Unit, type B and C



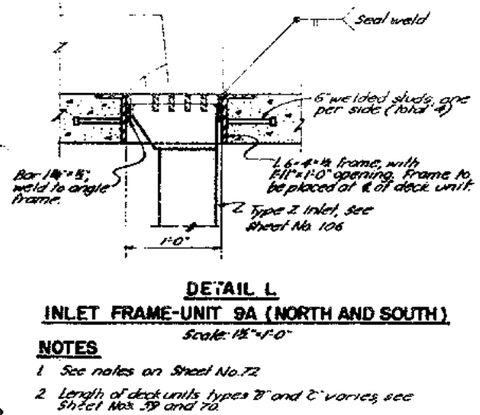
SECTION D-D

(Typical cross section) Showing Deck unit type C



SECTION E-E

Showing Deck unit type C



DETAIL L

INLET FRAME-UNIT 9A (NORTH AND SOUTH)

Scale: 1 1/2" = 1'-0"

NOTES

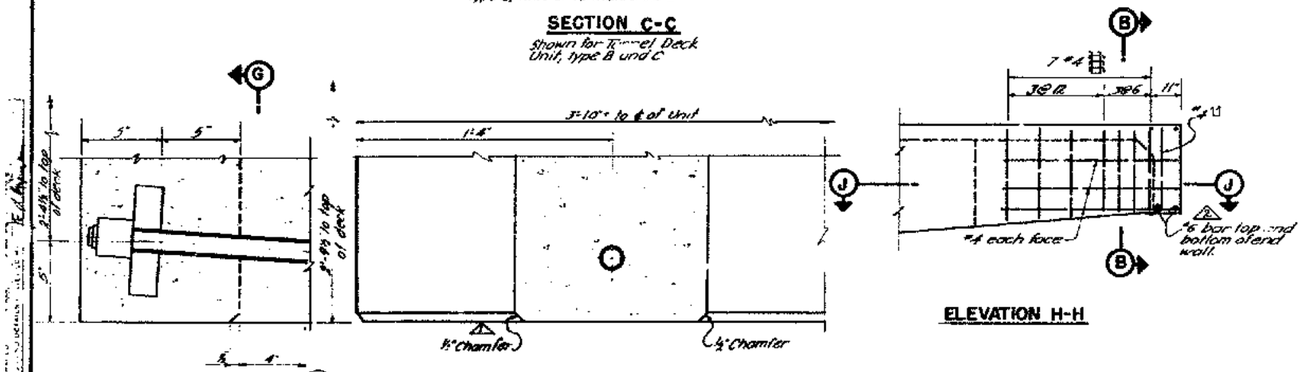
1. See notes on Sheet No. 72
2. Length of deck units, types "B" and "C" varies, see Sheet Nos. 39 and 70.
3. Type "B" Tunnel Deck Units 9B to 18A and 30A to 31A inclusive shall have anchor bolts similar to Type "A" deck units. See Plan on Sheet No. 72.
4. Type "B" units are similar to Type A units except for overall length and, for units 30A thru 33C, skewed end surfaces. For typical cross sections, see sheet No. 72.

SECTION J-J

Shown for deck unit type C South end of unit 34 Other type C's similar

END VIEW K-K

Shown for deck unit type C



DETAIL F

Scale: 3"-1'-0"

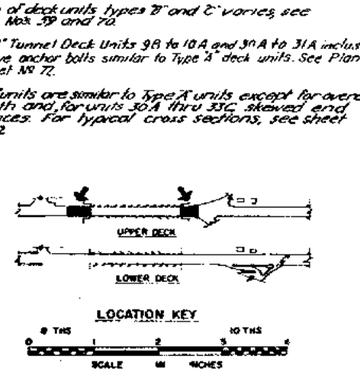
Typical for "A", "B" and "C" Tunnel units

SECTION G-G

Scale: 3"-1'-0"

ELEVATION H-H

WIDTH OF TYPE B and TYPE C TUNNEL DECK Units as built:
6 thru 4 B (north and south) - 7'-4"
4 A (north and south) ------ 6'-8 1/2"



SUPPLEMENTAL CONTRACT DRAWING

MARK	DATE	REVISION	BY	CHK
4	5-1-64	As built with revision	cfc	XRF
3	10-30-62	Added reinforcement around jacking beam housing.	PSR	CS
2	5-3-61	Amount bearing details and lengths of units to allow for skewed wall corrections. Revised alignment. Bar deletions	ECE	
1	8-8-60	Additional dimensions, bearing detail and section relocation	DE	

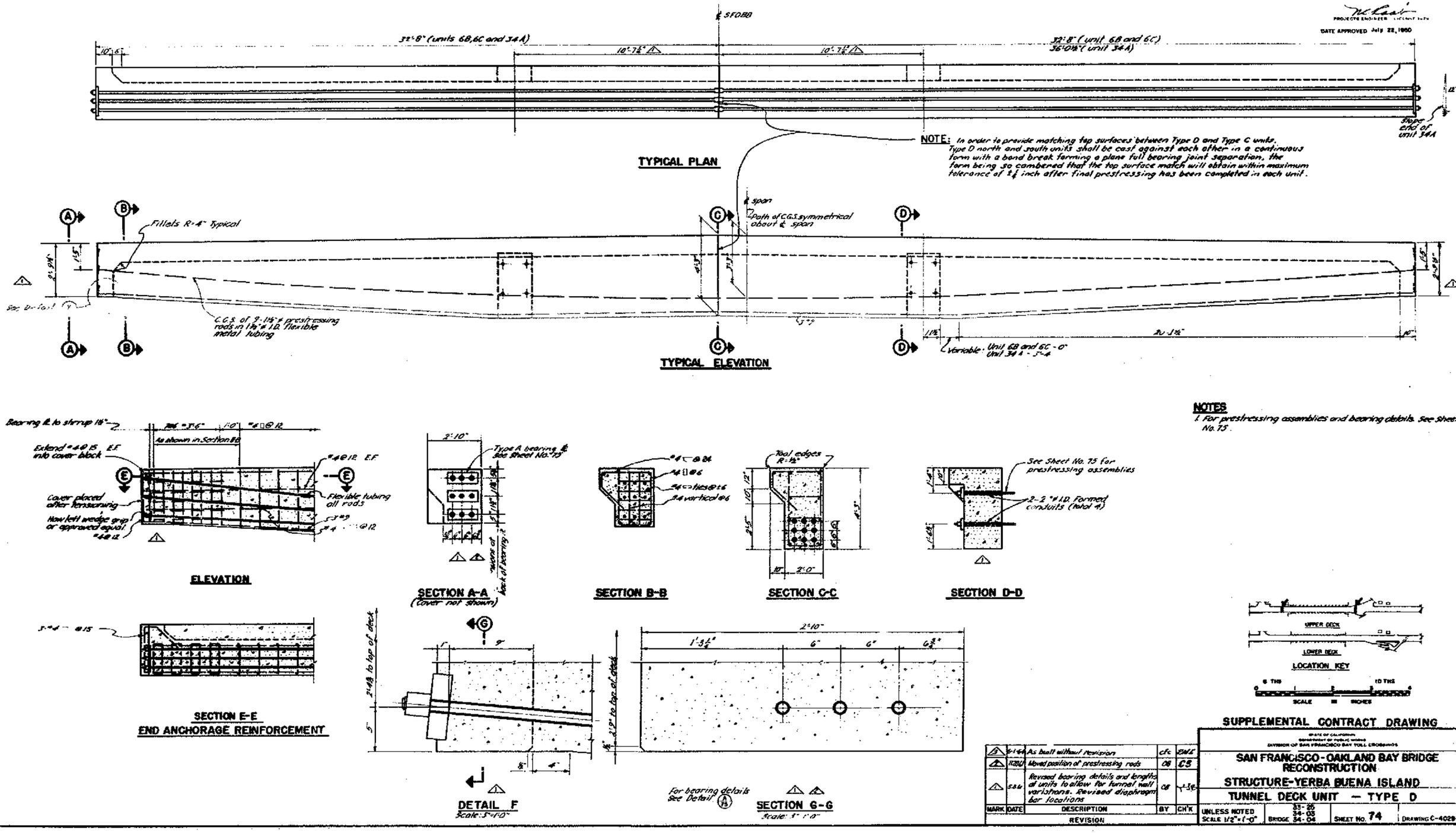
STATE OF CALIFORNIA — DEPARTMENT OF PUBLIC WORKS — DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
TUNNEL DECK UNIT — TYPES B AND C

UNLESS NOTED SCALE 1/2"=1'-0" | BRIDGE 54-04 | 53-05 54-03 | SHEET No. 73 | DRAWING C-4029-73R

PROJECTS ENGINEER LICENSE 1479

DATE APPROVED July 22, 1960



NOTES

1. For prestressing assemblies and bearing details. See Sheet No. 75.

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION

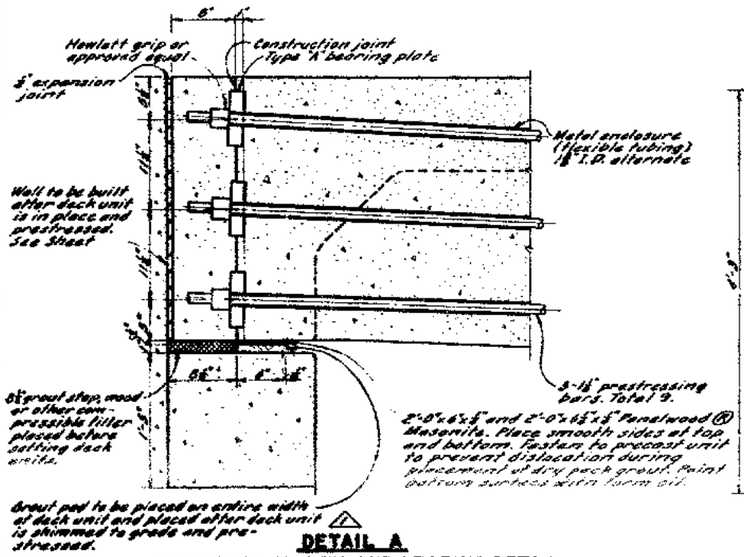
STRUCTURE-YERBA BUENA ISLAND

TUNNEL DECK UNIT — TYPE D

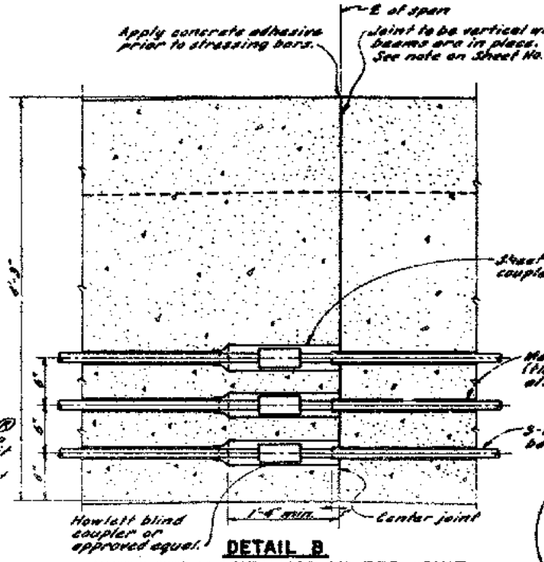
MARK	DATE	DESCRIPTION	BY	CH'K
3	5-1-64	As built without revision	cfc	RMC
2	11-20-61	Moved position of prestressing rods	CB	CS
1	5-8-61	Revised bearing details and lengths of units to allow for tunnel wall variations. Revised diaphragm bar locations	CB	[illegible]

REVISION

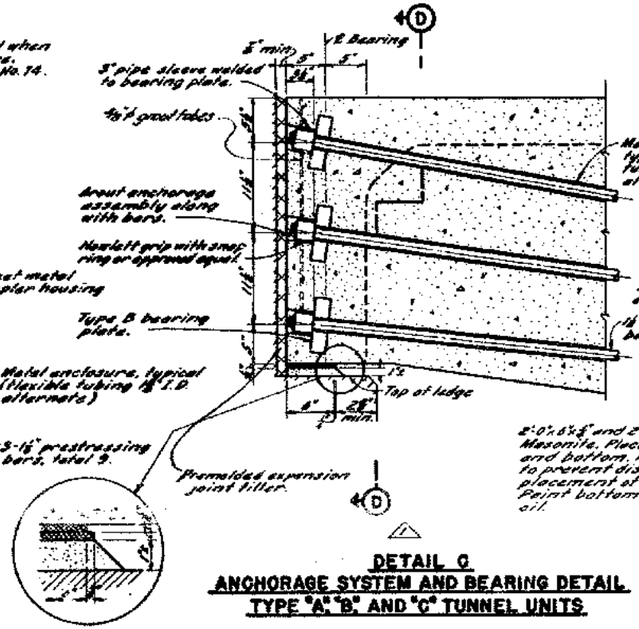
UNLESS NOTED SCALE 1/2"=1'-0" | BRIDGE 33-25 34-03 34-04 | SHEET NO. 74 | DRAWING C-4029-74R



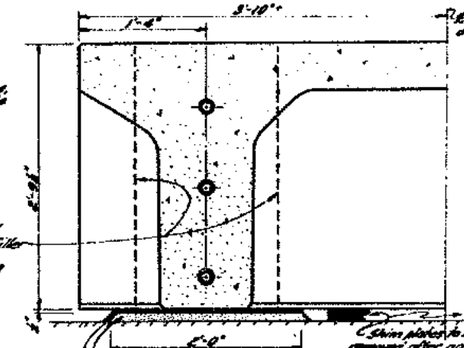
DETAIL A
ANCHORAGE SYSTEM AND BEARING DETAIL
TYPE "D" TUNNEL UNITS



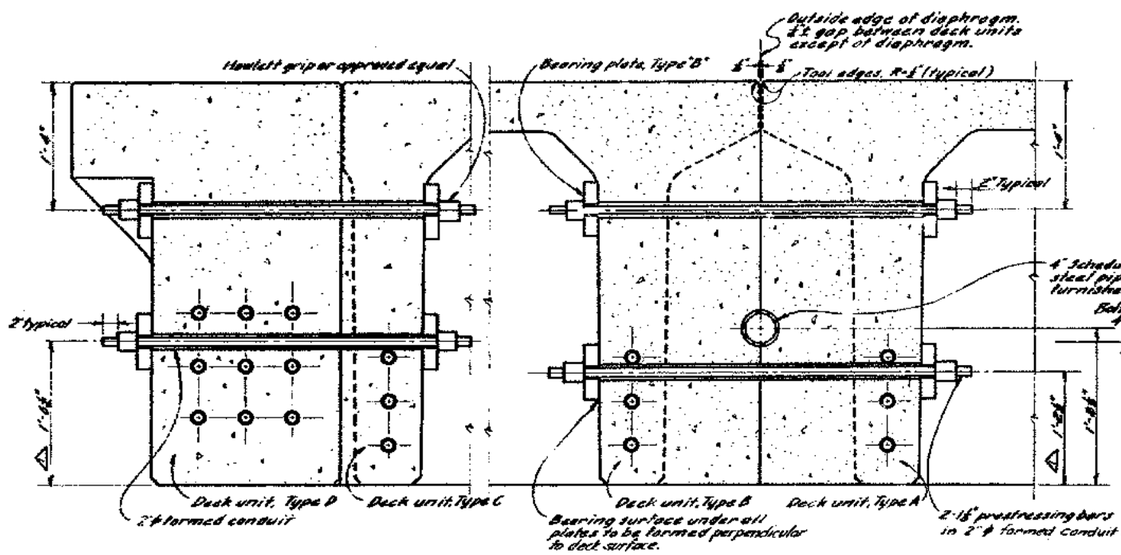
DETAIL B
COUPLING SYSTEM FOR CENTER JOINT
TYPE "D" TUNNEL UNITS



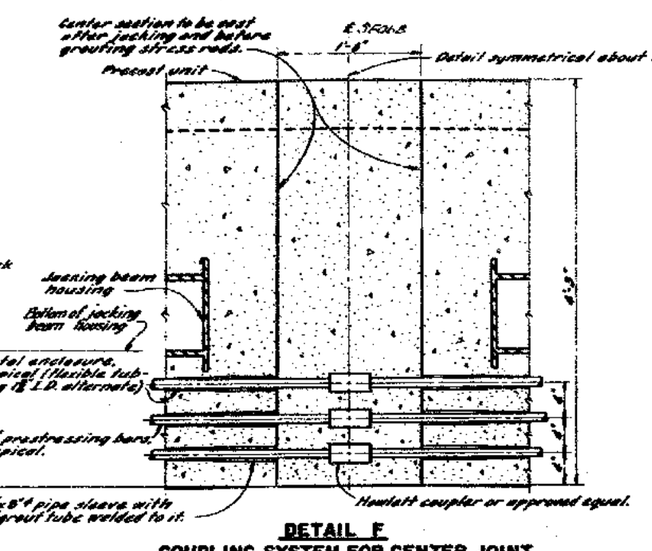
DETAIL C
ANCHORAGE SYSTEM AND BEARING DETAIL
TYPE "A", "B" AND "C" TUNNEL UNITS



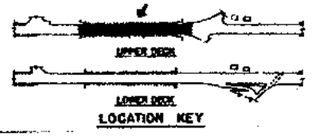
SECTION D-D

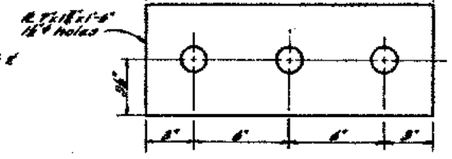


DETAIL E
COUPLING SYSTEM FOR DIAPHRAGMS
SECTION TAKEN FROM CENTER OF DIAPHRAGM

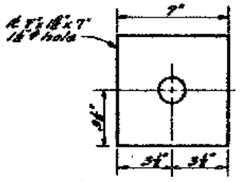


DETAIL F
COUPLING SYSTEM FOR CENTER JOINT
TYPE "A", "B", AND "C" TUNNEL UNITS





BEARING PLATE "A"
Scale: 3"=1'-0"



BEARING PLATE "B"
Scale: 3"=1'-0"

NOTES
1. Units shown in final position.
2. Reinforcement not shown.

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
PRESTRESSING ASSEMBLIES - TUNNEL UNITS

MARK	DATE	DESCRIPTION	BY	CH'K
2	5-1-64	As built without revision.	clc	BMK
1	5-64	Revised bearing details and diaphragm bar locations.	ARS	clb

REVISION

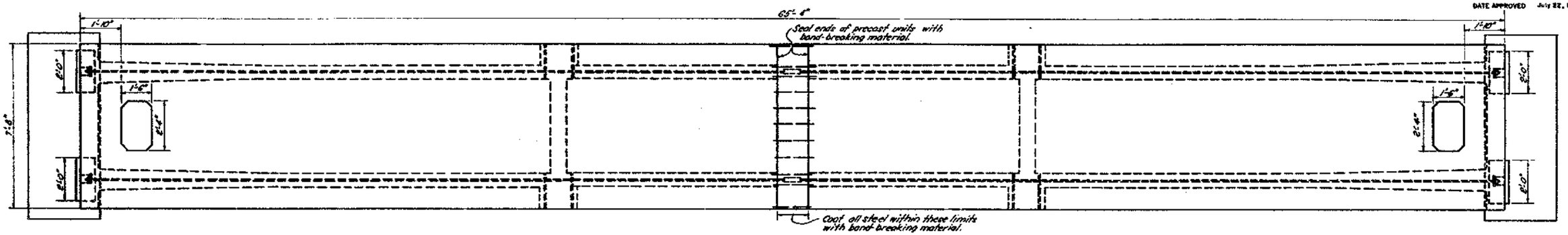
UNLESS NOTED
SCALE 1"=1'-0"

55-25
56-03

Sheet No. 75

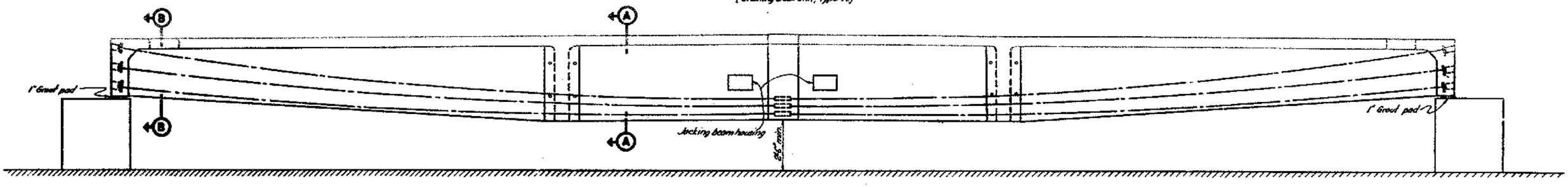
PROJECTS ENGINEER LICENSE 1474

DATE APPROVED July 22, 1960

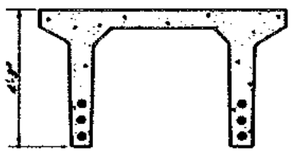


PLAN

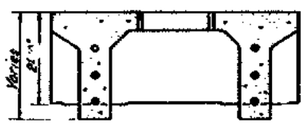
(Showing Deck Unit, type A)



ELEVATION



SECTION A-A



SECTION B-B

NOTES

1. Purpose of this test is to check the tunnel deck designs and intended erection schedule in advance of mass fabrication of the units. The test shall be performed on the first pair of Type 'A' deck units fabricated. No other deck units shall be fabricated before this test is completed and evaluated.

2. With the exception of the bond prevention and instrumentation, the test shall simulate as closely as possible a portion of the deck as finally erected in the tunnel. As far as compatible with the purpose of the test and as scheduled by the Contractor, the sequence of erection shall be as shown on contract Sheet No. 70.

3. The end supports shall be erected on solid foundation and shall be sufficiently rigid to simulate bearing conditions in the tunnel. Contractor shall submit shop drawings of the supports to the Engineer for approval before erection.

4. Instrumentation for test measurements will be furnished, installed, read and, if accessible, removed by others. The Contractor shall give the Engineer advance notice of his schedule so that the preparation and installation of the strain gages may be synchronized with his operations.

5. Deflection and strain measurements will be made (by others) under various loading conditions, as directed by the Engineer. The maximum test load shall be 82,000 lbs., spread evenly over the deck of the test unit. The load shall consist of five layers of sacked cement and shall be placed symmetrically about the center of the span in layers of 16,000 lbs. each. The full load shall remain in place for 14 days after the last layer is placed. The test load shall then be removed symmetrically about the center of the span, one layer at a time. No load shall be placed or removed except in the presence of the Engineer.

6 THS 0 1 2 3 10 THS

SCALE IN INCHES

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

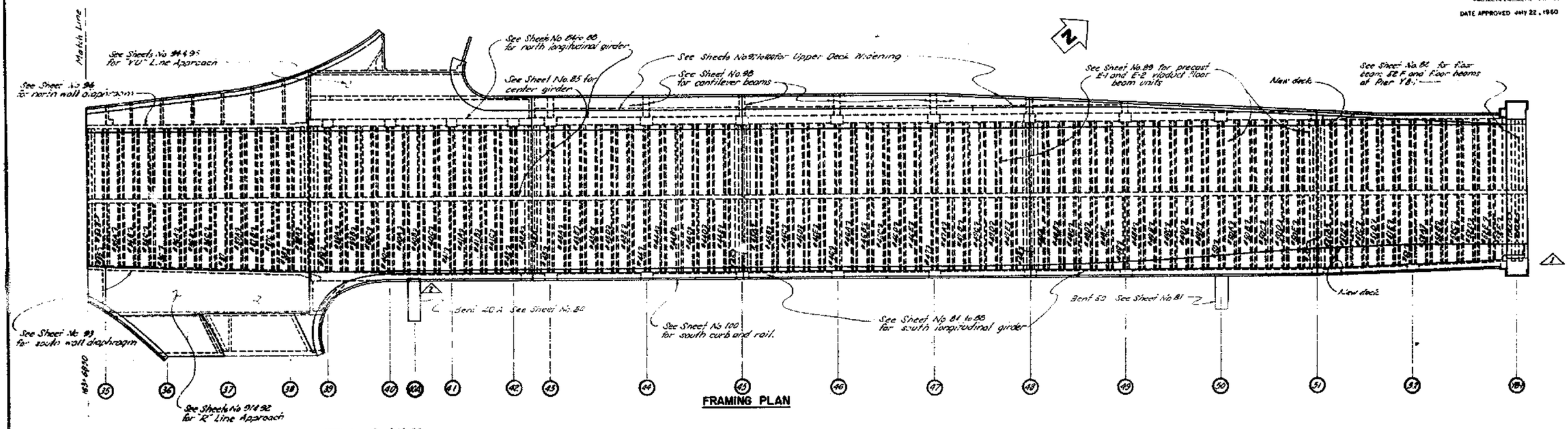
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

TUNNEL UNIT TEST ARRANGEMENT

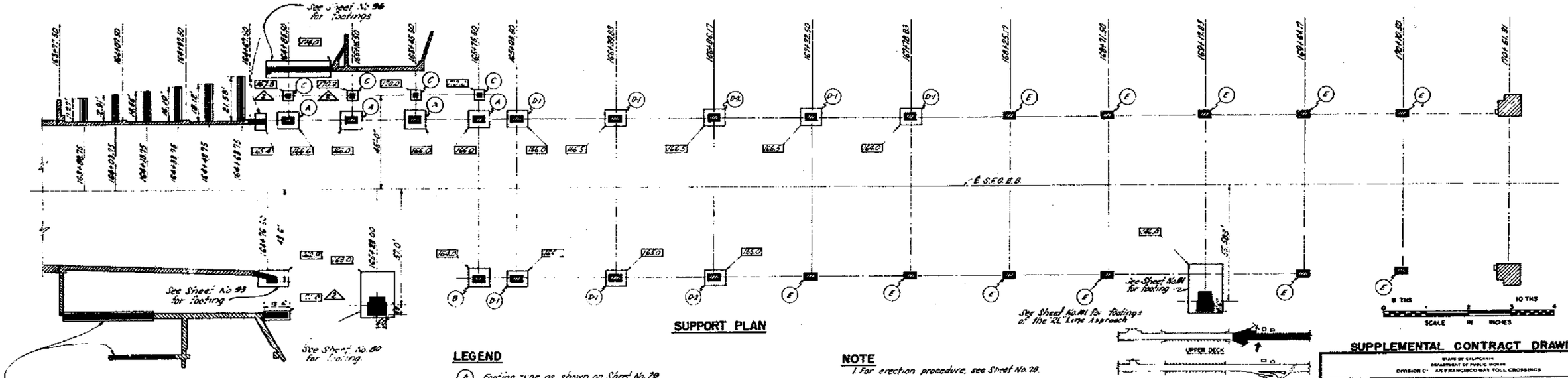
MARK	DATE	REVISION	BY	CHK.
1	6-1-66	As built without revision	cfc	EMT

SCALE 1/2"=1'-0" | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 76 | DRAWING C-4029-76

DATE APPROVED July 22, 1960



FRAMING PLAN



SUPPORT PLAN

LEGEND

(A) Footing type as shown on Sheet No. 79

150.0 Elevation of bottom of footing of either new or existing footings

(45) Bent No.

NOTE

1. For erection procedure, see Sheet No. 78.

MARK	DATE	DESCRIPTION REVISION	BY	CH'K.
2	6-1-60	As built with revision	dc.	BH.
1	9-1-60	Revised curb details for south side Pier Y8-1	PSE	CS.

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

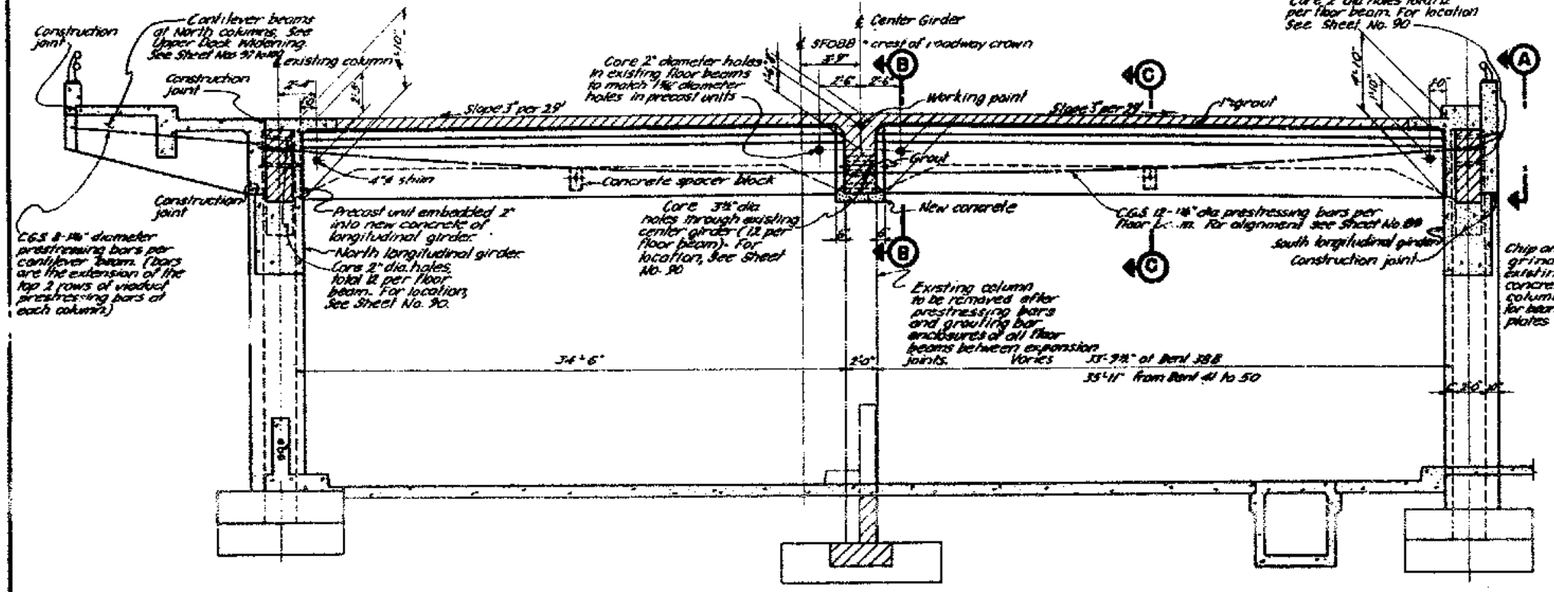
SAN FRANCISCO - OAKLAND BAY BRIDGE RECONSTRUCTION

STRUCTURE - YERBA BUENA ISLAND

STRUCTURE PLAN - EAST VIADUCT

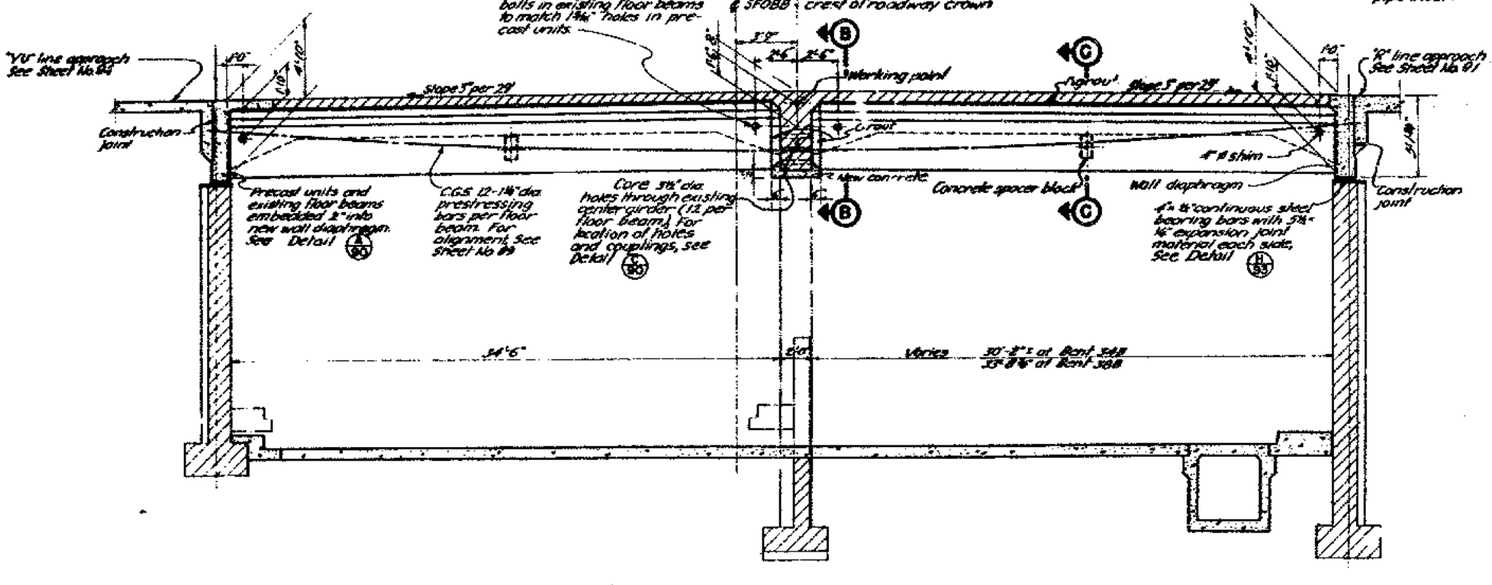
SCALE 1"=20' | BRIDGE 53-25 54-03 54-04 | SHEET NO. 77 | DRAWING C-45K9-778

DATE APPROVED July 22, 1960



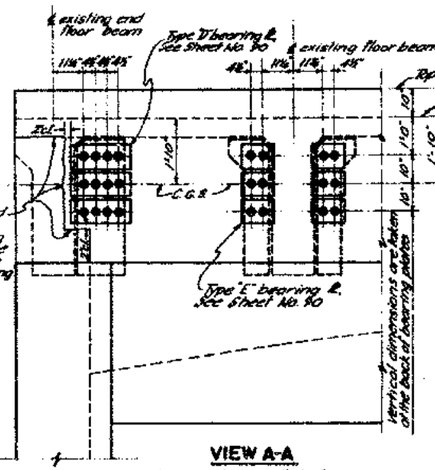
FLOOR BEAMS 38B TO 52E

Drawn at Bent 45



FLOOR BEAMS 34B TO 38A

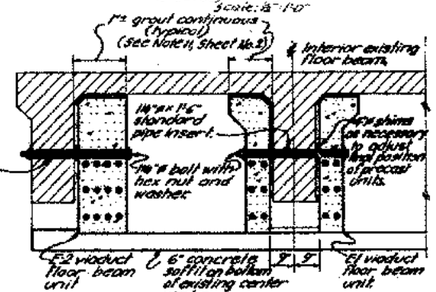
Drawn at Bent 37



VIEW A-A

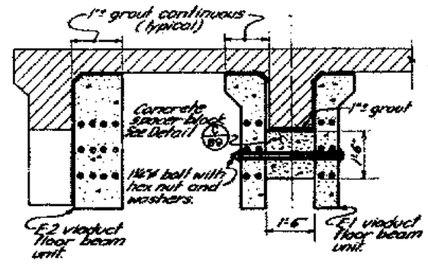
(Showing bearing ℄s before cover is added)

Scale: ½" = 1'-0"



SECTION B-B

Scale: ½" = 1'-0



SECTION C-C

Scale: ½" = 1'-0"

NOTES

1. See Sheet No. 89 for E1 and E2 units
2. See Sheet No. 90 for prestressing assemblies.

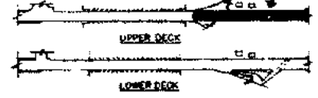
ERECTION PROCEDURE

Floor Beams 38A to 52E

1. Shore north and south longitudinal girders and/or floor beams close to longitudinal girders. (Haunches may be notched for bearing.) Preload shoring to prevent harmful settlement of existing structure.
2. Place column footing additions and columns up to new soffit of longitudinal girders.
3. Core holes for prestressing bars in longitudinal girders and center girder. Prepare anchor bearing areas on longitudinal girders and place coupler housings in 3⅛" dia cored holes in center girder.
4. Core holes in existing floor beams for 1⅜" dia. bolts.
5. Erect floor beam units, including spacer blocks. Place units so that their tops are approximately 1" below the deck slab and their outer ends are 2" inside the new longitudinal girders. Bolt new floor beam units to existing floor beams, splice to unit, insert and couple prestressing bars.
6. Remove upper deck railing, curbs and deck under curbs.
7. Place concrete around longitudinal girders to construction joints. Grout between precast units and existing deck and center girder. All concrete and grout to attain a strength of 4500 p.s.i.
8. Tension bars from both ends to an initial prestress of 124 kips in accordance with the approved tensioning schedule. Pressure grout bar enclosures.
9. Install prestressing bars and bearing plates and place concrete for cantilever beams. Tension bars after concrete has attained a strength of 4500 p.s.i. Pressure grout bar enclosures.
10. Place concrete for bearing plate cover and barrier walls.
11. Remove center columns and part of center girder. Place bottom reinforcement, bend stirrups, and concrete new center girder soffit.

Floor Beams 34B to 38A

1. Shore all floor beams close to face of walls (Haunches may be notched for bearing.) Preload shoring to prevent harmful settlement of existing structure.
2. Remove upper deck curbs and top 5'-4" of walls. Cut ends of floor beams for 2" embedment in new wall diaphragms. Retain all floor beam reinforcement in place.
3. Core holes for prestressing bars in center girder and place coupler housings.
4. Core holes in existing floor beams for 1⅜" dia. bolts.
5. Erect floor beam units, with prestressing bars inserted, on falsework. Place units so that their tops are approximately 1" below the deck slab and their outer ends are 2" inside the new wall diaphragms. Bolt new floor beam units to existing floor beams. Couple prestressing bars and install bearing plates.
6. Place concrete for new wall diaphragm.
7. Grout between precast units and existing deck and center girder. Allow concrete and grout to attain a strength of 4500 p.s.i.
8. Tension bars from both ends to an initial prestress of 124 kips each in accordance with the approved tensioning schedule. Pressure grout bar enclosures.
9. Remove center columns and part of center girder. Place bottom reinforcement, bend stirrups, and concrete new center girder soffit.



LOCATION KEY

DESIGN AND DETAILS REVIEWED BY: F. J. Mihran

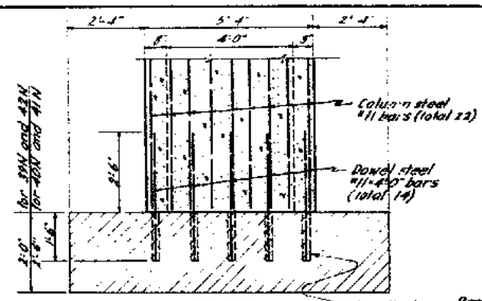
MARK	DATE	REVISION	BY	CHK.
1	6-1-64	As built without revision.	c/c	RAL

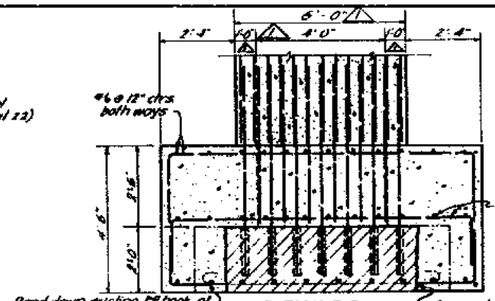
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF THE SAN FRANCISCO BAY TOLL CROSSINGS

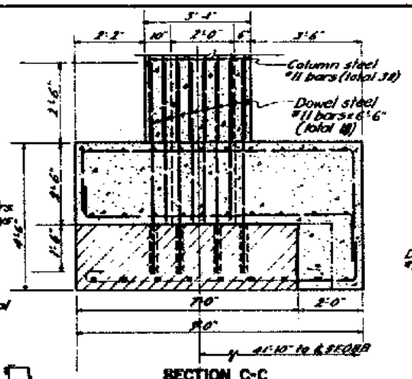
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
UPPER DECK SECTIONS-EAST VIADUCT

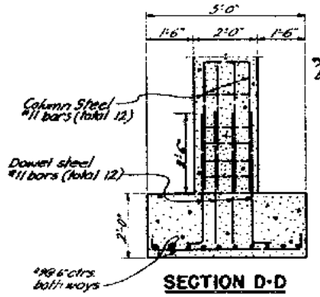
UNLESS NOTED SCALE 1/4" = 1'-0" | BRIDGE 34-03, 34-04 | SHEET No. 78 | DRAWING C-4029-79R

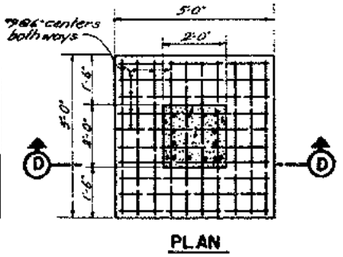
DATE APPROVED July 22, 1960



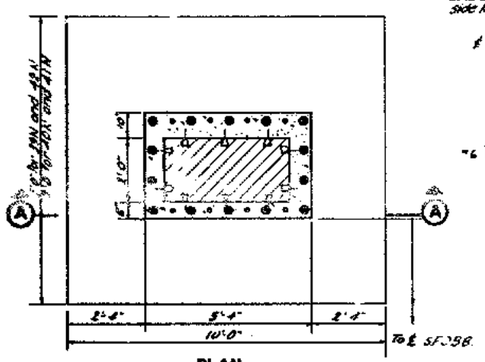




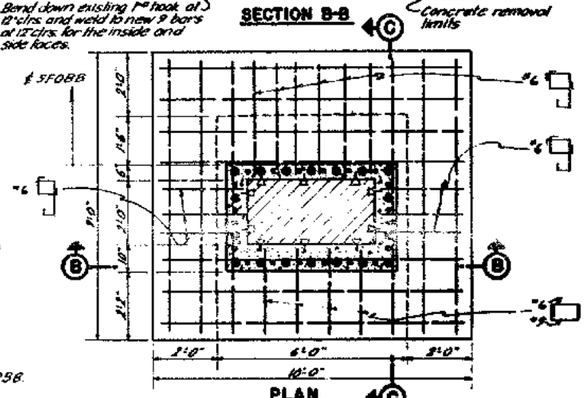




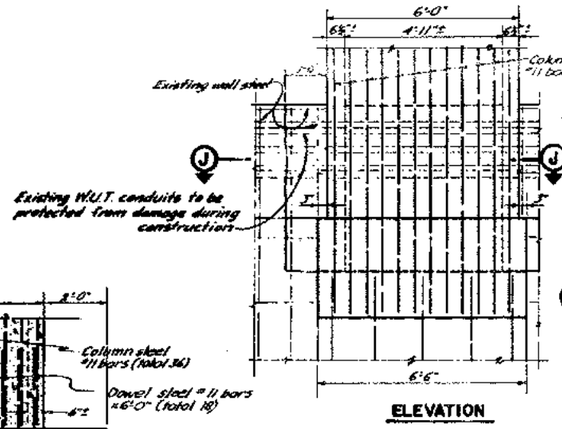
TYPE C (YU Line columns 39, 40, 41, 42 North)

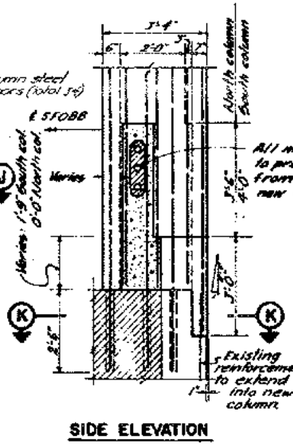


TYPE A (Columns 39, 40, 41 and 42 North)



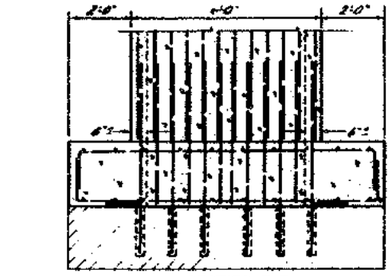
TYPE B (Column 42 South)

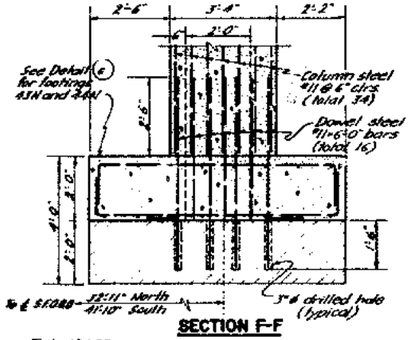


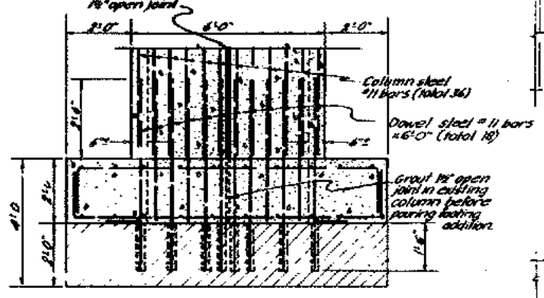


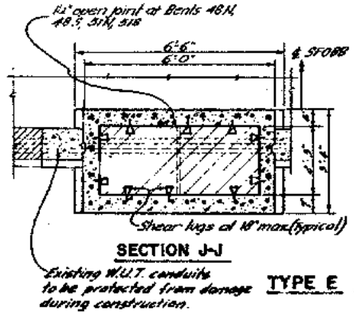
NOTES:

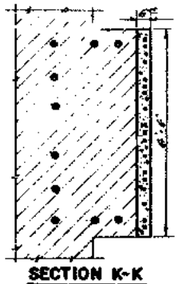
1. Ties to be spaced @ 6" within 24 feet of the top and bottom of all columns. Ties to be spaced @ 12" for remainder of column.
2. Shear lugs on columns to start at the top of the new footing and end at the bottom of the new girder.
3. All dowels to be grouted into 3"ø drilled holes when embeded in existing concrete.
4. For extension of column reinforcement into longitudinal girders, see Sheet No. 85.
5. 3 existing W.U.T. conduits are to be embedded in the footing addition of column 47N. All necessary precautions shall be taken to prevent any damage to the conduits while excavating for and constructing the footing addition.



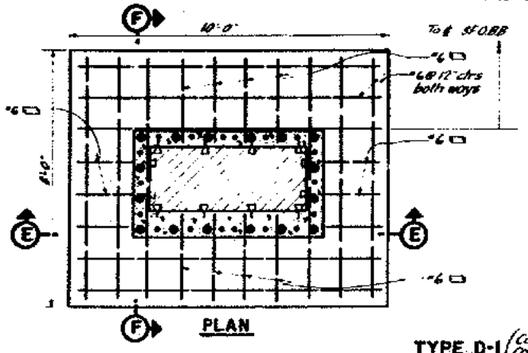




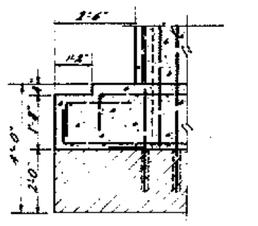


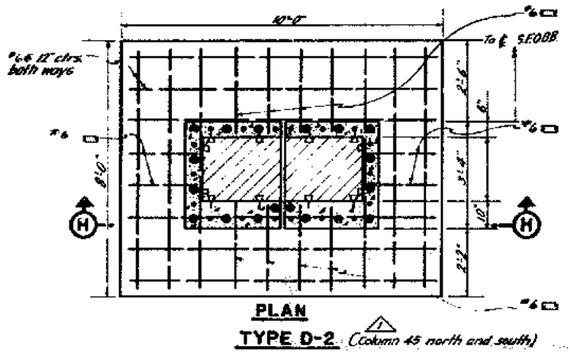


TYPE E (Columns 46, 47, 48, 49, 51, 52 South shown) (Columns 48, 49, 50, 51, 52 North similar)

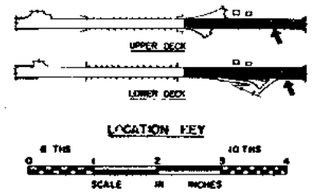


TYPE D-1 (Columns 43, 44, 45 and 47 North) (Columns 43 and 44 South)





TYPE D-2 (Column 45 north and south)



MARK	DATE	DESCRIPTION REVISION	BY	CHK.
1	6-1-64	As built with revision.	cfc	RMC

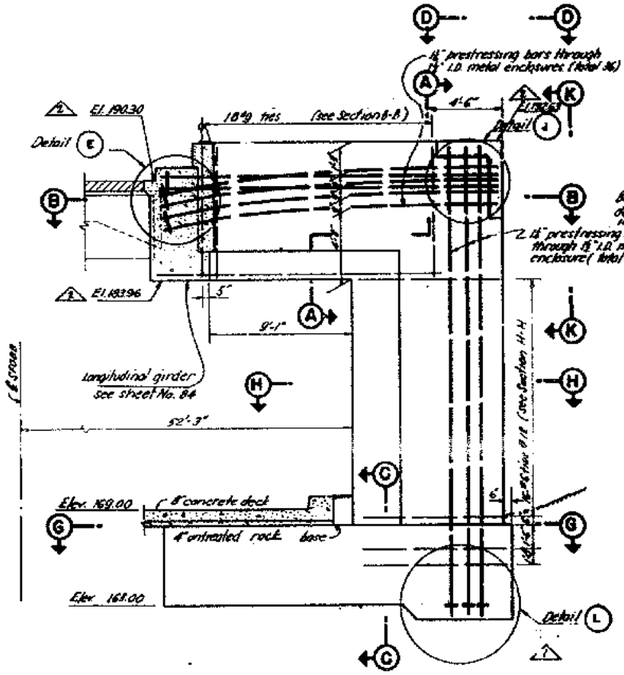
STATE OF CALIFORNIA — DEPARTMENT OF PUBLIC WORKS
DIVISION — SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
COLUMNS AND FOOTINGS – EAST VIADUCT

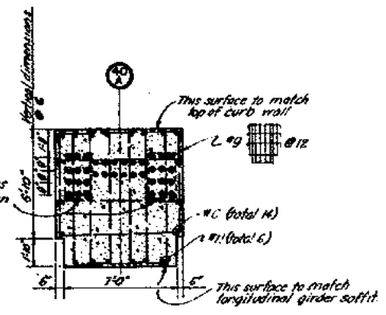
SCALE 1/2" = 1'-0" | BRIDGE 33-25, 34-03, 54-04 | SHEET NO. 79 | DRAWING C-4029-79R

PROJECT ENGINEER

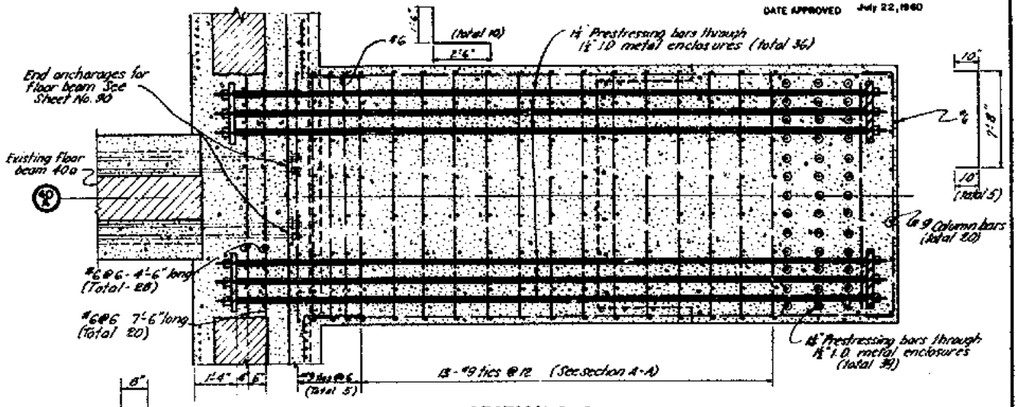
DATE APPROVED July 22, 1960



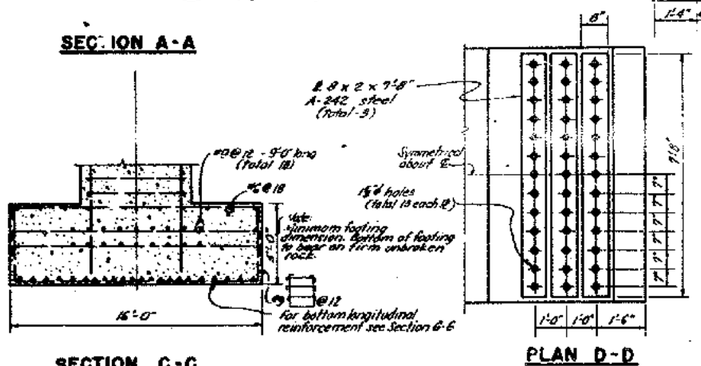
ELEVATION



SECTION A-A

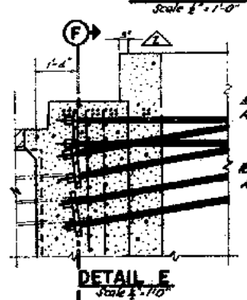


SECTION B-B
Scale ½" = 1'-0"

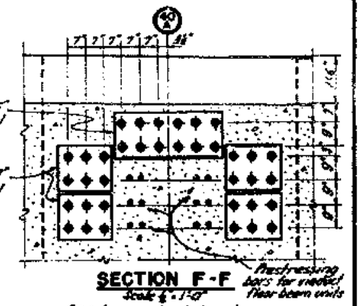


SECTION C-C

PLAN D-D
Scale ½" = 1'-0"

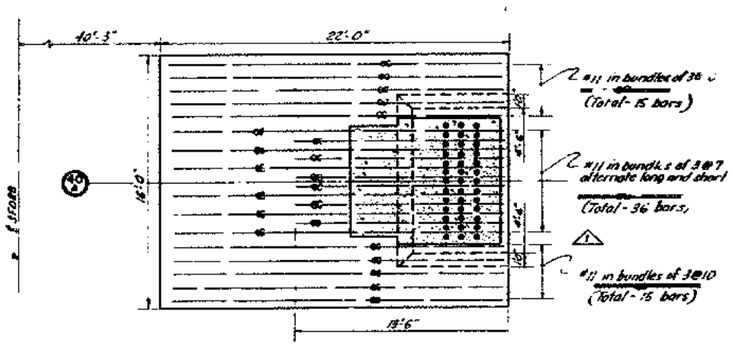


DETAIL E
Scale ½" = 1'-0"

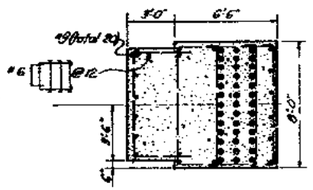


SECTION F-F
Scale ½" = 1'-0"

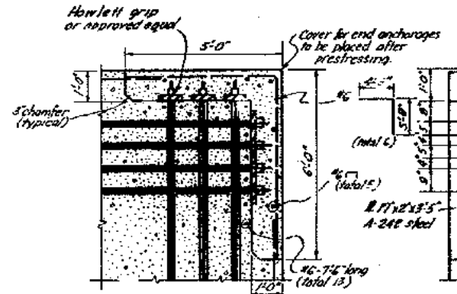
(Reinforcement not shown)
Dimensions shown at back of bearing plates.



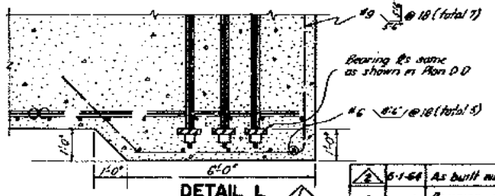
SECTION G-G



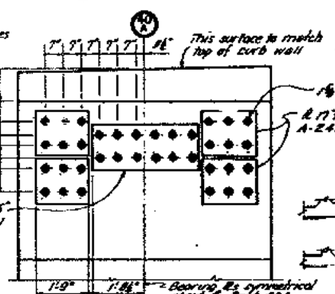
SECTION H-H



DETAIL J
Scale ½" = 1'-0"



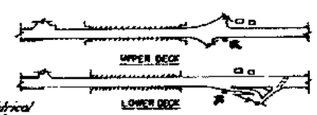
DETAIL L
Scale ½" = 1'-0"



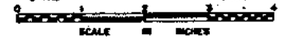
ELEVATION K-K
Scale ½" = 1'-0"

NOTES

1. Tension all prestressing bars to 133 kips/bar.



LOCATION KEY



SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

BENT 40A

MARK	DATE	DESCRIPTION	BY	CH'K
2	5-1-64	As built with revision.	cfc	DMLC
1	11/16/60	Revision of prestressing bar anchorage details.	BMH	

REVISION

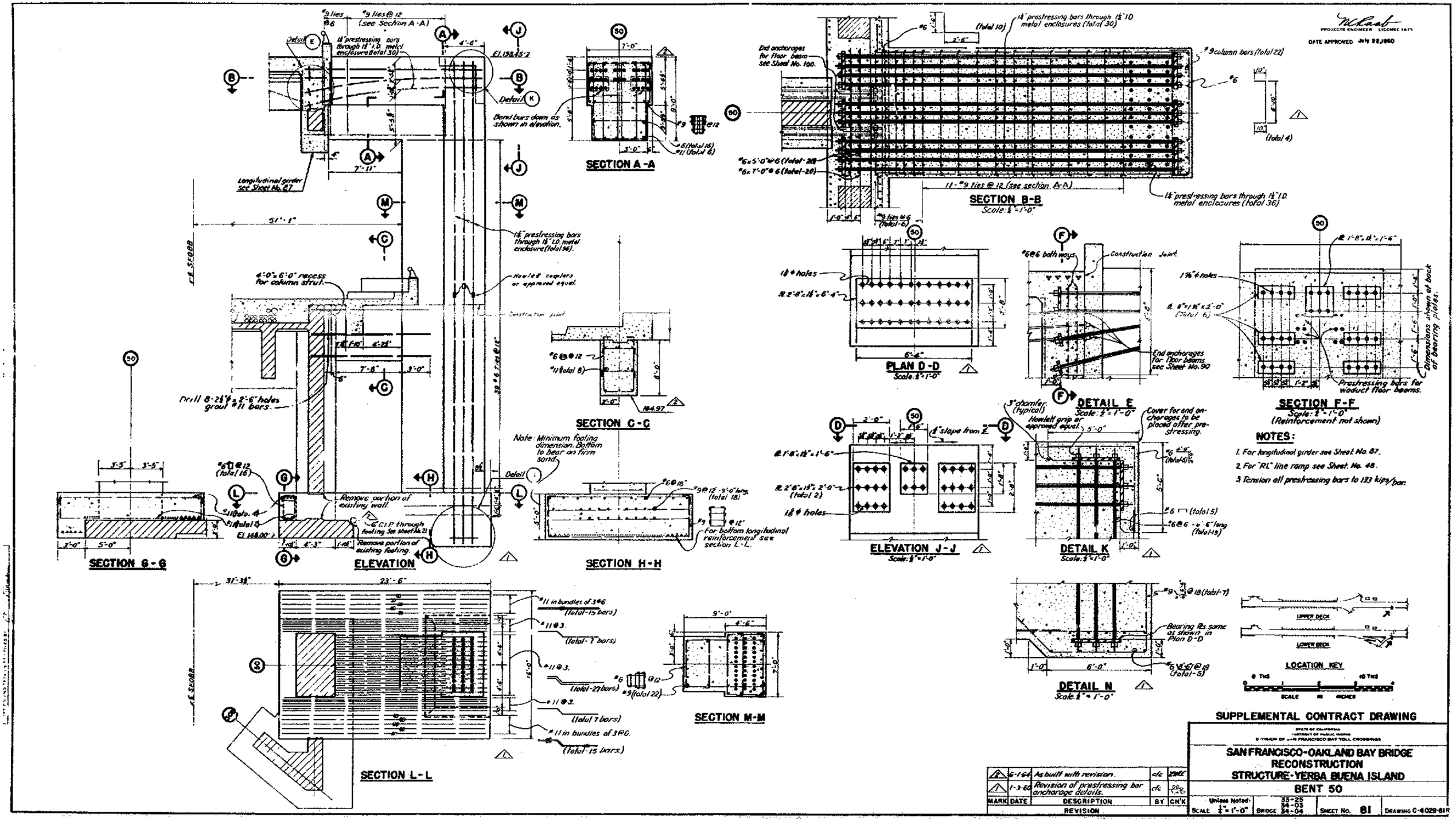
Unless Noted SCALE 1/4" = 1'-0"

BRIDGE 53-35 54-03 54-04

SHEET NO. 60

DRAWING C-4028-60R

INACTIVE 1" @ SUPERVISING BRIDGE ENGINEER LICENSE EXPIRES 6-30-62 CEN'G + MISC DETAILS BY UNITED



NOTES:

1. For longitudinal girder see Sheet No. 87.
2. For "RL" line ramp see Sheet No. 48.
3. Tension all prestressing bars to 133 kips/bar.

PROJECTS ENGINEER LICENSE 1675

DATE APPROVED July 22, 1960

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

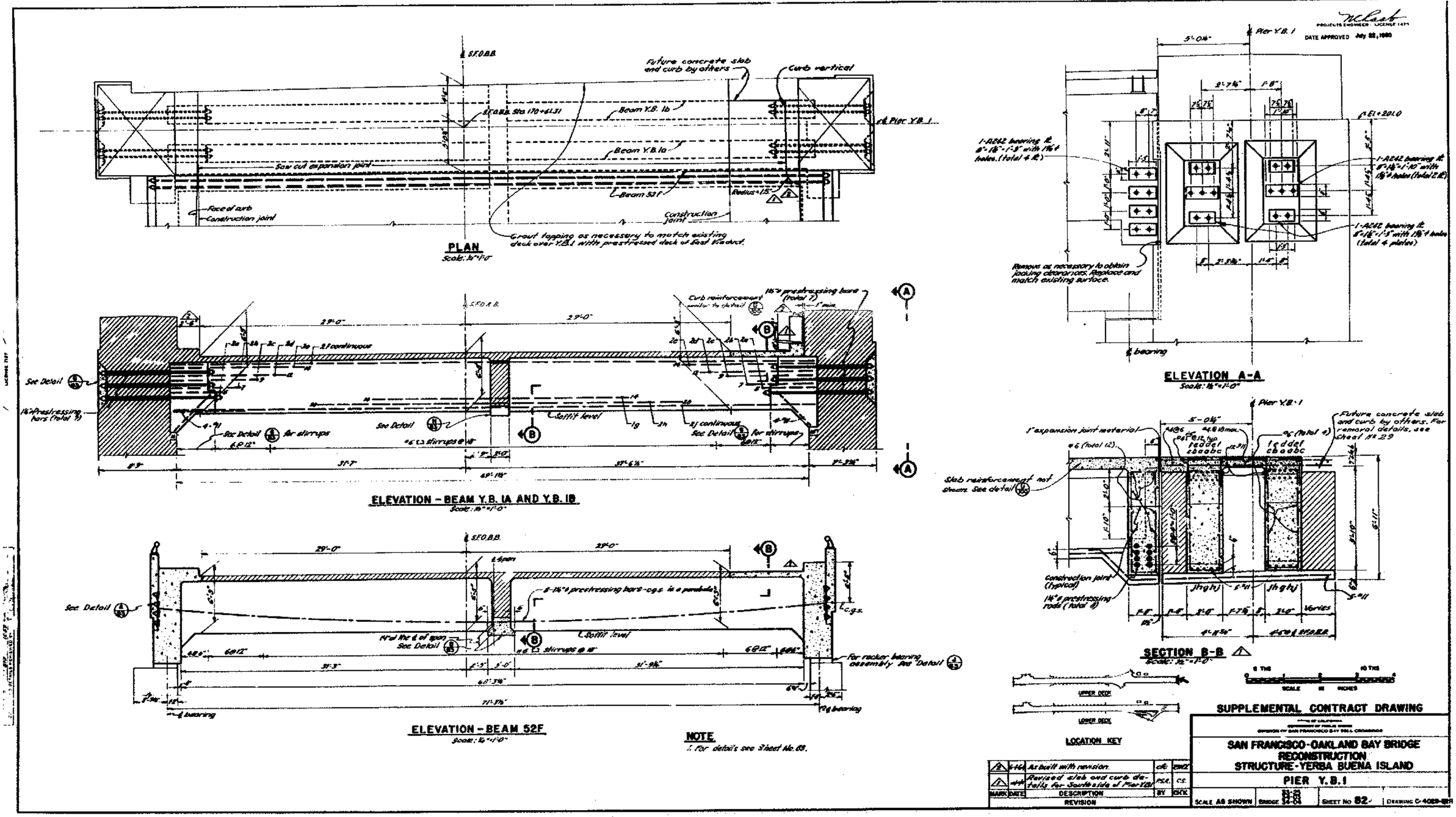
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

BENT 50

MARK	DATE	DESCRIPTION	BY	CH'K
2	6-1-64	As built with revision.	cfc	
1	1-3-60	Revision of prestressing bar anchorage details.	cfc	

REVISION

Unless Noted: SCALE ½"=1'-0" | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 81 | DRAWING C-4029-61R



PLAN
Scale: 1/4"=1'-0"
Future concrete slab and curb by others
Curb vertical
Beam Y.B. 1b
Beam Y.B. 1a
Saw cut expansion joint
Beam 52F
Face of curb
Construction joint
Grout topping as necessary to match existing deck over Y.B.1 with prestressed deck of East Viaduct.
ELEVATION - BEAM Y.B. 1A AND Y.B. 1B
Scale: 1/4"=1'-0"
ELEVATION - BEAM 52F
Scale: 1/4"=1'-0"
ELEVATION A-A
Scale: 1/4"=1'-0"
SECTION B-B
Scale: 1/2"=1'-0"
LOCATION KEY
UPPER DECK
LOWER DECK
NOTE
1. For details see Sheet No. 83.
SUPPLEMENTAL CONTRACT DRAWING
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
PIER Y.B.1
SCALE AS SHOWN
SHEET NO 82
DATE APPROVED July 22, 1980

DATE APPROVED July 22, 1960
DETAIL A
END ANCHORAGE
Only floor beam reinforcement shown
2-#6 (total 12) continuous
#6 I (total 2)
A242 Bearing ℞ 8"×1½"-1'-5" (Total 4)
DETAIL B
Top reinforcement continuous through 2"φ drilled holes. Grout after placement.
8-1⅛"φ prestressing bars in 1⅞"φ flexible metal tubing. Grout tubing after tensioning all bars.
Bend existing stirrups as shown. Install shear lugs with hooked bars where existing stirrups are not long enough.
#11 continuous (total 7)
SECTION C-C
Construction joint
Minimum cover 2"
BEAM 52F
Top plate Drill 4-1⅛" dia. holes 1" deep
Bottom plate Drill 4-1" dia. holes 1" deep for 1" dia. dowels
1"φ × 1⅛" dowel. Round top end. 4 required per rocker
A 242 steel
Round bottom edges
Threaded hole for ¾" machine bolt 1 per side
2 required per rocker
DETAIL D
Bronze
1 required per rocker
DETAIL E
4 required per rocker. Fasten to plate with 3-½" by 3¼" hexagon head machine bolts.
½" × 3½" hexagon head machine bolts. 12 required per rocker.
2'-0" × 2'-0" × 1½" steel (A7) plate
1 required per rocker
DETAIL F
1⅛"φ prestressing bar (total 7)
A242 Bearing ℞ 8" × 1½" - 1'-5" on 1" grout pad
2"φ cored holes
#4 @ 12" vertical
#4 @ 18" horizontal
New reinforcement lap welded to existing reinforcement.
Metal enclosure (Flexible tubing I.D. 1⅞"φ, alternate)
40 diameter lap. Stagger all laps. Do not lap abc bars.
Construction joint
#11 4'-6" (total 4)
8'-9" (North)
7'-3⅜" (South)
Place concrete before tensioning prestressing bars.
Place concrete after tensioning prestressing bars.
DETAIL G
END ANCHORAGE
DETAIL H
Top reinforcement continuous through 2"φ drilled holes. Grout bars after placement.
#6 [] @ 18"
#11 (total 5)
#6 ⊔, lap weld 2" to existing stirrups.
NOTES
1. All "Rocker Assembly" steel to be galvanized after fabrication.
BEAM Y.B. 1A AND Y.B. 1B
3/8"φ welded stud @ 12"
hexagon heads
6 × ¼" bent plates
2×2×¼ Ls
1½" flange (typical)
L 2×2×¼ × 0'-2" (total 4). Attach to plates with ¼" tap screws
Rocker assembly not shown. See Detail J
DETAIL L
COVER PLATE
Existing concrete
2-1" × ½" steel bars
1'-6" × 1'-6" × 2¼" steel plates See Detail D
1'-8" × 1'-8" × 1" bronze plate See Detail E
2'-0" × 2'-0" × 1½" steel plate See Detail F
For cover plates See Detail L
Existing concrete
℄ rocker
DETAIL J
ELEVATION K-K
ROCKER BEARING ASSEMBLY BEAM 52 F
UPPER DECK
LOWER DECK
LOCATION KEY
SCALE IN INCHES
6-1-64 As built with revision.
MARK DATE DESCRIPTION BY CHK.
REVISION
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
PIER Y.B. 1 - DETAILS
SCALE AS SHOWN
BRIDGE 33-25 34-03 34-04
SHEET No. 83
DRAWING C-4029-83R

PROJECTS ENGINEER

DATE APPROVED July 22, 1960

NOTES

1. All main longitudinal reinforcement to be #11 bars unless otherwise noted. Cut-off points shown are from ℄ bents and ℄ between bents unless otherwise noted.
2. All main reinforcement in columns to be #11 bars.
3. All stirrups to be #6 bars.
4. All ties to be #4 bars.
5. Metal safety railing not shown on longitudinal girders.
6. For column reinforcement, see Sheet No. 85.
7. For location of cored holes and prestressing anchorages on longitudinal girder, see Sheet No. 78.

LOCATION KEY

MARK	DATE	DESCRIPTION	BY	CH'K
1	6-1-64	As built without revision.		
		REVISION		

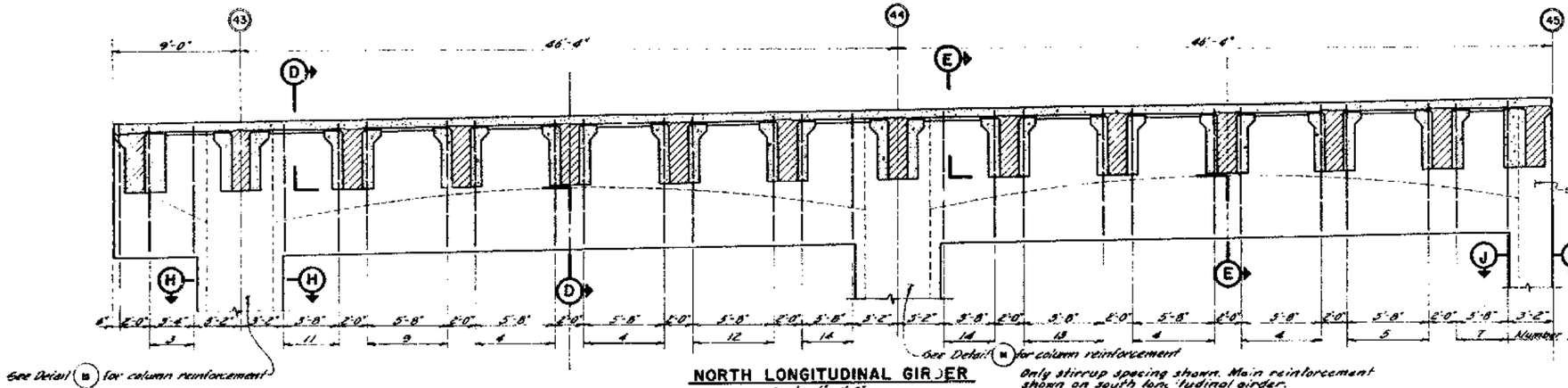
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

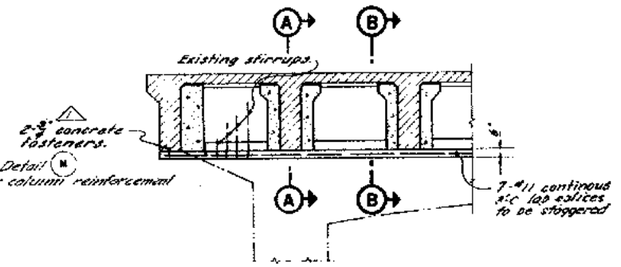
LONGITUDINAL GIRDERS-BENTS 39 TO 42

UNLESS NOTED SCALE 1/4"=1'-0" | BRIDGE 34-04 | SHEET No. 84 | DRAWING C-4029-84R

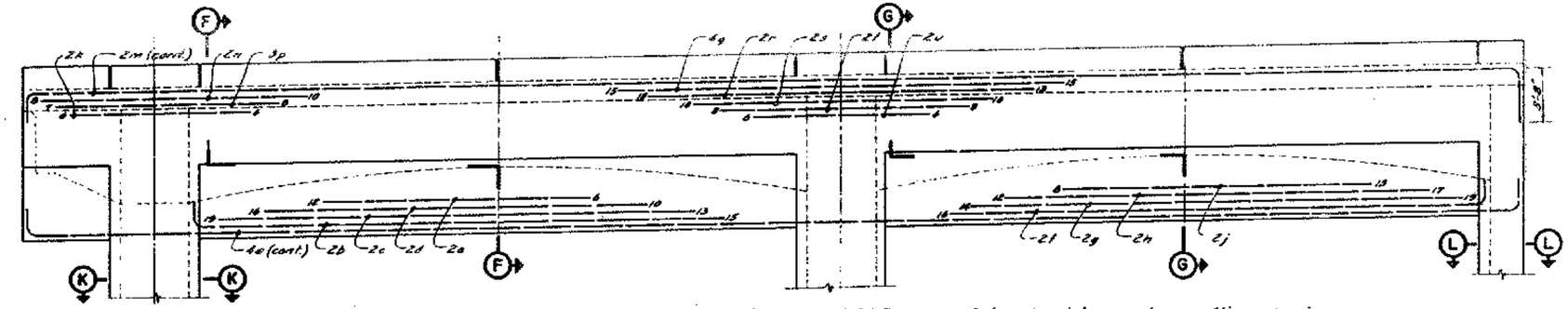
DATE APPROVED July 22, 1980



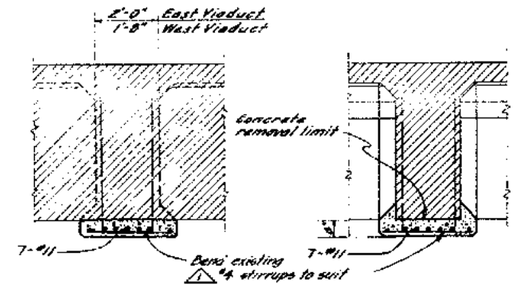
NORTH LONGITUDINAL GIRDER
Scale: $\frac{1}{8}$"-1'-0"



ELEVATION
Scale: $\frac{1}{8}$"-1'-0"



SOUTH LONGITUDINAL GIRDER
Scale: $\frac{1}{8}$"-1'-0"



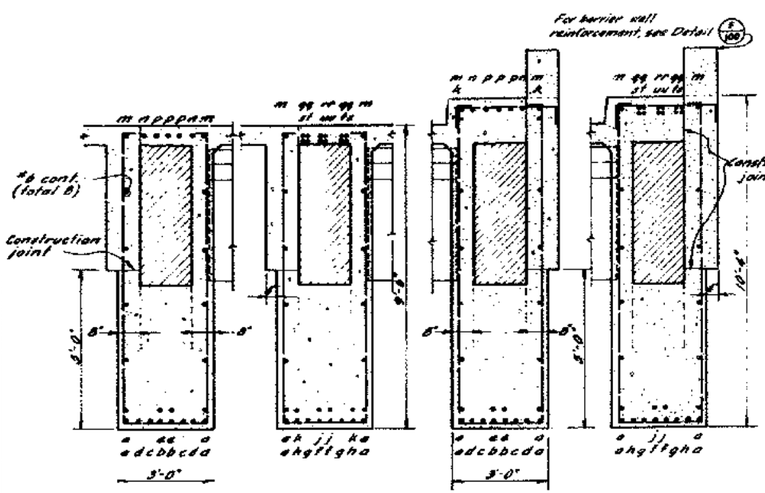
SECTION A-A
Scale: $\frac{1}{2}$"-1'-0"

SECTION B-B
Scale: $\frac{1}{2}$"-1'-0"

DETAIL C
TYPICAL CENTER GIRDER
(Stations 163+68.5 to 170+85.2)

NOTES

1. See notes on sheet No. 84.

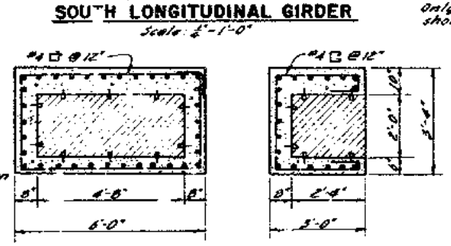


SECTION D-D
Scale: $\frac{1}{2}$"-1'-0"

SECTION E-E
Scale: $\frac{1}{2}$"-1'-0"

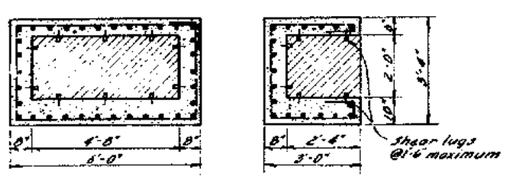
SECTION F-F
Scale: $\frac{1}{2}$"-1'-0"

SECTION G-G
Scale: $\frac{1}{2}$"-1'-0"



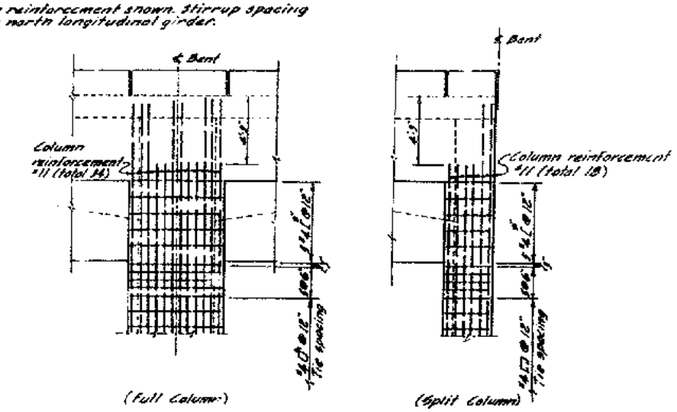
SECTION H-H
Scale $\frac{1}{2}$"-1'-0"

SECTION J-J
Scale: $\frac{1}{2}$"-1'-0"

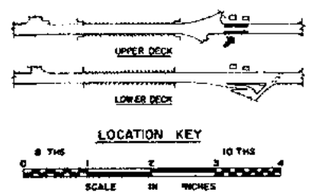


SECTION K-K
Scale: $\frac{1}{2}$"-1'-0"

SECTION L-L
Scale: $\frac{1}{2}$"-1'-0"



DETAIL M
TYPICAL COLUMN REINFORCEMENT
Scale: $\frac{1}{2}$"-1'-0"



MARK	DATE	DESCRIPTION REVISION	BY	CHK
1	6-1-84	As built with revision	dk	RMF

STATE OF CALIF. THE DEPARTMENT OF PUB. C. WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

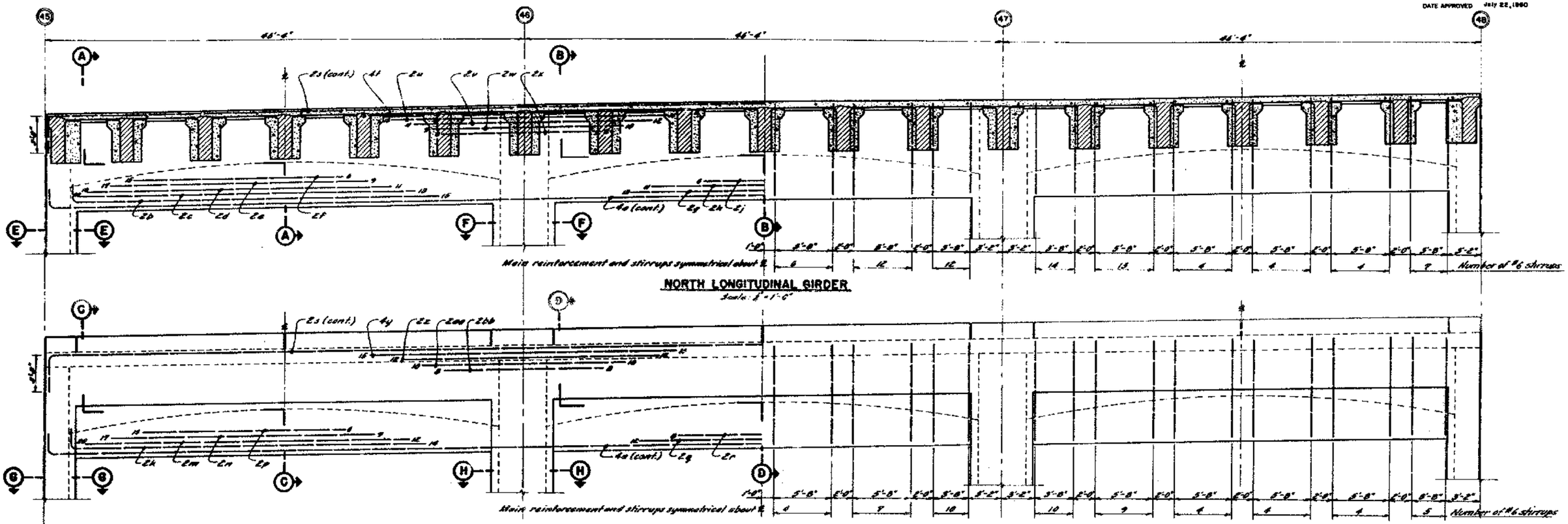
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

LONGITUDINAL GIRDERS - BENTS 43 TO 45

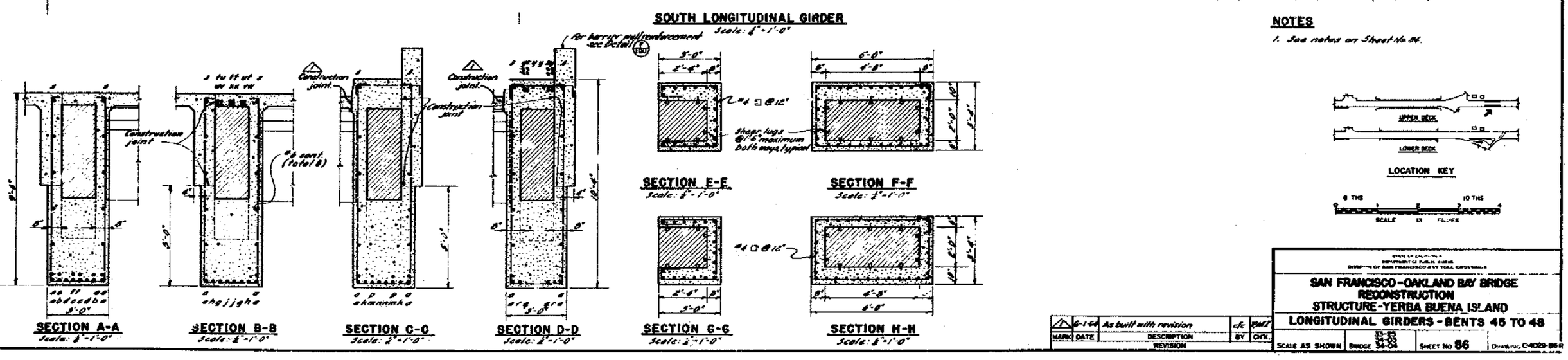
SCALE AS SHOWN | BRIDGE 33-25 34-03 34-04 | SHEET No. 85 | DRAWING C-4029-85R

PROJECTS ENGINEER LICENSE 1429

DATE APPROVED July 22, 1960



NORTH LONGITUDINAL GIRDER
Scale: $\frac{1}{8}$" = 1'-0"



SOUTH LONGITUDINAL GIRDER
Scale: $\frac{1}{8}$" = 1'-0"

NOTES

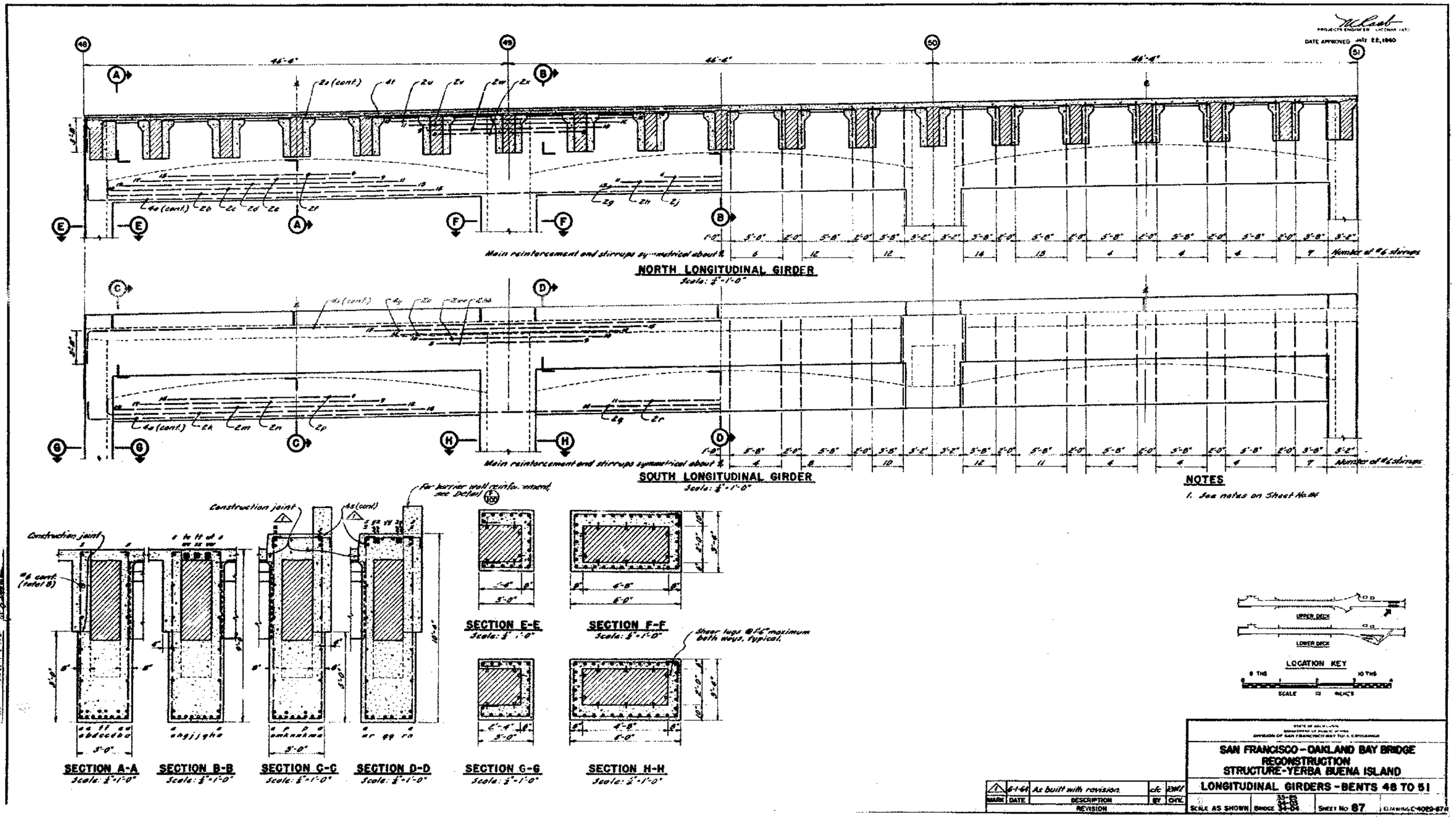
1. See notes on Sheet No. 84.

MARK	DATE	DESCRIPTION / REVISION	BY	CHK.
1	6-1-64	As built with revision	ck	Gulf

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
LONGITUDINAL GIRDERS - BENTS 45 TO 48

SCALE AS SHOWN | BRIDGE 34-83 34-84 | SHEET NO 86 | DRAWING C-4029-86-R



STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

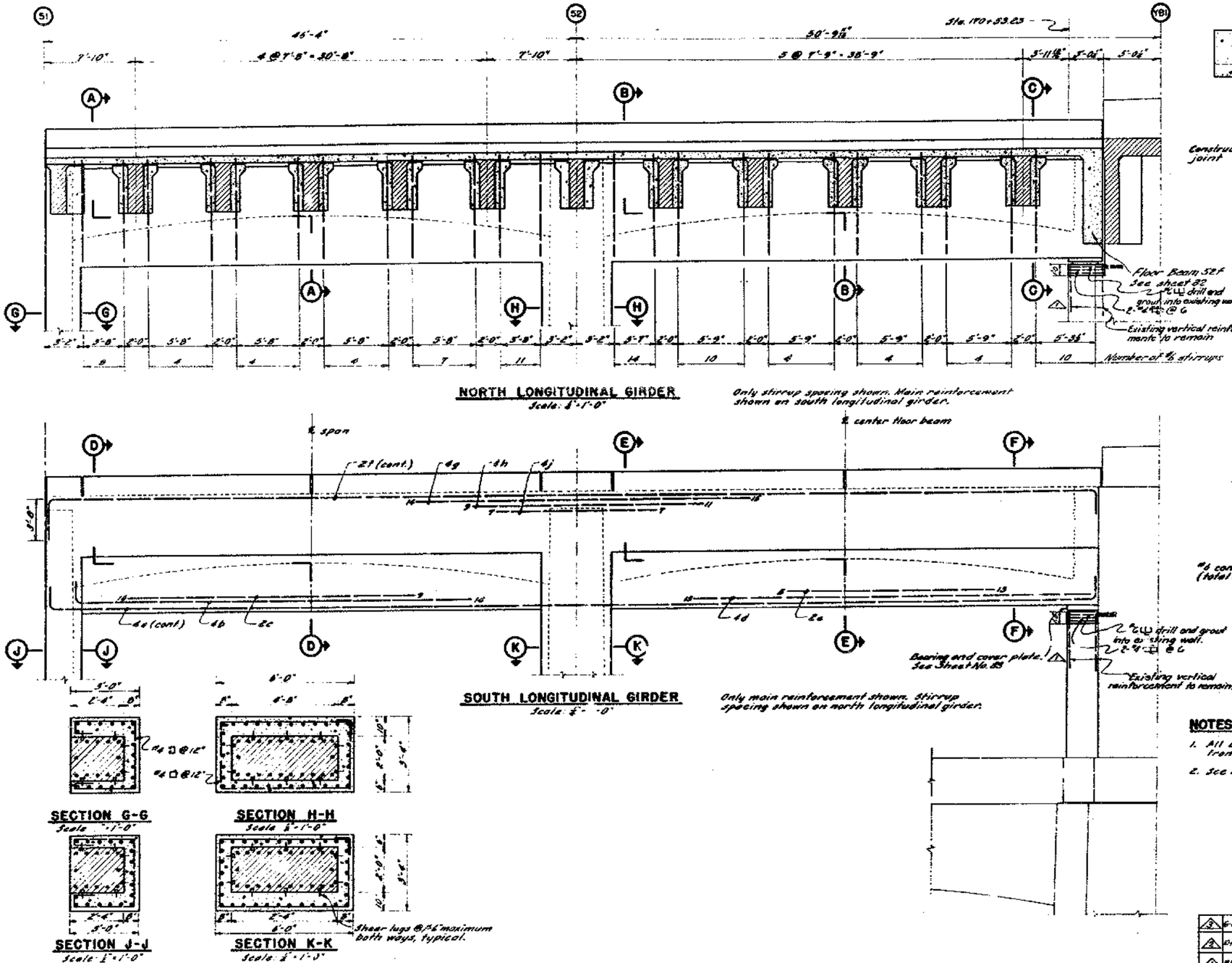
SAN FRANCISCO - OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

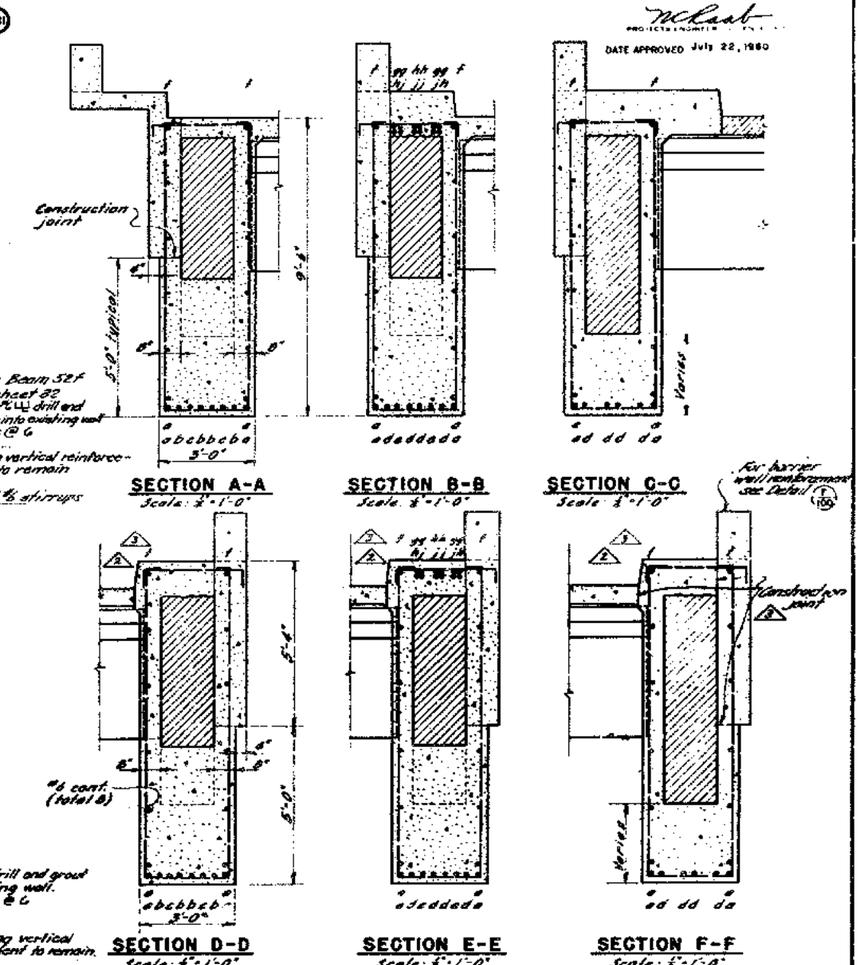
LONGITUDINAL GIRDERS - BENTS 48 TO 51

MARK	DATE	DESCRIPTION	BY	CHK.
1	6-1-64	As built with revision.	cfc	RWL

REVISION

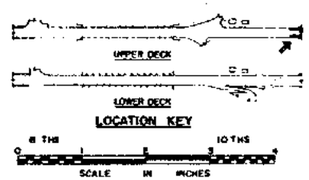
SCALE AS SHOWN | BRIDGE 33-25 34-03 34-04 | SHEET No 87 | DRAWING C-4029-67R





NOTES

1. All cut-off points are measured in feet from ℄ bents and ℄'s shown.
2. See notes on Sheet No. 84



SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

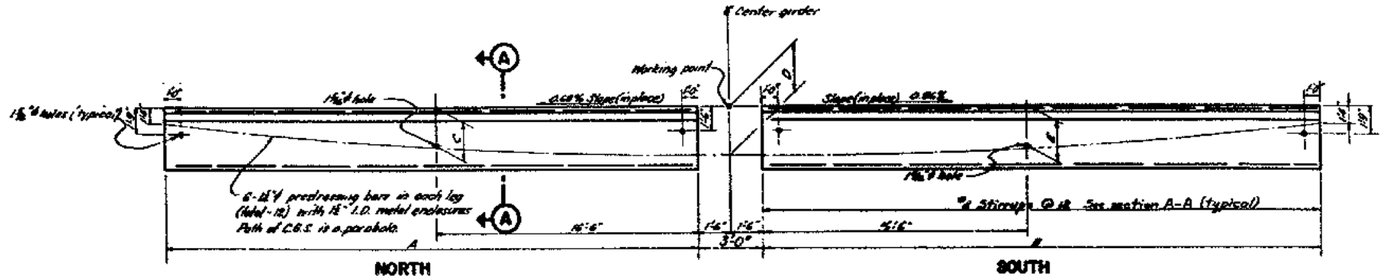
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

LONGITUDINAL GIRDERS - BENTS 51 TO Y.B.I.

MARK	DATE	DESCRIPTION	BY	CH'K
3	6-1-64	As built with revision.	cfc	RMI
2	10-10-61	Revise curb on South longitudinal girder sections.	P.S.R.	C.S.
1	11-11-60	Ties added to top of north and south columns at Pier YB-1	CB	[illegible]

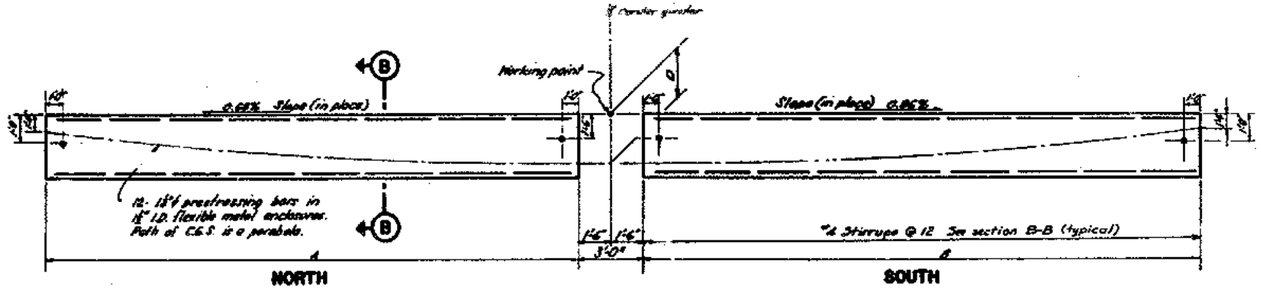
REVISION

SCALE AS SHOWN | BRIDGE 53-25 34-03 34-04 | SHEET No. 88 | DRAWING C-4029-88R



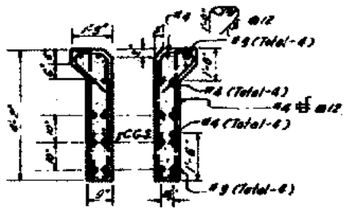
ELEVATION

STANDARD E-1 UNIT



ELEVATION

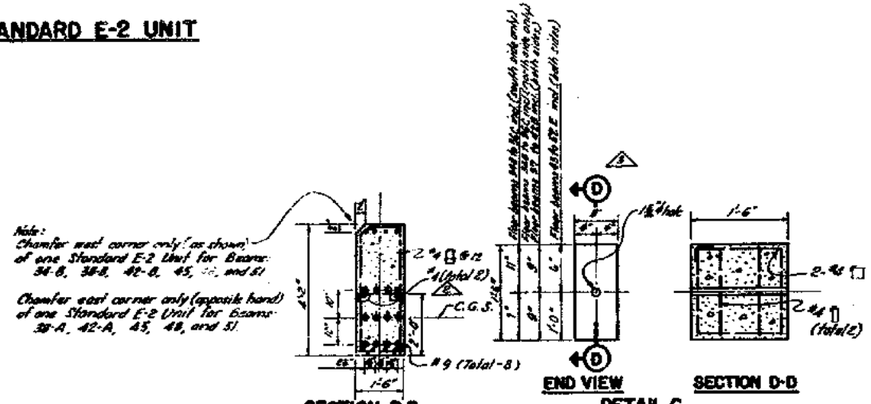
STANDARD E-2 UNIT



SECTION A-A

North section shown, South section similar

Scale ½"=1'-0"



SECTION B-B

North section shown, South section similar

Scale ½"=1'-0"

END VIEW

SECTION D-D

DETAIL C

CONCRETE SPACER BLOCK

Scale 1"=1'-0"

BEAM	TYPE	A	B	C △2	D △1	E △3
34B	E-2	34'-5"	30'-5"	——	2'-8"	——
38	E-1	34'-5"	30'-5"	2'-8"	2'-8½"	6'-6"
38A	E-1	34'-3"	30'-3"	2'-8"	2'-8½"	6'-6"
38B	E-2	34'-3"	30'-10½"	2'-8"	2'-8½"	6'-6"
38C	E-1	34'-3"	31'-1½"	2'-8"	2'-8½"	6'-6"
42	E-1	34'-3"	31'-10½"	2'-8"	2'-8½"	6'-6"
42A	E-1	34'-3"	31'-7"	2'-8"	2'-8½"	6'-6"
42B	E-1	34'-3"	31'-10"	2'-8"	2'-8½"	6'-6"
42C	E-1	34'-3"	32'-0½"	2'-8"	2'-8½"	6'-6"
45	E-1	34'-3"	32'-3½"	2'-8"	2'-8"	6'-6"
45A	E-1	34'-3"	32'-6½"	2'-8"	2'-8"	6'-6"
45B	E-1	34'-3"	32'-9½"	2'-8"	2'-7½"	6'-6"
45C	E-1	34'-3"	33'-0½"	2'-8"	2'-7½"	6'-6"
48	E-1	34'-3"	33'-3½"	2'-8"	2'-7½"	6'-6"
48A	E-2	34'-3"	33'-6"	——	2'-8"	——
48B	E-2	33'-6"	32'-11½"	——	2'-8"	——
51	E-1	33'-6"	33'-2"	2'-8"	2'-8½"	6'-8"
51A	E-1	33'-6"	33'-5½"	2'-8"	2'-8½"	6'-8"
51B	E-1	33'-3"	33'-8½"	2'-8"	2'-8½"	6'-8"
51C	E-1	33'-0"	33'-11½"	2'-8"	2'-8½"	6'-8"
40	E-1	33'-0"	34'-1½"	2'-8"	2'-8½"	6'-8"
40A	E-1	33'-0"	34'-4½"	2'-8"	2'-8½"	6'-8"
40B	E-1	33'-0"	34'-7½"	2'-8"	2'-9"	6'-8"
40C	E-1	33'-0"	34'-10½"	2'-8"	2'-9"	6'-8"
41	E-1	33'-0"	35'-1"	2'-8"	2'-9½"	6'-8"
41A	E-1	33'-0"	35'-4"	2'-8"	2'-9½"	6'-8"
41B	E-1	33'-0"	35'-7"	2'-8"	2'-9½"	6'-8"
41C	E-1	33'-0"	35'-10"	2'-8"	2'-9½"	6'-8"
42	E-1	33'-0"	36'-1"	2'-8"	2'-9½"	6'-8"
42A	E-2	33'-0"	36'-4"	——	2'-10½"	——
42B	E-2	33'-0"	35'-1"	——	2'-10½"	——
43	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
43A	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
43B	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
43C	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
44	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
44A	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
44B	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
44C	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
44D	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
44E	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
46	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
46A	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
46B	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
46C	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
46D	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
46E	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
47	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
47A	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
47B	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
47C	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
47D	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
47E	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
49	E-2 *2	33'-0"	35'-1"	——	2'-10½"	——
49A	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
49B	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
49C	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
49D	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
49E	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
50	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
50A	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
50B	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
50C	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
50D	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
50E	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
51	E-2 *2	33'-0"	35'-1"	——	2'-10½"	——
51A	E-1	33'-0"	35'-4½"	3'-0"	2'-10"	8'-0"
51B	E-1	33'-0"	35'-7"	3'-0"	2'-10"	8'-0"
51C	E-1	33'-0"	35'-10"	3'-0"	2'-10"	8'-0"
51D	E-1	33'-0"	36'-1"	3'-0"	2'-10"	8'-0"
51E	E-1	33'-0"	36'-4"	3'-0"	2'-10"	8'-0"
52A	E-1	33'-0"	35'-1"	3'-0"	2'-10"	8'-0"
52B	E-1	33'-0"	35'-10"	3'-0"	2'-10"	8'-0"
52C	E-1	33'-0"	36'-1"	3'-0"	2'-10"	8'-0"
52D	E-1	33'-0"	36'-4"	3'-0"	2'-10"	8'-0"
52E	E-1	33'-0"	36'-7"	3'-0"	2'-10"	8'-0"

*2 Standard E-2 Units required.

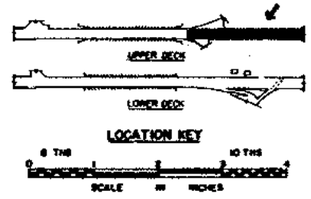
MARK	DATE	REVISION DESCRIPTION	BY	CH'K
△4	6-1-64	As built without revision.	clc	[illegible]
△1	4-21-61	Dimensions in "C" and "E" tabulation revised spacer blocks revised.	CWH	[illegible]
△2	3-27-61	Length dimensions in "B" tabulation revised #4 bars added.	CWH	[illegible]
△1	2-28-61	Dimensions in "D" tabulation revised	H.S.M.	[illegible]

PROJECT ENGINEER — LICENSE 14478

DATE APPROVED July 22, 1960

NOTES

1. Prestressing shall not commence earlier than 12 days after units have been removed from forms and subject to air curing
2. Concrete cover on stirrups to be 1" clear.
3. Fabricator will mark units with white paint on outside face as to their position in structure and store for ready accessibility.



SUPPLEMENTAL CONTRACT DRAWING

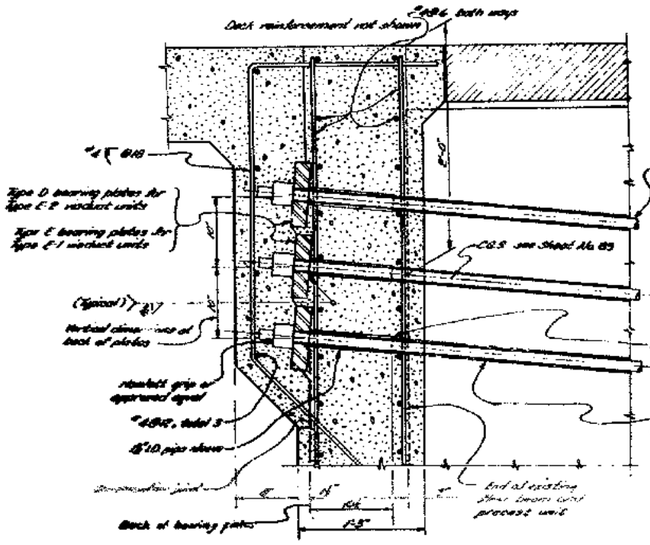
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

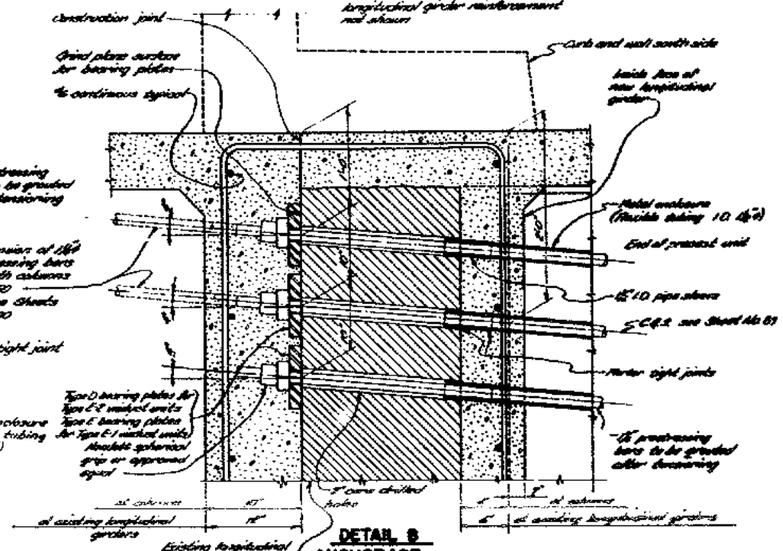
VIADUCT FLOOR BEAM UNITS

UNLESS NOTED SCALE 1/4"=1'-0"	BRIDGE 34-04	SHEET No. 89	DRAWING C-4029-894

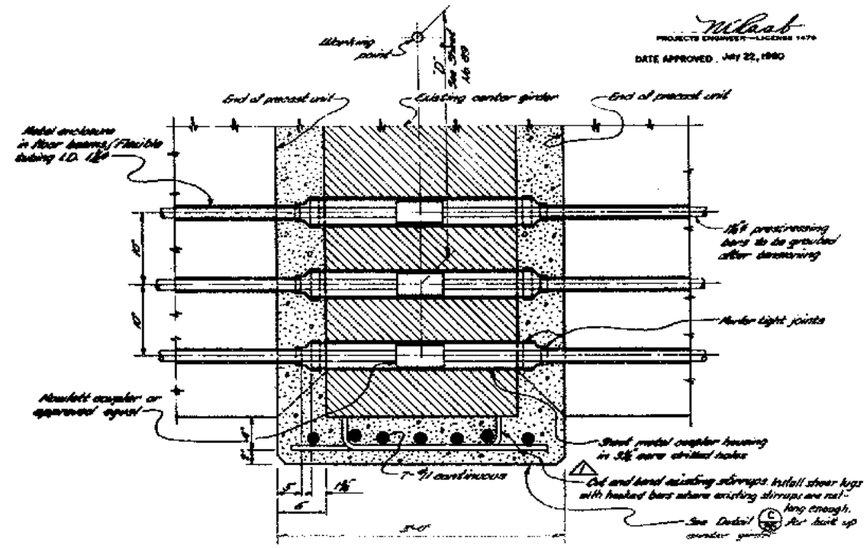
53-68
54-68



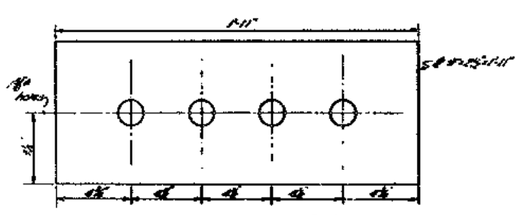
DETAIL A
ANCHORAGE SYSTEM
AT WALL SECTION
Scale: 1½"=1'-0"



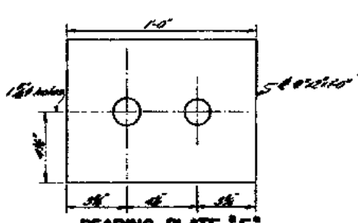
DETAIL B
ANCHORAGE
AT EXISTING LONGITUDINAL GIRDER
Scale: 1½"=1'-0"



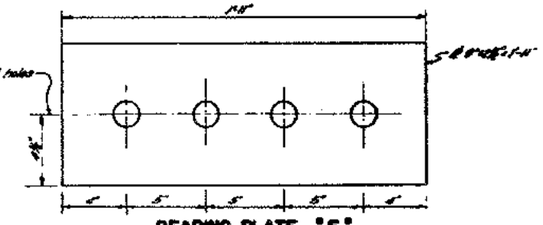
DETAIL C
COUPLING SYSTEM
AT EXISTING CENTER GIRDER
Scale: 1½"=1'-0"



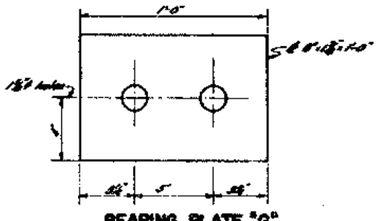
BEARING PLATE "D"
Scale: 3"=1'-0"



BEARING PLATE "E"
Scale: 3"=1'-0"



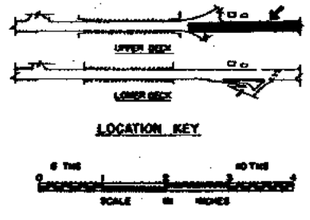
BEARING PLATE "F"
Scale: 3"=1'-0"



BEARING PLATE "G"
Scale: 3"=1'-0"

NOTES

1. For location of types D and E bearing plates see Upper Deck Sections East Viaduct sheet No. 78.
2. For location of types F and G bearing plates see Upper Deck widening sheet No. 100.



LOCATION KEY

SCALE IN INCHES

MARK	DATE	DESCRIPTION	BY	CHK.
1	6-1-64	As built with revision.	cfc	[illegible]

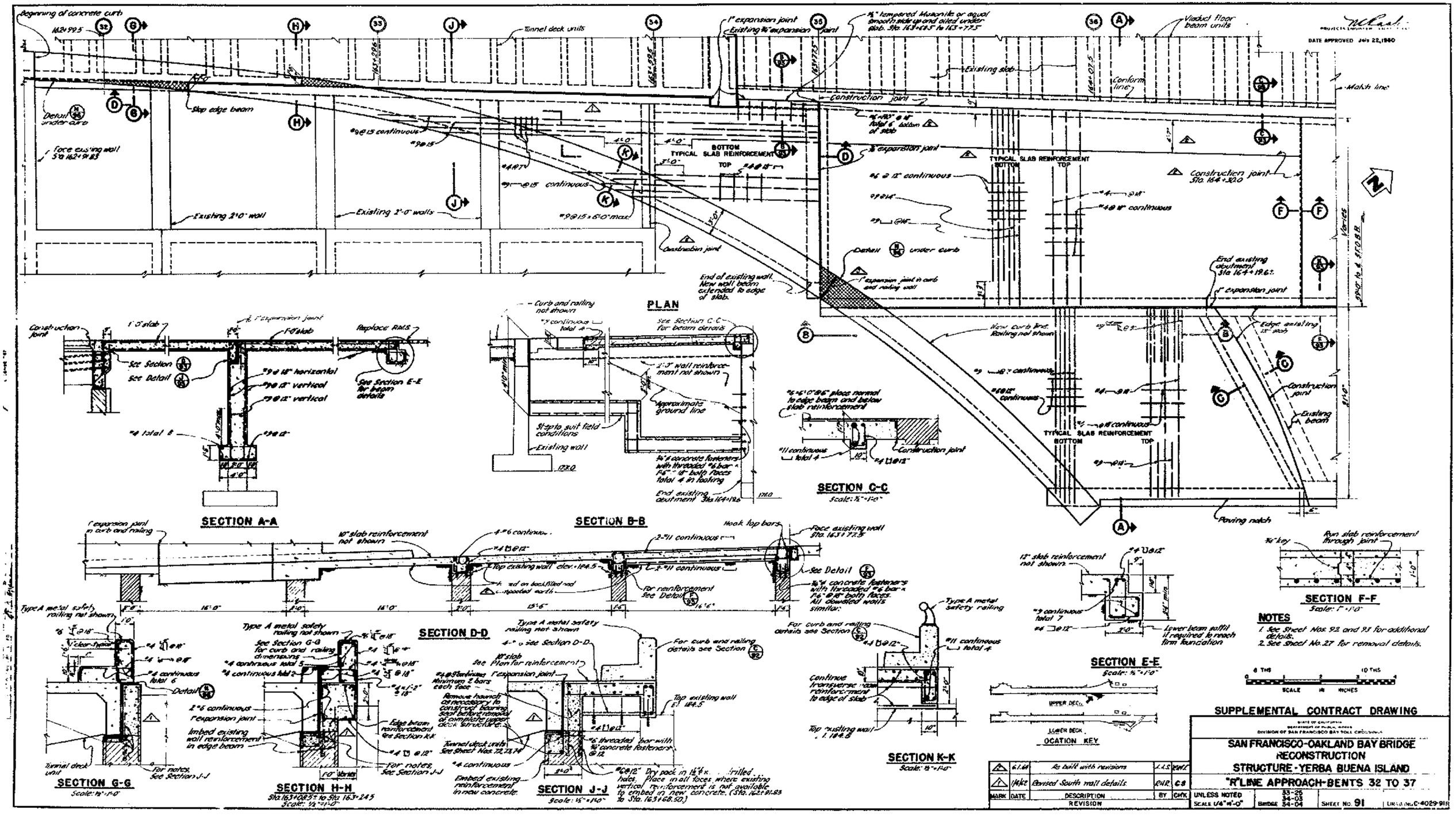
REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND

PRESTRESSING ASSEMBLIES-VIADUCT UNITS

SCALE AS SHOWN | BRIDGE 33-25 34-03 34-04 | SHEET No. 90 | DRAWING C-4029-90R

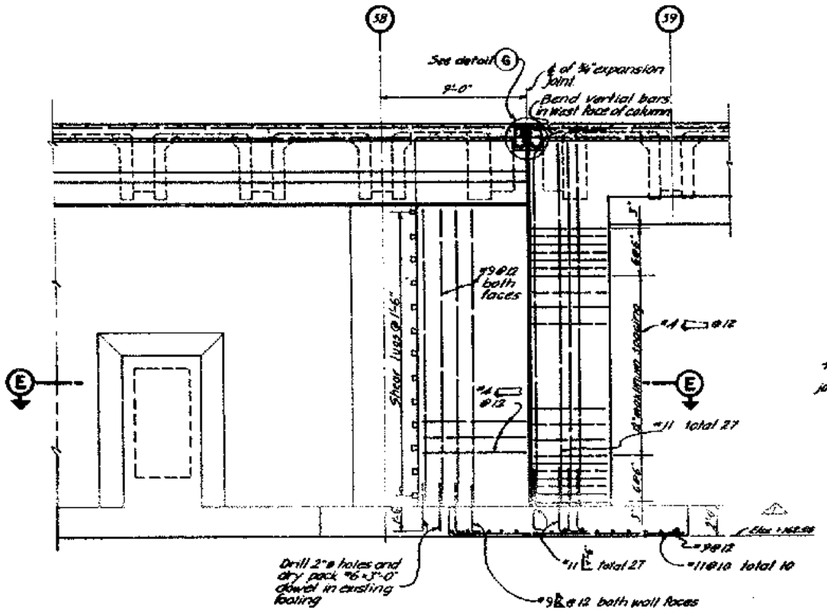


PLAN
SECTION A-A
SECTION B-B
SECTION C-C
SECTION D-D
SECTION E-E
SECTION F-F
SECTION G-G
SECTION H-H
SECTION J-J
SECTION K-K
OCATION KEY
NOTES
1. See Sheet Nos. 92 and 93 for additional details.
2. See Sheet No. 27 for removal details.
SUPPLEMENTAL CONTRACT DRAWING
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
"R" LINE APPROACH-BENTS 32 TO 37
UNLESS NOTED
SCALE 1/4"=1'-0"
BRIDGE 33-26 34-03 34-04
SHEET NO. 91
DRAWING C-4029-91R
DATE APPROVED July 22, 1980

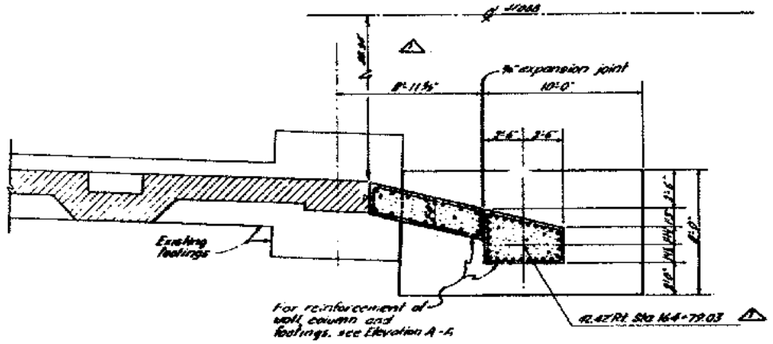
Match line
Construction joints
Existing ½" expansion joint
TYPICAL SLAB REINFORCEMENT
BOTTOM
TOP
#9 @ 14"
#9 @ 14 max
#6 @ 12 continuous
#4 @ 15"
¼" expansion joint
1" expansion joints
#4 @ 18 continuous
End of existing abutment Sta. 164+71.0
End existing abutment Sta. 164+71.0±
TOP SLAB REINFORCEMENT
#4 @ 18 both ways
Existing 1'-0" slab
Existing wall
Construction joints
New curb line
Construction joint
Slab construction joint under curb
BOTTOM SLAB REINFORCEMENT
#9 curved
#11 full length (2)
#11 = 18'-0"
#6 @ 12
#6 @ 9
TOP SLAB REINFORCEMENT
#4 @ 18 both ways
#9 curved
#11 = 18'-6"
#11 = 18'-0"
#4 @ 12"
#6 @ 10"
End new slab
PLAN
Railing not shown
Construction joint
See Detail
Bearing pad See Detail
Existing wall
#9 @ 18" horizontal
#9 @ 12" vertical
#9 @ 12"
#4 total 8
#9 @ 12" both ways
SECTION A-A
SECTION B-B
Scale: ½"=1'-0"
#4 @ 18
#4 @ 18
#4 curved
#11
#9 curved
1" Clear typical
Type A Metal safety railing
Construction joint
Slab reinforcement not shown
#4 continuous - total 6
DETAIL C
SECTION D-D
#9 curved (6)
#11
1'-0" slab
Construction joint
Existing 1'-0" slab
Existing wall reinforcement
See Detail
Existing wall
Approximate ground line
concrete fasteners with threaded #6 bar
SECTION E-E
SECTION F-F
UPPER DECK
LOWER DECK
LOCATION KEY
SCALE IN INCHES
PROJECTS ENGINEER - LICENSE 1478
DATE APPROVED July 22, 1960
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
"R" LINE APPROACH-BENTS 37 TO 40
As built with revisions
MARK DATE DESCRIPTION BY CH'K
REVISION
UNLESS NOTED SCALE 1/4"=1'-0"
BRIDGE 33-04 34-03 34-04
SHEET No. 92
DRAWING C-4029-92R

PROJECTS ENGINEER

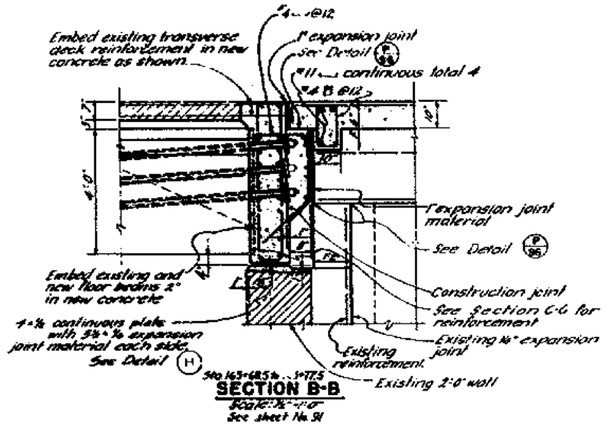
DATE APPROVED July 22, 1960



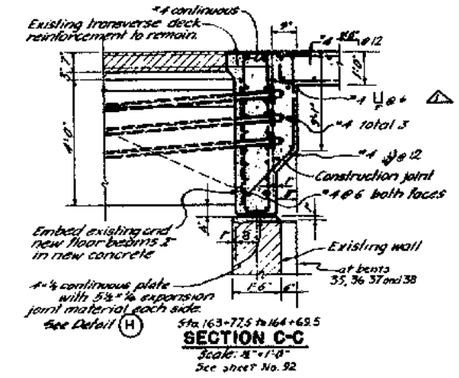
ELEVATION A-A - SOUTH WALL.
Scale: ¼"=1'-0"



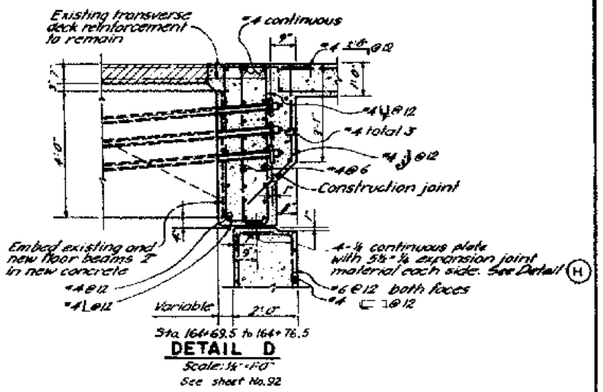
SECTION E-E
Scale: ⅛"=1'-0"



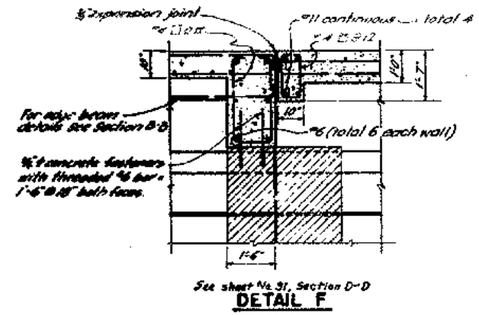
SECTION B-B
Scale: ½"=1'-0"
See sheet No. 91



SECTION C-C
Scale: ½"=1'-0"
See sheet No. 92

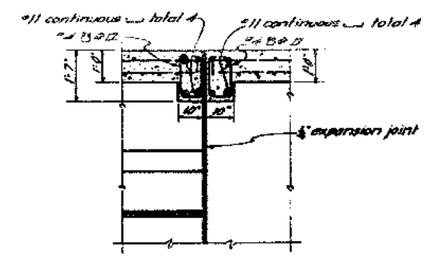


DETAIL D
Scale: ½"=1'-0"
See sheet No. 92

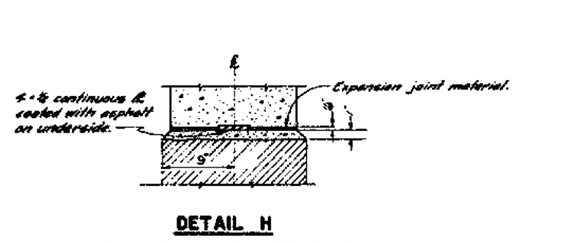


See sheet No. 91, Section D-D

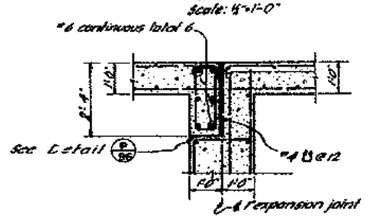
DETAIL F
Scale: ½"=1'-0"



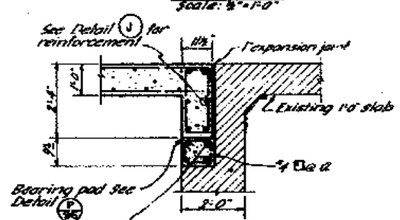
DETAIL G
Scale: ½"=1'-0"



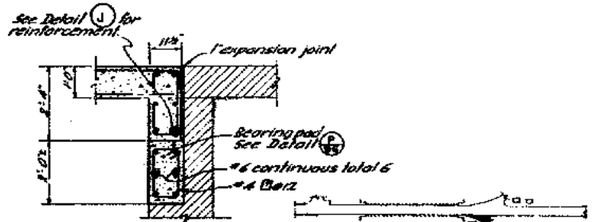
DETAIL H
WALL DIAPHRAGM BEARING
Scale: 1½"=1'-0"



DETAIL J
Sta 163+77.5 to Sta 164+19.6±
Sta 164+71.0±to Sta 164+83.7±
Scale: ⅛"=1'-0"
See sheet No. 91



SECTION K-K
Scale: ½"=1'-0"
Sta 164+19.6± to Sta 164+36.75
See sheet No. 91



SECTION L-L
Scale: ½"=1'-0"
Sta 164+36.75 to Sta 164+71.0±
See sheet No. 92

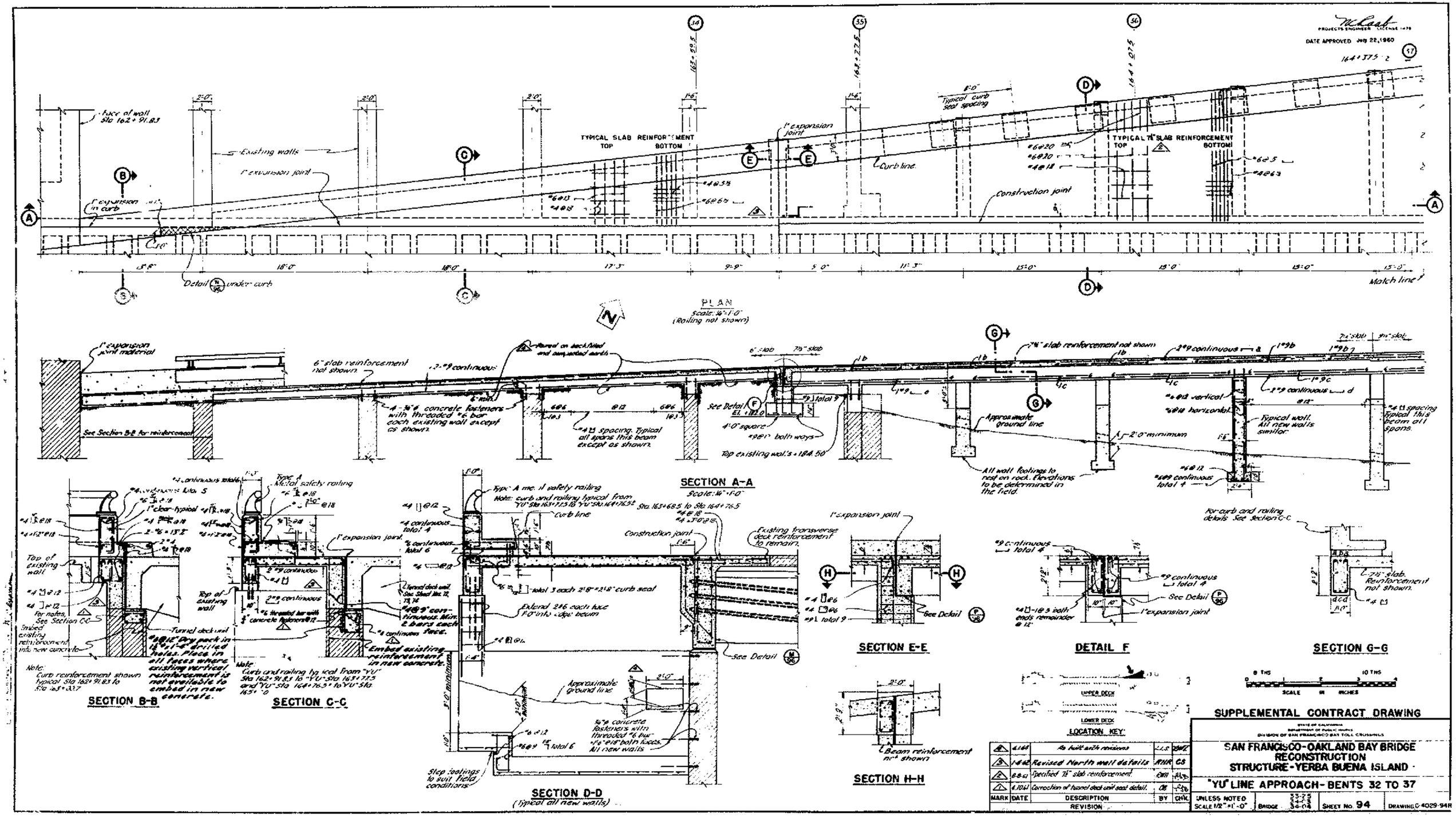
LOCATION KEY

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
"R" LINE APPROACH-DETAILS

MARK	DATE	DESCRIPTION	BY	CH'K
		REVISION		
⚠	8-1-60	As built with revisions	L.L.S.	STAFF

SCALE AS SHOWN | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 93 | DRAWING C-4029-93R



MARK	DATE	DESCRIPTION	BY	CHK
4	6.1.64	As built with revisions	L.L.S.	RWL
3	1-4-62	Revised North wall details	RHR	CS
2	8-8-61	Specified 7½" slab reinforcement	RWH	[illegible]
1	4.10.61	Correction of tunnel deck unit seat detail.	OB	[illegible]

REVISION

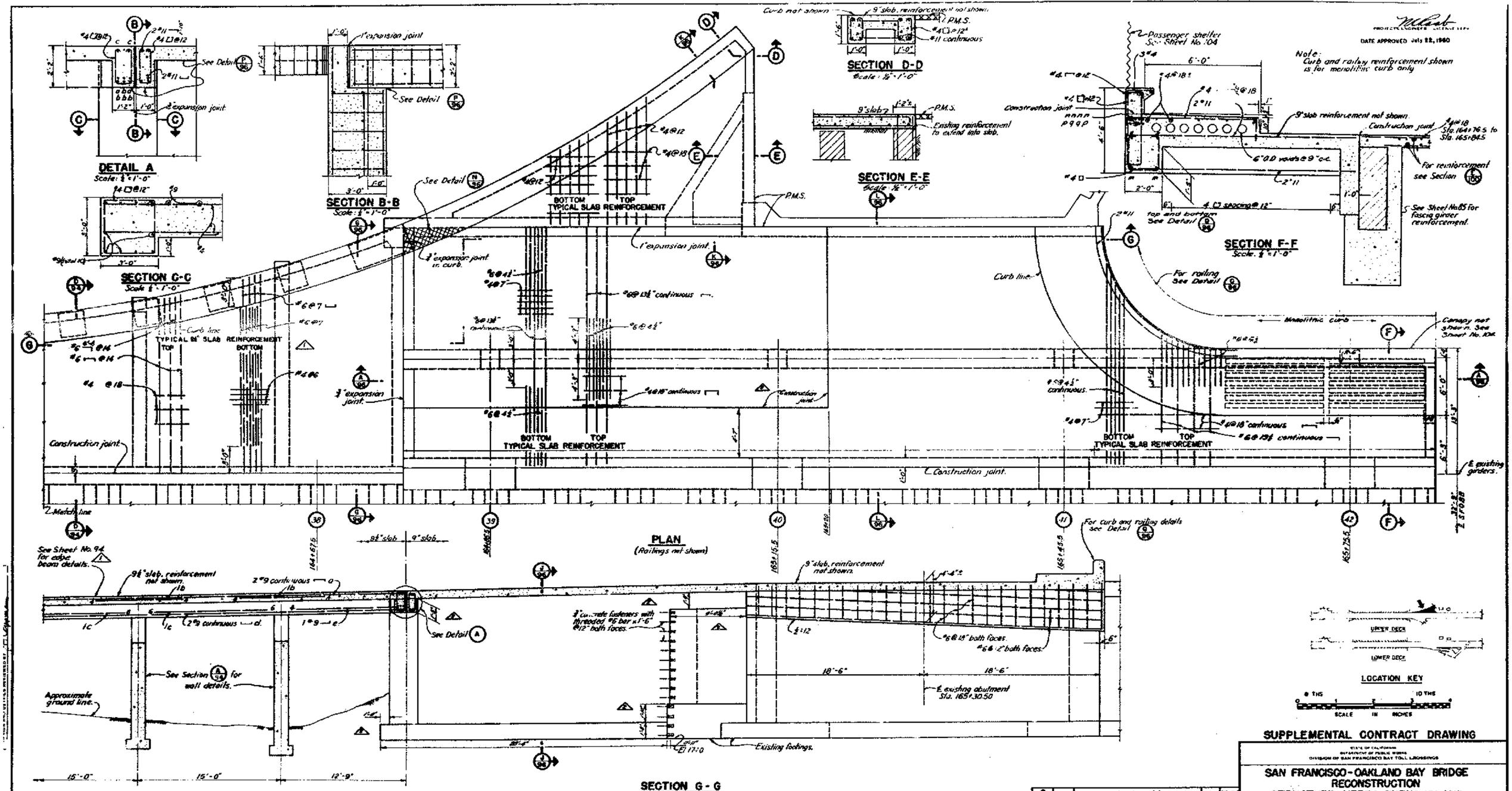
SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

"YU" LINE APPROACH-BENTS 32 TO 37

UNLESS NOTED SCALE 1/2"=1'-0" | BRIDGE 33-25 34-03 34-04 | SHEET NO. 94 | DRAWING C-4029-94R



SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

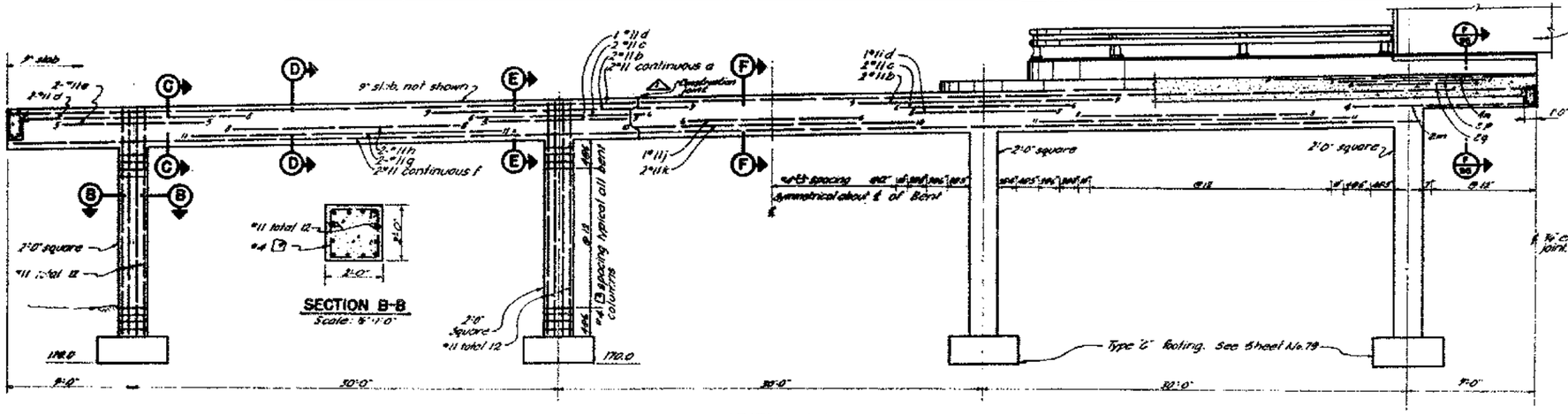
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
"YU" LINE APPROACH - BENTS 37 TO 43

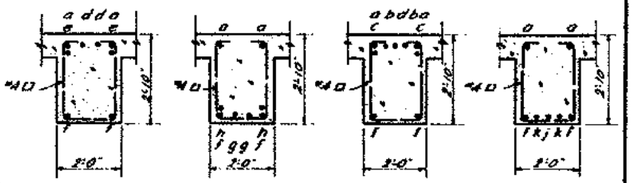
MARK	DATE	DESCRIPTION	BY	CHK.
2	6-1-64	As built with revisions	L.L.S.	RWL
1	8-8-61	Added reinforcement for 9½" slab	RWH	TJB

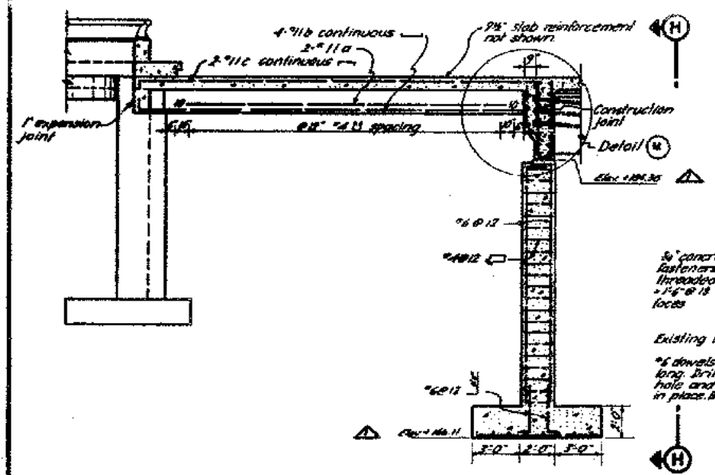
REVISION

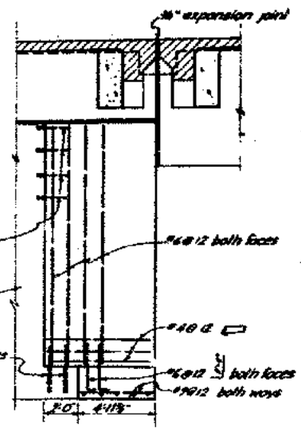
UNLESS NOTED SCALE 1/4" = 1'-0" | BRIDGE 33-28 34-03 34-04 | SHEET NO 95 | DRAWING C-4029-95R

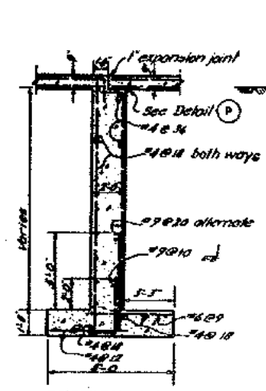
DATE APPROVED July 22, 1980

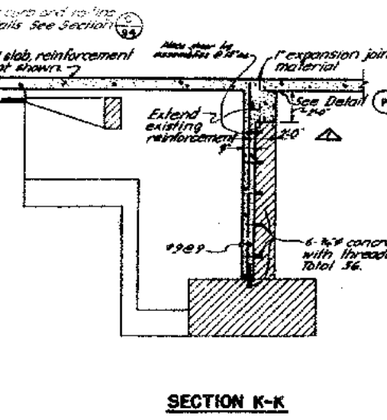


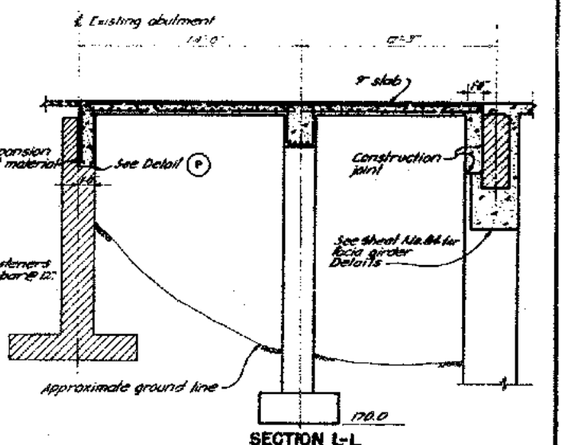


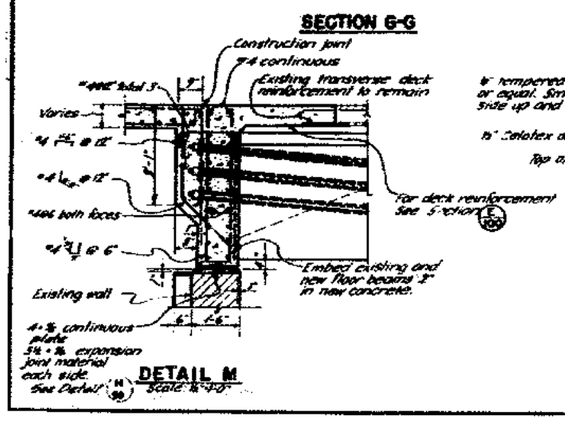


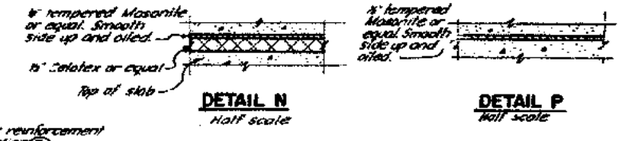


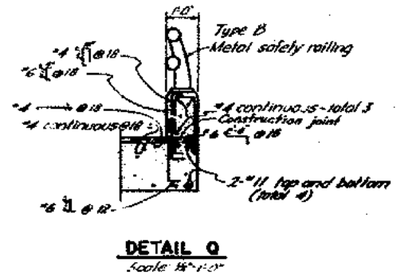


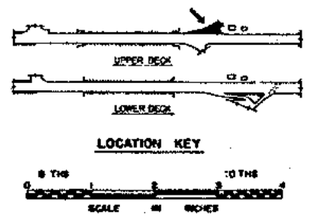












MARK	DATE	DESCRIPTION / REVISION	BY	CH'K.
1	6-1-84	As built with revisions	C.L.R.	BWZ

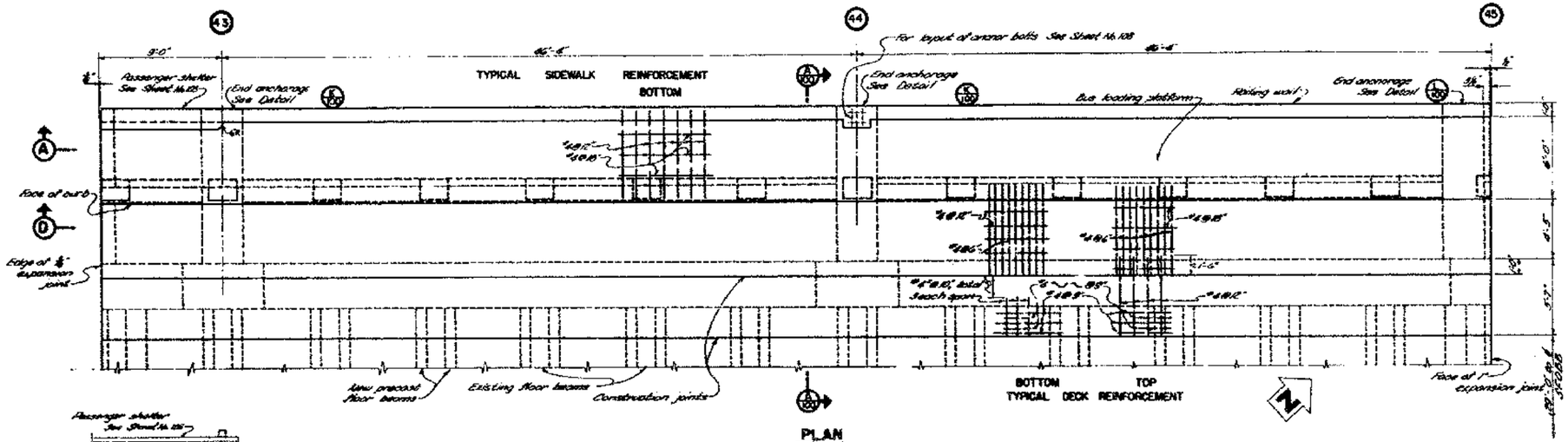
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION STRUCTURE-YERBA BUENA ISLAND

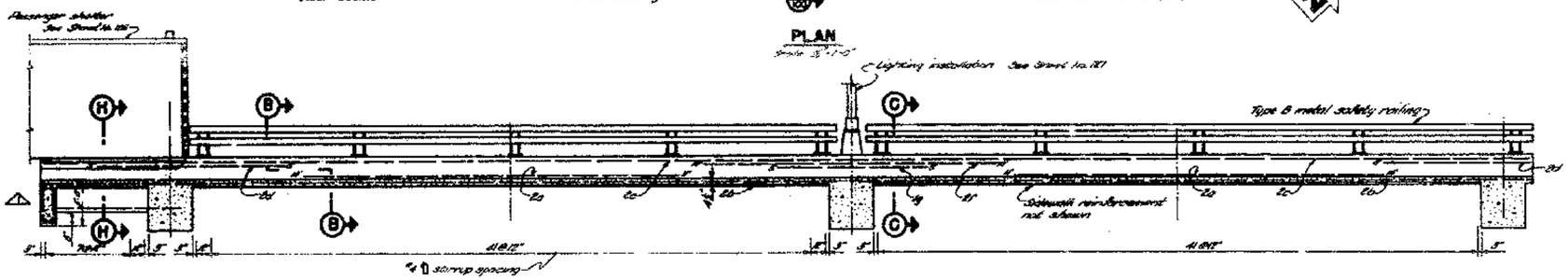
"YU" LINE APPROACH-DETAILS

UNLESS NOTED SCALE 1/4" = 1'-0" | BRIDGE 34-03, 34-04 | SHEET No. 96 | DRAWING C-4089-96R

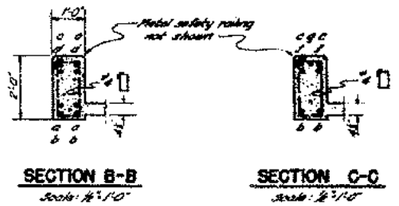
M. Raab
PROJECTS ENGINEER
DATE APPROVED MAY 22, 1963



PLAN
Scale: 1/8"=1'-0"

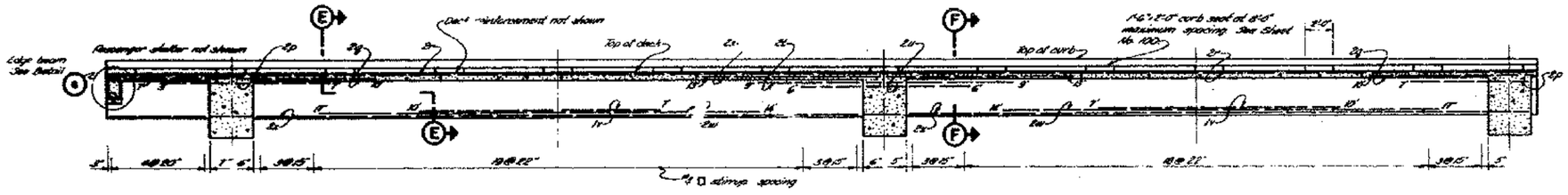


SECTION A-A
Scale: 1/8"=1'-0"

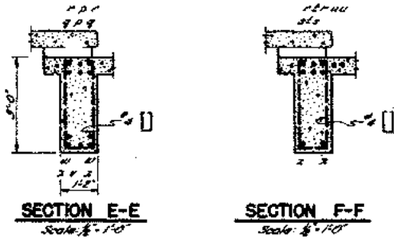


SECTION B-B
Scale: 1/4"=1'-0"

SECTION C-C
Scale: 1/2"=1'-0"

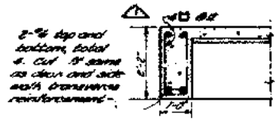


SECTION D-D
Scale: 1/8"=1'-0"

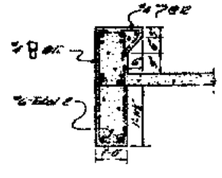


SECTION E-E
Scale: 1/2"=1'-0"

SECTION F-F
Scale: 1/2"=1'-0"

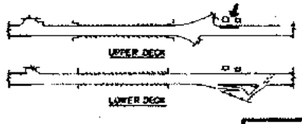


DETAIL - G
Scale: 1/2"=1'-0"



SECTION H-H
Scale: 1/2"=1'-0"

NOTES
1. All beam reinforcing bars are #9 unless otherwise noted.
2. For conduit and sidewalk bar section, See Sheet No. 121 and 127.



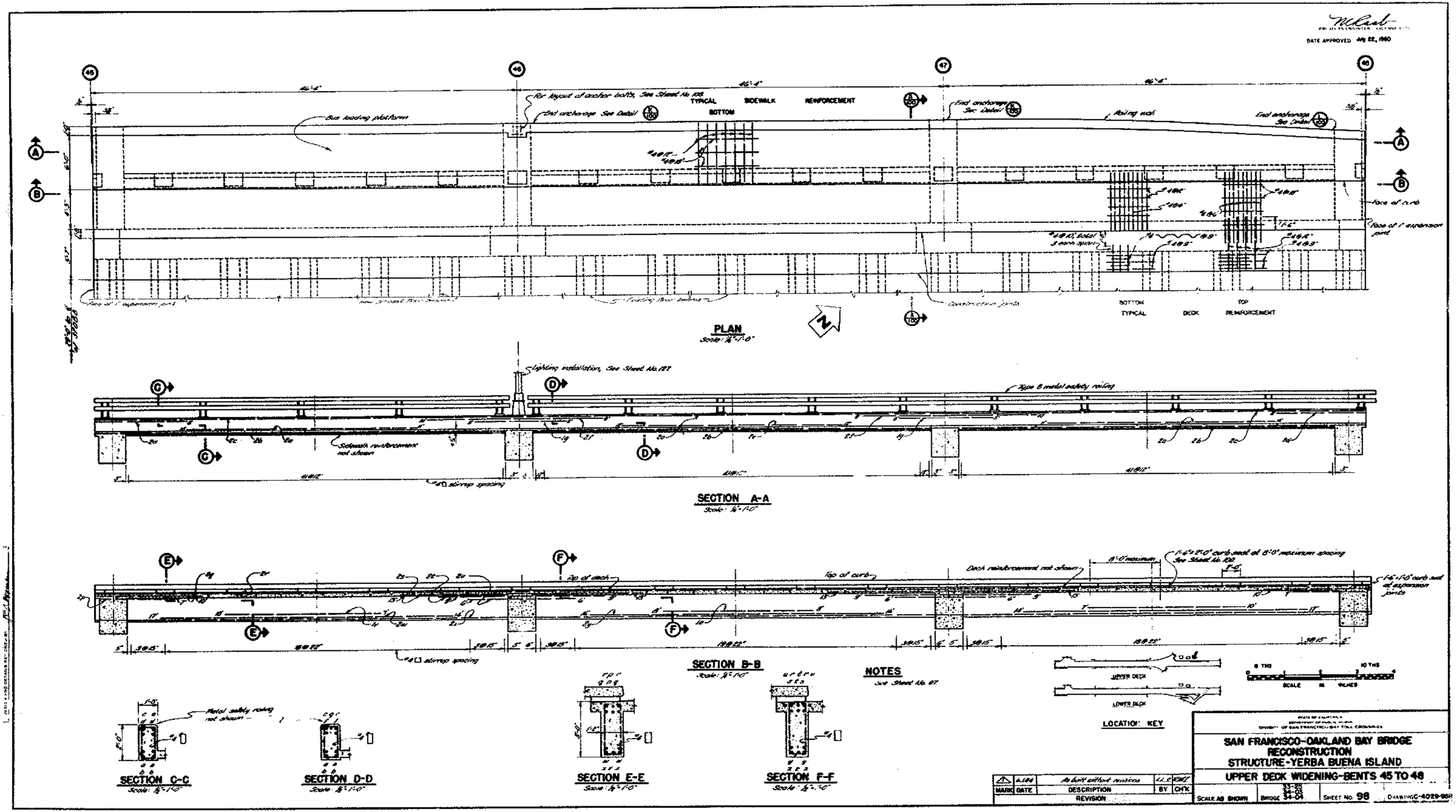
LOCATION KEY

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

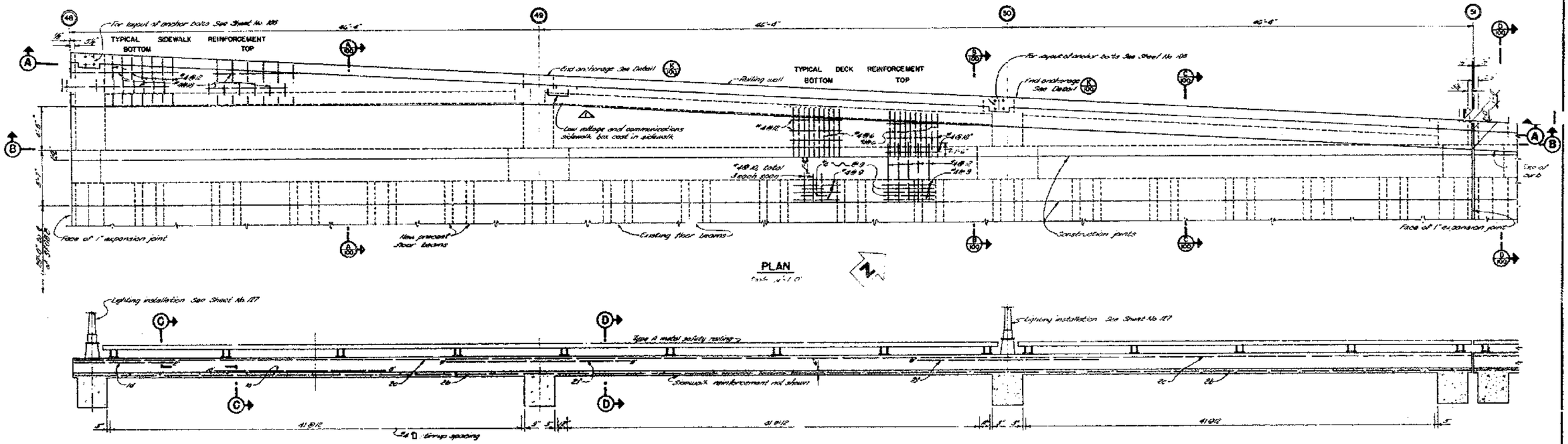
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
UPPER DECK WIDENING - BENTS 43 TO 45

MARK	DATE	DESCRIPTION REVISION	BY	CH'K
1	6-1-64	As built with revisions	C.L.S.	[illegible]

SCALE AS SHOWN | BRIDGE 33-85 34-03 34-04 | SHEET No. 97 | DRAWING C-4089-97R

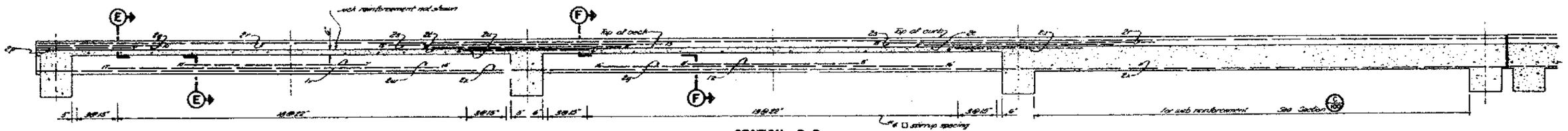

DATE APPROVED July 22, 1960
PLAN
Scale: 1/4"=1'-0"
TYPICAL SIDEWALK REINFORCEMENT
BOTTOM
Bus loading platform
For layout of anchor bolts, See Sheet No. 108
End anchorage See Detail
Railing wall
Face of curb
Face of 1" expansion joint
Construction joints
BOTTOM TYPICAL DECK TOP REINFORCEMENT
SECTION A-A
Scale: 1/4"=1'-0"
Lighting installation, See Sheet No. 122
Type B metal safety railing
Sidewalk reinforcement not shown
#4 stirrup spacing
SECTION B-B
Scale: 1/4"=1'-0"
Top of deck
Top of curb
Deck reinforcement not shown
8'-0" maximum
1'-6"x2'-0" curb seat at 8'-0" maximum spacing See Sheet No. 100
1'-6"x1'-0" curb seat at expansion joints
NOTES
See Sheet No. 97
UPPER DECK
LOWER DECK
LOCATION KEY
SCALE IN INCHES
SECTION C-C
Scale: 1/2"=1'-0"
Metal safety railing not shown
SECTION D-D
Scale: 1/2"=1'-0"
SECTION E-E
Scale: 1/2"=1'-0"
SECTION F-F
Scale: 1/2"=1'-0"
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
UPPER DECK WIDENING-BENTS 45 TO 48
MARK DATE DESCRIPTION BY CH'K
REVISION
As built without revisions
SCALE AS SHOWN
BRIDGE 33-25 34-03 34-04
SHEET No. 98
DRAWING C-4029-98R

DATE APPROVED July 22, 1960

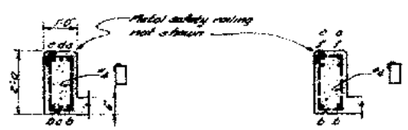


PLAN

SECTION A-A

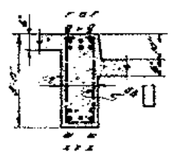


SECTION B-B

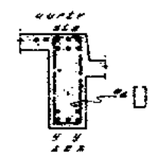


SECTION C-C

SECTION D-D



SECTION E-E



SECTION F-F

LOCATION KEY

NOTES

See Sheet No. 97

MARK	DATE	DESCRIPTION	BY	CH'K
1	2.1.64	Re-built with revisions	J.K.S.	R.M.E.

REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

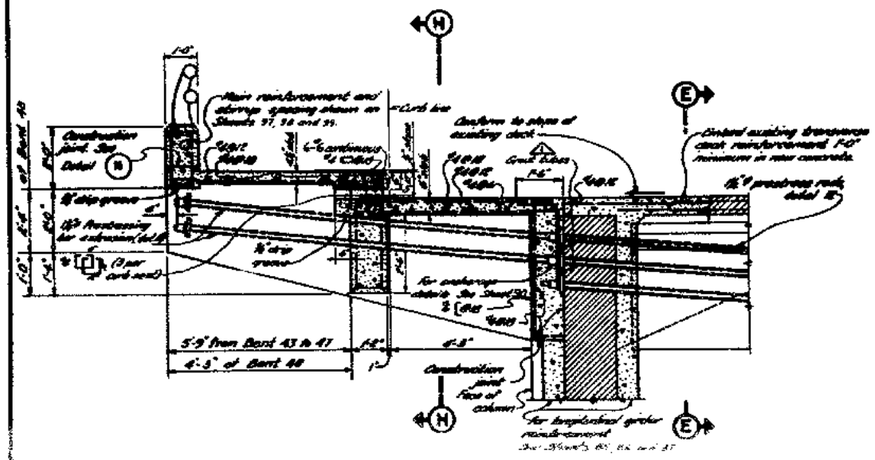
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

UPPER DECK WIDENING-BENTS 48 TO 51

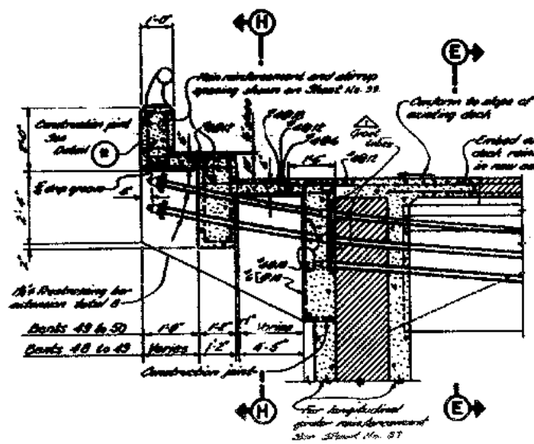
SCALE AS SHOWN | BRIDGE 33-25 34-03 34-04 | SHEET No. 99 | DRAWING C-4029-99F

PROJECTS ENGINEER — LICENSE NO.

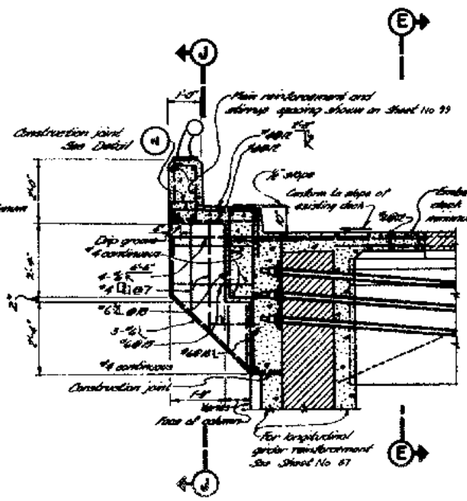
DATE APPROVED 19 JUNE 22, 1990



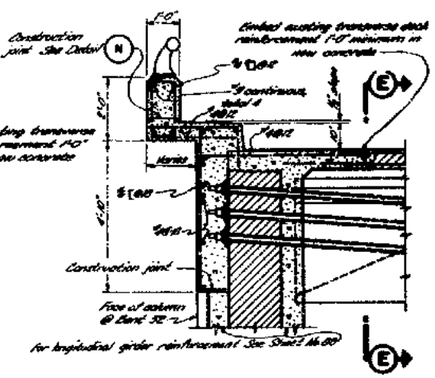
SECTION A-A
Bent 43 to 48
Scale: 1/4"=1'-0"



SECTION B-B
Bent 48 to 50
Scale: 1/4"=1'-0"

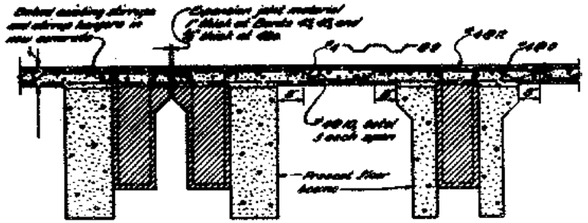


SECTION C-C
Bent 50 to 51
Scale: 1/4"=1'-0"

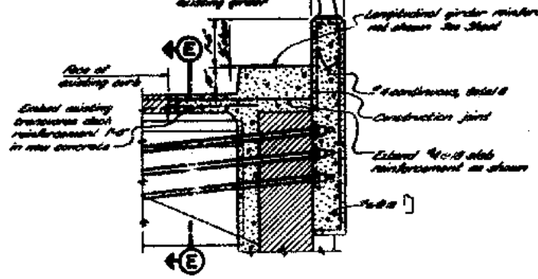


From Sta 170+16.88 to Sta 170+56.88, section similar to Detail G except for construction joint

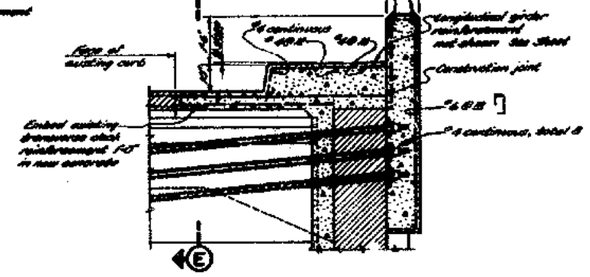
SECTION D-D - NORTH CURB AND RAIL
STA. 169+64 TO STA. 170+56
Scale: 1/4"=1'-0"



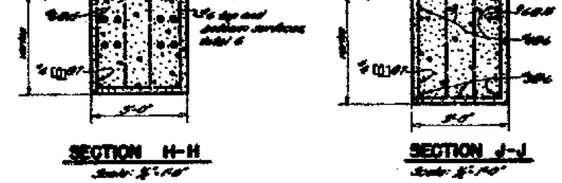
SECTION E-E
Scale: 1/4"=1'-0"



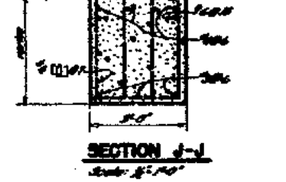
DETAIL F - SOUTH CURB AND RAIL
STA. 169+16 TO STA. 170+20.25
Scale: 1/4"=1'-0"



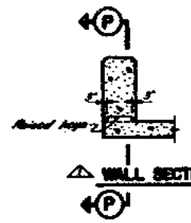
DETAIL G - SOUTH CURB AND RAIL
STA. 170+20.25 TO STA. 170+56.25
Scale: 1/4"=1'-0"



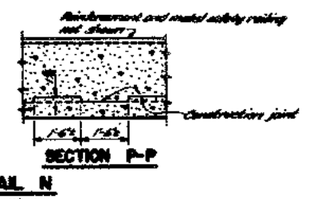
SECTION H-H
Scale: 1/4"=1'-0"



SECTION J-J
Scale: 1/4"=1'-0"

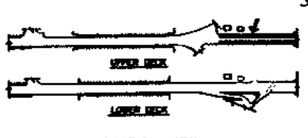


WALL SECTION

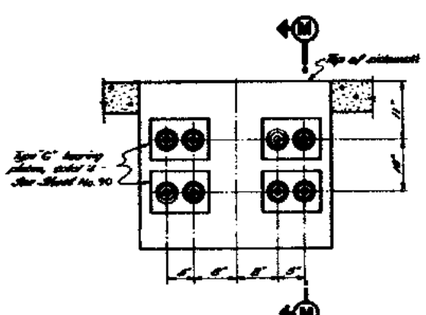


SECTION P-P

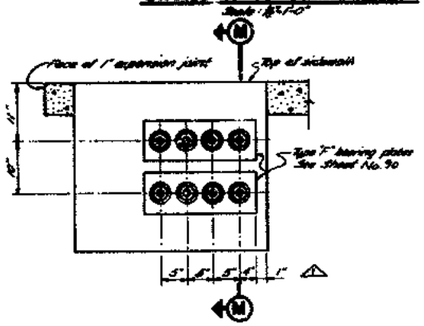
DETAIL N
Scale: 1/4"=1'-0"



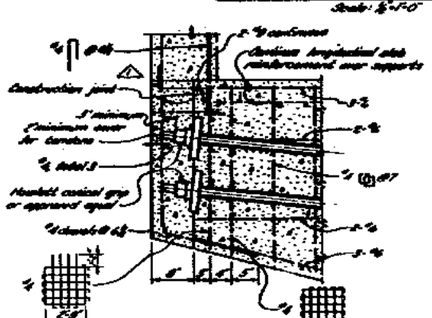
LOCATION KEY



DETAIL K
END ANCHORAGE AT INTERMEDIATE BENT
Scale: 1"=1'-0"
Concrete cover and railing not shown
Dimensions shown at back of bearing plates



DETAIL L
END ANCHORAGE AT EXPANSION JOINT
Scale: 1"=1'-0"
Concrete cover and railing not shown
Dimensions shown at back of bearing plates



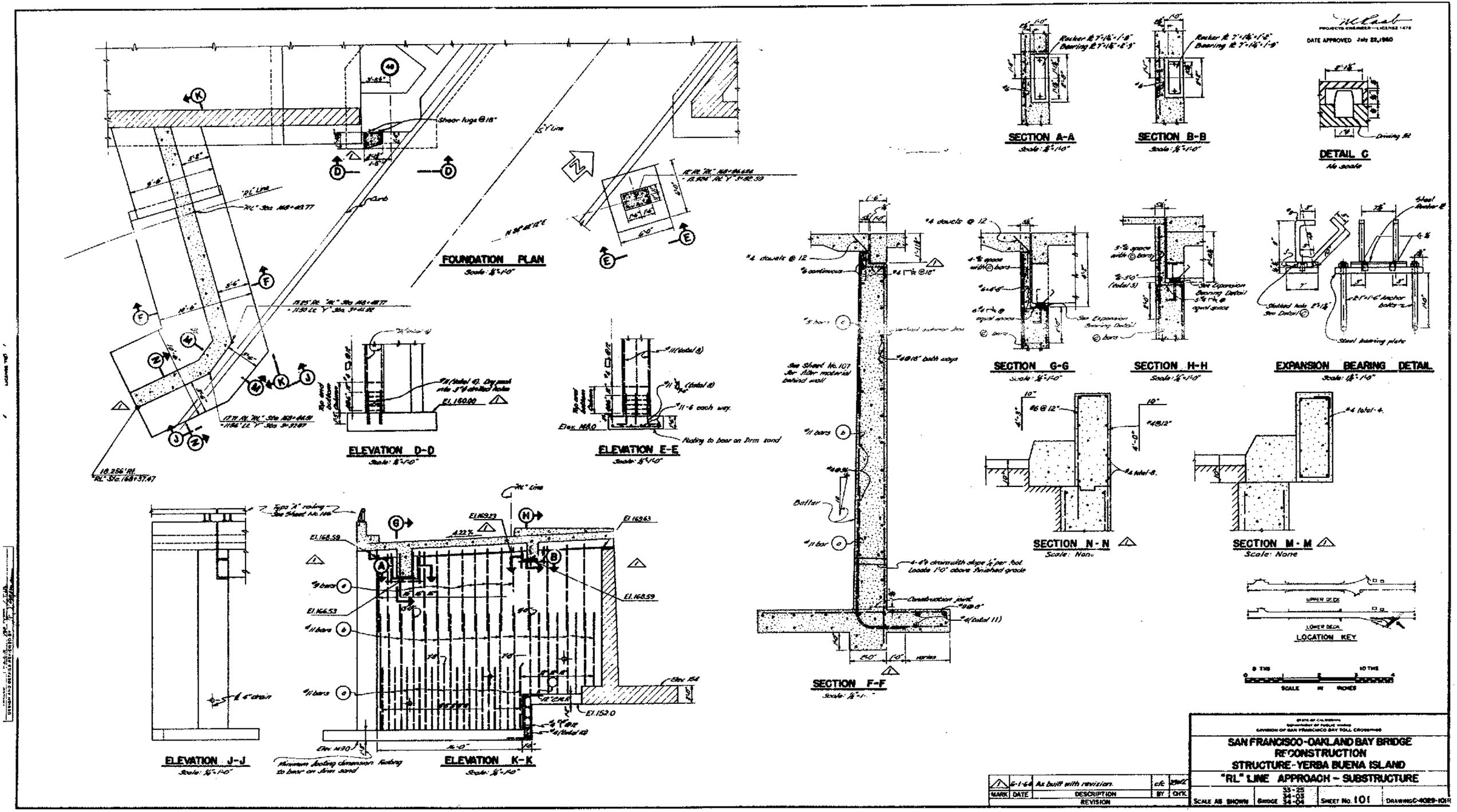
SECTION M-M
Scale: 1"=1'-0"

MARK	DATE	REVISION	BY	CH'K
1	6-1-94	As built with revisions	J.L.S.	DWT

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
UPPER DECK WIDENING - DETAILS

SCALE AS SHOWN | BRIDGE 34-04 | SHEET No. 100 | DRAWING C-4029-100



MARK	DATE	DESCRIPTION	BY	CHK
1	6-1-64	As built with revision.	cfc	

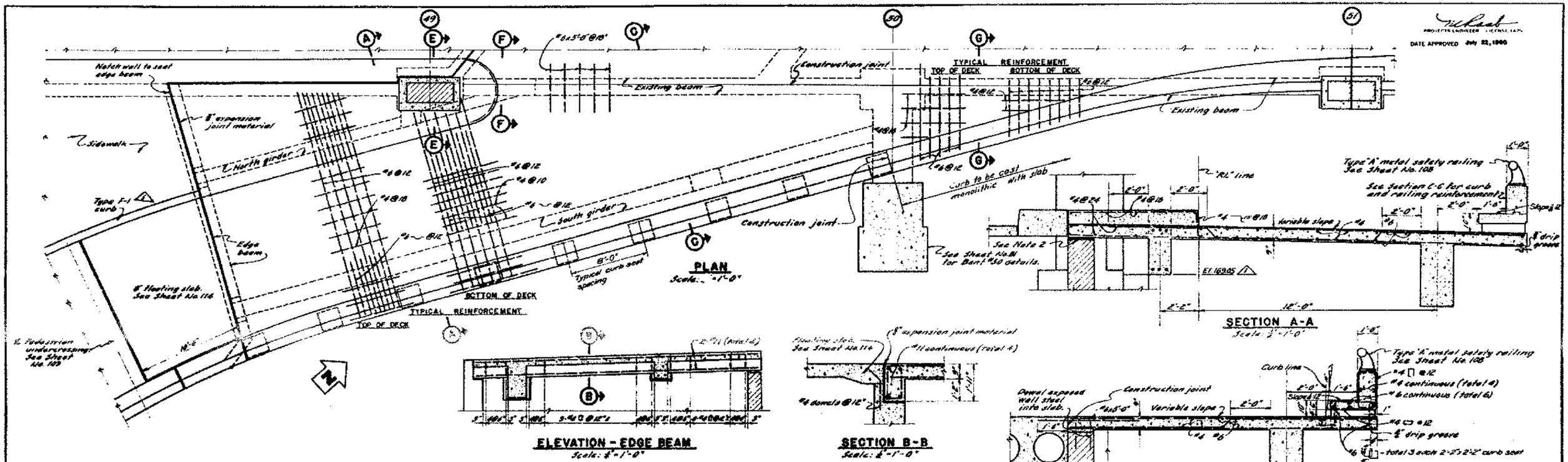
REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
"RL" LINE APPROACH - SUBSTRUCTURE

SCALE AS SHOWN | BRIDGE 33-25 34-03 34-04 | SHEET No. 101 | DRAWING C-4029-101R

DATE APPROVED July 22, 1960



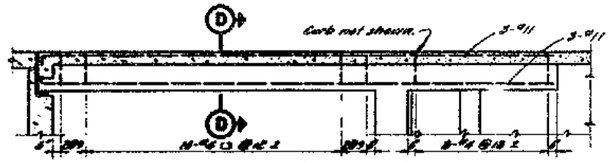
PLAN
Scale: 1"=1'-0"

ELEVATION - EDGE BEAM
Scale: 1/2"=1'-0"

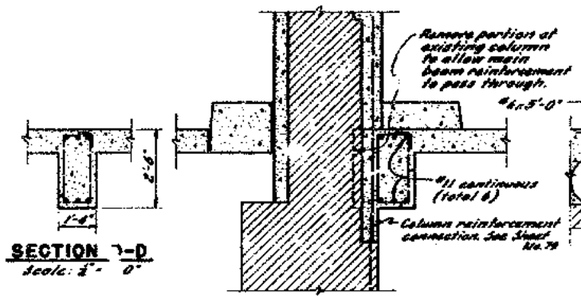
SECTION B-B
Scale: 1/2"=1'-0"

SECTION A-A
Scale: 1/2"=1'-0"

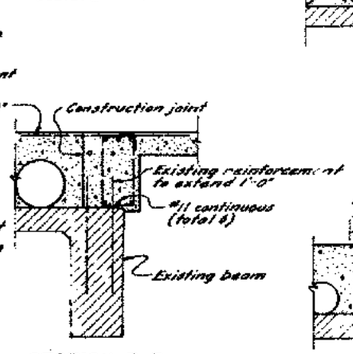
SECTION C-C
Scale: 1/2"=1'-0"



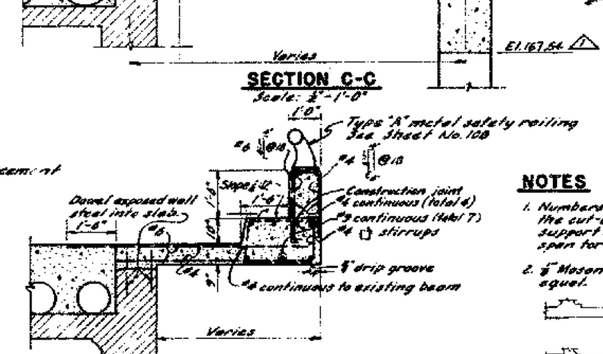
ELEVATION - NORTH GIRDER
Scale: 1/2"=1'-0"



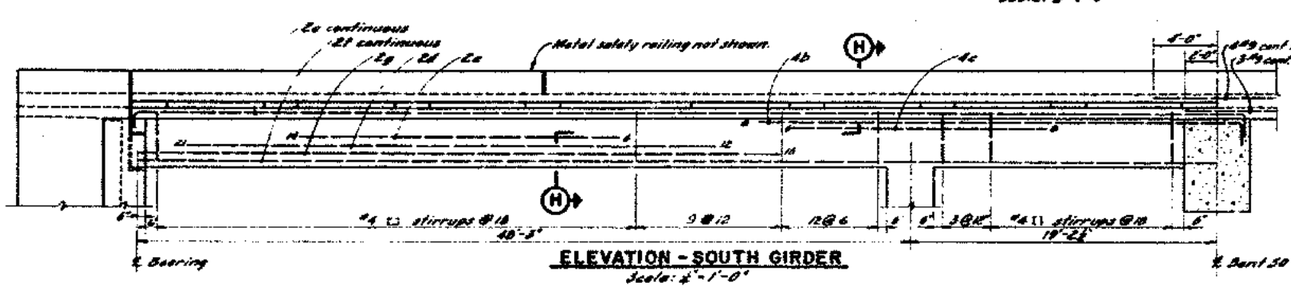
SECTION E-E
Scale: 1/2"=1'-0"



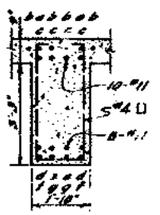
SECTION F-F
Scale: 1/2"=1'-0"



SECTION G-G
Scale: 1/2"=1'-0"



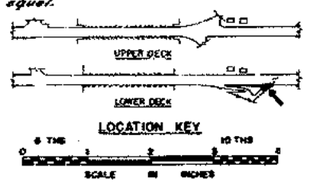
ELEVATION - SOUTH GIRDER
Scale: 1/2"=1'-0"



SECTION H-H
Scale: 1/2"=1'-0"

NOTES

1. Numbers at the ends of #11 girder bars are the cut-off distances in feet from the face of support for top reinforcement and from ℄ span for bottom reinforcement.
2. ¼" Masonite, oiled, smooth surface up, or equal.



MARK	DATE	DESCRIPTION / REVISION	BY	CHK.
1	6-1-64	As built with revision	c/c	JONES

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
"RL" LINE APPROACH - SUPERSTRUCTURE

SCALE AS SHOWN	BRIDGE	55-25 / 34-03 / 34-04	SHEET NO. 102	DRAWING C-4029-102R

PROJECTS ENGINEER

DATE APPROVED May 22, 1964

Slab only #4 @ 12" c.c.
Grout
2 "4 x 9" total 4

SECTION ELEVATION

POST ANCHORAGE
No Scale

18" std. pipe
3"
4" circular R.
4"
8" x 18" R.
4"
3" x 5" machine bolt with Phillips expansion shell or equal, at 6' 2" centers.

HANDRAIL BRACKET
Scale: 3" = 1'-0"

Railing Notes:
4" expansion joints at 16' 4" centers weld and grind smooth all connections. All railing to be galvanized after fabrication.

6" x 6" x 1/2" PL

PLAN AT END OF STAIRWAY HANDRAIL

12"x12" blocks for post anchorage
54.083' Rt
SFOBB Sta. 168+13.02
Wade W 23 1/2 9" x 8' (or equal) galvanized drain in floor slab
4" CIP to junction box. See Sheet No. 44.
RL Sta. 168+32.547
RL Line 7
4" expansion joint material
N 40°20'42" E
71'-0"
6'-3"
10'-0"
N 74°35'25.5" W
E radial to RL Line.
18.256' Rt
"RL" Sta. 168+37.469
16.613' Rt
"RL" Sta. 168+21.593
6'-0"

PLAN

6" std. top and bottom
6" straight at bottom.
#6 Hooks @ 9 top 3'-0"
4" expansion joint material

PART PLAN
Scale: 4" = 1'-0"
Showing roof reinforcing.

19'-8"
11" standard pipe weld all joints
19 treads @ 11" = 17'-5"
See post anchorage.
For pipe handrail welding details, see Sheet No. 104
#4 @ 12 each way
See post anchorage.
6" c. to c.
6'-10"
Top of SFOBB curb.
Slope uniformly to retaining wall
#4 @ 12 except as noted
#4 @ 12
#6 @ 12
#6 @ 12 see section B-b.
#6 @ 12
Varies
10"
6'-0"
10"

SECTION A-A
Scale: 1/2" = 1'-0"

#4 @ 12
#6 @ 12
6" fillet
Note: See portion for roof reinforcing
6-#6 stagger with #6 @ 12
Slope to drain
#4 @ 18 staggered
#6 @ 12
#6 @ 9
#4 @ 12
#6 @ 12
#6 @ 9 - 2'-6" long
#4 @ 18
Existing ground

SECTION B-B
Scale: 1/2" = 1'-0"

#4 @ 18 staggered
#6 @ 12
Rubber water stop see detail
4" expansion joint material
9 treads @ 11" = 8'-3"
2'-6"
#4 @ 9
#4 @ 12 total 14
#4 @ 12
#6 @ 9
#4 @ 18 staggered
Slope to meet sidewalk (approx. 1/2")

SECTION C-C
Scale: 1/2" = 1'-0"

For railing details, see Sheet No. 108
#4 @ 18
Type F curb, see Sheet No. 108
#6 @ 12
6" fillet

5'-0"
#9 @ 12
6" fillet
#6 @ 12
Reinforcing symmetrical about ℄
#6 @ 12
#9 @ 12
#4 @ 18 staggered
#4 dowels
#4 @ 12
#6 dowels @ 12 2'-0" long
#6 @ 12
#9 @ 12

SECTION D-D
Scale: 1/2" = 1'-0"

0 1/2 1 1/2 2 2 1/2 3 3 1/2 4 4 1/2 5 FEET
SCALE IN INCHES

4" R.
1/2"
1"
11" typ. (varies)

STAIR DETAIL
Scale: 1" = 1'-0"

1/2" expansion joint material around entire joint perimeter.
1/2" chamfer on exposed face.
1" dia.
1/2"
Rubber water stop
Embedment 2 1/2" minimum.

EXPANSION JOINT DETAIL
Scale: 1" = 1'-0"

UPPER DECK
ONLY DECK

LOCATION KEY

MARK	DATE	DESCRIPTION REVISION	BY	CHK.
1	5-1-64	As built with revision.	clk	RMC

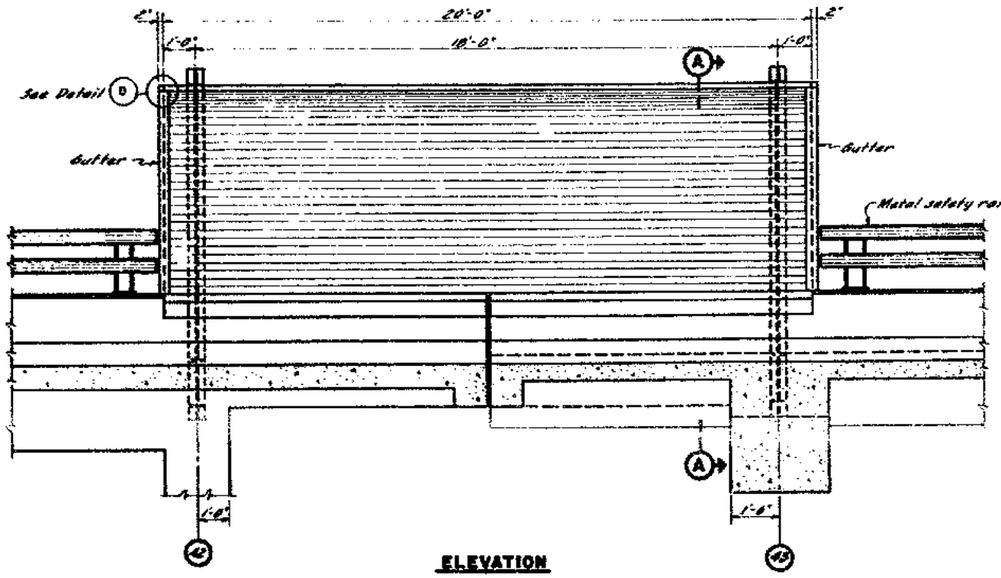
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
PEDESTRIAN UNDERCROSSING

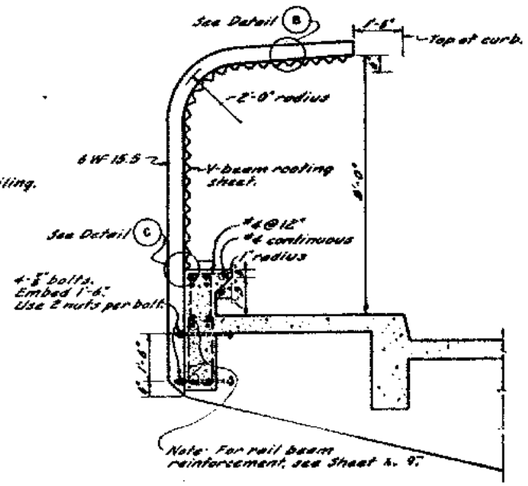
SCALE AS SHOWN | BRIDGE 33-25 34-03 34-04 | SHEET NO 103 | DRAWING C-4089-103 R

PROJECT ENGINEER LICENSE 14[illegible]

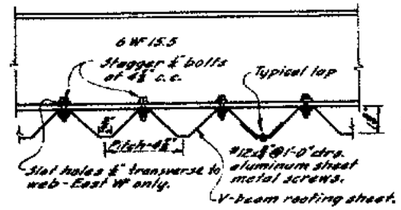
DATE APPROVED July 22, 1960



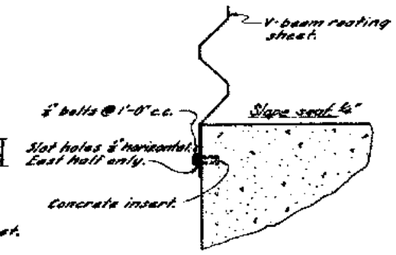
ELEVATION



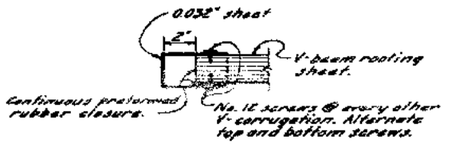
SECTION A-A



DETAIL B
SHEET-WF CONNECTION
Scale: 3"=1'-0"

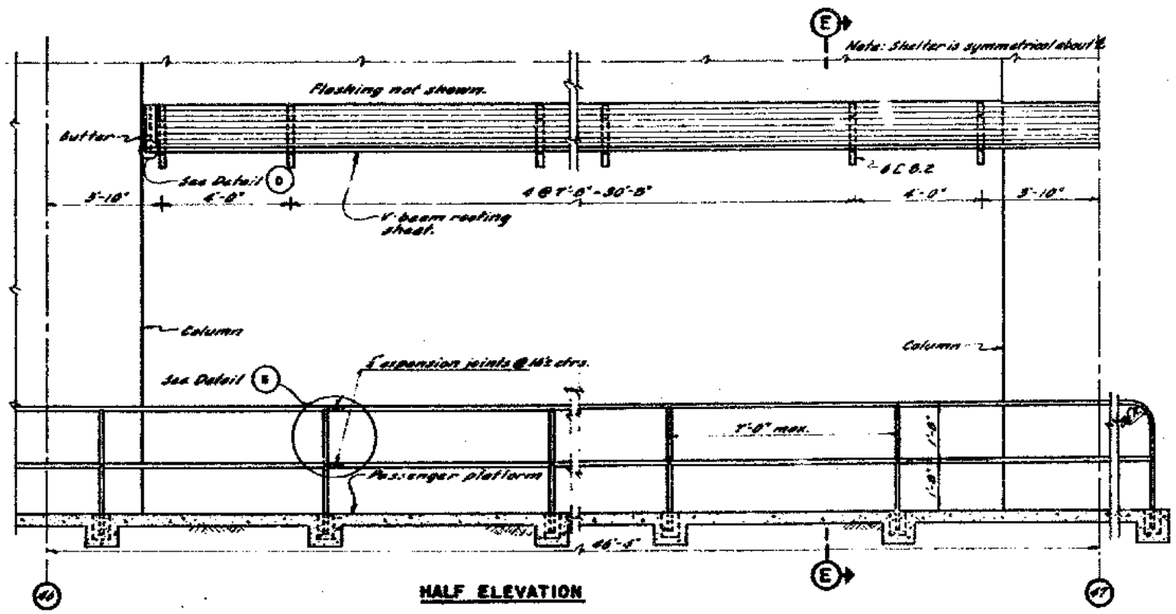


DETAIL C
SHEET-RAIL CONNECTION
Scale: 3"=1'-0"

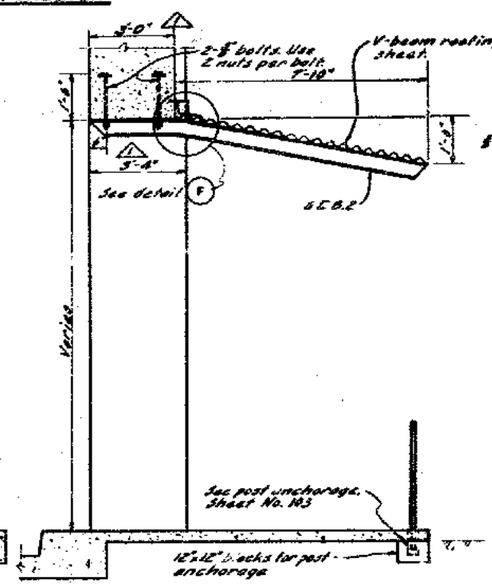


DETAIL D
GUTTER CONNECTION
Scale: 3"=1'-0"

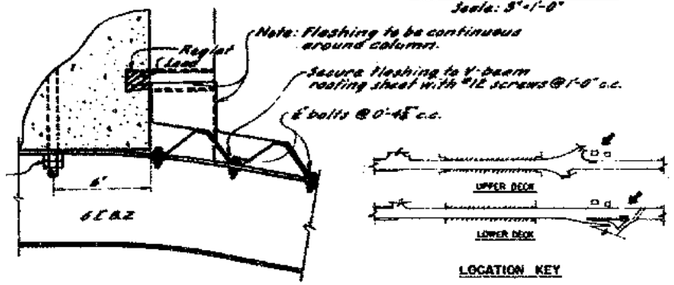
UPPER DECK PASSENGER SHELTER



HALF ELEVATION

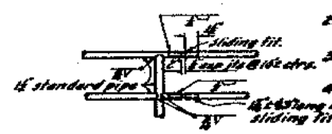


SECTION E-E



LOCATION KEY

DETAIL F
Scale: 3"=1'-0"



DETAIL G
PIPE HANDRAIL WELDING DETAILS
No scale

NOTES

1. V-beam roofing sheet shall be 0.050" thick aluminum alloy ALCLAD 3004-H36.
2. Flashing and gutter sheet shall be 0.032" thick aluminum alloy ALCLAD 3004-0.
3. Channels and wide flanges shall be structural steel, ASTM Designation: A-7.
4. For locations, See Plan and Profile sheets.

LOWER DECK PASSENGER SHELTER

MARK	DATE	DESCRIPTION REVISION	BY	CHK
1	6-1-64	As built with revision.	clc	DMZ

STATE OF CALIFORNIA
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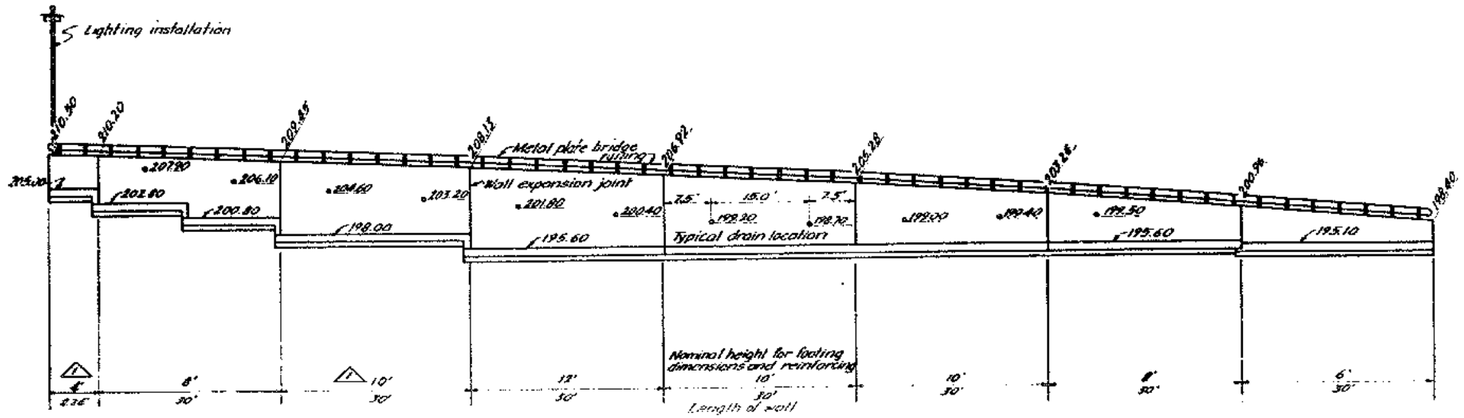
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO - OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

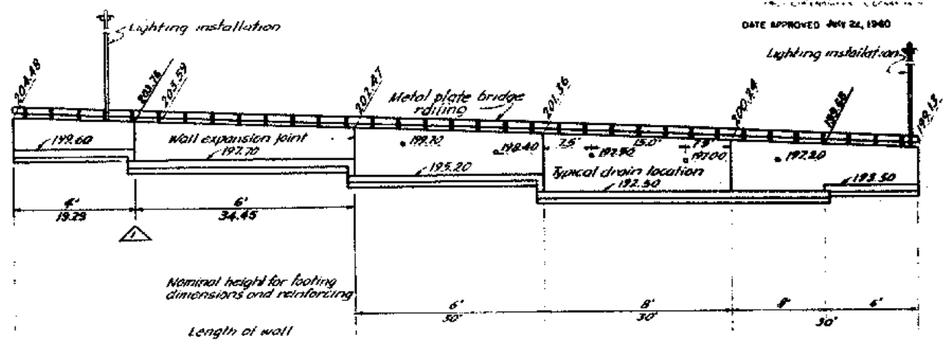
PASSENGER SHELTERS

UNLESS NOTED SCALE 1/2"=1'-0" | BRIDGE 54-04 | SHEET No. 104 | DRAWING C-4028

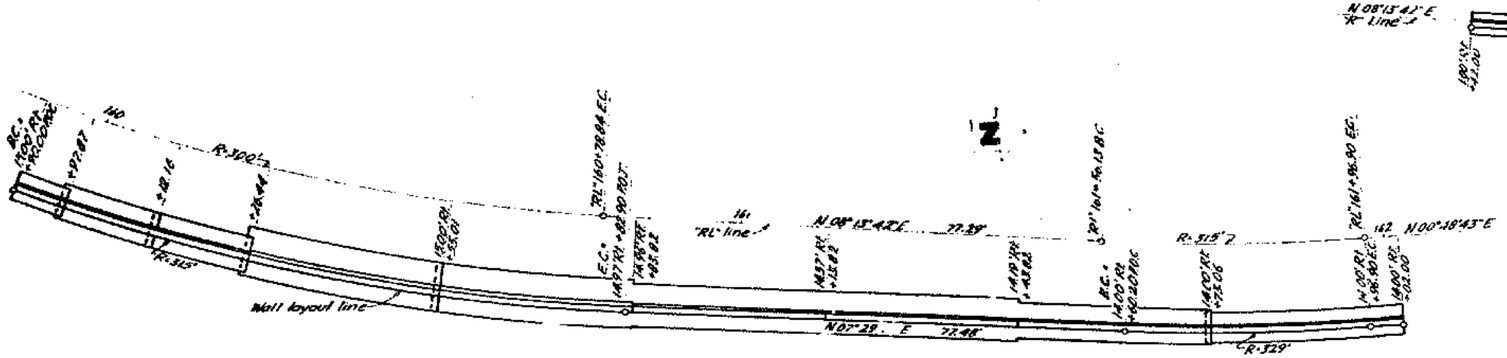
DATE APPROVED July 22, 1960



ELEVATION

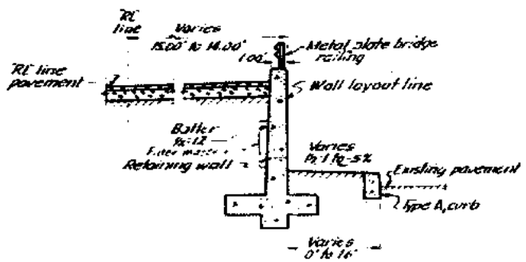


ELEVATION



PLAN

I5.00' RT. "RL" LINE STA. I59+90.00 TO I4 .0' RT "RL" LINE STA. I62+02.00

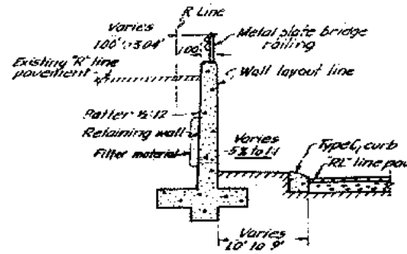


TYPICAL SECTION

Scale: ¾"=1'-0"

PLAN

I00'RT."R" LINE STA. I6I42.00 TO 3.04' RT."R" LINE STA. I7+85.00

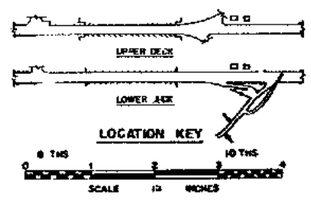


TYPICAL SECTION

Scale: ¾"=1'-0"

NOTES

1. The spacing of posts for metal plate bridge railing mounted in retaining walls shall be 4'-2".
2. No bridge railing post shall be placed within 9 inches of retaining wall expansion joints or within 9 inches of the ends of retaining walls.
3. For metal plate bridge railing mounted on retaining walls see Sheet No. 106
4. Roadway lighting installation see Sheet No. 137



MARK	DATE	DESCRIPTION REVISION	BY	CHK.
1	6-1-61	As built with revision	dk	RMC

STATE OF CALIFORNIA
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DIVISION OF SAN FRANCISCO-OAKLAND BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

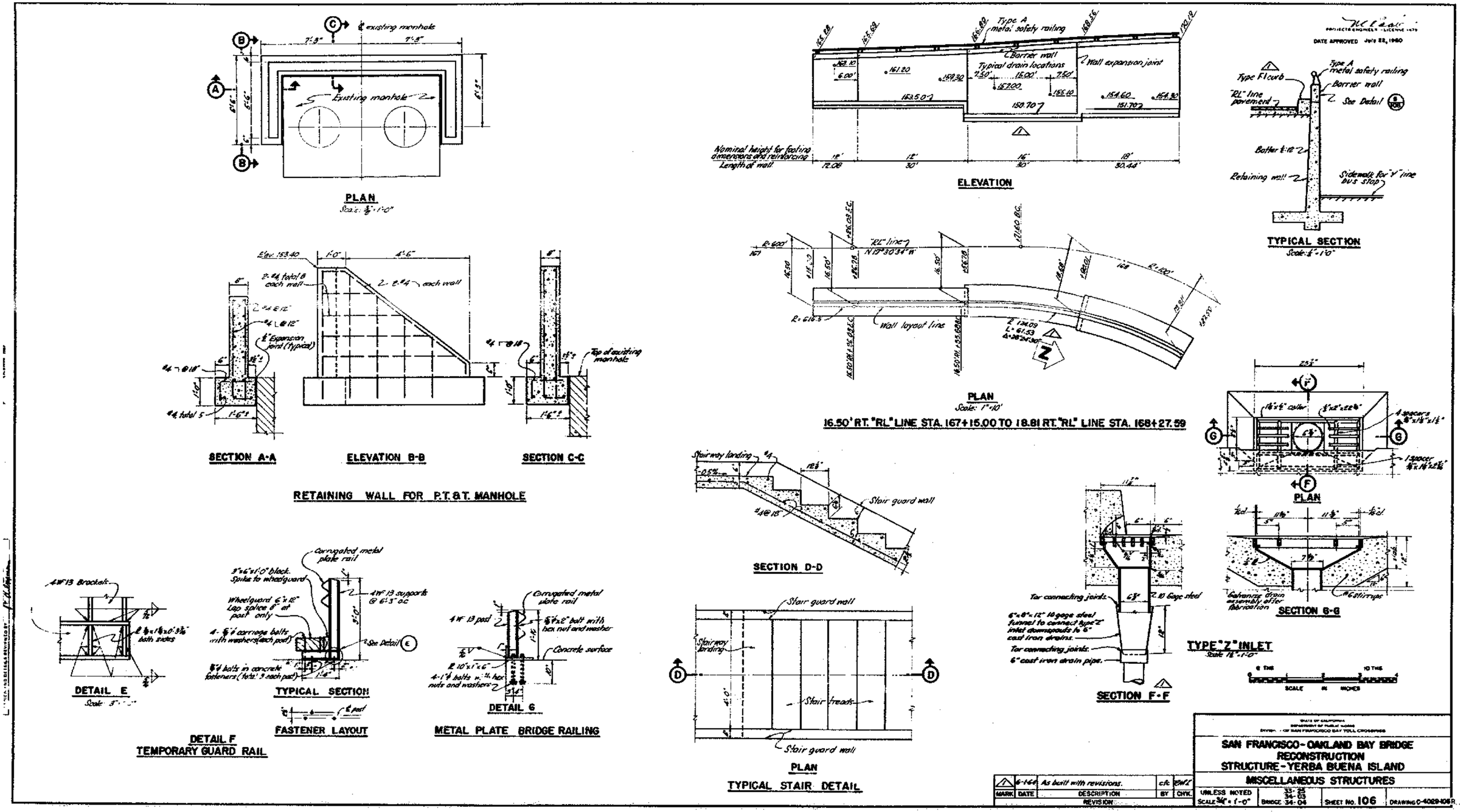
RETAINING WALLS "RL" AND "R" LINES

UNLESS NOTED SCALE: 1"=10'

BRIDGE 33-25 34-03 34-04

SHEET NO 105

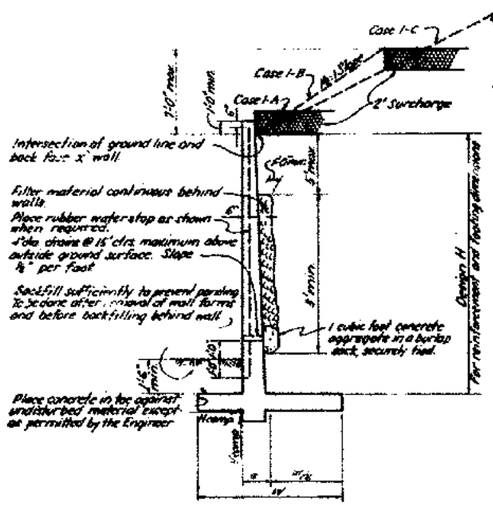
DRAWING 4029-105R



PLAN
Scale: 3/8" = 1'-0"
Existing manhole
SECTION A-A
ELEVATION B-B
SECTION C-C
RETAINING WALL FOR P.T.&T. MANHOLE
DETAIL E
TYPICAL SECTION
FASTENER LAYOUT
DETAIL F
TEMPORARY GUARD RAIL
DETAIL G
METAL PLATE BRIDGE RAILING
ELEVATION
Type A metal safety railing
Barrier wall
Typical drain locations
Wall expansion joint
Nominal height for footing dimensions and reinforcing
Length of wall
PLAN
Scale: 1" = 10'
16.50' RT. "RL" LINE STA. 167+15.00 TO 18.81 RT. "RL" LINE STA. 168+27.59
Wall layout line
TYPICAL SECTION
Scale: 1/4" = 1'-0"
Type F1 curb
"RL" line pavement
See Detail
Retaining wall
Sidewalk for "Y" line bus stop
PLAN
SECTION D-D
Stairway landing
Stair guard wall
PLAN
TYPICAL STAIR DETAIL
Stair treads
SECTION F-F
Tar connecting joints
6"x8"x12" 10 gage steel funnel to connect type "Z" inlet downspouts to 6" cast iron drains.
6" cast iron drain pipe.
TYPE "Z" INLET
Scale 1 1/2" = 1'-0"
SECTION G-G
Galvanize drain assembly after fabrication
SCALE IN INCHES
DATE APPROVED July 22, 1960
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
MISCELLANEOUS STRUCTURES
As built with revisions.
MARK DATE DESCRIPTION BY CHK.
REVISION
UNLESS NOTED
SCALE 3/4" = 1'-0"
BRIDGE 33-25 34-03 34-04
SHEET NO. 106
DRAWING C-4029-106R

PROJECT ENGINEER LICENSE NO.

DATE APPROVED July 22, 1960

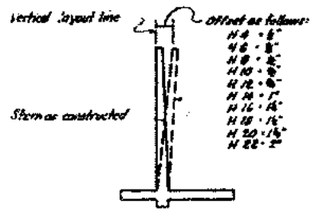


DESIGN AND DRAINAGE

Loading Notes

Surcharge is a load which replaces a live load or dead load with an equivalent weight of earth.

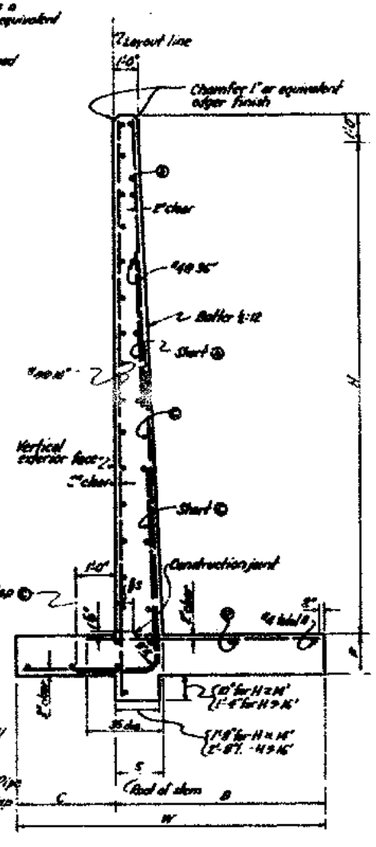
For an H20-S16-44 truck live load use a 2' level surcharge



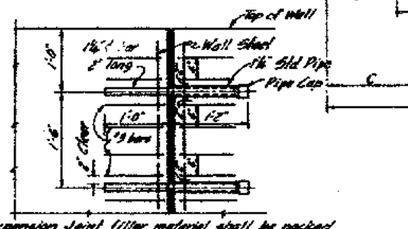
WALL OFFSET VALUES

RUBBER WATERSTOP

Use only when waterproofing is required.

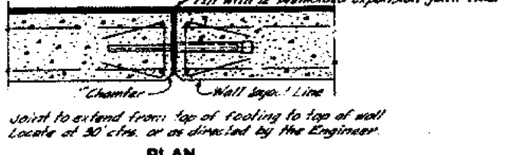


SECTION



Note: Expansion Joint filler material shall be packed tightly around 1¼"ø bar to prevent grout intrusion into pipe. 1¼"ø bar to be greased to prevent bond in pipe section.

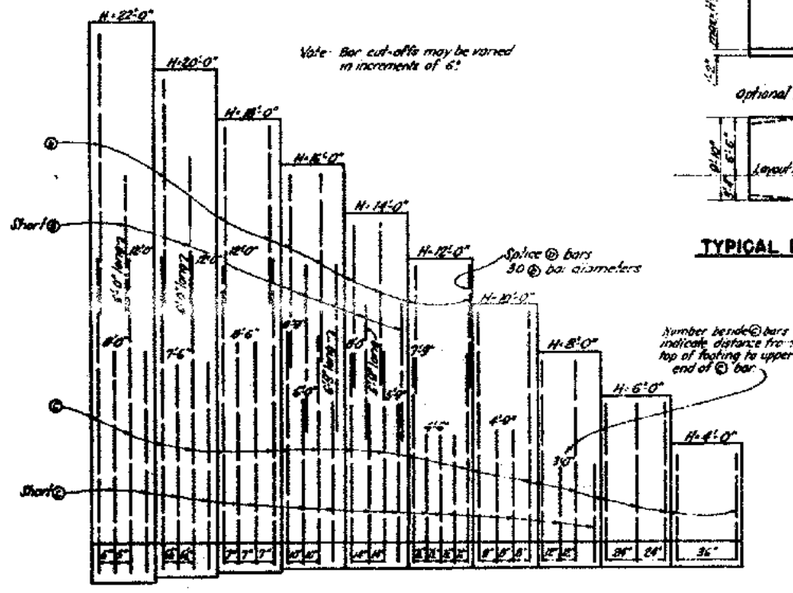
SECTION



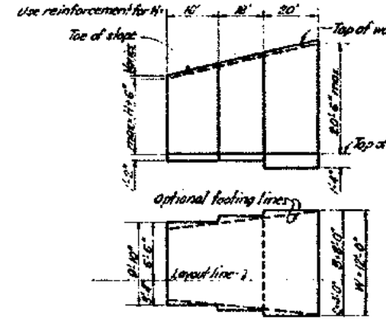
Joint to extend from top of footing to top of wall Locate at 90' ctrs. or as directed by the Engineer.

PLAN

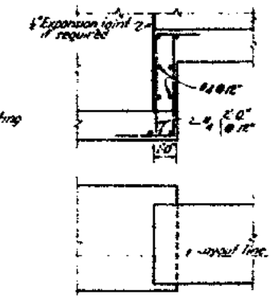
RETAINING WALL EXPANSION JOINT DETAIL



ELEVATION



TYPICAL LAYOUT EXAMPLE



FOOTING STEP

	TABLE OF REINFORCING STEEL DIMENSIONS AND DATA									
H	22'	20'	18'	16'	14'	12'	10'	8'	6'	4'
W	19'-0"	17'-0"	10'-10"	9'-10"	8'-8"	7'-8"	6'-8"	5'-8"	4'-8"	3'-6"
C	4'-4"	4'-0"	3'-8"	3'-4"	2'-10"	2'-6"	2'-2"	1'-10"	1'-6"	1'-2"
B	8'-8"	8'-0"	7'-5"	6'-6"	5'-10"	5'-2"	4'-6"	3'-10"	3'-2"	2'-4"
F	1'-6"	1'-6"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"	1'-5"
S	1'-11"	1'-10"	1'-9"	1'-8"	1'-7"	1'-6"	1'-5"	1'-4"	1'-3"	1'-2"
⑤ bars	#10 @ 6"	#10 @ 7½"	#9 @ 7"	#9 @ 10"	#9 @ 15"	#8 @ 7"	#8 @ 8"	#4 @ 12"	#5 @ 24"	#5 @ 36"
⑥ bars	#7 @ 10"	#7 @ 13"	#6 @ 21"	#5 @ 10"	#5 @ 14"	#5 @ 20"				
⑦ bars	#11 @ 5"	#11 @ 6"	#10 @ 7"	#10 @ 10"	#10 @ 14"	#6 @ 7½"	#5 @ 6"	#5 @ 12"	#5 @ 24"	#5 @ 36"
Conc. Cy/ft	53.6	46.3	39.5	34.9	30.8	24.8	20.8	16.8	13.2	9.3
Steel Area	855	760	695	630	560	456	388	288	210	114
Dw gross	3,610	3,200	2,850	2,720	2,600	2,120	1,800	1,520	1,190	930
H comp. Dw	11,630	9,730	8,000	6,540	5,280	4,080	3,060	2,120	1,440	850
V comp. Dw	26,980	22,800	18,710	15,410	12,340	9,540	7,260	5,290	3,640	2,190
e ft	1.60	1.37	1.30	1.20	1.10	0.96	0.72	0.59	0.38	0.28
Dw gross	5,550	4,930	4,630	4,110	3,740	3,130	2,560	2,060	1,540	1,100
H comp. Dw	22,400	18,560	15,200	12,290	9,690	7,380	5,410	3,750	2,360	1,270
V comp. Dw	31,520	31,520	25,760	20,980	16,430	12,530	9,240	6,460	4,190	2,520
e ft	1.99	1.79	1.71	1.54	1.39	1.20	0.92	0.74	0.50	0.34

NOTES

Design conditions

Wall shall be used for loading condition shown in Design and Drainage detail.

Design H may be exceeded by 6" before going to next size.

Footing key is required except when found unnecessary by the Engineer.

Special footing design is required where foundation material is incapable of supporting toe pressure load listed in table.

Design data

f'c - 2000 psi
fs - 20,000 psi
Concrete 140 pcf in-ft
Earth 100 pcf
Equivalent fluid pressure - 36 psf per ft. of height

Reinforcement

Intermediate grade, hard grade, or rail steel.

All bar embedments have clear distances to col side of bar

Spacing of parallel bars is ctr to ctr of bars

Concrete

Class L concrete with type II Portland Cement shall be used for all type L-1 cantilever retaining walls.

MARK	DATE	DESCRIPTION REVISION	BY	CHK.
1	6-1-60	As built without revision	clc	DEMET

STATE OF CALIFORNIA
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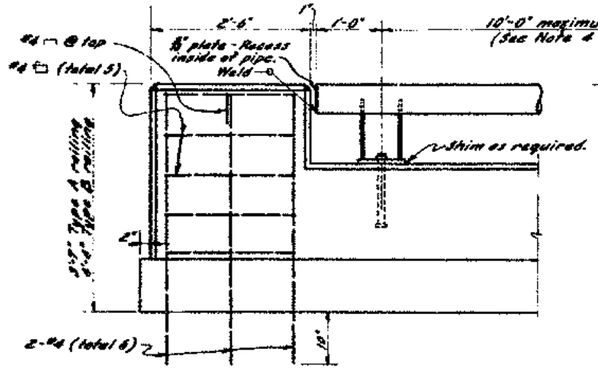
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

TYPE L-1 CANTILEVER RETAINING WALL

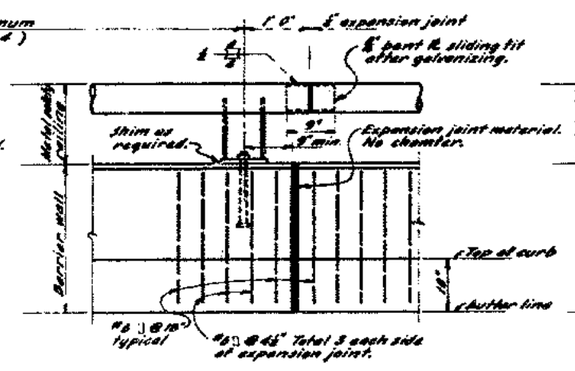
SCALE NO SCALE | BRIDGE 33-33, 33-33, 34-04 | SHEET NO. 107 | DRAWING C-4029-407.8



ELEVATION

RAILING AT END POST

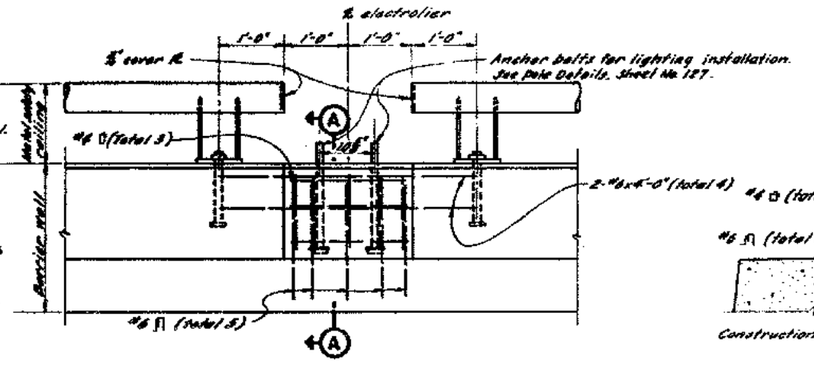
Scale: 1"=1'-0"



ELEVATION

RAILING AT JOINT

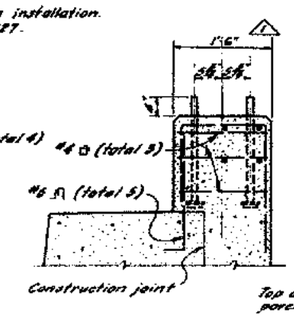
Scale: 1"=1'-0"



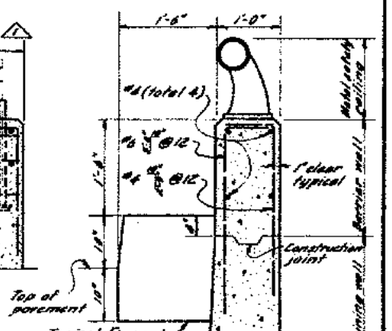
ELEVATION

RAILING AT LIGHTING INSTALLATION

Scale: 1"=1'-0"



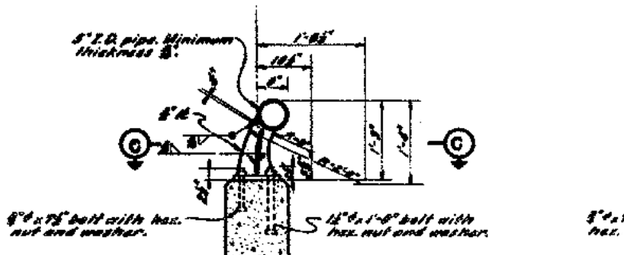
SECTION A-A



DETAIL B

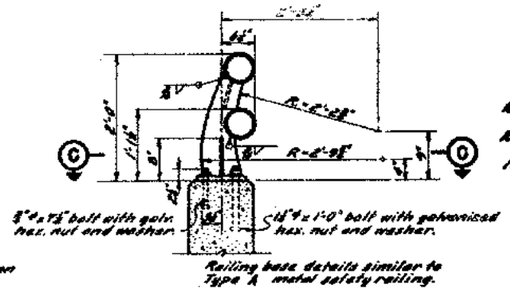
RAILING AT RETAINING WALL

Scale: 1"=1'-0"



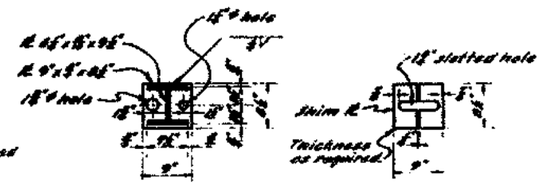
TYPE A METAL SAFETY RAILING

Scale: 1"=1'-0"



TYPE B METAL SAFETY RAILING

Scale: 1"=1'-0"



SECTION C-C

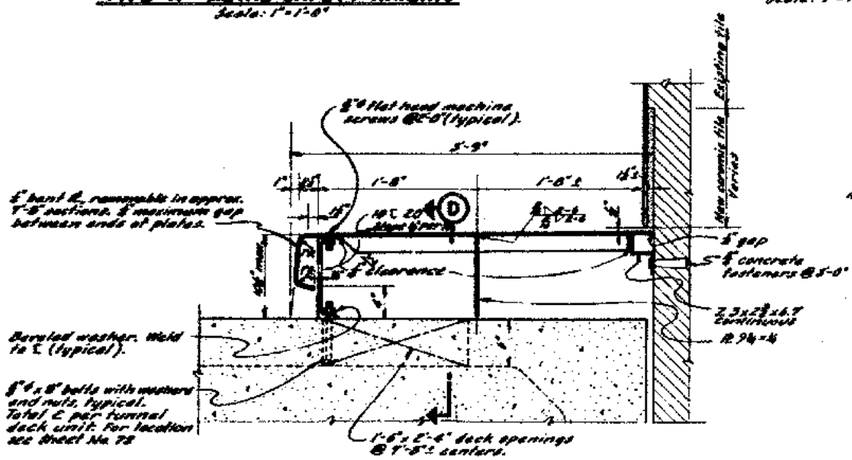
Scale: 1"=1'-0"

SHIM DETAIL

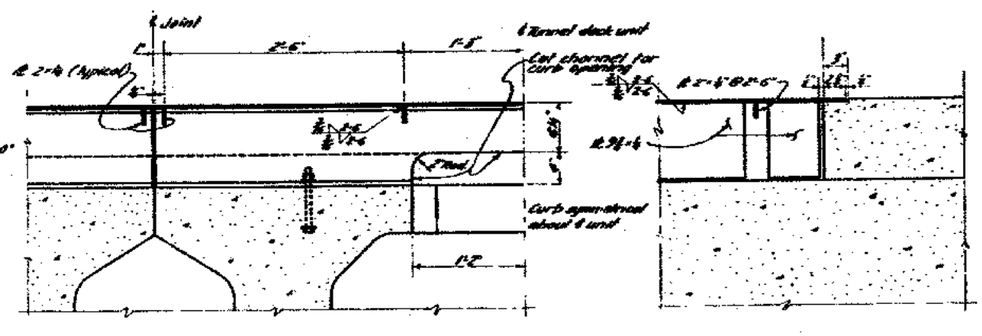
Scale: 1"=1'-0"

NOTES

1. Steel curb to be galvanized.
2. Railing to conform to horizontal and vertical alignment.
3. Railing posts shall be normal to railing.
4. The exact location of railing post to be determined from shop plans.
5. Joints in metal safety railing to be as shown on the plans, or as approved by the Engineer.
6. At expansion joint in deck, rail joint to be increased to same size.
7. Steel railing assembly to be galvanized after fabrication.
8. Walls are to be backfilled before railing is placed.
9. At the option of the Contractor material for the railing may be one of the following:
   a. Steel pipe rail and welded steel post.
   b. Steel pipe rail and cast steel post.
10. For barrier wall reinforcement see structural sheets.
11. For metal plate bridge railing, see sheet No. 106.
12. For temporary guard rail details, see sheet No. 106.
13. For standard curbs, see sheet No. 109.



TYPICAL SECTION



SECTION D-D

END DETAIL

TYPE S CURB

Scale: 1½"=1'-0"

DESIGN AND DETAILS REVIEWED BY [illegible]

DATE APPROVED July 22, 1960

[illegible]
PROJECTS ENGINEER LICENSE [illegible]

MARK	DATE	DESCRIPTION REVISION	BY	CHK.
1	6-1-64	As built with revision.	dfc	[illegible]

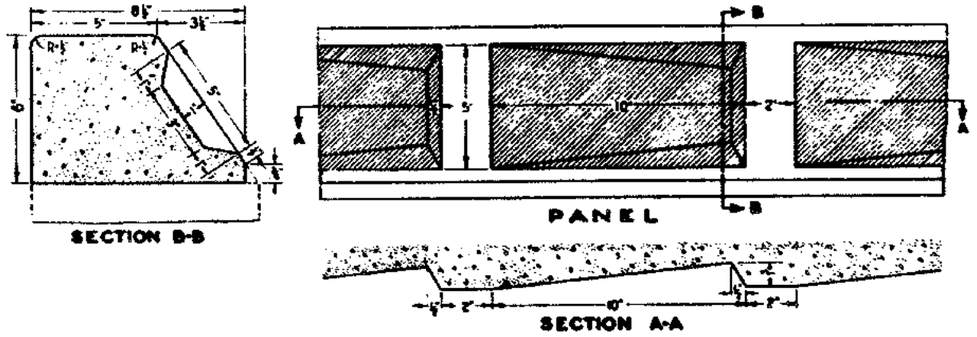
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

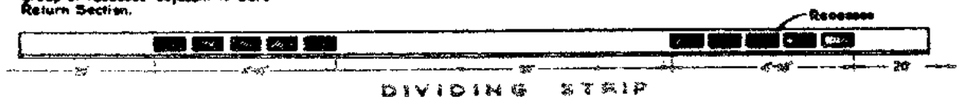
CURB AND RAILING DETAILS

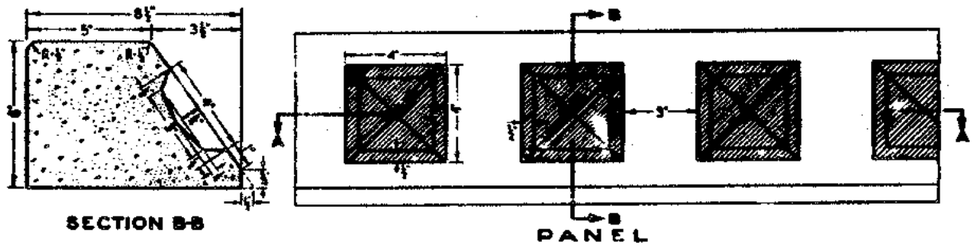
SCALE AS SHOWN | Bridge 33-05, 33-06, 34-04 | SHEET No. 108 | DRAWING C-4029-108

PROJECTS ENGINEER - LICENSE 14079
DATE APPROVED July 22, 1960



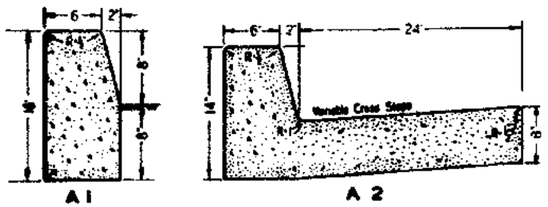
Note: Adjust end spacing to provide group of recesses adjacent to Curb Return Section.



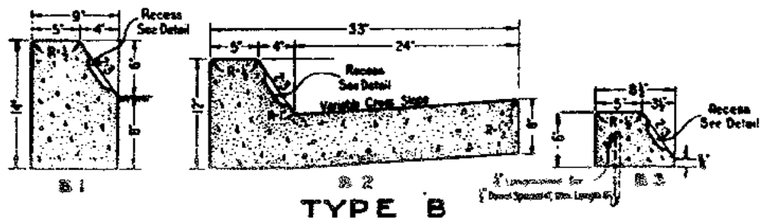


Note Shaded Areas to be Painted

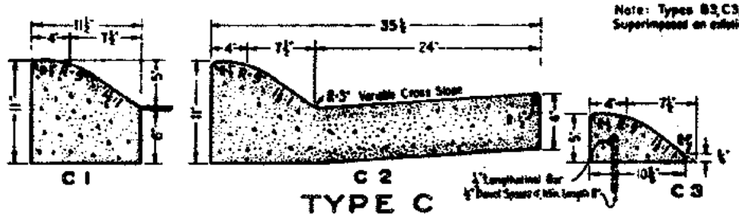
CURB RETURN SECTION



TYPE A

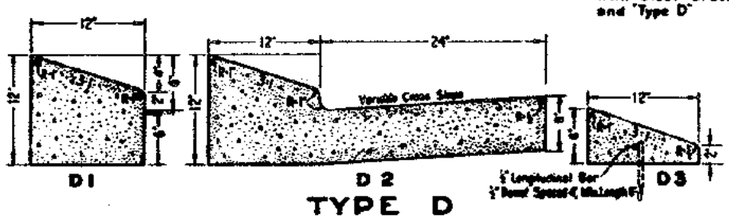


TYPE B

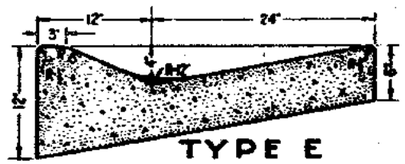


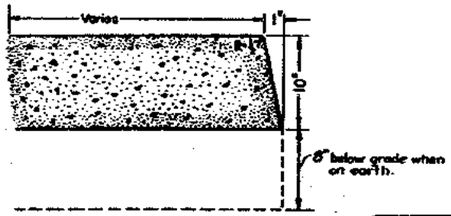
TYPE C

Note: Curb faces to be scored transversely with steel brushes on Type C and Type D



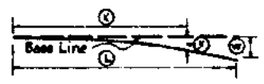
TYPE D





TYPE F

CURB QUANTITIES			
Type	C.Y. Per Lin.Ft.	Type	C.Y. Per Lin.Ft.
A1	0.03084	C2	0.06457
A2	0.06379	C3	0.00965
B1	0.02930	D1	0.03073
B2	0.06326	D2	0.06326
B3	0.00965	D3	0.00965
C1	0.03084		



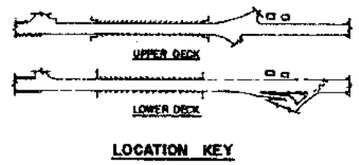
$$y = \frac{WX^2}{L^2}$$

(L) - Length of Flare in feet.
(W) - Maximum offset in feet.
(X) - Distance along base line in feet.
(Y) - Offset from base line in feet.
(W) is shown in table thus 5.00/2

PARABOLIC CURB FLARES

Distance (X) / Length of Flare	10	15	20	25	30	40	45	50	60	70	75	80	90	100	110	120
OFFSET IN FEET FOR GIVEN "x" DISTANCE																
1:5 FLARES																
25	0.80	1.80	3.20	5.00												
50	0.40		1.60		3.60	6.40		10.00								
1:10 FLARES																
50	0.20		0.80		1.80	3.20		5.00								
100	0.10		0.40		0.90	1.60		2.50	3.60	4.90		6.40	8.10	10.00		
1:15 FLARES																
45	0.15		0.59		1.33	2.37	3.00									
75	0.06		0.35		0.80	1.42		2.22	3.20	4.36	5.00					
90	0.07		0.30		0.67	1.19		1.85	2.67	3.63		4.74	6.00			
120	0.06		0.22		0.50	0.89		1.39	2.00	2.72		3.56	4.50	5.56	6.72	8.00

Note: Types B2, C3, D3 Superimposed on existing pavement



LOCATION KEY

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION

SPAN	2'		3'			4'					
HEIGHT	1'6	2'	2'	3'		2'	3'		4'		
STRENGTH CLASSIFICATION	A	A	A	A	B	A	A	B	A	B	C
Conc. Top Slab T_1	6½	6½	6½	6½	8	7	7	8	7	8	9
Conc. Bottom Slab T_2	6½	6½	6½	6½	8	7	7	8	7	8	9
Conc. Sidewalls T_3	6	6	6	6	6	6	6	6	6	6	6
Reinforcing Steel 'a' Size: Bar #	4	4	4	4	4	4	4	5	4	5	5
'a' Spacing	4½	4½	4½	4½	3½	4	4	5½	4	5½	4½
'a' Length	3-8	3-8	4-8	4-8	4-8	5-8	5-8	5-9	5-8	5-9	5-9
'd' Dist. Bars Top Slab	3	3	4	4	3	5	5	4	5	5	4
'd' Dist. Bars Bot. Slab	1	1	3	3	3	3	3	4	3	4	4
'e' Bars Spacing	18	18	18	18	12	18	18	18	18	12	9
Spacers Number	6	6	6	6		6	6		8		
Quan. Concrete: C.Y. per Lin. Ft.	0.19	0.20	0.24	0.27	0.30	0.29	0.33	0.36	0.37	0.40	0.43
Quan. Reinfor'g. Lbs. " " "	22	22	28	29	35	35	36	39	38	44	52
Hydraulics Area A	3	4	6	9		8	12		16		
Hydraulic Radius R	.43	.50	.60	.75		.67	.86		1.00		
Neutral Slope %	.83	.91	.73	.82		.64	0.70		0.77		
Head Factor K	130	107	.85	65		75	0.55		0.45		
Entrance Capacity Q_{10}	11	17	26	48		35	64		99		
Design Discharge Q_{100}	18	28	43	79		58	107		163		
Max. Cover Case II or VIII	60		31	31	51	21	21	30	21	30	40
Case IV	100		100	100		38	38	100	38	100	
Case VI	32		16	16	26	13	13	16	13	18	25

SPAN	5'											
HEIGHT	2'		3'		4'				5'			
STRENGTH CLASSIFICATION	A	B	A	B	A	B	C	D	A	B	C	D
Conc. Top Slab T_1	7½	8	7½	8	7½	8	9½	11	7½	8	9½	11
Conc. Bottom Slab T_2	6½	8	6½	8	6½	8	9½	11½	6½	8	9½	11½
Conc. Sidewalls T_3	6	6	6	6	6	6	6	6	6	6	6	6
'a' Size: Bar #	5	5	5	5	5	5	5	6	5	5	5	6
'a' Spacing	6	5½	6	5½	6	5½	4½	5½	6	5½	4½	5½
'a' Length	6-9	6-9	6-9	6-9	6-9	6-9	6-9	6-10	6-9	6-9	6-9	6-10
'd' Dist. Bars Top Slab	5	4	5	4	5	4	4	5	5	5	4	5
'd' Dist. Bars Bot. Slab	4	4	4	4	4	4	4	5	4	4	4	5
'e' Bars Spacing	18	18	18	18	18	18	12	9	18	12	7	5½
Spacers Number	6		6		10				10			
Concrete: C.Y. per Lin. Ft.	0.34	0.37	0.37	0.41	0.41	0.45	0.50	0.56	0.45	0.48	0.54	0.60
Reinfor'g. Lbs. " " "	41	43	43	45	45	47	57	68	46	52	64	78
Area A	10		15		20				25			
Hydraulic Radius R	0.71		0.94		1.11				1.25			
Neutral Slope %	0.59		0.62		0.67				0.73			
Head Factor K	0.69		0.49		0.39				0.34			
Entrance Capacity Q_{10}	43		80		123				172			
Design Discharge Q_{100}	71		132		203				284			
Case II or VIII	12	21	12	21	11	19	30	40	10	19	30	40
Case IV	12	27	12	27	11	25	63	100	10	23	60	100
Case VI	9	13	9	13	8	12	18	23	8	12	18	23

SPAN	6'																				
HEIGHT	2'		3'		4'			5'				6'					7'				
STRENGTH CLASSIFICATION	A	B	A	B	A	B	C	A	B	C	D	A	B	C	D	E	A	B	C	D	E
Conc. Top Slab T_1	8¼	8¼	8¼	8¼	8¼	8¼	9½	8¼	8¼	9½	12	8¼	8¼	9½	12	13	8¼	8¼	9½	12	13
Conc. Bottom Slab T_2	7	8	7	8	7	8	10	7	8	10	12	7	8	10	12	13	7	8	10	12	13
Conc. Sidewalls T_3	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	7	6	6	6	7	7½
'a' Size: Bar #	5	5	5	5	5	5	7	5	5	7	7	5	5	7	7	7	5	5	7	7	7
'a' Spacing	5½	5½	5½	5½	5½	5½	7½	5½	5½	7½	7	5½	5½	7½	7	6½	5½	5½	7½	7	6½
'a' Length	7-9	7-9	7-9	7-9	7-9	7-9	8-1	7-9	7-9	8-1	8-1	7-9	7-9	8-1	8-1	8-1	7-9	7-9	8-1	8-1	8-1
'd' Dist. Bars Top Slab	6	4	6	4	6	4	5	6	4	5	5	6	4	5	5	6	6	4	5	5	6
'd' Dist. Bars Bot. Slab	4	4	4	4	4	4	5	4	4	5	5	4	4	5	5	6	4	4	5	5	6
'e' Bars Spacing	18		18		18			18	12	12	7	15	11	7	5	6	9	7	5	4½	4
Spacers Number	6		8		10			12				12					14				
Concrete: C.Y. per Lin. Ft.	0.41	0.43	0.44	0.47	0.48	0.50	0.57	0.52	0.54	0.61	0.71	0.56	0.58	0.65	0.74	0.84	0.59	0.62	0.68	0.84	0.91
Reinfor'g. Lbs. " " "	49	47	51	50	53	52	71	55	57	76	87	57	59	64	96	98	65	69	96	102	114
Area A	12		18		24			30				36					42				
Hydraulic Radius R	0.75		1.00		1.20			1.36				1.50					1.62				
Neutral Slope %	0.53		0.56		0.59			0.62				0.66					0.71				
Head Factor K	0.645		0.450		0.358			0.305				0.271					0.247				
Entrance Capacity Q_{10}	52		96		148			207				272					343				
Design Discharge Q_{100}	86		159		244			341				448					565				
Case II or VIII	7	14	7	14	7	14	20	6	13	19	31	6	13	19	31	38	6	13	19	31	38
Case IV	7	14	7	15	7	15	25	6	13	23	60	6	13	23	60	100	6	13	23	60	100
Case VI	6	10	6	10	6	10	14	5	10	13	19	5	10	13	19	23	5	10	13	19	23

← Bar numbers denote nominal diameters of round bars in eighths of an inch. (Bar #6 = ¾ ϕ)

Note: For boxes of height less than that shown in table use next greater table height slabs, wall dimensions and reinforcing steel, and make necessary changes in bar lengths, number of spacers and quantities.

SPAN	7'												
HEIGHT	3'		4'		5'			6'			7'		
STRENGTH CLASSIFICATION	A	B	A	B	A	B	C	A	B	C	A	B	C
Conc. Top Slab T_1	7½	9	7½	9	7½	9	10	7½	9	10	7½	9	10
Conc. Bottom Slab T_2	7½	8½	7½	8½	7½	8½	10	7½	8½	10	7½	8½	10
Conc. Sidewalls T_3	6	7	6	7	6	7½	9	6	7½	9	6	7½	9
'a' Size: Bar #	5	5	5	5	5	5	6	5	5	6	5	5	6
'a' Spacing	12	10	12	10	12	10	12	12	10	12	12	10	12
'a' Length	7-9	7-11	7-9	7-11	7-9	8-0	8-3	7-9	8-0	8-3	7-9	8-0	8-3
'b' Size: Bar #	5	5	5	5	5	5	6	5	5	6	5	5	6
'b' Spacing	12	10	12	10	12	10	12	12	10	12	12	10	12
'b' Length	12-2	12-5	12-2	12-5	12-2	12-6	13-7	12-2	12-6	13-7	12-2	12-6	13-7
'c' Size: Bar #	5	5	5	5	5	5	5	5	5	6	5	5	6
'c' Spacing	12	10	12	10	12	10	12	12	10	12	12	10	12
'c' Length	12-8	13-0	13-8	14-0	14-3	15-0	15-9	15-4	16-0	16-9	16-8	17-0	17-9
'd' Dist. Bars Top Slab	5	5	5	5	5	5	6	5	5	6	5	5	6
'd' Dist. Bars Bot. Slab	4	5	4	5	4	5	6	4	5	6	4	5	6
'e' Bars Spacing	18	18	18	18	18	18	18	18	18	9	18	18	18
Spacers Number	26		30		30			34			38		
Concrete: C.Y. per Lin. Ft.	0.49	0.58	0.52	0.62	0.56	0.68	0.80	0.60	0.73	0.86	0.64	0.77	0.91
Reinfor'g. Lbs. " " "	95	111	100	117	104	121	147	109	127	153	115	133	160
Area A	21		28		35			42			49		
Hydraulic Radius R	1.05		1.27		1.46			1.62			1.75		
Neutral Slope %	0.52		0.54		0.57			0.61			0.64		
Head Factor K	0.423		0.332		0.281			0.247			0.224		
Entrance Capacity Q_{10}	112		173		241			317			400		
Design Discharge Q_{100}	185		265		398			523			659		
Case II or VIII	12	20	12	20	11	19	26	11	19	26	11	19	26
Case IV	12	24	12	24	11	23	37	11	23	37	11	23	37
Case VI	10	14	10	14	9	13	17	9	13	17	9	13	17

SPAN	8'																
HEIGHT	3'		4'		5'		6'			7'				8'			
STRENGTH CLASSIFICATION	A	B	A	B	A	B	A	B	C	A	B	C	D	A	B	C	D
Conc. Top Slab T_1	7½	8½	7½	8½	7½	8½	7½	8½	10	7½	8½	10	12	7½	8½	10	12
Conc. Bottom Slab T_2	7½	10½	7½	10½	7½	10½	7½	10½	11½	7½	10½	11½	13	7½	10½	11½	13
Conc. Sidewalls T_3	7		7		7		7½	7½	9½	7½	7½	9½	11½	7½	7½	9½	11½
'a' Size: Bar #	5	5	5	5	5	5	5	5	6	5	5	6	7	5	5	6	7
'a' Spacing	12	10	12	10	12	10	12	10	12	12	10	12	14	12	10	12	14
'a' Length	8-11	8-11	8-11	8-11	8-11	8-11	9-0	9-0	9-3	9-0	9-0	9-3	9-8	9-0	9-0	9-3	9-8
'b' Size: Bar #	5	5	5	5	5	5	5	5	6	5	5	6	7	5	5	6	7
'b' Spacing	12	10	12	10	12	10	12	10	12	12	10	12	14	12	10	12	14
'b' Length	13-4	13-6	13-4	13-5	13-4	13-6	13-5	13-6	14-7	13-5	13-6	14-7	16-2	13-6	13-6	14-7	16-2
'c' Size: Bar #	5	5	5	5	5	5	5	5	6	5	5	6	7	5	5	6	7
'c' Spacing	12	10	12	10	12	10	12	10	12	12	10	12	14	12	10	12	14
'c' Length	13-0	14-2	14-10	15-2	15-10	16-2	16-11	17-3	17-11	17-11	18-3	18-11	19-5	18-11	19-3	19-11	20-6
'd' Dist. Bars Top Slab	6	6	6	6	6	6	6	6	7	6	6	7	8	6	6	7	8
'd' Dist. Bars Bot. Slab	5	6	5	6	5	6	5	6	7	5	6	7	8	5	6	7	8
'e' Bars Spacing	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Spacers Number	26		30		30		34			38				42			
Concrete: C.Y. per Lin. Ft.	0.56	0.66	0.60	0.71	0.64	0.75	0.71	0.81	0.96	0.76	0.87	1.04	1.27	0.80	0.91	1.12	1.34
Reinfor'g. Lbs. " " "	103	121	109	127	112	130	116	137	164	124	145	171	203	129	149	177	210
Area A	24		32		40		48			56				64			
Hydraulic Radius R	1.09		1.33		1.54		1.71			1.87				2.00			
Neutral Slope %	0.50		0.52		0.54		0.56			0.59				0.62			
Head Factor K	0.404		0.314		0.262		0.229			0.206				0.183			
Entrance Capacity Q_{10}	128		197		276		362			457				558			
Design Discharge Q_{100}	212		326		455		587			753				921			
Case II or VIII	9	17	9	17	9	17	8	16	23	8	16	23	32	8	16	23	32
Case IV	8	18	8	18	8	18	7	18	30	7	18	30	59	7	18	30	59
Case VI	8	12	8	12	8	12	7	12	16	7	12	16	21	7	12	16	21

SPAN	10'																
HEIGHT	4'		5'		6'		7'		8'			9'			10'		
STRENGTH CLASSIFICATION	A	B	A	B	A	B	A	B	A	B	C	A	B	C	A	B	C
Conc. Top Slab T_1	8¾	9½	8¾	9½	8¾	9½	8¾	9½	8¾	9½	12	8¾	9½	12	8¾	[illegible]	12
Conc. Bottom Slab T_2	8½	10½	8½	10½	8½	10½	8½	10½	8½	10½	13	8½	10½	13	8½	10½	13
Conc. Sidewalls T_3	8	10	8	10	8	10	8	10	8	10	12	8	10	12	8	10	12
'a' Size: Bar #	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
'a' Spacing	15	12	15	12	15	12	15	12	15	12	10	15	12	10	15	12	10
'a' Length	11-1	11-5	11-1	11-5	11-1	11-5	11-1	11-5	11-1	11-5	11-9	11-1	11-5	11-9	11-1	11-5	11-9
'b' Size: Bar #	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
'b' Spacing	15	12	15	12	15	12	15	12	[illegible]	12	10	15	12	10	15	12	10
'b' Length	16-4	16-8	16-4	[illegible]	16-4	16-8	16-4	16-8	16-4	16-8	17-2	16-4	16-8	17-2	16-4	16-8	17-2
'c' Size: Bar #	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
'c' Spacing	15	12	15	12	15	12	15	12	15	12	10	15	12	10	15	12	10
'c' Length	17-3	17-11	18-3	18-11	19-3	19-11	20-3	20-11	21-3	21-11	22-8	22-3	22-11	23-8	23-3	23-11	24-8
'd' Dist. Bars Top Slab	8	8	8	8	8	8	8	8	8	8	9	8	8	9	8	8	9
'd' Dist. Bars Bot. Slab	7	8	7	8	7	8	7	8	7	8	9	7	8	9	7	8	9
'e' Bars Spacing	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Spacers Number	32		[illegible]		40		40		44			45			48		
Concrete: C.Y. per Lin. Ft.	0.81	0.96	0.87	1.04	0.91	1.10	0.96	1.16	1.01	1.23	1.52	1.06	1.29	1.60	1.11	1.35	1.67
Reinfor'g. Lbs. " " "	143	175	149	182	155	188	158	192	165	199	236	171	205	245	174	209	248
Area A	40		50		60		70		80			90			[illegible]		
Hydraulic Radius R	1.43		1.67		1.88		2.06		2.22			2.37			2.50		
Neutral Slope %	0.47		0.49		0.51		0.52		[illegible]			0.56			0.58		
Head Factor K	0.266		0.236		0.205		0.183		0.165			0.153			0.143		
Entrance Capacity Q_{10}	247		345		453		571		696			834			976		
Design Discharge Q_{100}	407		568		747		941		1150			1380			1610		
Case II or VIII	6	15	6	15	6	15	5	15	5	15	22	5	15	22	5	15	22
Case IV	6	16	6	16	6	16	5	16	5	16	30	5	16	30	5	16	30
Case VI	5	12	5	12	5	12	5	12	5	12	15	5	12	15	5	12	15

SPAN	12'														
HEIGHT	6'		7'		8'		9'			10'			12'		
STRENGTH CLASSIFICATION	A	B	A	B	A	B	A	B	C	A	B	C	A	B	C
Conc. Top Slab T_1	10	11½	10	11½	10	11½	10	11½	13½	10	11½	13½	10	11½	13½
Conc. Bottom Slab T_2	10	12½	10	12½	10	12½	10	12½	14½	10	12½	14½	10	12½	14½
Conc. Sidewalls T_3	9½	11½	9½	11½	9½	11½	9½	11½	13½	9½	11½	13½	9½	11½	13½
'a' Size: Bar #	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
'a' Spacing	18	15	18	15	18	15	18	15	12	18	15	12	18	15	12
'a' Length	13-3	13-7	13-3	13-7	13-3	13-7	13-3	13-7	14-0	13-3	13-7	14-0	13-3	13-7	14-0
'b' Size: Bar #	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
'b' Spacing	18	15	18	15	18	15	18	15	12	18	15	12	18	15	12
'b' Length	19-8	20-2	19-8	20-2	19-8	20-2	19-8	20-2	20-8	19-8	20-2	20-8	19-8	20-2	20-8
'c' Size: Bar #	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
'c' Spacing	18	15	18	15	18	15	18	15	12	18	15	12	18	15	12
'c' Length	21-9	22-7	22-9	23-7	23-9	24-7	24-9	25-7	26-3	25-9	26-7	27-5	26-9	28-7	29-3
'd' Dist. Bars Top Slab	10	10	10	10	10	10	10	10	11	10	10	11	10	10	11
'd' Dist. Bars Bot. Slab	8	10	8	10	8	10	8	10	11	8	10	11	8	10	11
'e' Bars Spacing	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Spacers Number	46		46		50		50			54			62		
Concrete: C.Y. per Lin. Ft.	1.20	1.47	1.26	1.54	1.33	1.61	1.37	1.66	1.98	1.43	1.75	2.07	1.54	1.90	2.23
Reinfor'g. Lbs. " " "	197	235	201	239	207	246	211	250	307	218	257	314	228	271	329
Area A	72		84		96		108			120			144		
Hydraulic Radius R	2.00		2.21		2.40		2.57			2.73			3.00		
Neutral Slope %	0.46		0.48		0.49		0.51			0.52			0.56		
Head Factor K	0.189		[illegible]		0.151		0.138			[illegible]			0.114		
Entrance Capacity Q_{10}	543		686		838		1000			1170			1540		
Design Discharge Q_{100}	896		1130		1380		1650			1930			2540		
Case II or VIII	4	12	4	12	4	12	4	12	18	4	12	18	4	12	18
Case IV	4	12	4	12	4	12	4	12	19	4	12	19	4	12	19
Case VI	3	10	3	10	3	10	3	10	15	3	10	15	3	10	15

ALTERNATIVE "V" INVERT

ALTERNATIVE "TRAPEZOIDAL" INVERT

TYPICAL SECTION 2' TO 6' SPANS

TYPICAL SECTION 7' TO 12' SPANS

TOP SLAB FILLET									
S (Ft)	2	3	4	5	6	7	8	10	12
Fillet (in)	2	2	2	3	4	4	5	6	7

LOCATION KEY

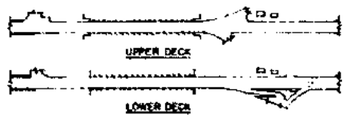
PROFESSIONAL ENGINEER LICENSE No.
DATE July 22, 19

DESIGN AND DETAILS REVIEWED BY

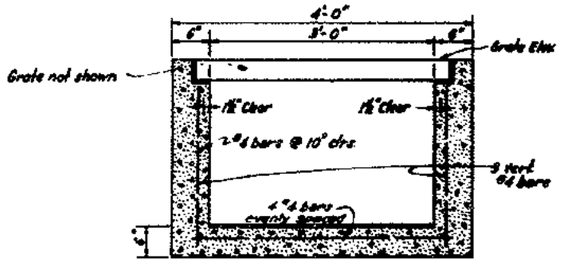
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND

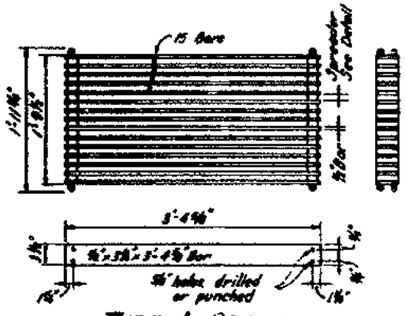
PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED Jul 22, 1950



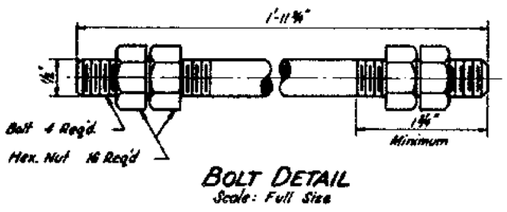
LOCATION KEY



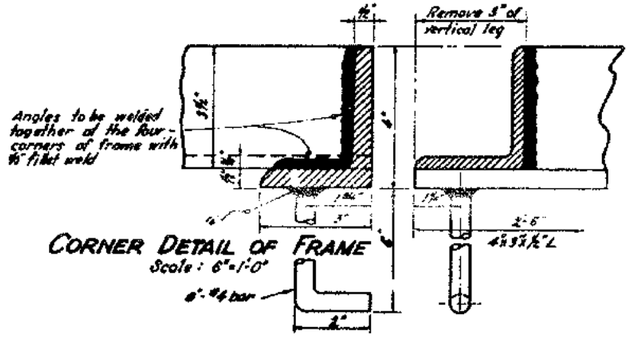
SECTION D-D



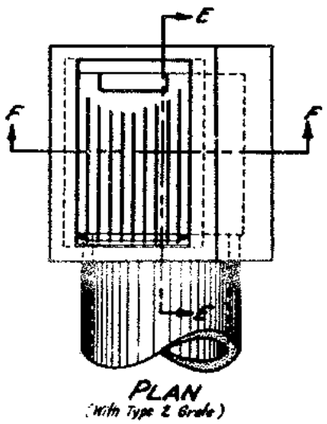
TYPE 1 GRATE
Scale: 1"=1'-0"
Type 2 same except 9 bars used.



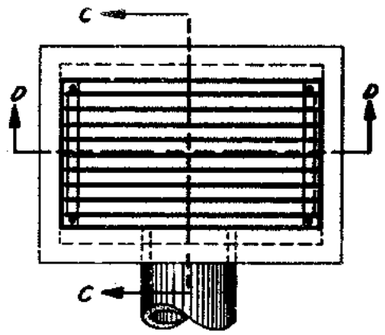
BOLT DETAIL
Scale: Full Size



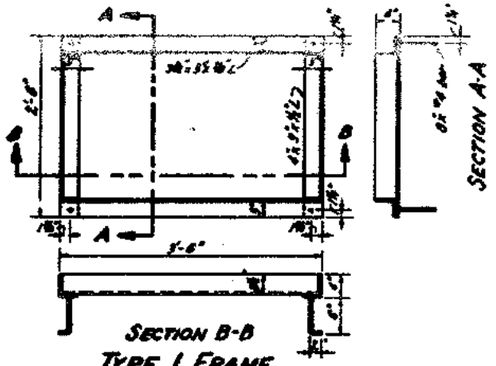
CORNER DETAIL OF FRAME
Scale: 6"=1'-0"



PLAN
(With Type 2 Grate)



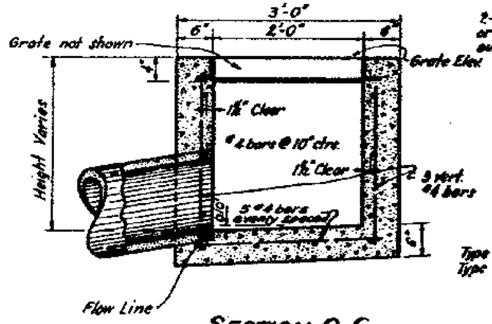
PLAN
(With Type 2 Grate)



SECTION B-B

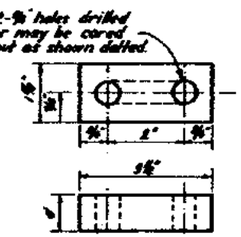
SECTION A-A

TYPE 1 FRAME
(For Type 1 & 2 Grates)
Scale: 1"=1'-0"



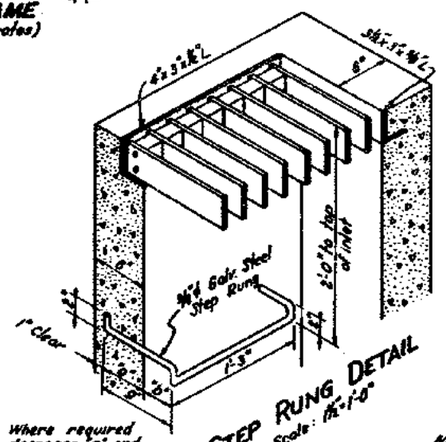
SECTION C-C

TYPE "A₂" INLET
Scale: 1"=1'-0"



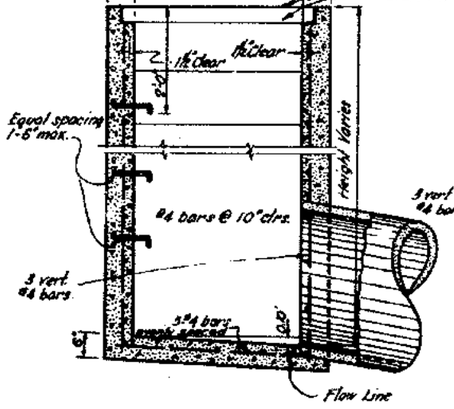
Type 1 Grate d-1"
Type 2 Grate d-2"

SPREADER
Cast Iron
Scale: 6"=1'-0"

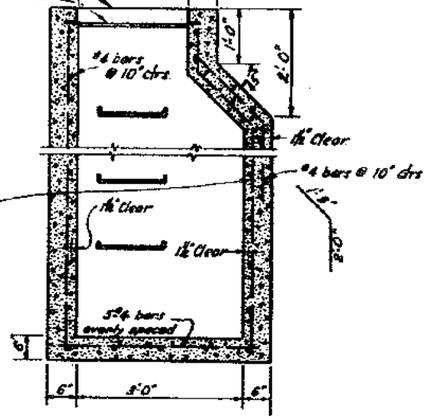


Where required decrease "a" and increase "b" by the same amount to maintain 1" clearance.

STEP RUNG DETAIL
Scale: 1½"=1'-0"



SECTION E-E



SECTION F-F

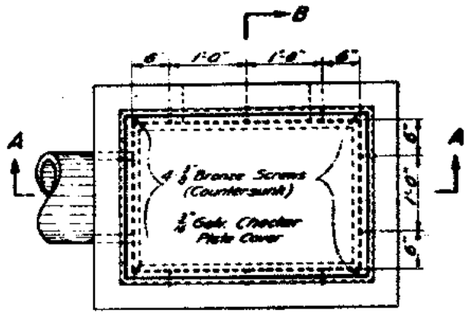
TYPE "A₂" INLET
Scale: ¾"=1'-0"

Notes:
1. Where H < 3'-6" step rungs shall be omitted.
2. Where H ≥ 3'-6" use Type "A₂" inlet.
3. All miscellaneous iron and steel to be galvanized after fabrication.

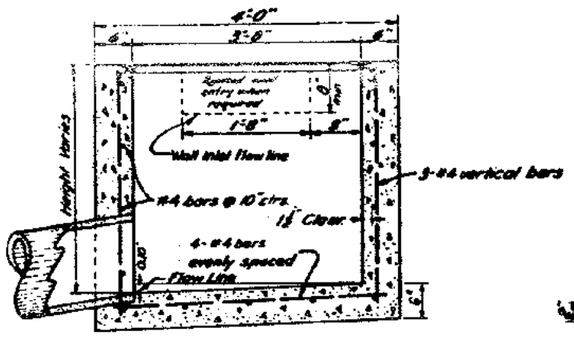
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

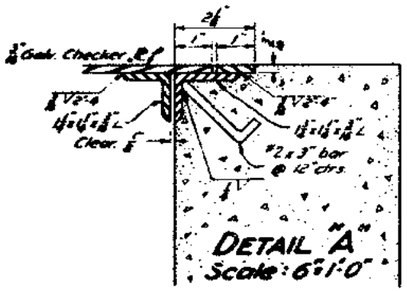
PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED J-Y 22, 1940



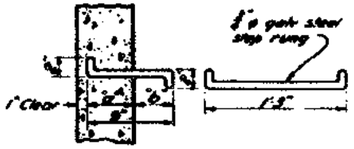
PLAN



SECTION A-A

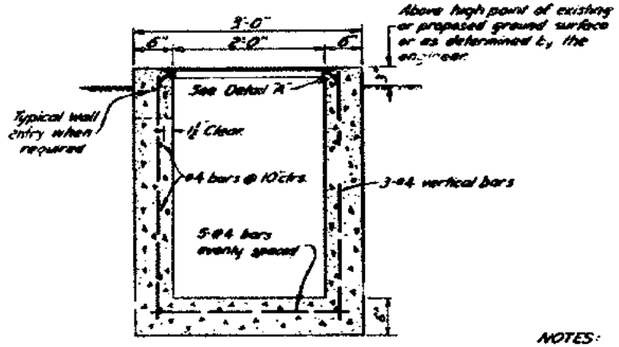


DETAIL "A"
Scale: 6"=1'-0"



Where required decrease "a" and increase "b" by the same amount to maintain 1" clearance.

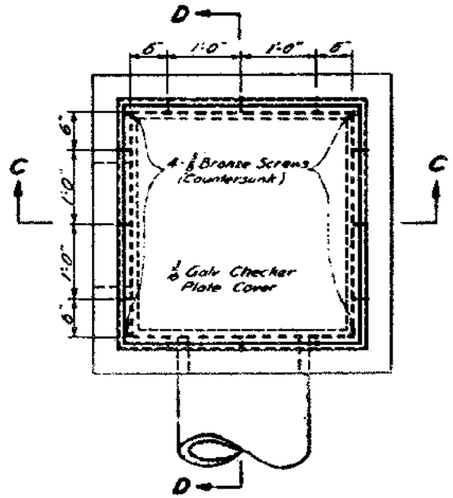
STEP RUNG DETAIL
Scale 1½"=1'-0"



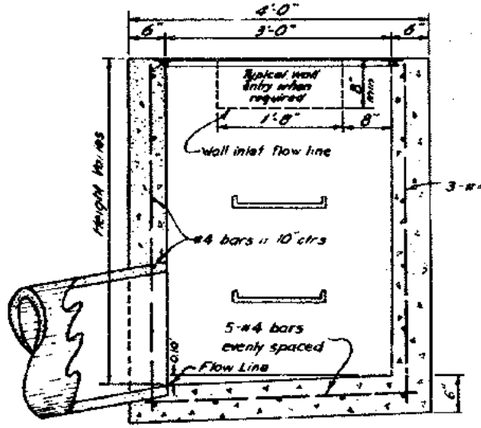
SECTION B-B

TYPE "B₂" INLET
Scale: 1"=1'-0"

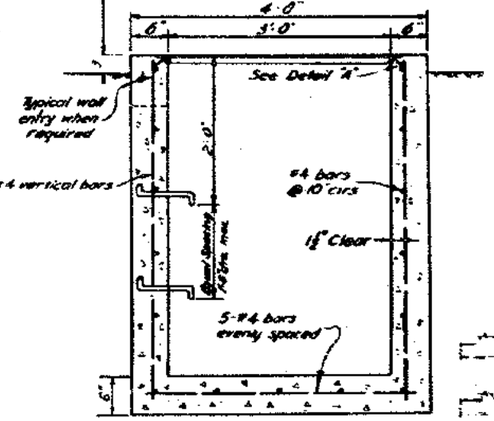
NOTES:
1. Where "H" < 3'-6" step rungs shall be omitted
2. Where "H" ≥ 3'-6" use Type "B₃" inlet
3. All miscellaneous iron & steel to be galvanized after fabrication



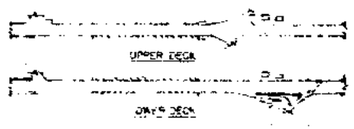
PLAN



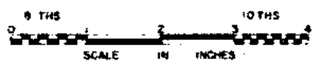
SECTION D-D



SECTION C-C



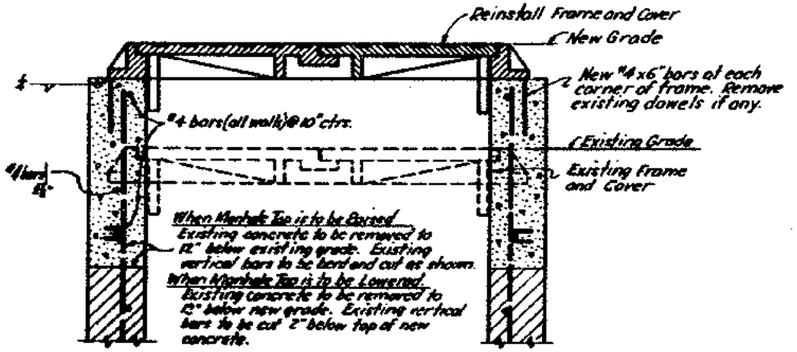
LOCATION KEY



TYPE "B₃" INLET
Scale: 1"=1'-0"

SAN FRANCISCO - OAKLAND BAY BRIDGE

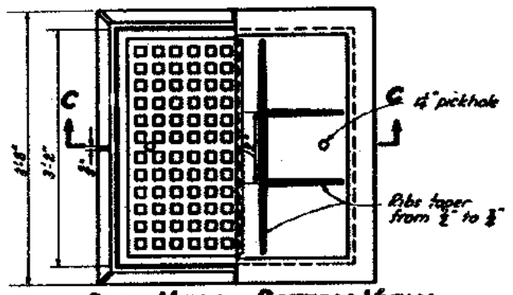
PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960



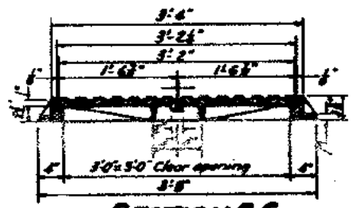
RAISING OR LOWERING TOP OF EXISTING TYPE "B₃W" MANHOLE TO GRADE

(Drawing shown for raising top only)

Scale: 1½" = 1'-0"



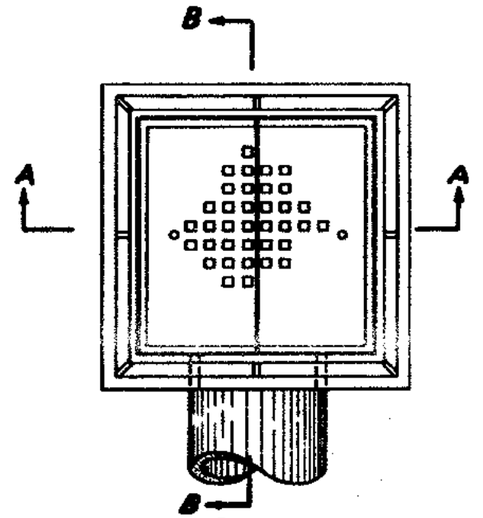
PLAN VIEW BOTTOM VIEW



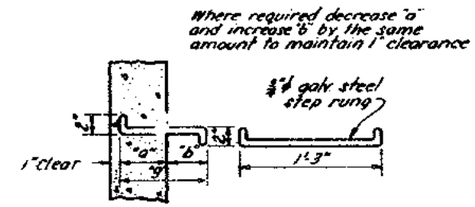
SECTION C-C

3'-2" x 3'-2" FRAME WITH DOUBLE COVERS

Scale: 1" = 1'-0"



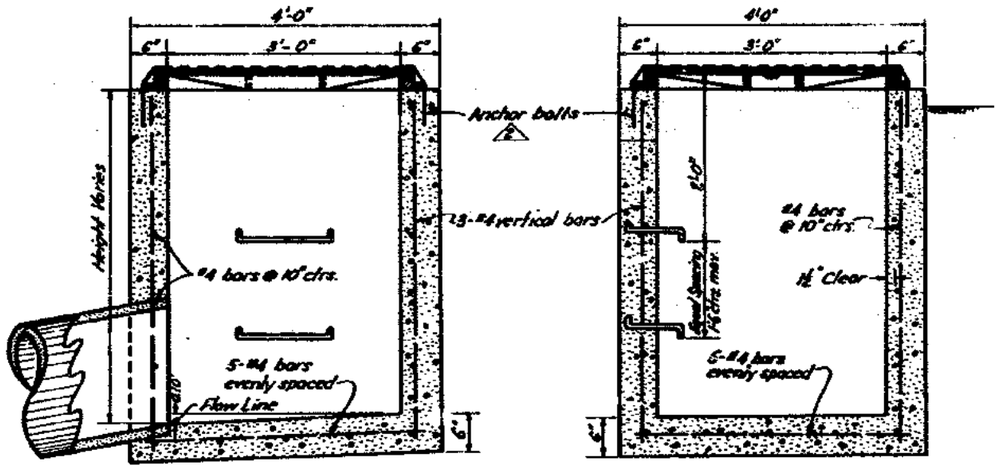
PLAN



STEP RUNG DETAIL

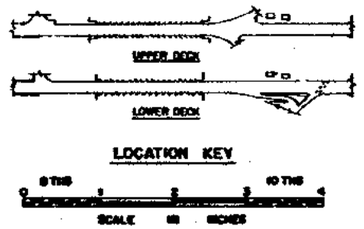
Scale 1½" = 1'-0"

Notes:
1. Where "H" < 3'-6" step rungs shall be omitted.
2. All miscellaneous iron and steel, except castings to be galvanized after fabrication.
3. The material for the manhole cover shall be either: Cast Steel, A.S.T.M. Designation A27, Grade 65-35 or Nodular Cast Iron, A.S.T.M. Designation A338, Grade 60-45-10
4. The material for the manhole frame shall be: Grey Cast Iron, A.S.T.M. Designation A48, Class 40



SECTION B-B

SECTION A-A



TYPE "B₃W" MANHOLE

Scale: 1" = 1'-0"

SUPPLEMENTAL CONTRACT DRAWING

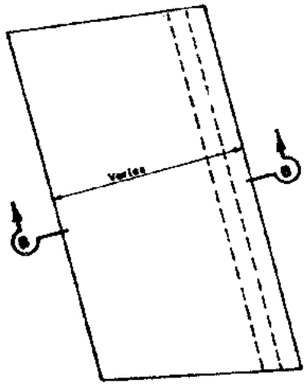
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

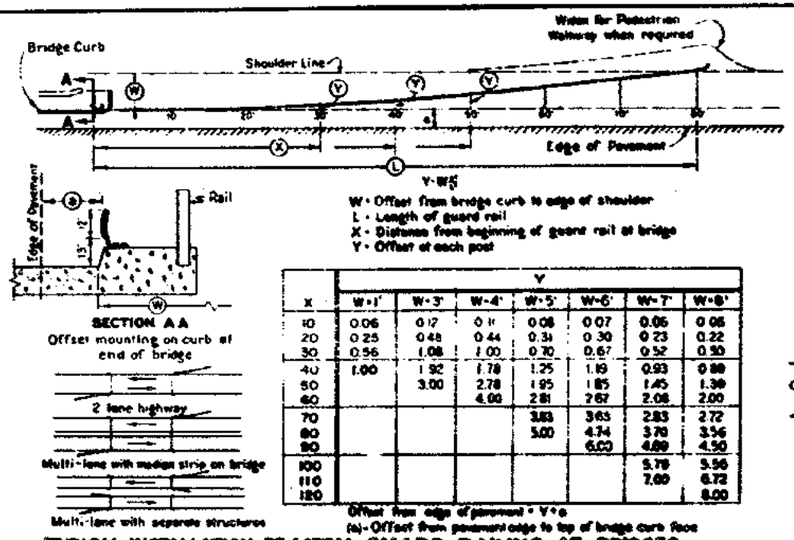
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

STANDARD MANHOLE - TYPE "B₃W"

2	6-1-64	As built w. h revision.	cfc	RWC
1	6/21/61	Added note 3 and 4, modified note 2	RWC	B.W.C.

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960



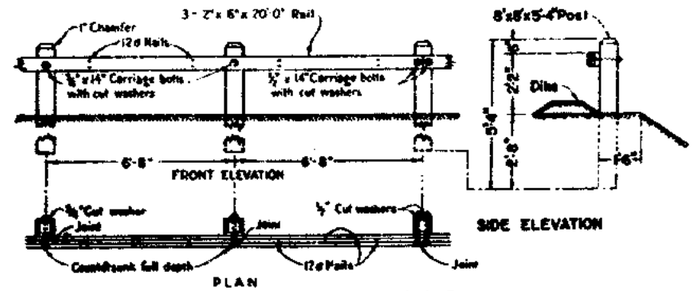


W = Offset from bridge curb to edge of shoulder
L = Length of guard rail
X = Distance from beginning of guard rail at bridge
Y = Offset at each post

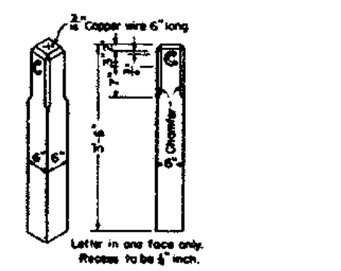
X	Y W=1'	W=3'	W=4'	W=5'	W=6'	W=7'	W=8'
10	0.06	0.17	0.11	0.08	0.07	0.06	0.06
20	0.25	0.48	0.44	0.31	0.30	0.23	0.22
30	0.56	1.08	1.00	0.70	0.67	0.52	0.50
40	1.00	1.92	1.78	1.25	1.19	0.93	0.88
50		3.00	2.78	1.95	1.85	1.45	1.38
60			4.00	2.81	2.67	2.08	2.00
70				3.83	3.65	2.83	2.72
80				5.00	4.74	3.70	3.56
90					6.00	4.69	4.50
100						5.78	5.56
110						7.00	6.72
120							8.00

Offset from edge of pavement = Y+a
(a)- Offset from pavement edge to top of bridge curb face

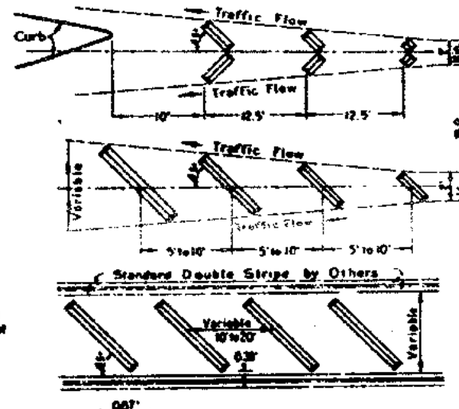
TYPICAL INSTALLATION OF METAL GUARD RAILING AT BRIDGES

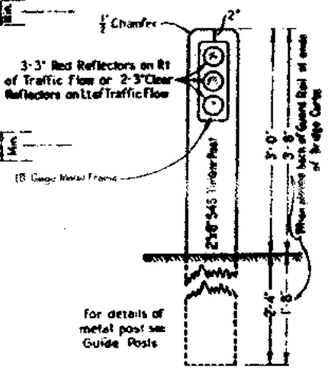


LAMINATED GUARD RAILING

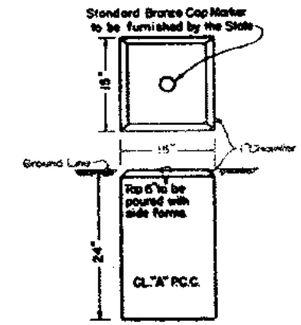


R/W AND FREEWAY ACCESS MONUMENT

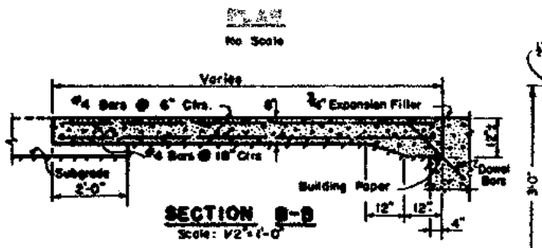




CLEARANCE MARKER



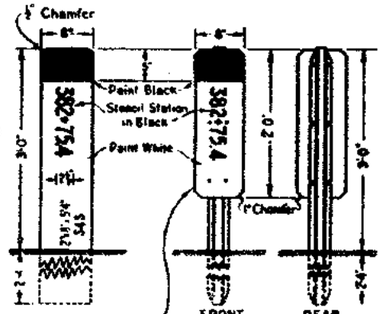
CENTER LINE MONUMENT



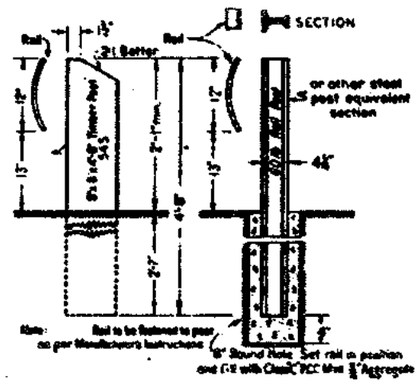
SECTION B-B
Scale: ½"=1'-0"

FLOATING SLAB

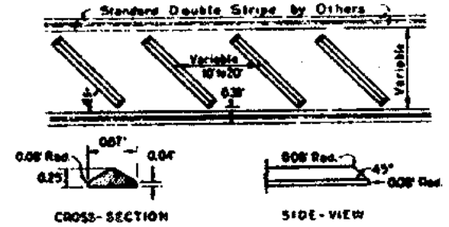
For location of floating slab see Plan and Profile Sheets.



CULVERT MARKERS

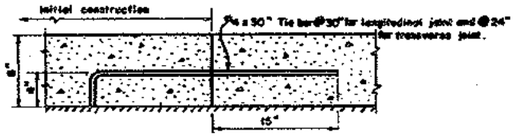


POSTS FOR METAL GUARD RAILING

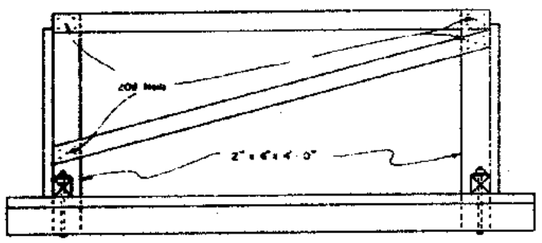


CROSS-SECTION SIDE-VIEW

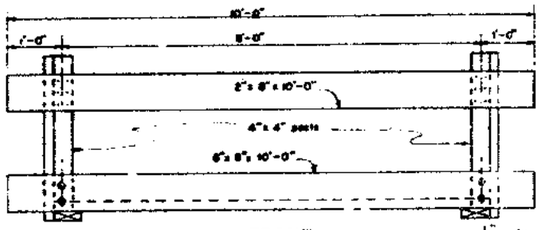
RAISED BARS

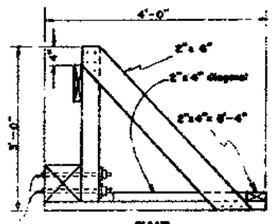


LONGITUDINAL AND TRANSVERSE CONTACT JOINTS FOR P.C.C. PAVEMENT
Scale: 1½"=1'-0"

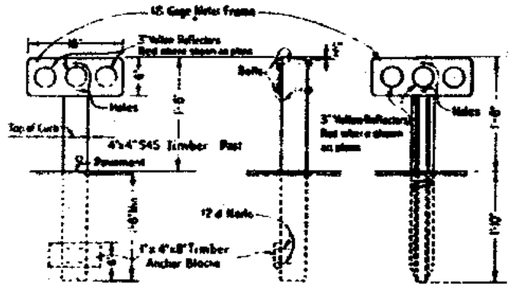


PLAN

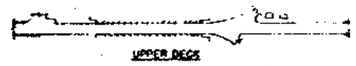




All nails 40d unless noted.



HORIZONTAL REFLECTOR UNIT W61R

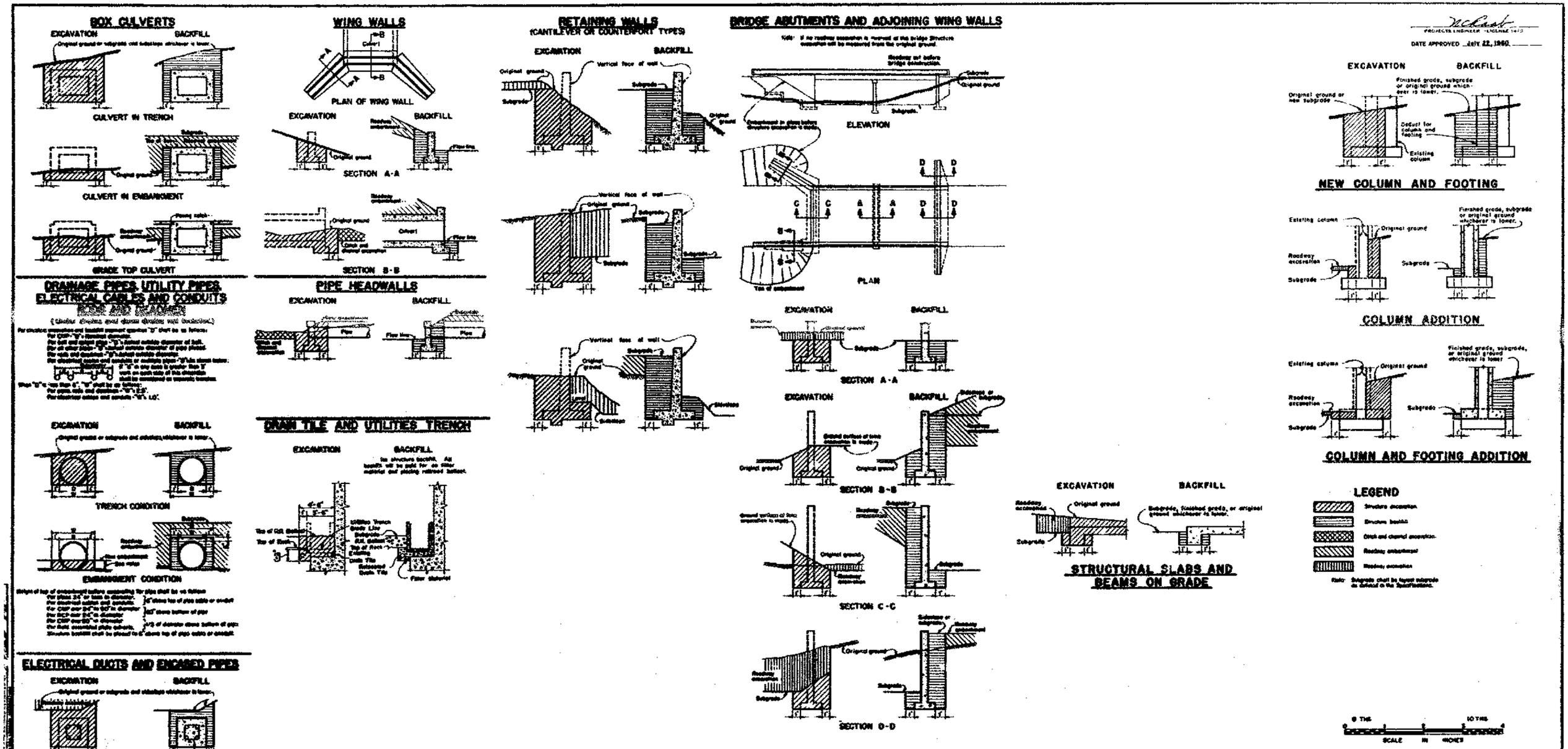


SUPPLEMENTAL CONTRACT DRAWING

State of California
Department of Public Works
Division of San Francisco Bay Toll Crossings

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

2	6-1-64	As built without revision.	c.f.c.	ENG.
1		Contact joint detail added		



PROJECTS ENGINEER - LICENSE 1473

DATE APPROVED July 22, 1960

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

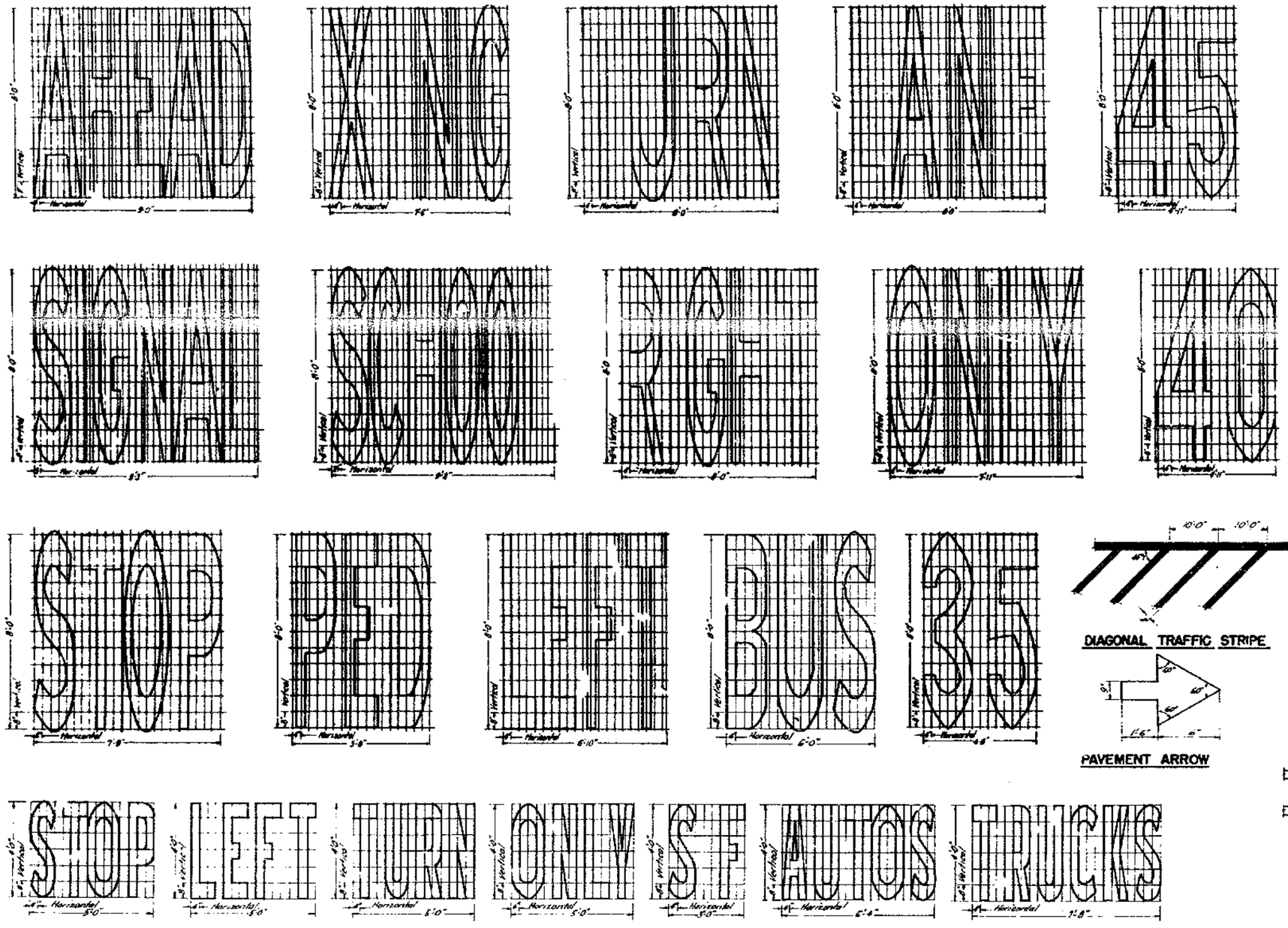
STRUCTURE EXCAVATION AND BACKFILL

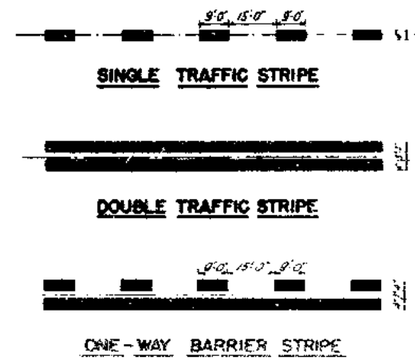
MARK	DATE	DESCRIPTION	BY	CH'K
1	6-1-64	As built without revision	cfc	RWL

REVISION

SCALE | BRIDGE 33-25 34-03 34-04 | SHEET No. 115 | DRAWING 04029-115 R

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED JULY 22, 1960

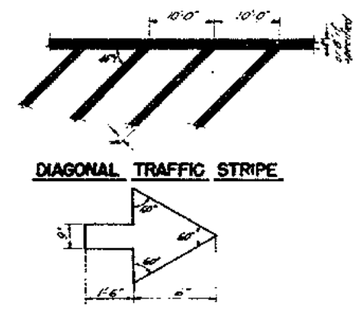




SINGLE TRAFFIC STRIPE

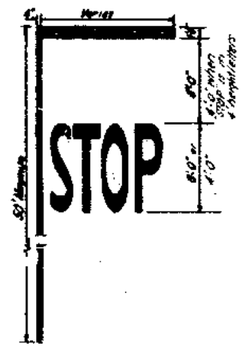
DOUBLE TRAFFIC STRIPE

ONE-WAY BARRIER STRIPE

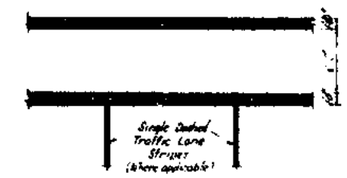


DIAGONAL TRAFFIC STRIPE

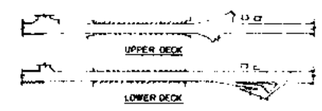
PAVEMENT ARROW



STOP BAR



PEDESTRIAN CROSSWALK



LOCATION KEY

NOTES

All traffic stripes and pavement markings to be white

Where more than one word is used on pavement the spacing is to be as follows - 50' for "STOP AHEAD" and "SIGNAL AHEAD" - 15' for all others, spacing to be from top of one word to bottom of next word.

When 4' height letters are used spacing shall be 4'

8 THS 10 THS
0 1 2 3 4
SCALE IN INCHES

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

TRAFFIC STRIPES AND PAVEMENT MARKINGS

MARK	DATE	DESCRIPTION	BY	CHK.
1	6-1-64	As built without revision.	cfc	[illegible]

REVISION

SCALE None | BRIDGE 33 25 / 34 03 / 34 04 | SHEET NO. 116 | DRAWING C-4029-116R

PROJECTS ENGINEER LICENSE 1476

DATE APPROVED July 28, 1960

UPPER DECK

LOWER DECK

To Oakland

To San Francisco

Point 8" solid white stripe from ℄ 88'14 SF088 153+61.5 to ℄ Sta. 161+80.5

Point triangular island with 8" solid white stripes, the 8" solid white stripe for diagonal striping

Point single broken traffic stripe from SF088 Sta. 161+46.5 to SF088 Sta. 162+81.5

Point solid double stripe from SF088 Sta. 162+81.5 to ℄ Sta. 167+00.5

Point 18' double white stripe.

Point 50' double white stripe to match existing line.

To Lower Deck

To Upper Deck

Point single broken traffic stripe from SF088 Sta. 143+84.2 to SF088 Sta. 172+46.2.

Point single broken traffic stripe from SF088 Sta. 143+84.2 to SF088 Sta. 145+00.0 See detail below.

Point single broken traffic stripe from SF088 Sta. 145+00.0 to SF088 Sta. 146+00.0 See detail below.

Point solid double stripe from ℄ Sta. 146+00.0 to ℄ Sta. 167+00.5

Point 4" diagonals.

Point 4" solid stripe around raised traffic bars.

Point solid white stripe from ℄ Sta. 168+00.5 to ℄ Sta. 169+00.5

Point 4" solid white stripe from ℄ Sta. 167+00.5 to ℄ Sta. 168+00.5

Point single broken traffic stripe from ℄ Sta. 167+00.5 to ℄ Sta. 169+00.5

Point pedestrian crosswalk.

Point solid double stripe white to replace existing single stripe.

Point solid double stripe from ℄ Sta. 161+00.5 to ℄ Sta. 167+00.5

Point solid and one broken 4" yellow barrier stripe from ℄ Sta. 162+00.5 to ℄ Sta. 166+00.5

Point solid double stripe from ℄ Sta. 160+00.5 to ℄ Sta. 162+00.5

Point solid double stripe from ℄ Sta. 161+00.5 to ℄ Sta. 167+00.5

Point solid double stripe from ℄ Sta. 161+00.5 to ℄ Sta. 167+00.5

Point 4" solid white stripe from ℄ Sta. 161+00.5 to ℄ Sta. 167+00.5

Point 4" solid white stripe from ℄ Sta. 167+00.5 to ℄ Sta. 168+00.5

Point single broken traffic stripe from ℄ Sta. 167+00.5 to ℄ Sta. 169+00.5

Point solid double stripe from ℄ Sta. 168+00.5 to ℄ Sta. 169+00.5

Point solid double stripe from ℄ Sta. 169+00.5 to ℄ Sta. 171+00.5

Point solid double stripe from ℄ Sta. 171+00.5 to ℄ Sta. 172+46.2

Point solid double stripe from ℄ Sta. 160+00.5 to ℄ Sta. 162+00.5

Point solid double stripe from ℄ Sta. 161+00.5 to ℄ Sta. 167+00.5

Point solid double stripe from ℄ Sta. 161+00.5 to ℄ Sta. 167+00.5

Point solid double stripe from ℄ Sta. 167+00.5 to ℄ Sta. 169+00.5

Point solid double stripe from ℄ Sta. 169+00.5 to ℄ Sta. 171+00.5

Point solid double stripe from ℄ Sta. 171+00.5 to ℄ Sta. 172+46.2

Point 4" solid stripe.

U.S. NAVY
U.S. COAST GUARD

TREASURE ISLAND ROAD

HILLCREST ROAD

Scale: 1/4" = 1'-0"

Point pavement arrows per detail shown above.

NOTES

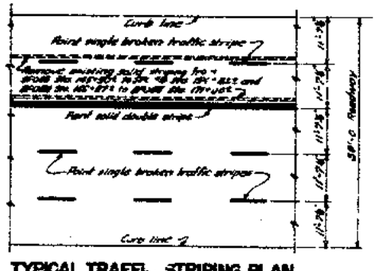
Signing and striping shown on this sheet is for the condition at the completion of the contract

Signs designated as "Existing Signs" shall remain in place

Signs designated as "Relocated Signs" shall be removed from their existing locations and reinstalled at the locations shown.

Signs not designated as "Relocated Signs" or "Existing Signs" will be furnished by the State and shall be installed by the Contractor.

All pavement markings shown shall be painted by the Contractor and shall conform to the details shown on the "Traffic Stripes and Pavement Markings" sheet for 8" height letters unless specifically noted on the sheet as 4" height letters.



TYPICAL TRAFFIC STRIPING PLAN

Scale: 1/8" = 1'-0"

0 THS 10 THS

SCALE IN INCHES

SUPPLEMENTAL CONTRACT DRAWING

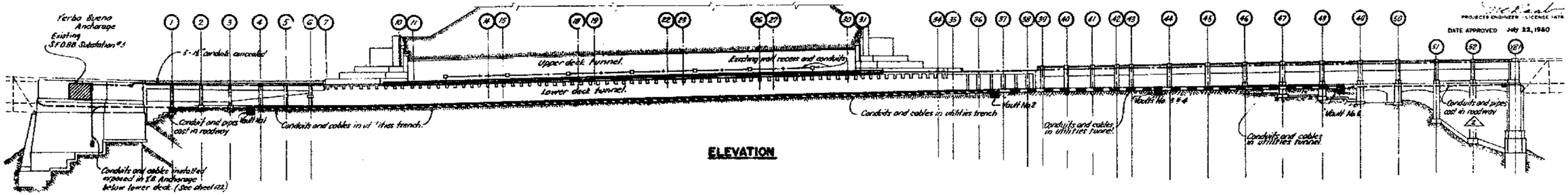
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIV. OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

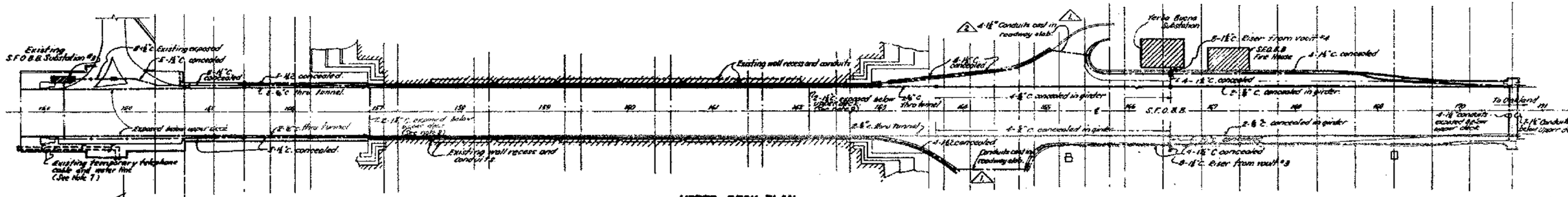
TRAFFIC SIGNING AND STRIPING

MARK	DATE	REVISION	BY	CH'K.
2	6-1-64	As built with revision.	cfa	ZMFZ
1	8-22-61	Sentry baths deleted.	RBK.	TGS

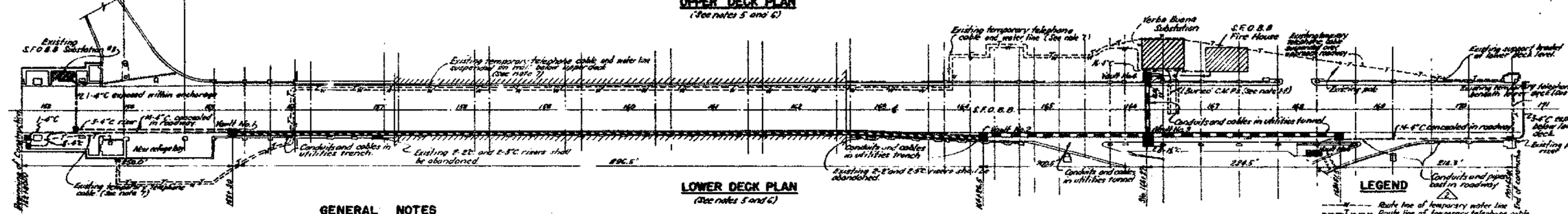
SCALE 1"=50' | BRIDGE 33-25, 33-26, 33-27, 33-28 | SHEET No. 117 | DRAWING-SOSB-HT 8



ELEVATION



UPPER DECK PLAN
(See notes 5 and 6)



LOWER DECK PLAN
(See notes 5 and 6)

GENERAL NOTES

1. Contractor shall maintain existing electrical systems and construct new facilities by proceeding in the following sequence:

STAGE I (Traffic on north side, lower deck.)

a. Install all conduit, boxes, supports, hangers, and miscellaneous raceway material as shown on the lower deck plan except for portion of utilities tunnel under the north side, lower deck roadway at S.F.O.B.B. Sta. 166+87.

b. Begin installation of new and new added equipment in Yerba Buena Substation.

c. Install State furnished 25 KVA transformer in S.F.O.B.B. Substation #5 as shown on Sheet 125.

d. Remove S.F.O.B.B. Firehouse power and signal cables from underground conduits and relocate from firehouse to bridge structure as directed by the Engineer.

e. Install new and State furnished cables; relocate cables in completed portions of raceway systems developed in 1a.

f. Remove and store existing cables from Yerba Buena Substation that cross lower deck roadway in buried 24" C.M.P.'s at Sta. 166+502.

STAGE II (Traffic on south side, lower deck.)

g. Install conduits, boxes, supports, hangers, and miscellaneous raceway materials in utilities tunnel under north side, lower deck roadway, at S.F.O.B.B. Sta. 166+87 and complete permanent cable connections to Yerba Buena Substation.

h. 2

i. Remove 15 KVA, 10, 2400-120/240 Volt transformer from Bent 49, north side, upper deck roadway and store as directed. Replace "S.F.O.B.B." Fire House 480/240 V service temporarily as shown on sheets 125 and 132.

STAGE III (Upper deck remodeling)

k. Remove and store existing cables, exposed conduits and associated materials from upper deck roadway.

l. Remove and relocate temporarily, and develop new permanent locations of existing upper deck roadway lighting. Existing poles, Sodium Vapor luminaires, 1L transformers shall be reused. Furnish and install new type A cables, transformer bases and hook up wiring.

m. Install new lower deck roadway lighting.

n. 2 Install State furnished 25 KVA transformer in vault #3 and connect to existing S.F.O.B.B. 4.16 K.V. power distribution system (circuit 105 B) as shown on sheets 125 and 135.

2. Contractor shall install State furnished ground wire and furnish and install accessory materials to develop grounding system throughout upper and lower deck raceway system and Yerba Buena substation.

3. Contractor shall furnish complete two or three line schematics and wiring diagrams for 15 KV metal clad switchgear, low voltage control center, utilities tunnel low voltage service boxes and communication terminal cabinets.

4. Contractor shall install Brady B-184 Aluminum foil tape wire markers on all conductors at each terminal point within Yerba Buena Substation and new connections at S.F.O.B.B. Substation #5. Install ¾" brass tags on all conductors at vault locations, terminals and intermediate boxes at curb trench installations, boxes and bridge cable connections at both sides of Yerba Buena Island. Tag shall show circuit number.

5. Contractor shall furnish and install expansion fittings in all conduit runs crossing expansion joints.

6. For further details of conduits, boxes, etc., see sheet 121.

7. Contractor shall conduct his construction activities to avoid disturbing the temporary telephone cable (7-Cond #14 AWG.) and temporary water line.

8. Contractor shall furnish, install and dismantle temporary roadway lighting for public safety, and other lighting required for his own operations.

9. Contractor shall provide sleeves in precast Tunnel Deck units 9B North and South and 28C North and South.

LEGEND

- Route line of temporary water line
- Route line of temporary telephone cable
- (7) Bent number
- Accessible reinforced concrete utilities vault
- Utilities trench with removable top covers.
- Utilities tunnel, enclosed culvert type.
- Utilities curb with removable top covers
- Route line of existing conduits.
- Route line of new rigid metal conduits
- Route line of new asbestos cement conduits.
- Junction or pull box location. (See note 6)

SCALE IN INCHES

SUPPLEMENTAL CONTRACT DRAWING

MARK	DATE	DESCRIPTION	BY	CHK
2	6-1-64	As built with revision	c/c	H.B.J.
1	1-362	Revised note	W.K	L.B.

REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
ELECTRICAL-GENERAL

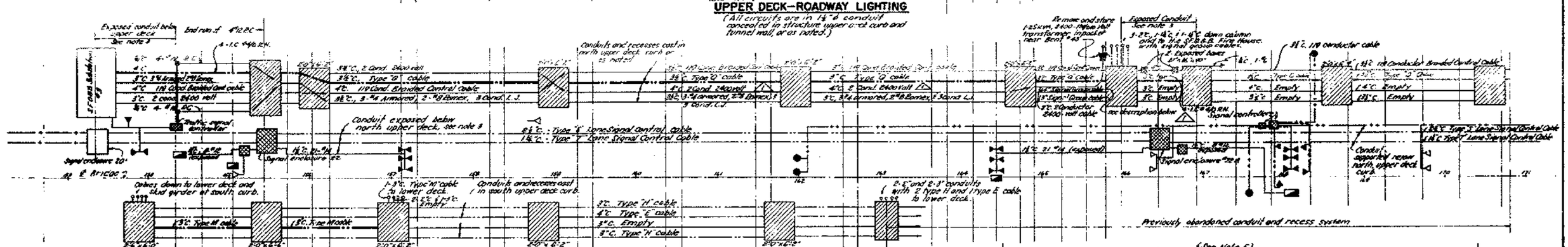
33-25
34-03

Sheet No. 118

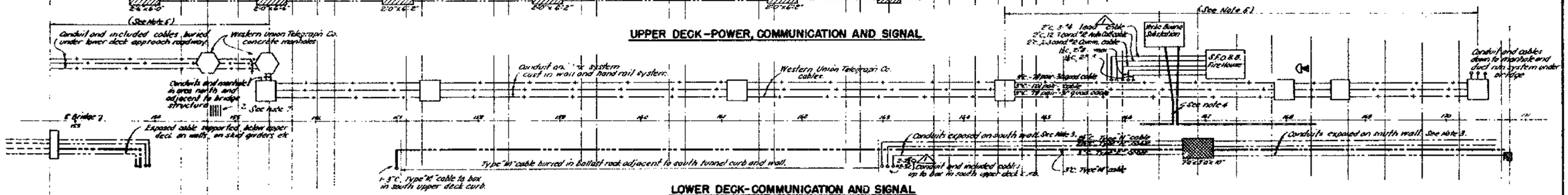
DATE APPROVED JAN 22, 1960

UPPER DECK—ROADWAY LIGHTING

(All circuits are in 1½" ø conduit concealed in structure upper deck curb and tunnel wall, or as noted.)



UPPER DECK—POWER, COMMUNICATION AND SIGNAL



LOWER DECK—COMMUNICATION AND SIGNAL

LEGEND

- Structure. Bent number
- Exposed cable to remain
- Remove and store exposed cable
- Remove and relocate exposed cable, see note 2
- Conduit and cable installation to remain
- Remove and store cable in conduit; see note 3.
- Remove and relocate cable in conduit, see notes 2 and 3.
- Route line of abandoned bridge railway cables; see Note 4
- Sodium vapor roadway lighting installation to remain
- Remove and relocate roadway lighting installation.
- Remove and store sodium vapor luminaire, bracket, and transformer
- Pull, junction, etc. box; device panel, or cabinet to remain.
- Remove and store traffic signal head
- Remove and store traffic flashing warning light.
- Existing recess to be abandoned.
- Remove and store radar vehicle detector.
- Remove and store static systems and frames of conduit pockets and entire meter box in exposed location.
- Remove and store inconspicuous traffic control signs
- Remove and store police telephone.

NOTES

1. Exposed antenna cable to be relocated temporarily to permit street lighting installations at tunnel portals to be moved with construction activities.
2. Where symbol has been heavied up, the cable or various conductors in the cable shall be maintained in operation as continuously as reasonably possible. Where various conductors of the type "K" cable must be bypassed the Engineer will determine the method.
3. Where conduit is in exposed and recoverable locations, Contractor shall remove and store.
4. As directed by the Engineer, Contractor shall remove and store all abandoned cables of the former bridge railway system.
5. Contractor shall conduct his work so Western Union Telegraph Co. cables and facilities in locations shown are not disturbed.
6. Contractor shall remove and store conduit, devices, equipment, and miscellaneous materials, and shall remove and store cables, wire, and associated materials as described by Item 4, sheet 3, and Item 16, sheet 5.
7. Contractor shall remove and store 5 abandoned 6" conduits under roadway if interference develops with new lower deck roadway.

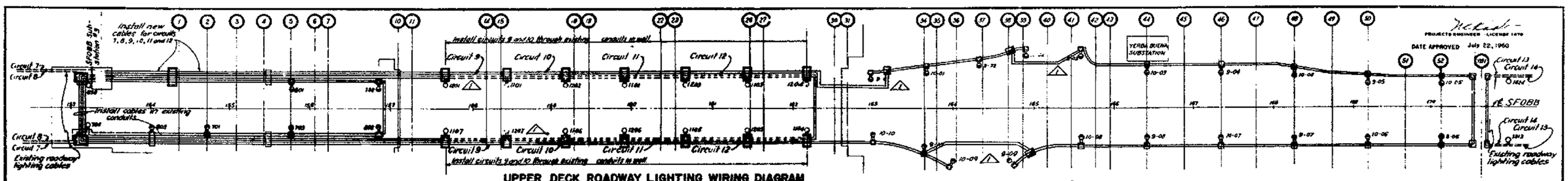
SCALE IN INCHES

MARK	DATE	DESCRIPTION REVISION	BY	CH'K.
1	6-1-64	As built with revision.	cfc	HBT

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

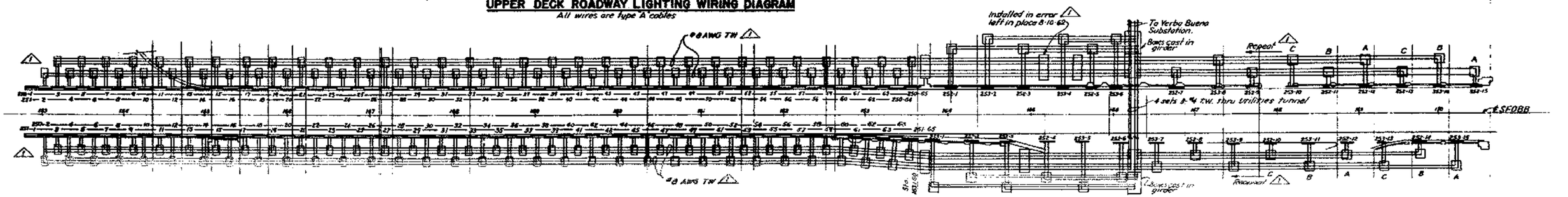
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
ELECTRICAL—EXISTING INSTALLATIONS

HORIZONTAL SCALE: 1" = 50'
BRIDGE 33-25 34-03 34-04
SHEET NO 119
DRAWING C-4029-119R



UPPER DECK ROADWAY LIGHTING WIRING DIAGRAM

All wires are type 'A' cables



LOWER DECK ROADWAY LIGHTING WIRING DIAGRAM

All luminaires are type 'A' except as indicated.
All wires are #8 AWG type TW except as noted.

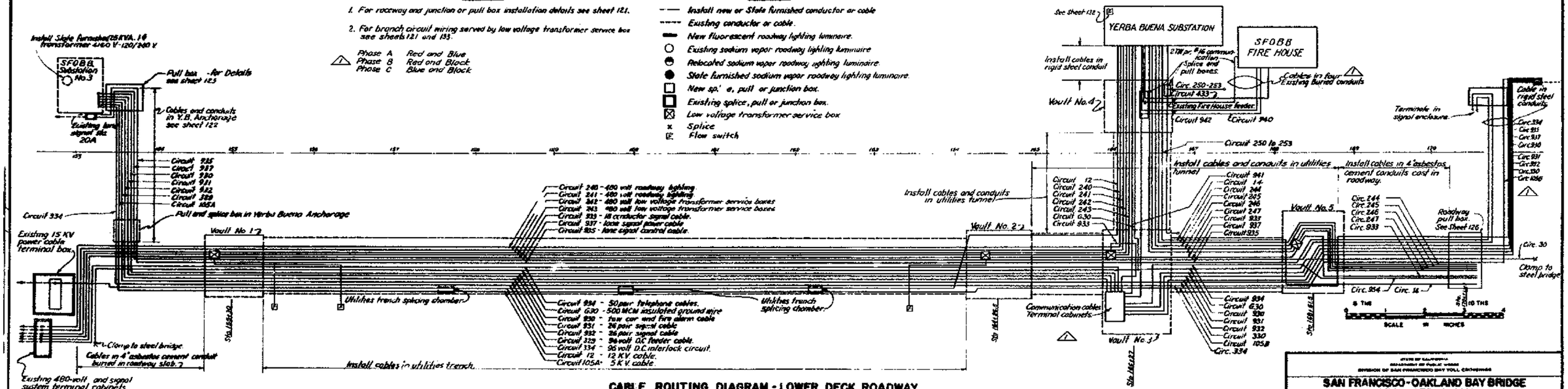
NOTES

1. For roadway and junction or pull box installation details see sheet 121.
2. For branch circuit wiring served by low voltage transformer service box see sheets 121 and 133.

△ Phase A Red and Blue
Phase B Red and Black
Phase C Blue and Black

LEGEND

- Install new or State furnished conductor or cable
- Existing conductor or cable.
- New fluorescent roadway lighting luminaire.
- Existing sodium vapor roadway lighting luminaire
- Relocated sodium vapor roadway lighting luminaire.
- State furnished sodium vapor roadway lighting luminaire.
- New s.p. e, pull or junction box.
- Existing splice, pull or junction box.
- Low voltage transformer service box
- Splice
- Flow switch



CABLE ROUTING DIAGRAM - LOWER DECK ROADWAY

MARK	DATE	REVISION	BY	CHK.
1	6-1-64	As built with revision	cfc	H.BT

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

ELECTRICAL - RECONSTRUCTED INSTALLATIONS

SCALE 1" = 50'-0" | BRIDGE 33-33 33-03 34-04 | SHEET No. 120 | DRAWING C-4029-120 R

DATE APPROVED July 22, 1960

YERBA BUENA ANCHORAGE

SF.S.B.B. SUBSTATION No. 3

Conduits in roadway slab

Conduits in sidewalk

Six existing conduits in Tunnel wall

Utilities steel curb with removable cover

Steel box.

Down thru precast slab opening

2-¾" conduits in continuous lower deck lighting

Conduit exposed 14'± under roadway

Conduits exposed under roadway slab. Provide sleeves through precast units

Joins with existing conduits

Cast conduits in sidewalk

Two existing conduits in Tunnel wall

Cast conduits in sidewalk

Conduits cast in roadway slab

Cast 2-¾" conduits and pull boxes in girder

Cast all conduits in sidewalk

Pulsamatic water control box (See Sheet 126)

Install 3" metal conduit from sidewalk box to transformer box

2-¾" conduits and pull boxes cast in girder

New galvanized sheet steel 12"x6"x6" boxes only in girders (See Sheet 126)

Install 3" conduit from sidewalk box to transformer base.

Existing 3" conduit to be used for conduits supported by existing 3" water line on lower deck.

4" C. exposed under upper deck.

Conduits exposed under roadway slab Cast in beam.

Conduits and 6" pull boxes placed 4'-0" c/c (See Sheet 126)

Conduit transition to sidewalk.

Cast all conduit in curb rail only

UPPER DECK CONDUIT DIAGRAM

(All conduits shall be 1½" ϕ unless otherwise noted.)

Conduit to new northbound splice box at Substation No. 3. See sheet 125

New galvanized sheet steel 3'6"x3'6"x3'0" splice box at V.B. Anchorage. See sheet 122.

Utilities trench with removable cover

4'x4' Utilities tunnel

5 KV T splice. See sheet 125

2 Rigid steel conduits (exposed)

8-1½" conduit risers at Bent 44, south.

2 Rigid steel conduits (exposed)

25 KVA State furnished transformer

14 conduits cast in roadway slab

Concrete high and low voltage junction box See sheet 126

14 conduits cast in roadway slab

4 Rigid steel conduits cast in concrete

480v Terminal cabinet

New galvanized sheet steel 30"x30"x8" Terminal cabinet for communication cables See sheet 125

LOWER DECK CONDUIT DIAGRAM

(All conduits shall be 4" ϕ unless otherwise noted.)

Vault No. 4

Circuit 255

Circuit 257

Circuit 258

Circuit 259

Circuit 260

Exposed conduits

2 Installed in existing wall recess

Utilities trench with removable top cover

Vault No. 1

Vault No. 2

Vault No. 3

Vault No. 5

To light in PUC.

LIGHTING AND CONVENIENCE OUTLET DIAGRAM

(Conduits shall be ¾" ϕ rigid steel convenience outlet conductors — #10 A.W.G.; lighting conductors — #12 A.W.G.; communication conductors — 5 - twisted pr. #16 A.W.G.)

LEGEND

- Existing pull junction or splicing box
- Sidewalk box. See sheet 127.
- Transformer base. See sheet 127.
- Low voltage transformer service box. See sheet 126.
- Cast in place pull box for L.D. lighting. See sheet 126.
- Exposed pull box for L.D. lighting. See sheet 126.
- High voltage wire way for pulling or splicing. See sheets 124 and 125
- Two 120v. one 240v receptacles, two telephone jacks and one permanent telephone connection in roadside electric service box. See sheet 122.
- 100w Vapor tight incandescent light and 3-way switch.
- Existing conduit to be re-used.
- Telephone conduit.
- Temporary conduit.
- S_3 3-way vapor-tight switch
- S Single pole vapor-tight switch

Notes

1. Place conduits in lower half depth of slabs and 6" min. spacing center to center.
2. Provide flexible connections at all slab expansion joints.

MARK	DATE	REVISION	BY	CHK.
2	6-1-64	As built with revision.	c/c	M&T
1	1-3-62	Addition and relocation of conduit	R.C.	H.B.T.

SUPPLEMENTAL CONTRACT DRAWING

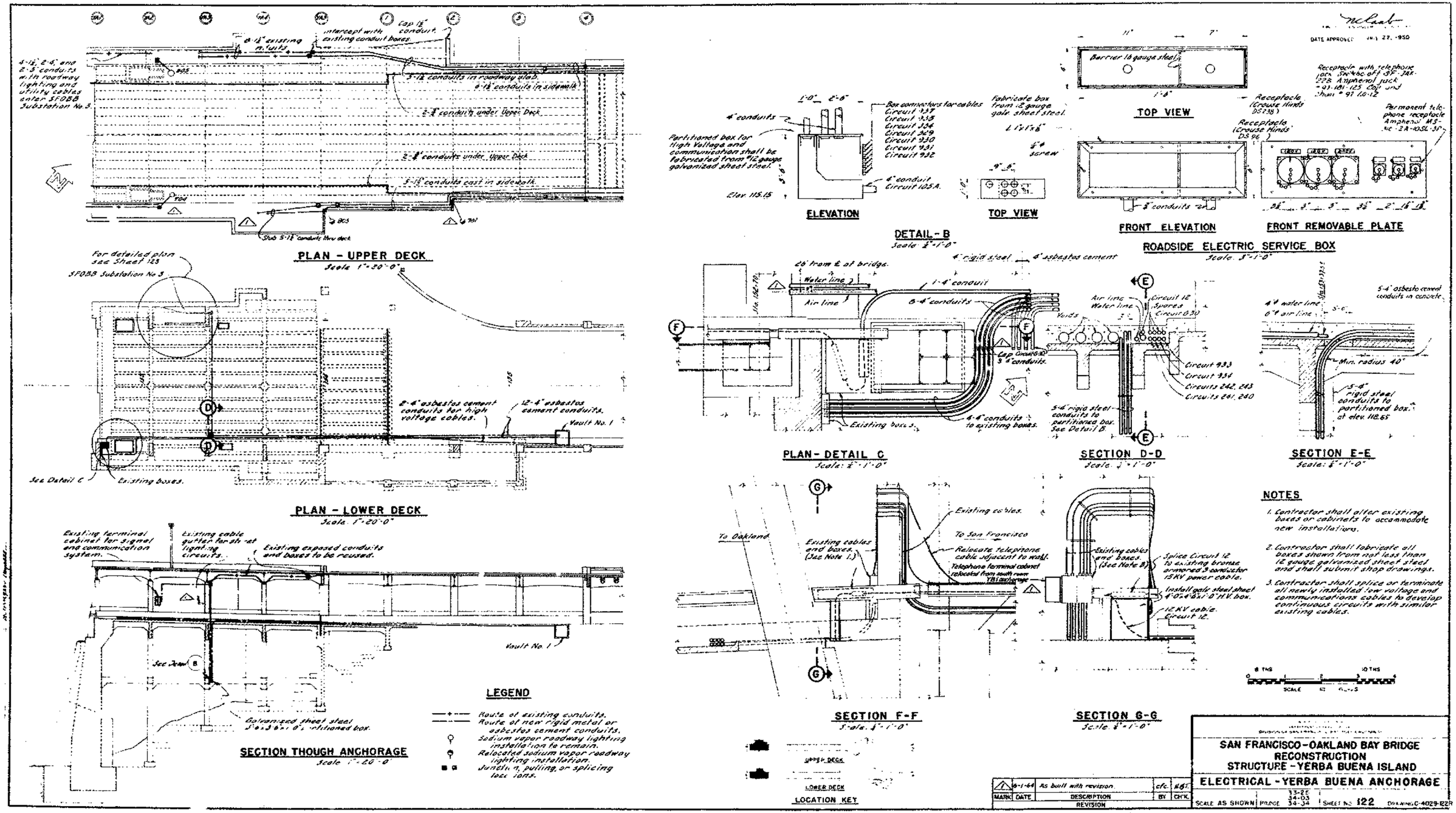
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO - OAKLAND BAY BRIDGE RECONSTRUCTION

STRUCTURE - YERBA BUENA ISLAND

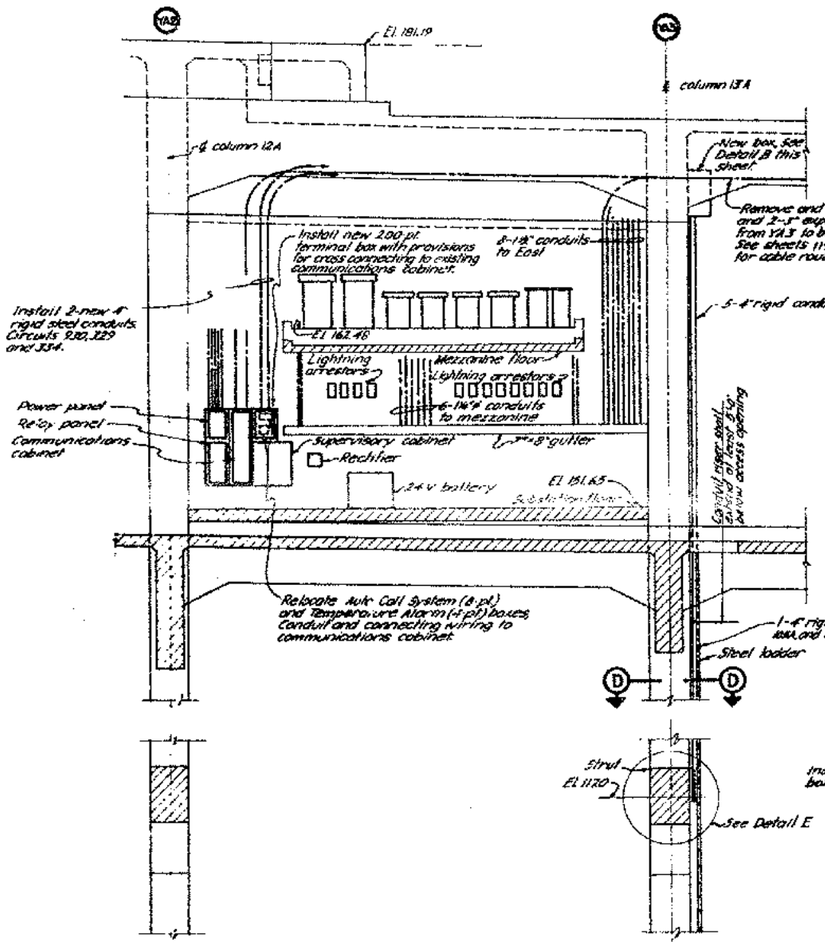
ELECTRICAL - CONDUIT AND BOX DIAGRAMS

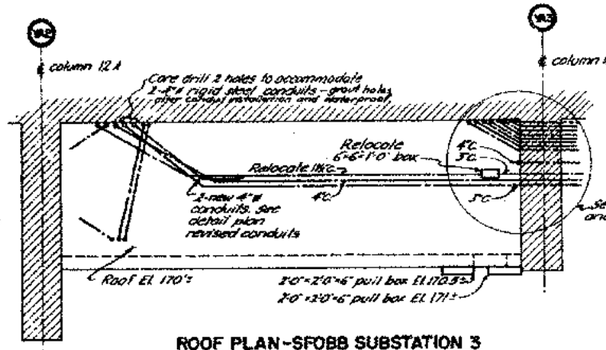
SCALE NONE | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 121 | DRAWING 6029-121/R



PLAN - UPPER DECK
Scale 1" = 20'-0"
PLAN - LOWER DECK
Scale 1" = 20'-0"
SECTION THOUGH ANCHORAGE
Scale 1" = 20'-0"
LEGEND
Route of existing conduits.
Route of new rigid metal or asbestos cement conduits.
Sodium vapor roadway lighting installation to remain.
Relocated sodium vapor roadway lighting installation.
Junction, pulling, or splicing locations.
ELEVATION
TOP VIEW
DETAIL - B
Scale 1/2" = 1'-0"
TOP VIEW
FRONT ELEVATION
FRONT REMOVABLE PLATE
ROADSIDE ELECTRIC SERVICE BOX
Scale 3" = 1'-0"
PLAN - DETAIL C
Scale 1/2" = 1'-0"
SECTION D-D
Scale 1/2" = 1'-0"
SECTION E-E
Scale 1/2" = 1'-0"
SECTION F-F
Scale 1/2" = 1'-0"
SECTION G-G
Scale 1/2" = 1'-0"
LOCATION KEY
UPPER DECK
LOWER DECK
NOTES
1. Contractor shall alter existing boxes or cabinets to accommodate new installations.
2. Contractor shall fabricate all boxes shown from not less than 12 gauge galvanized sheet steel and shall submit shop drawings.
3. Contractor shall splice or terminate all newly installed low voltage and communications cables to develop continuous circuits with similar existing cables.
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
ELECTRICAL - YERBA BUENA ANCHORAGE
SCALE AS SHOWN
BRIDGE 33-25 34-03 34-34
SHEET NO. 122
DRAWING C-4029-122R

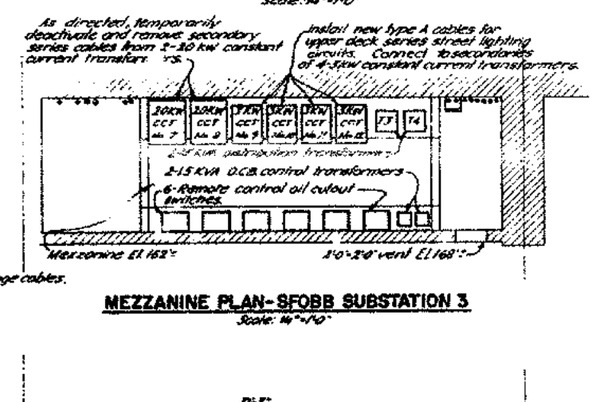
DATE APPROVED July 22, 1960





ROOF PLAN - SFOBB SUBSTATION 3

Scale: ¼"=1'-0"

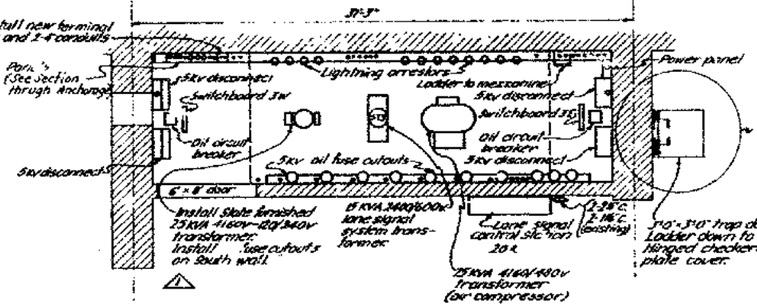


MEZZANINE PLAN - SFOBB SUBSTATION 3

Scale: ¼"=1'-0"

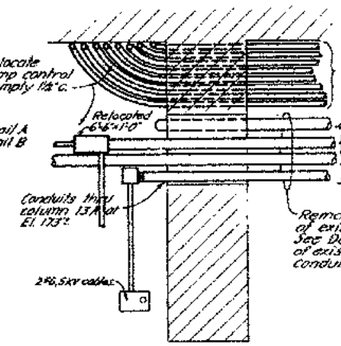
SECTION THROUGH ANCHORAGE LOOKING NORTH

Scale: ¼"=1'-0"



FLOOR PLAN - SFOBB SUBSTATION 3

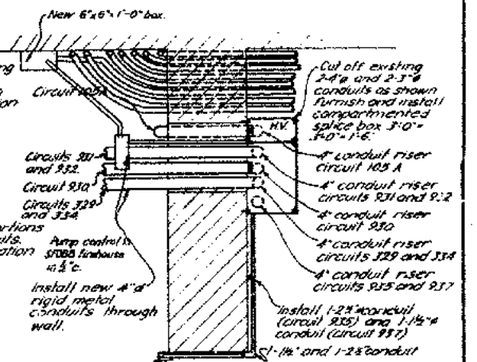
Scale: ¼"=1'-0"



DETAIL A ⚠

(Existing conduits through column 13A)

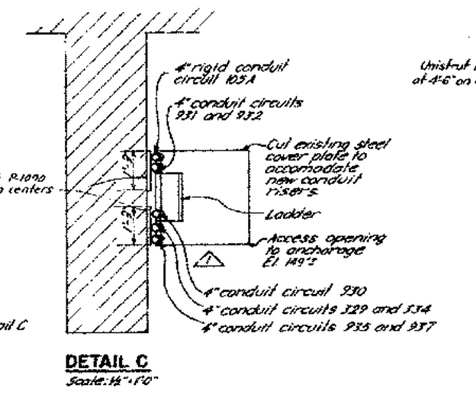
Scale: ½"=1'-0"



DETAIL B ⚠

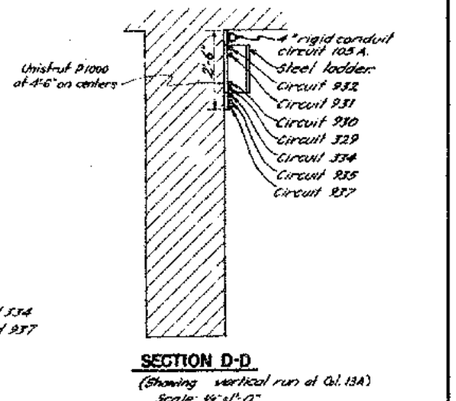
(Revised conduits at column 13A)

Scale: ½"=1'-0"



DETAIL C

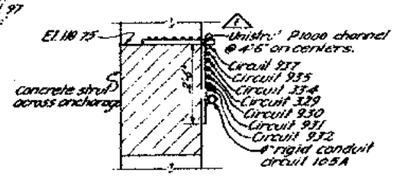
Scale: ½"=1'-0"



SECTION D-D

(Showing vertical run at Col. 13A)

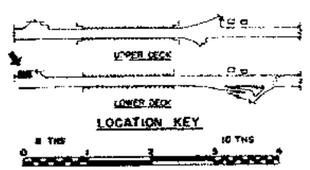
Scale: ½"=1'-0"



DETAIL E

(Showing typical horizontal run)

Scale: ½"=1'-0"



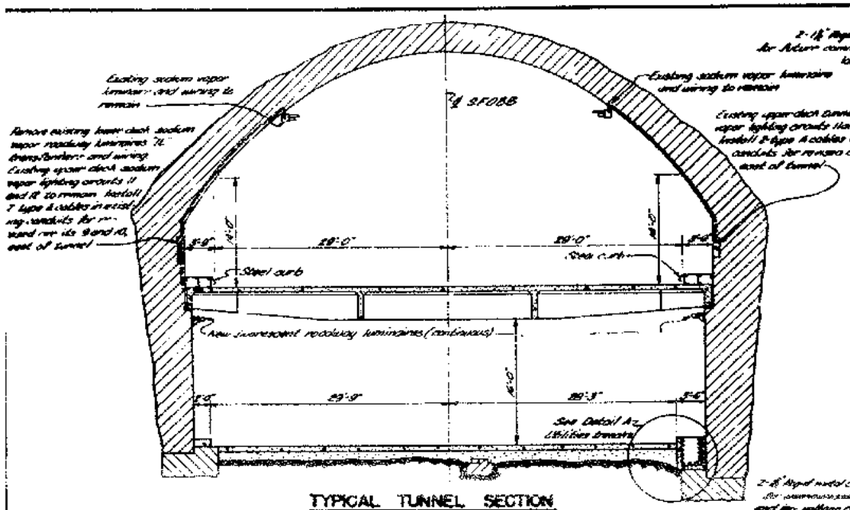
MARK	DATE	DESCRIPTION REVISION	BY	CHK
⚠	6-1-64	As built with revision.	cfc	H.B.T.

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
ELECTRICAL - SFOBB SUBSTATION NO. 3

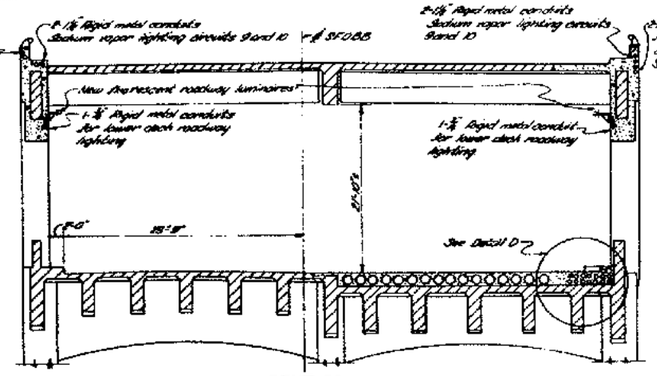
SCALE AS SHOWN | BRIDGE 33-23, 34-03, 34-04 | SHEET NO. 123 | DRAWING C-4029-123

DIVISION OF BRIDGES AND ENGINEERING STRUCTURES



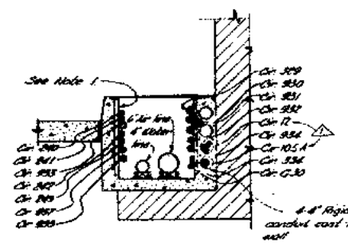
TYPICAL TUNNEL SECTION

Scale: 1/8"=1'-0"



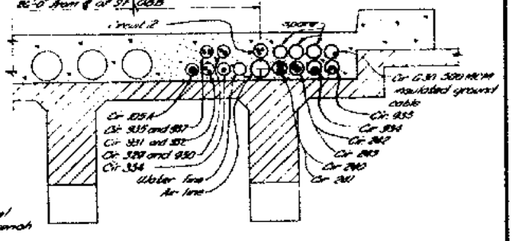
BENT 52

Scale: 1/8"=1'-0"



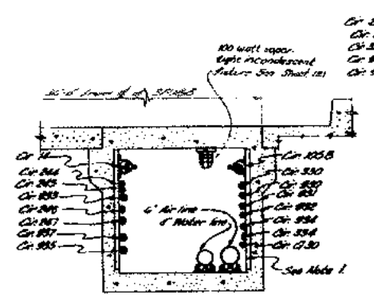
DETAIL A

Scale: 1/2"=1'-0"



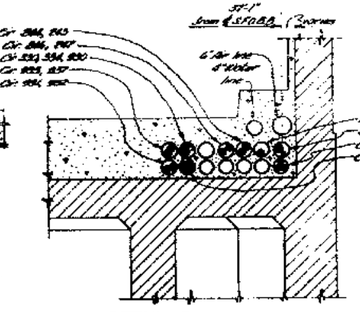
DETAIL B

Scale: 1/2"=1'-0"



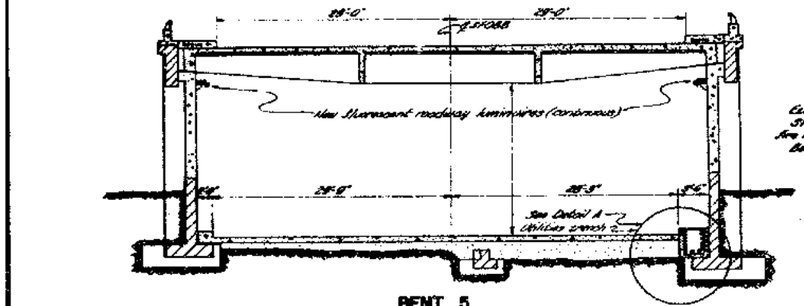
DETAIL C

Scale: 1/2"=1'-0"



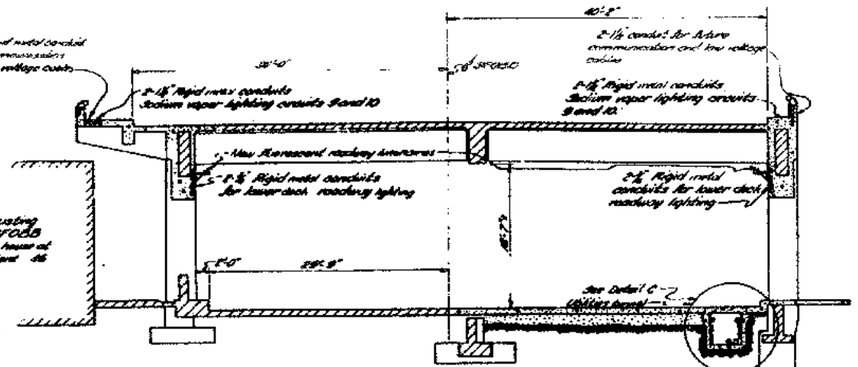
DETAIL D

Scale: 1/2"=1'-0"



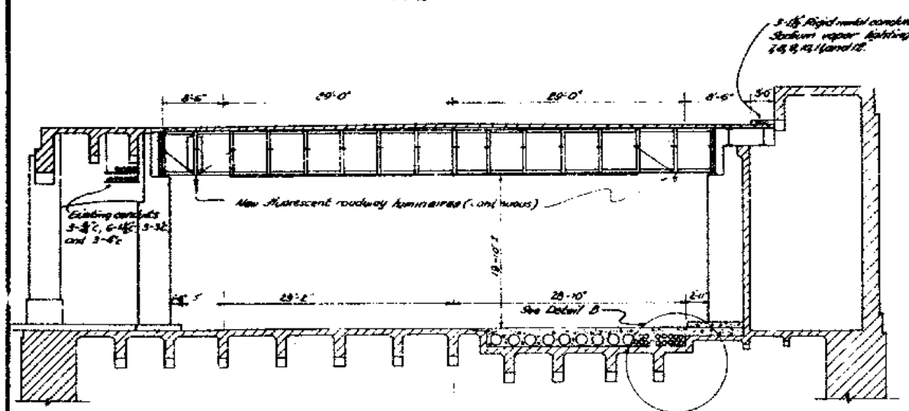
BENT 5

Scale: 1/8"=1'-0"



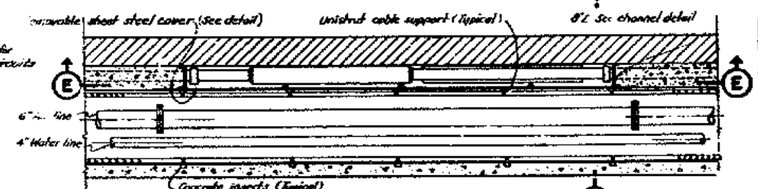
BENT 46

Scale: 1/8"=1'-0"



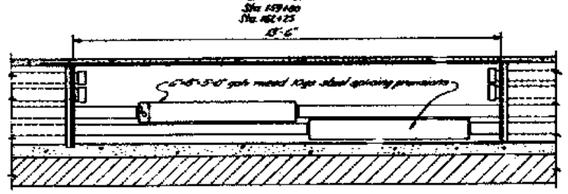
PIER YA 5

Scale: 1/8"=1'-0"



PLAN

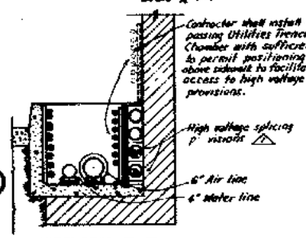
Sta. 157+68
Sta. 157+80
Sta. 162+23



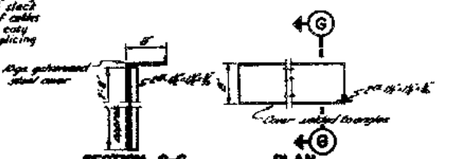
SECTION E-E

UTILITIES TRENCH SPLICING CHAMBER

Scale: 1/2"=1'-0"



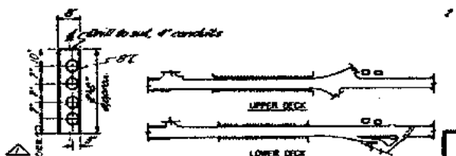
SECTION F-F



SECTION G-G PLAN

REMOVABLE SHEET STEEL COVER INSTALLATION

Scale: 1"=1'-0"



CHANNEL DETAIL

Scale: 1/2"=1'-0"

LOCATION KEY

NOTES:

1. In utilities tunnel and trench, Contractor shall install Unistrut inserts, style P-3280 as shown at 4'-6" intervals to support conduits and conduits, Unistrut straps style P-1000-X, Unistrut clamps style P-1121, OD size as required. Unistrut channel, style P-1000, and accessories shall or install at the surface mounted or free standing supports
2. Contractor shall ground all interrupted metal conduits, cadmium boxes, or other metal raceway materials to circuit G-30

0 THIS — 10 THIS — SCALE IN INCHES

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
ELECTRICAL- TRANSVERSE SECTIONS

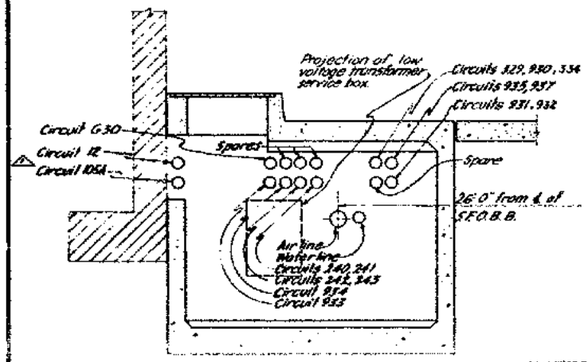
MARK	DATE	DESCRIPTION	BY	CHK.
		REVISION		
2	9-1-66	As built without revision	c/c	H.B.T.
1	8-1-60	Location change Circuits 12 and 105A	W.F.	H.B.T.

SCALE AS SHOWN | BRIDGE 53-25 54-23 54-04 | SHEET No. 124 | DRAWING C-4023-124R

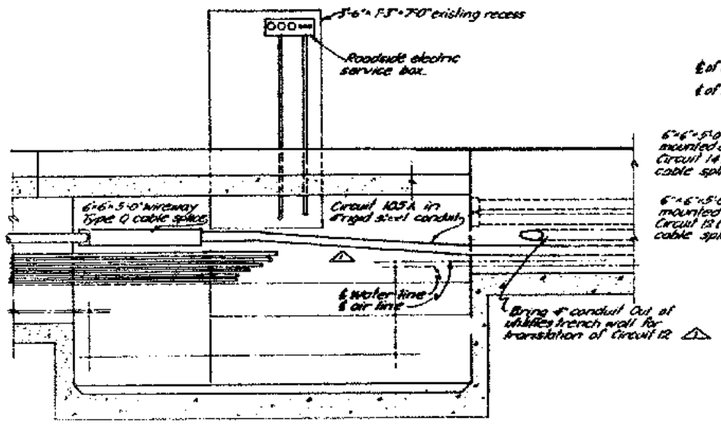
PROJECT ENGINEER LICENSE NO.

DATE APPROVED July 22, 1960

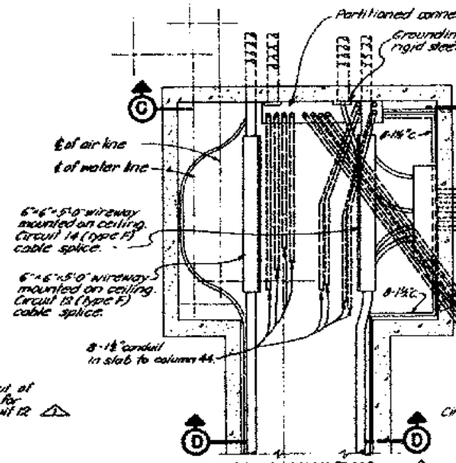
DATE APPROVED July 22, 1960



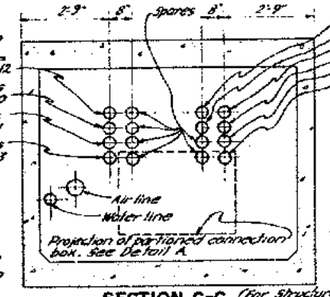
SECTION A-A
(For Structural Details, see Sheet 55)



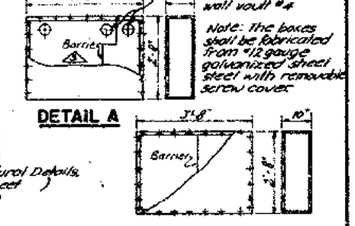
SECTION B-B
(For Structural Details, See Sheet 55)

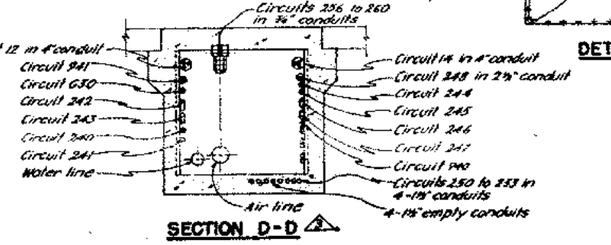


PLAN-VAULT NO. 4



SECTION G-G (For Structural Details, See Sheet)

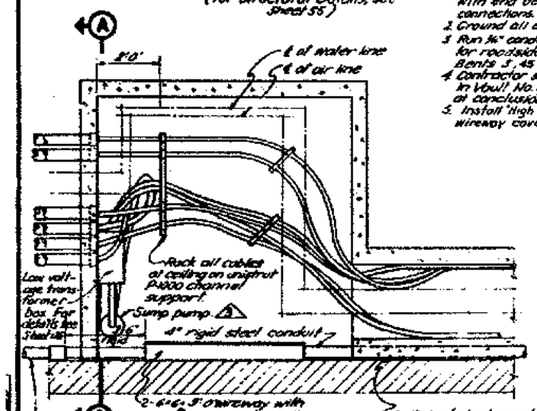




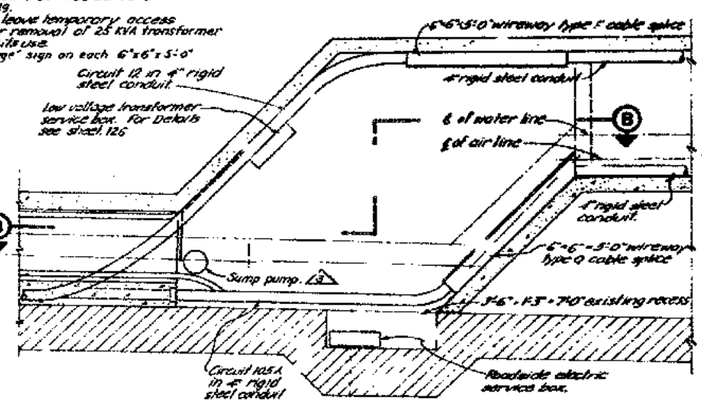
SECTION D-D

NOTES

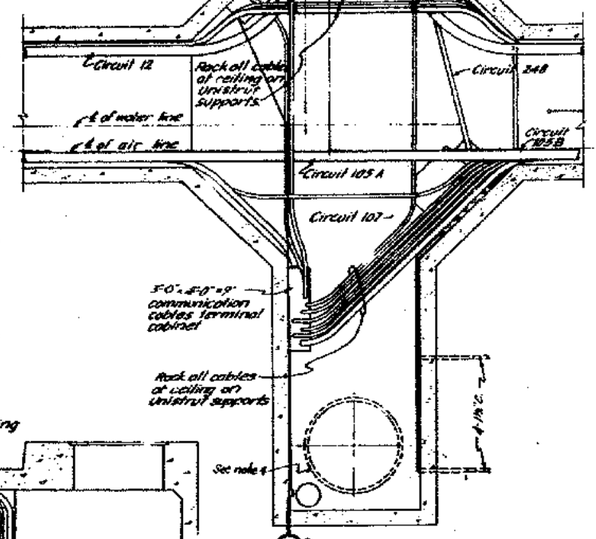
1. Terminate asbestos cement ducts at vaults with end bell adaptors for metal conduit connections.
2. Ground all exposed metal surfaces to circuit G30
3. Run ¾" conduits from vaults No 1, 3 and 5 for roadside electric service boxes at Bents 3, 45 and 49.
4. Contractor shall leave temporary access in Vault No. 3 for removal of 25 KVA transformer at conclusion of its use.
5. Install "High Voltage" sign on each 6"x6"x5'-0" wireway cover.



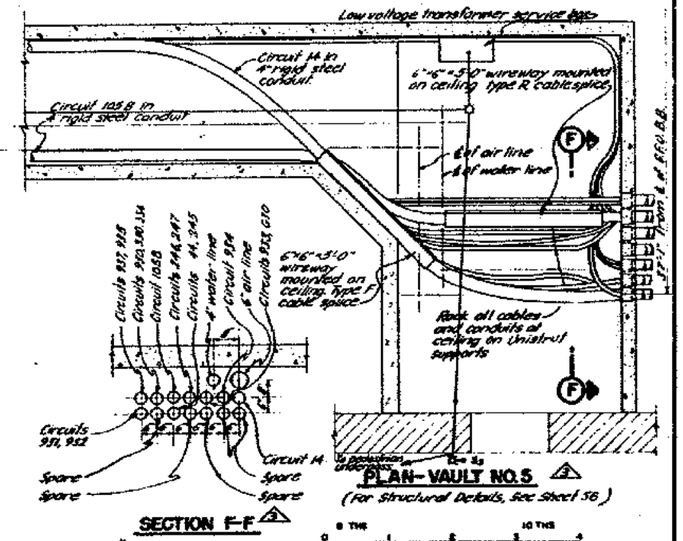
PLAN-VAULT NO. 1
(For Structural Details, See Sheet 55)



PLAN-VAULT NO. 2
(For Structural Details, See sheet 55)

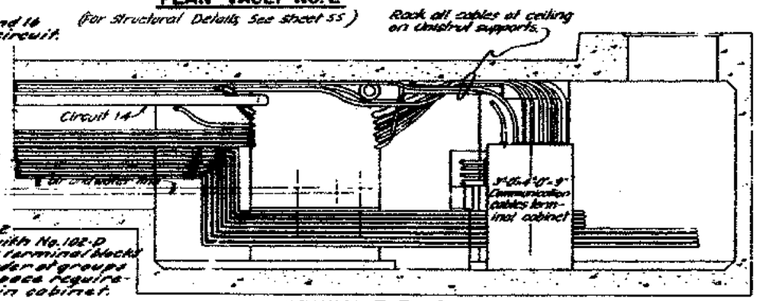


PLAN-VAULT NO. 3
(For Structural Details see Sheet 56)

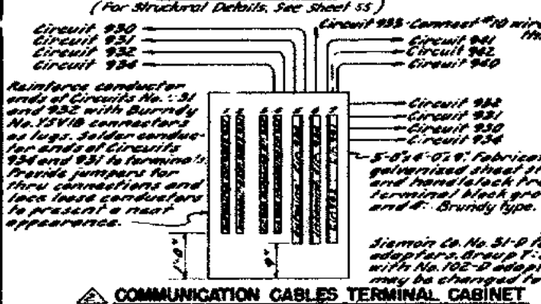


PLAN-VAULT NO. 5
(For Structural Details, See Sheet 56)

SECTION F-F



SECTION E-E
(For Structural Details, See Sheet 55)



COMMUNICATION CABLES TERMINAL CABINET
Scale: ¾"-1'-0"

LOCATION KEY

MARK	DATE	DESCRIPTION	BY	CH'K
		REVISION		
5	9-166	As built with revisions.	d/c	H.B.T.
4	2-1-66	Relocated and added Terminal Blocks	R.C.	H.B.T.
3	11-1-65	Location change. Circuits 12 and 105A	W.F.	H.B.T.

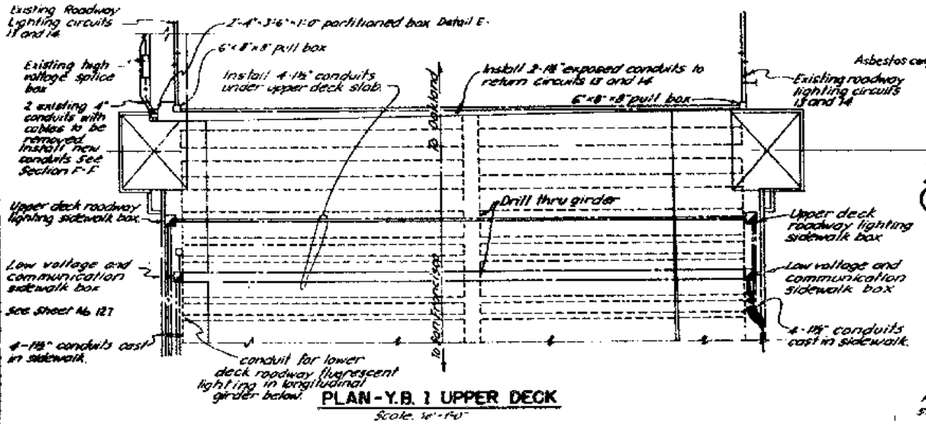
SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
ELECTRICAL—VAULT INSTALLATIONS

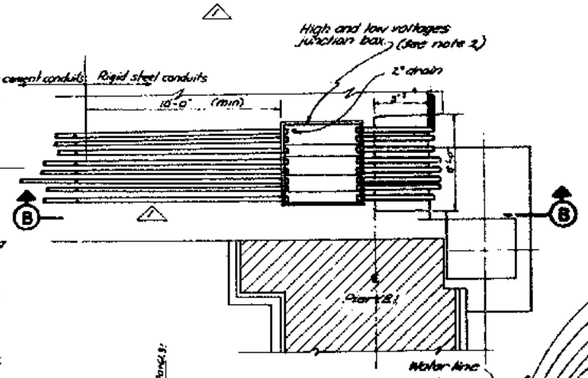
UNLESS NOTED
SCALE 1/2"= 1'-0"
BRIDGE 33-29, 34-03, 34-04
SHEET No 125
DRAWING C-4029-125R

DATE APPROVED JULY 22, 1960



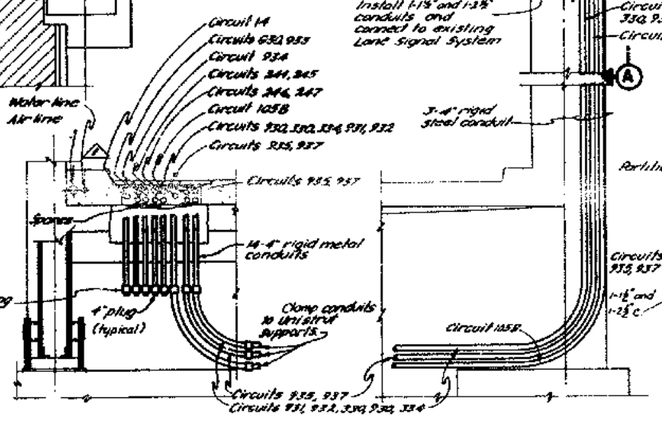
PLAN-Y.B. 1 UPPER DECK

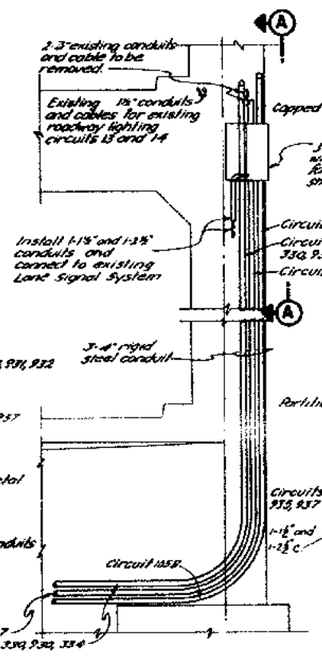
Scale: 1/8"=1'-0"

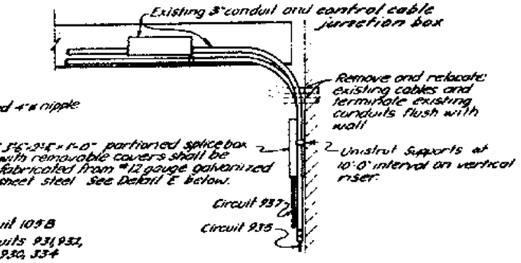


PART PLAN

Scale: 1/4"=1'-0"

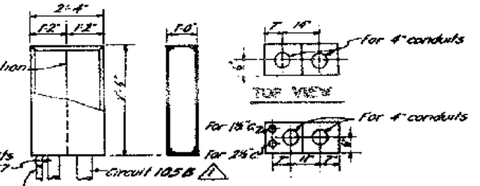






SECTION A-A

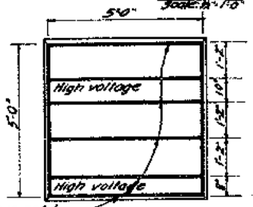
Scale: 1½"=1'-0"



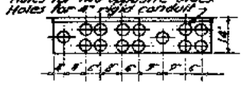
FRONT & SIDE VIEWS BOTTOM VIEW

DETAIL E

Scale: 3"=1'-0"



Fabricate partitioned high and low voltage junction box from not less than #10 gauge galvanized sheet steel. Provide 14 identical holes for two opposite sides. Holes for 4" rigid conduit 2

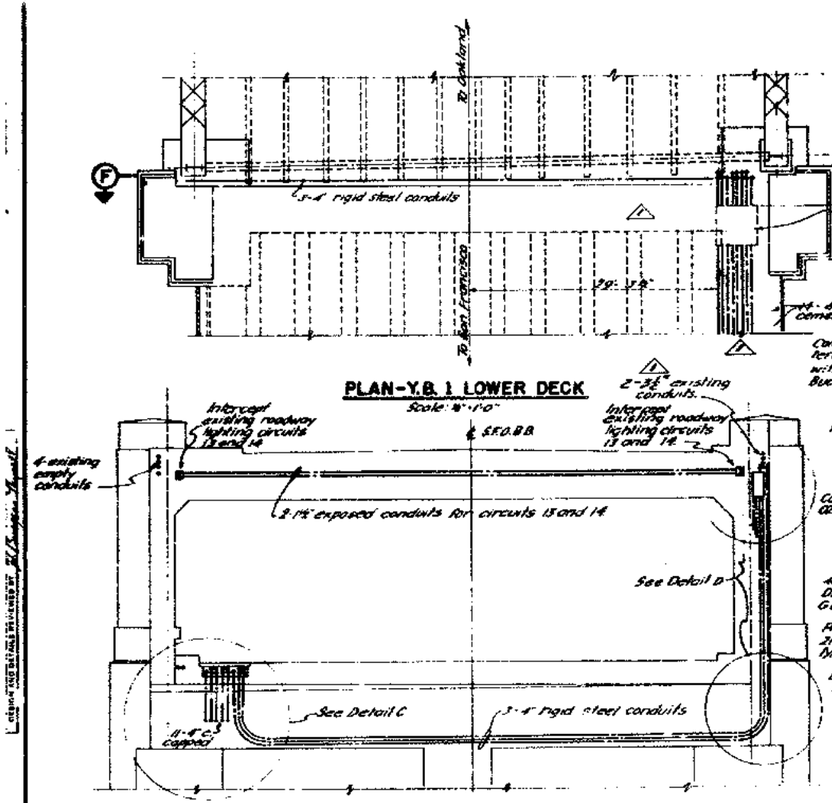


10 gauge barriers notch lower corner at West end to permit drainage.

PLAN SIDE VIEW

HIGH AND LOW VOLTAGE JUNCTION BOX

Scale: 1½"=1'-0"

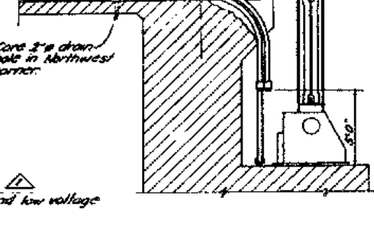


PLAN-Y.B. 1 LOWER DECK

Scale: 1/8"=1'-0"

SECTION F-F

Scale: 1/8"=1'-0"



SECTION B-B

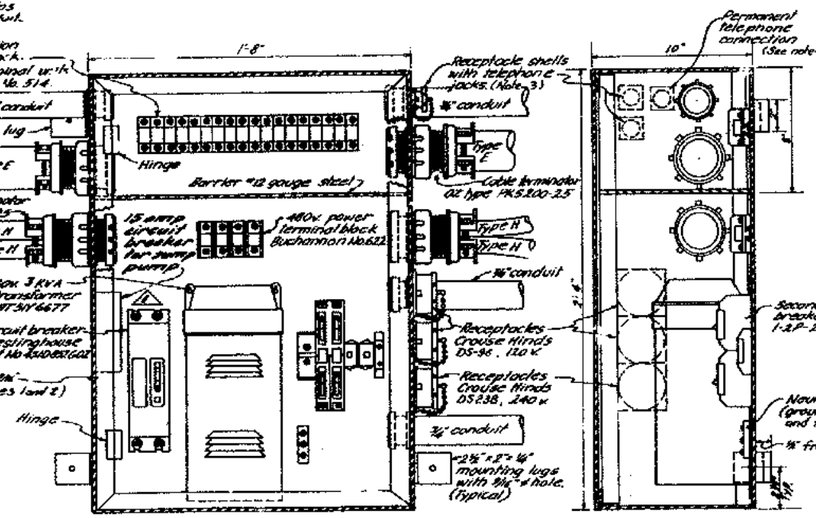
Scale: 1/8"=1'-0"

DETAIL C

Scale: 1/2"=1'-0"

⚠ DETAIL D

Scale: 1/2"=1'-0"

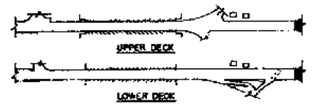


FRONT VIEW

Scale 3"=1'-0"

SIDE ELEVATION

Scale: 3"=1'-0"



LOCATION KEY

NOTES

1. Contractor shall fabricate angle framed box and approximately 18"x24" hinged cover from not less than 12 gauge galvanized sheet steel. Door shall be provided with Corbin # 15767 lock in opening handle. Lock shall be keyed to match existing box on Bridge.
2. Contractor shall install neoprene gaskets to keep box free of all dirt and water.
3. Receptacle with telephone jack Swift craft SF-3AX 229 Amphenol jack # 97-181-125. Cap and chain # 97-60-12
4. Amphenol MS-310-2A-10SL-3P with cap and chain

SCALE IN INCHES

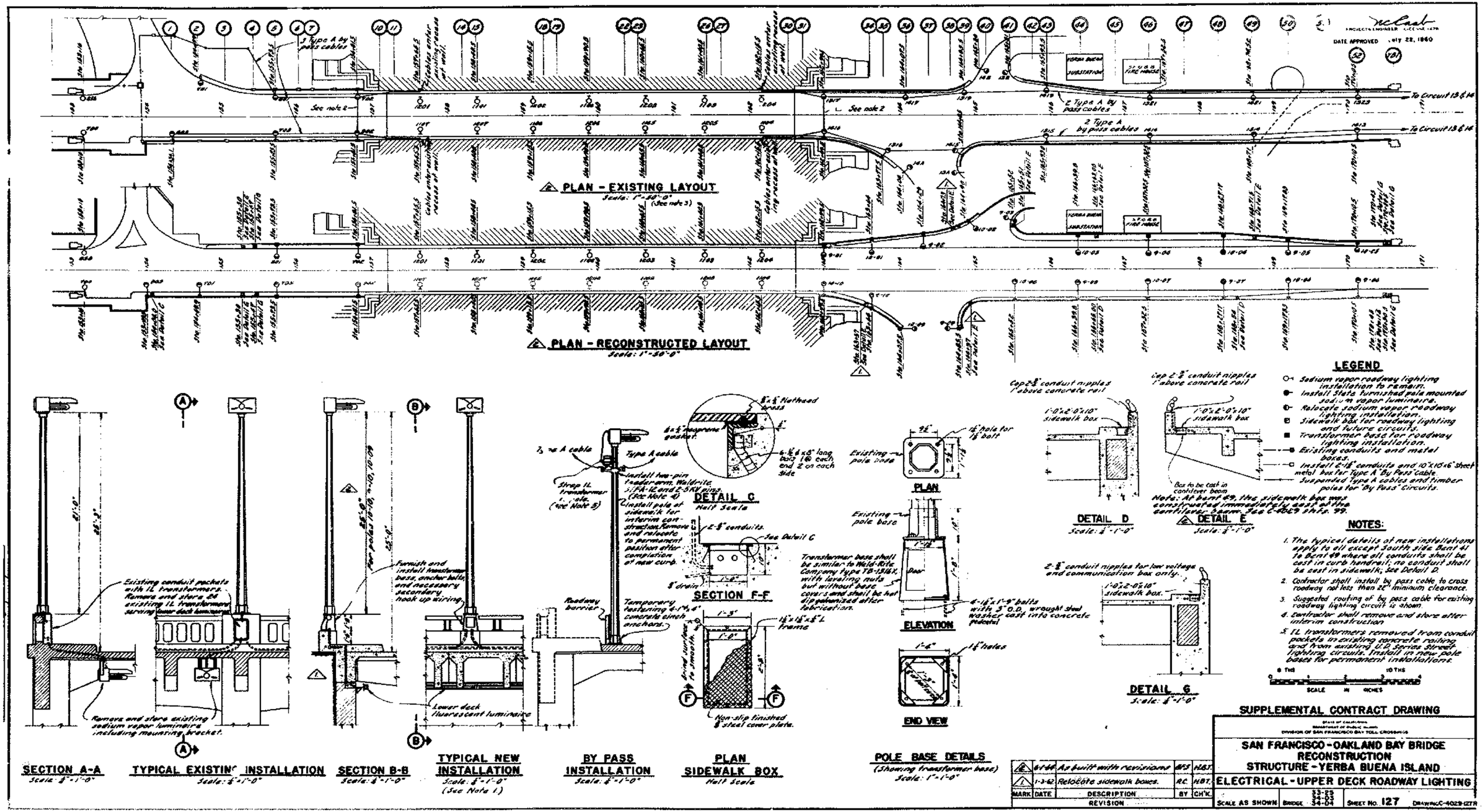
LOW VOLTAGE TRANSFORMER SERVICE BOX

MARK	DATE	REVISION	BY	CH'K
⚠	4-1-60	As built with revisions.	dfs	JLB

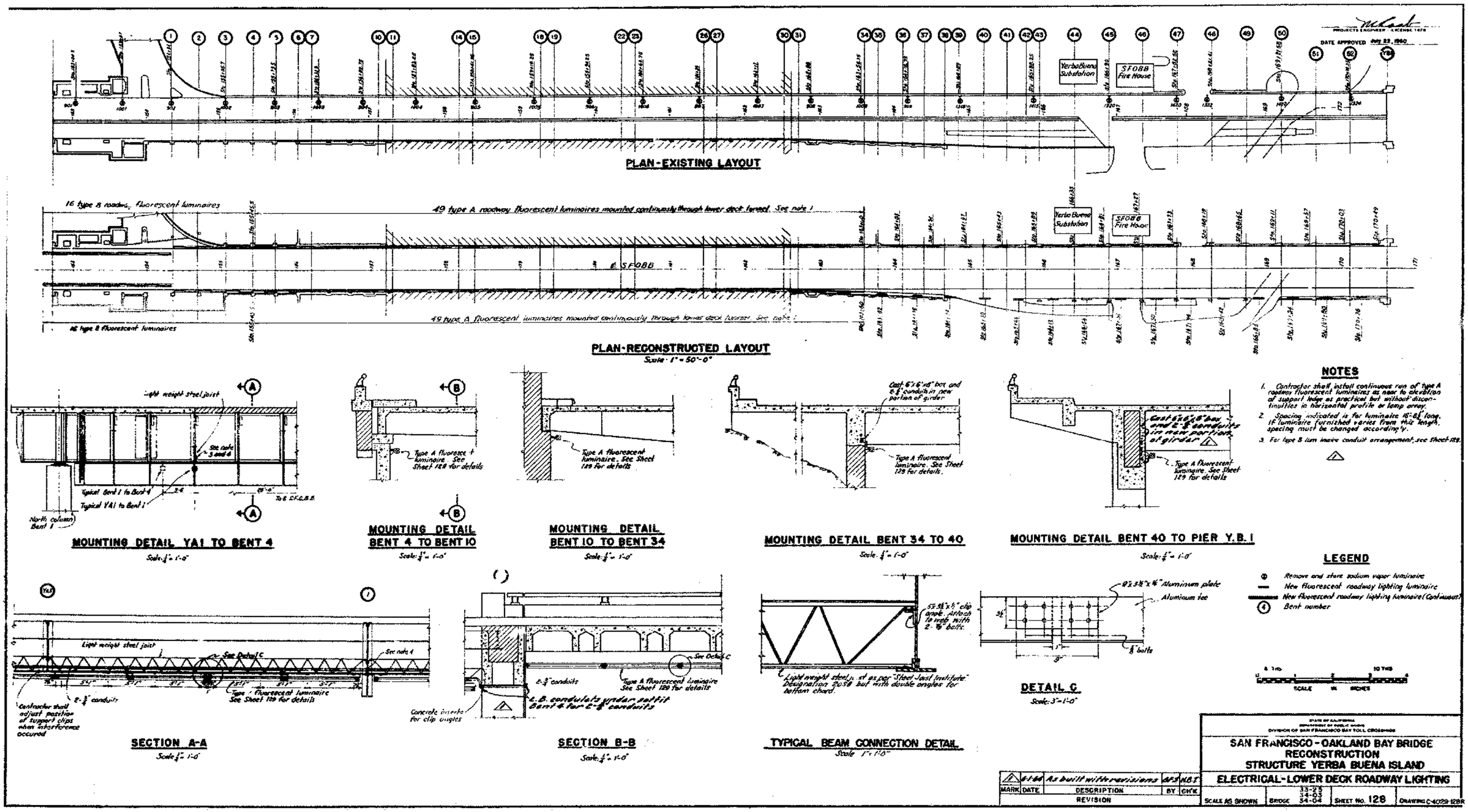
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

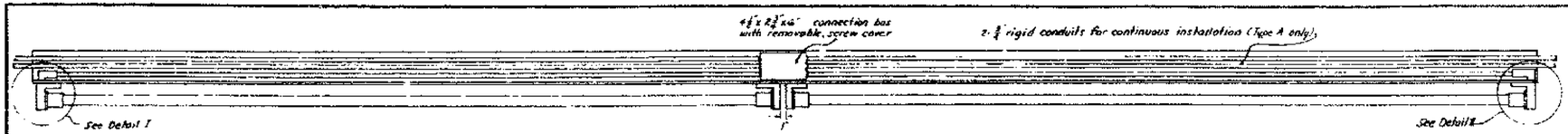
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
ELECTRICAL-PIER Y.B. 1 INSTALLATIONS

SCALE AS SHOWN | BRIDGE 33-25 34-05 34-84 | SHEET No. 126 | DRAWING C-4029-126R



PLAN - EXISTING LAYOUT
Scale: 1"=50'-0" (See note 3)
PLAN - RECONSTRUCTED LAYOUT
Scale: 1"=50'-0"
3 Type A by pass cables
2 Type A by pass cables
To Circuit 13 & 14
See note 2
YERBA BUENA SUBSTATION
FIRE HOUSE
DATE APPROVED July 22, 1960
LEGEND
Sodium vapor roadway lighting installation to remain.
Install State furnished pole mounted sodium vapor luminaire.
Relocate sodium vapor roadway lighting installation.
Sidewalk box for roadway lighting and future circuits.
Transformer base for roadway lighting installation.
Existing conduits and metal boxes.
Install 2-1½" conduits and 10"x10"x6" sheet metal box for Type A "By Pass" cable.
Suspended Type A cables and timber poles for "By Pass" Circuits.
Note: At bent 49, the sidewalk box was constructed immediately east of the cantilever beam. See C-4029 Shts. 99.
DETAIL D
Scale: ¼"=1'-0"
DETAIL E
Scale: ¼"=1'-0"
DETAIL G
Scale: ¼"=1'-0"
Cap 2-¾" conduit nipples 1" above concrete rail
1'-0"x2'-0"x10" sidewalk box
Box to be cast in cantilever beam
Existing pole base
PLAN
ELEVATION
END VIEW
Transformer base shall be similar to Weld-Rite Company type TB-1316X, with leveling nuts but without base covers and shall be hot dip galvanized after fabrication.
4-1½"x1'-9" bolts with 3" O.D. wrought steel washer cast into concrete pedestal
DETAIL C
Half Scale
SECTION F-F
Non-slip finished ⅜" steel cover plate.
Type A cable
Install two-pin feeder arm, Waldrite SIFA-12 and 2-5KV pins. (See Note 4)
Install pole at sidewalk for interim construction. Remove and relocate to permanent position after completion of new curb.
Strap IL transformer to pole. (See Note 5)
Furnish and install transformer base, anchor bolts, and necessary secondary hook up wiring.
Lower deck fluorescent luminaire
Existing conduit pockets with IL transformers. Remove and store 24 existing IL transformers serving lower deck luminaires
Remove and store existing sodium vapor luminaire including mounting bracket.
Roadway barrier
Temporary fastening 4-1"x4" concrete cinch anchors.
SECTION A-A
Scale: ¼"=1'-0"
TYPICAL EXISTING INSTALLATION
Scale: ¼"=1'-0"
SECTION B-B
Scale: ¼"=1'-0"
TYPICAL NEW INSTALLATION
Scale: ¼"=1'-0" (See Note 1)
BY PASS INSTALLATION
Scale: ¼"=1'-0"
PLAN SIDEWALK BOX
Half Scale
POLE BASE DETAILS
(Showing transformer base)
Scale: 1"=1'-0"
NOTES:
1. The typical details of new installations apply to all except South side Bent 41 to Bent 49 where all conduits shall be cast in curb handrail; no conduit shall be cast in sidewalk; see Detail D.
2. Contractor shall install by pass cable to cross roadway not less than 22" minimum clearance.
3. Suggested routing of by pass cable for existing roadway lighting circuit is shown.
4. Contractor shall remove and store after interim construction
5. IL transformers removed from conduit pockets in existing concrete railing and from existing U.D. Series Street lighting circuits. Install in new pole bases for permanent installations.
SCALE IN INCHES
SUPPLEMENTAL CONTRACT DRAWING
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS
SAN FRANCISCO - OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
ELECTRICAL - UPPER DECK ROADWAY LIGHTING
2 6-1-64 As built with revisions BFS HBT
1 1-3-62 Relocate sidewalk boxes. RC HBT
MARK DATE DESCRIPTION BY CH'K
REVISION
SCALE AS SHOWN
BRIDGE 33-25 34-03 34-04
SHEET NO. 127
DRAWING C-4029-127R

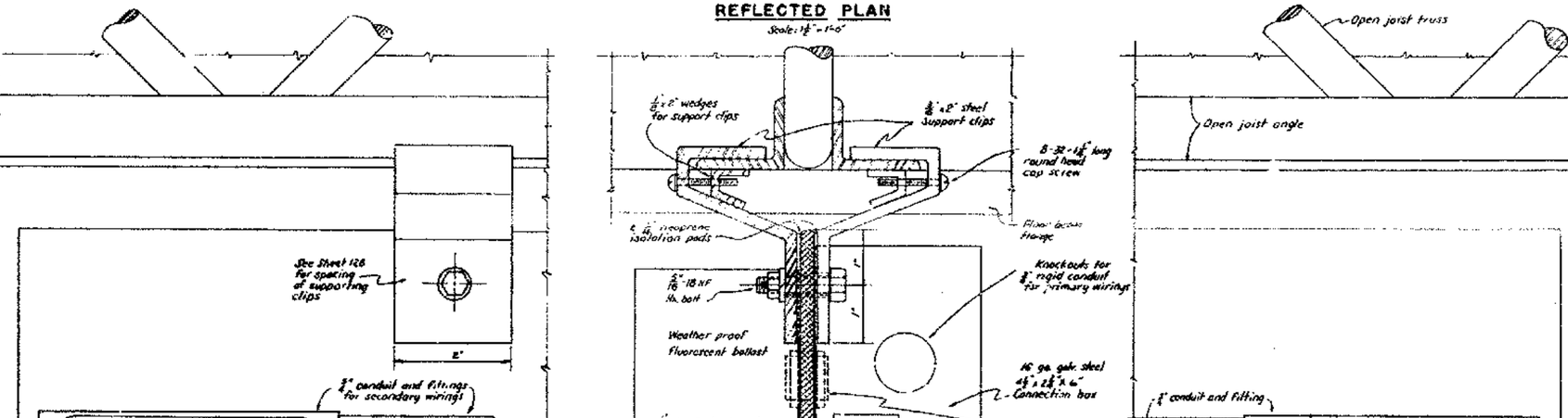

PROJECTS ENGINEER - LICENSE 1428
DATE APPROVED July 22, 1960
Yerba Buena Substation
SFOBB Fire House
PLAN-EXISTING LAYOUT
16 type B roadway fluorescent luminaires
49 type A roadway fluorescent luminaires mounted continuously through lower deck tunnel. See note 1
℄ SFOBB
16 type B fluorescent luminaires
49 type A fluorescent luminaires mounted continuously through lower deck tunnel. See note 1
PLAN-RECONSTRUCTED LAYOUT
Scale: 1" = 50'-0"
Light weight steel joist
See note 3 and 4
Typical Bent 1 to Bent 4
Typical YA1 to Bent 1
North column Bent 1
MOUNTING DETAIL YA1 TO BENT 4
Scale: 1/4" = 1'-0"
Type A fluorescent luminaire. See Sheet 129 for details
MOUNTING DETAIL BENT 4 TO BENT 10
Scale: 1/4" = 1'-0"
Type A fluorescent luminaire. See Sheet 129 for details
MOUNTING DETAIL BENT 10 TO BENT 34
Scale: 1/4" = 1'-0"
Cast 6"x6"x8" box and 2-3/4" conduits in new portion of girder
Type A fluorescent luminaire. See Sheet 129 for details.
MOUNTING DETAIL BENT 34 TO 40
Scale: 1/4" = 1'-0"
Cast 6"x6"x8" box and 2-3/4" conduits in new portion of girder
Type A fluorescent luminaire. See Sheet 129 for details
MOUNTING DETAIL BENT 40 TO PIER Y.B. 1
Scale: 1/4" = 1'-0"
Light weight steel joist
See Detail C
See note 4
2-3/4" conduits
Type A fluorescent luminaire See Sheet 129 for details
Contractor shall adjust position of support clips when interference occured
SECTION A-A
Scale: 1/4" = 1'-0"
See Detail C
2-3/4" conduits
Type A fluorescent luminaire See Sheet 129 for details
L.B. conduits under soffit Bent 4 for 2-3/4" conduits
Concrete inserts for clip angles
SECTION B-B
Scale: 1/4" = 1'-0"
5"x3 1/2"x1/2" clip angle. Attach to web with 2-7/8" bolts.
Light weight steel joist as per "Steel Joist Institute" Designation 20S8 but with double angles for bottom chord.
TYPICAL BEAM CONNECTION DETAIL
Scale 1" = 1'-0"
9"x3 1/2"x1/4" Aluminum plate
Aluminum tee
3 1/2"
1"
3"
3/4" bolts
DETAIL C
Scale: 3" = 1'-0"
NOTES
1. Contractor shall install continuous run of type A roadway fluorescent luminaires as near to elevation of support ledge as practical but without discontinuities in horizontal profile or lamp array.
2. Spacing indicated is for luminaire 16'-8 1/2" long. If luminaire furnished varies from this length, spacing must be changed accordingly.
3. For type B luminaire conduit arrangement, see Sheet 129.
LEGEND
Remove and store sodium vapor luminaire
New fluorescent roadway lighting luminaire
New fluorescent roadway lighting luminaire (Continuous)
Bent number
SCALE IN INCHES
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS
SAN FRANCISCO - OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
ELECTRICAL - LOWER DECK ROADWAY LIGHTING
MARK DATE DESCRIPTION BY CH'K
REVISION
SCALE AS SHOWN
BRIDGE 33-25 34-03 34-04
SHEET No. 128
DRAWING C-4029-128R



SIDE ELEVATION

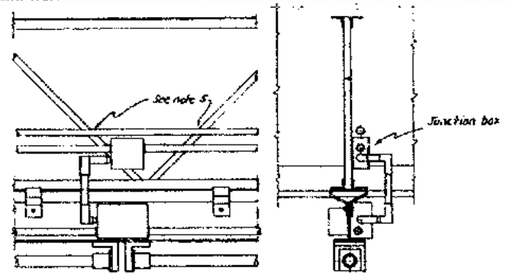
Scale: 1½" = 1'-0"

16'-6½"



REFLECTED PLAN

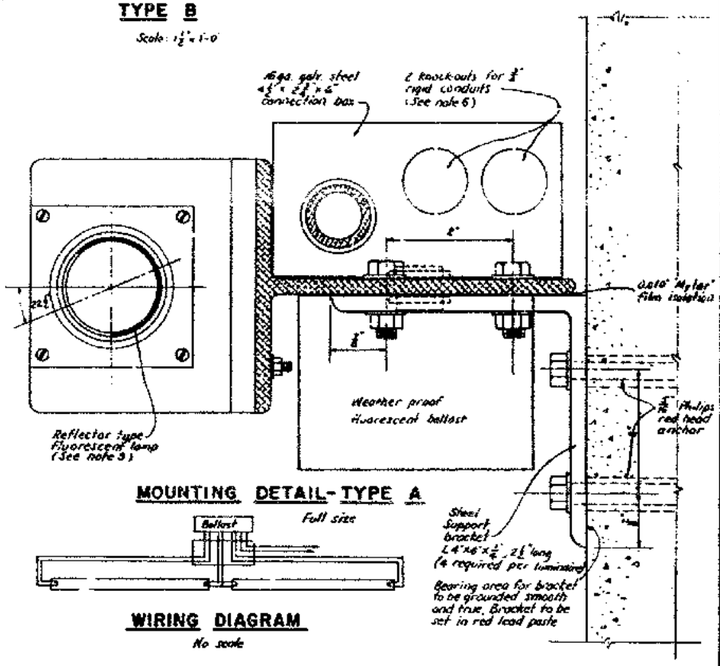
Scale: 1½" = 1'-0"



DATE APPROVED July 22, 1960

CONDUIT CONNECTIONS TYPE B

Scale: 1½" = 1'-0"

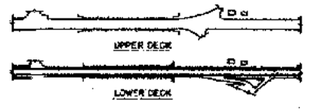


MOUNTING DETAIL - TYPE A

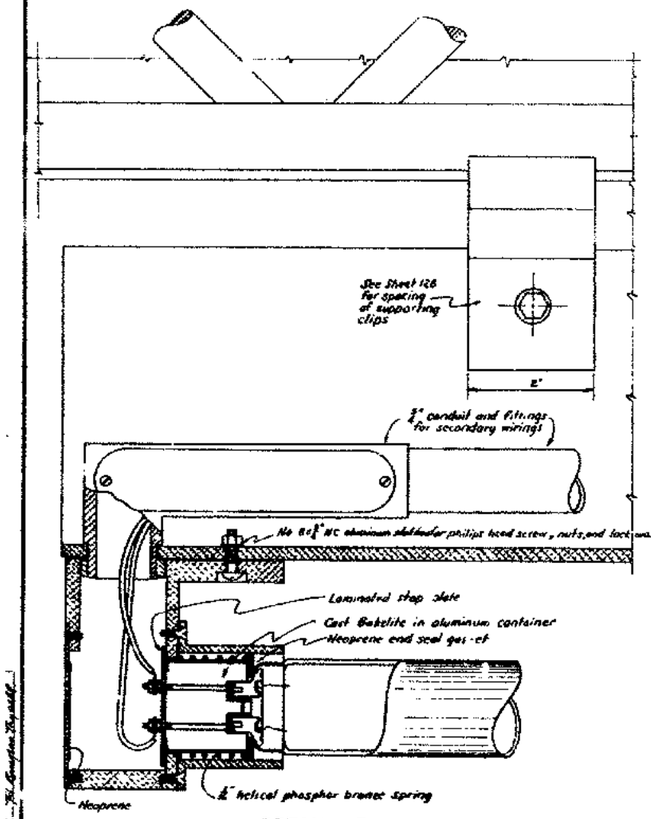
Full size

WIRING DIAGRAM

No scale

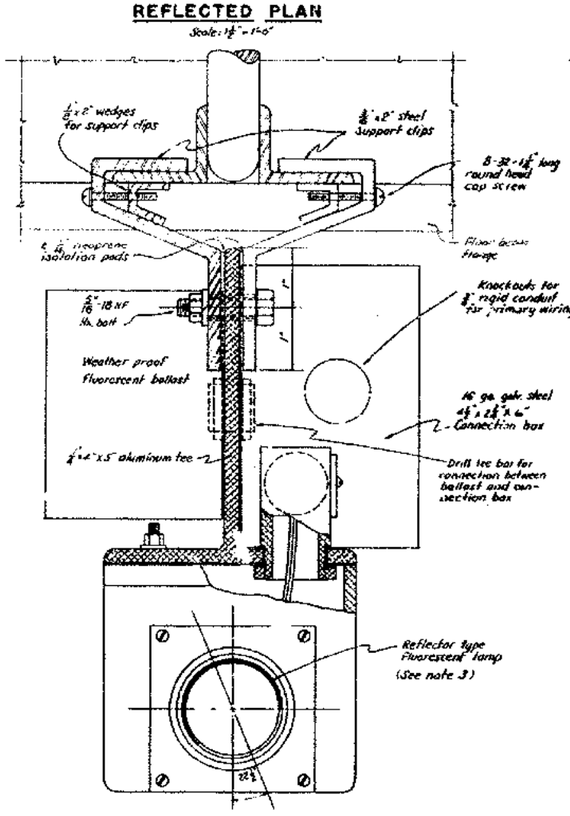


LOCATION KEY



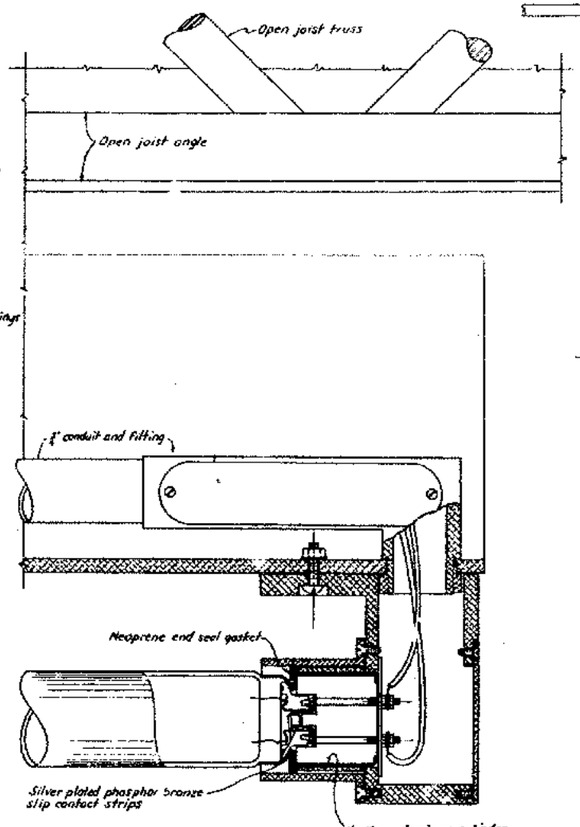
DETAIL I

Scale: Full size



MOUNTING DETAIL - TYPE B

Scale: Full size



DETAIL II

Scale: Full size

NOTES

1. Each luminaire shall consist of a continuous 4"x5"x¼" aluminum tee specified by Aluminum Association as 6063 alloy T6 temper, four (4) cast and machined aluminum lamp holders, a two lamp 430 volt ballast which shall operate 96" inch, high output, reflector type fluorescent lamps, support clips or support brackets, luminaire corners, end box, conduit and fittings for secondary wirings, fastenings and other materials as shown.
   Material shall be furnished as follows:
   (a) All conduits, lamp holders, fastenings, boxes and other materials integral with the luminaire, so far as practical shall be aluminum, where ferrous materials is necessary proper isolation and corrosion control shall be provided.
   (b) The lamp holder shall be weather proof, vibration proof and with UL label and as manufactured by the NELSO Mfg Co Type Alpha 60 with positioning knurls to permit rotation of lamp to fixed position on 22½ angles around center of lamp
   (c) The ballast shall be outdoor weather proof unit as manufactured by the Sola Electric Co. Type No. 6M-418 of high power factor. ASA specification No C82.1, C82.2, C82.3 and in accordance with Certified Ballast Manufacturing standards
   (d) Fluorescent lamps shall be 96 inch, 800 ma, rapid start, reflector type as manufactured by Sylvania Electric Products Inc. type F-96 T12/CW/HO/RFL.
   (e) Luminaire secondary wiring shall be color coded and installed completely in place during fabrication.
2. Contractor shall furnished and store in Key System Car Inspection Building, in addition to the necessary fluorescent lamps for the luminaires, two (2) spare lamps per each installation.
3. Contractor shall rotate lamps into position shown so aperture of reflector type lamp face major area of roadway.
4. Contractor shall furnish one (1) complete prototype luminaire with shop drawings for prior approval before fabrication of the remaining units. The following test data shall be submitted:
   (a) Photometrical — Candlepower distribution curves and brightness measurements as described by I.E.S Guides.
   (b) Electrical — Evidence showing luminaire will start and restart observed moisture and contaminate film on lamps at 30° F to 40° F.
   (c) Mechanical — Vibration test where luminaire remain illuminated through 10° cycles movement of not less than ½" in at least two directions.
5. Contractor shall fasten 2-¾" conduits and junction box to open joist truss.
6. Contractor shall develop supports for two ¾" conduits at 4'-6" interval (min.).

⚠ See shop drawing submitted by Abbett Corp. and Pacific Electric Lighting Corporation.

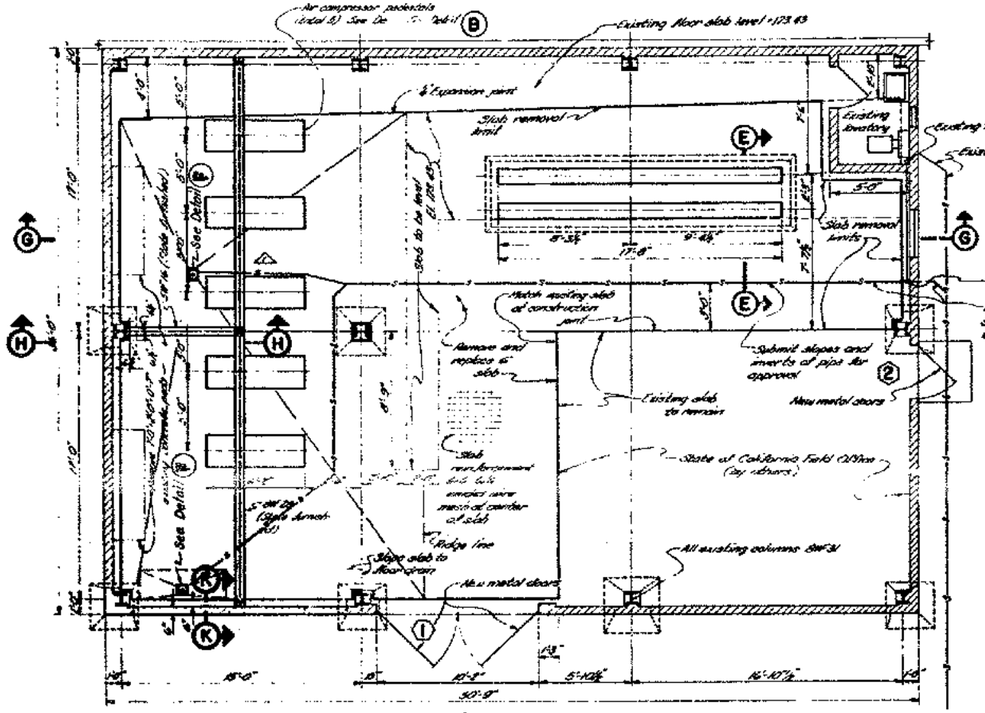
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

ELECTRICAL - ROADWAY FLUORESCENT LUMINAIRE

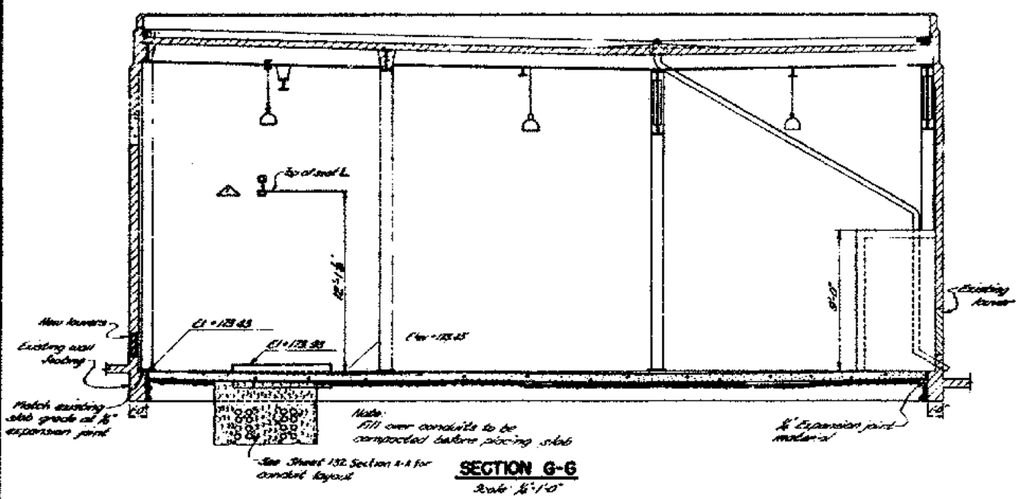
MARK	DATE	REVISION	BY	CH'K
⚠	8-1-60	As built with revisions	M.F.S.	H.B.T.

SCALE AS SHOWN | BRIDGE 33-85 34-03 34-04 | SHEET No. 129 | DRAWING C-4029-129R



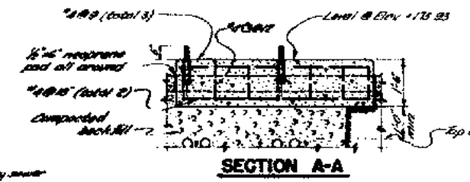
PLAN

Scale: ⅛"=1'-0"

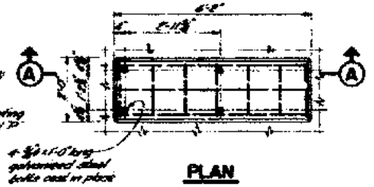


SECTION G-G

Scale: ⅛"=1'-0"



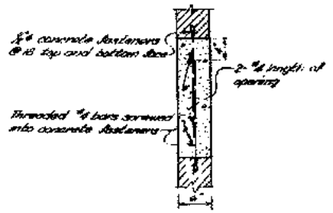
SECTION A-A



PLAN

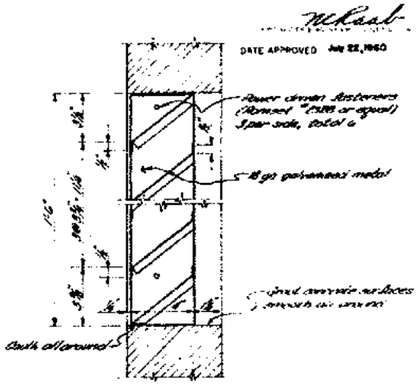
DETAIL B
AIR COMPRESSOR PEDESTAL

Scale: ¾"=1'-0"



DETAIL C

Scale: 1"=1'-0"

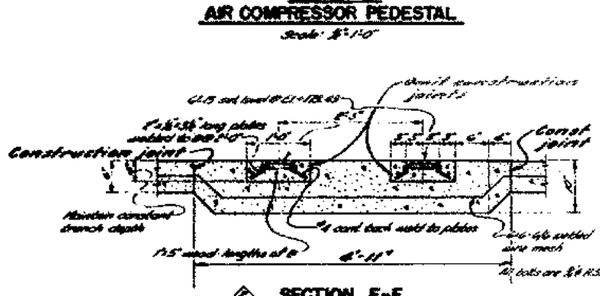


DETAIL D

Section thru sill and head (jamb similar to head)

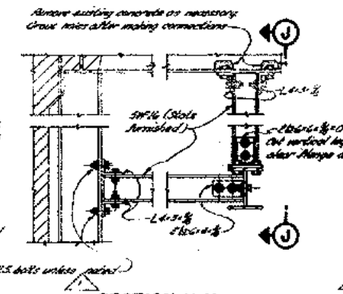
METAL LOUVER

Scale: 3"=1'-0"



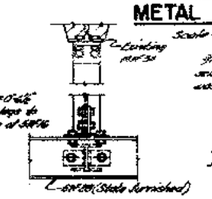
SECTION E-E
MOUNTING SILLS

Scale: 1"=1'-0"



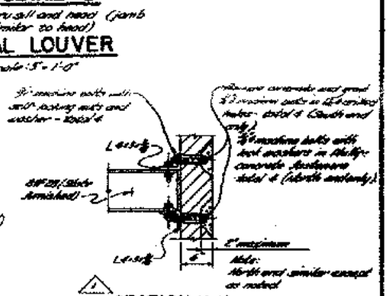
SECTION H-H

Scale: 1"=1'-0"



VIEW J-J

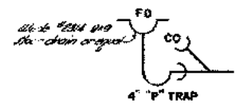
Scale: 1"=1'-0"



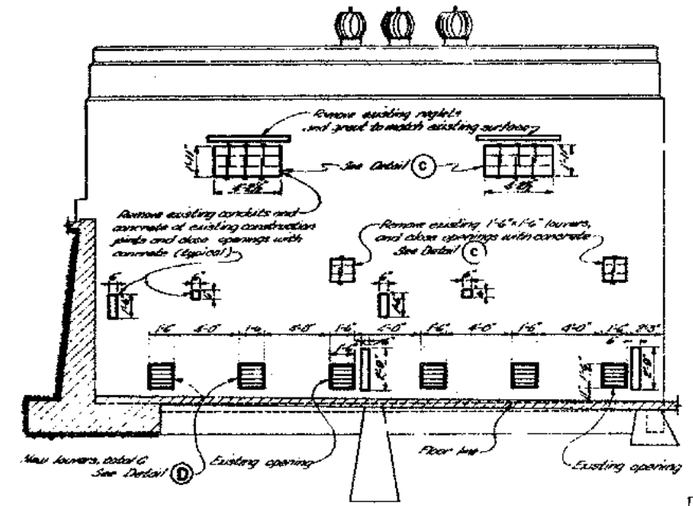
SECTION K-K

Scale: 1"=1'-0"

DOOR SCHEDULE		
TYPE	SIZE	REMARKS
①	4'-11"x7'-6"x1¾"	2 required, Flush hollow metal
②	3'-0"x7'-0"x1¾"	1 required, Flush hollow metal
	Note: All hardware shall be new and tags keyed alike. All hardware and doors shall fit the existing frames. See Note 3.	
③	2'-6"x3'-0"x1½"	1 required, hollow metal louvered
	Note: See Sheet No 96 for location and frame	



DETAIL F
SCHEMATIC LAYOUT
TYPICAL FLOOR DRAIN



WEST ELEVATION

Scale: ⅛"=1'-0"

LOCATION KEY

NOTES:

1. All new concrete areas shall be finished to match existing surfaces.
2. All interior wall and ceiling surfaces shall be cleaned and painted. All exposed structural steel shall be cleaned and painted.
3. Furnish and install on door ① Garage Overhead Bolts and cylindrical lock as manufactured by Rolland Wilcox Manufacturing Co. or approved equal. On active leaf catalogue No. 617 KATT. On inactive leaf catalogue No. 617.

0 1 2 3 4 5 6 7 8 9 10 INS

SCALE IN INCHES

SUPPLEMENTAL CONTRACT DRAWING

MARK	DATE	REVISION	BY	CH'K.
2	4-1-66	As built with revisions	BFS	N.B.T.
1	5-18-61	Pipe support beam added	PHR	

DIVISION OF SAN FRANCISCO-BAY TOLL CROSSINGS

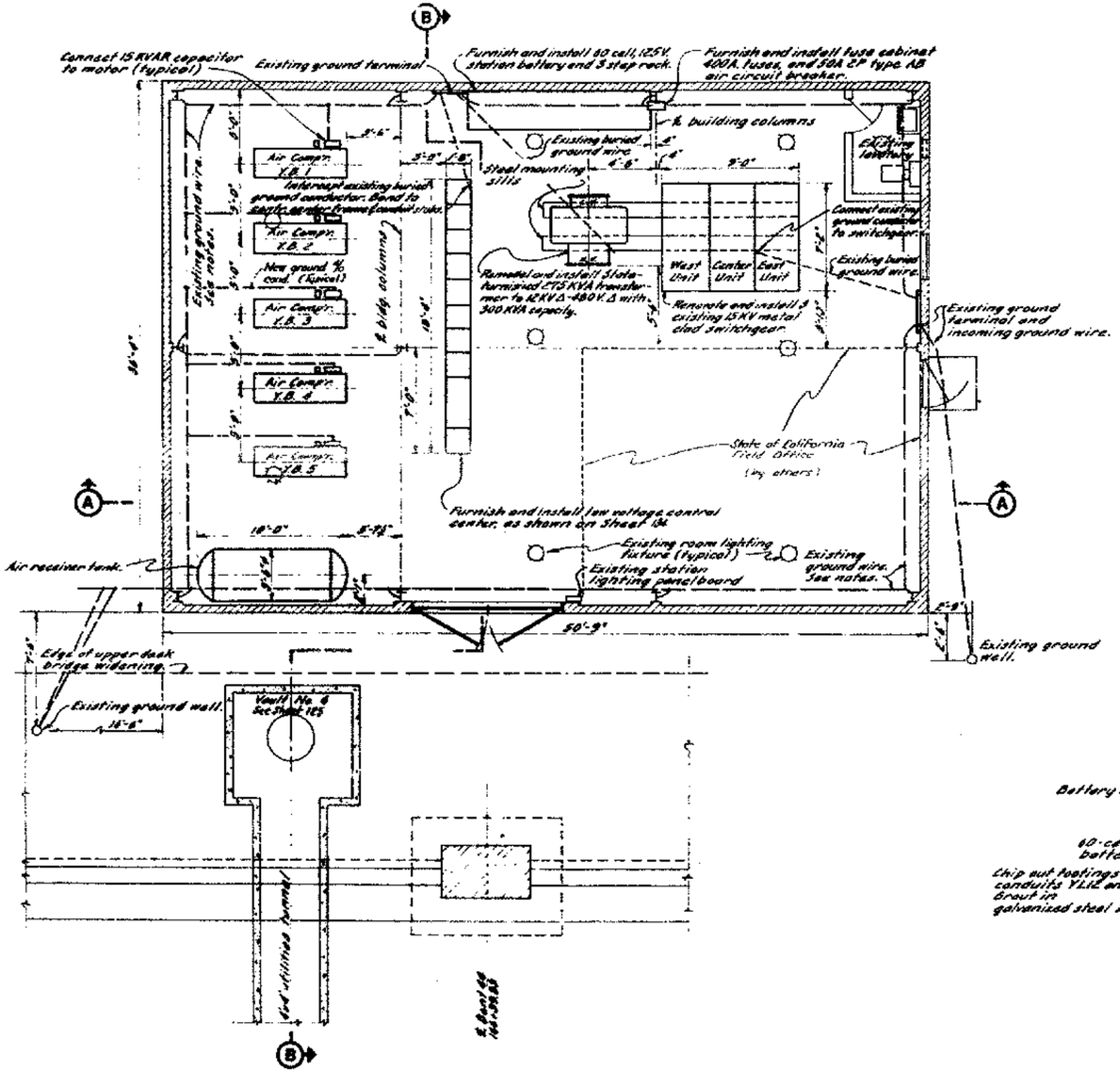
SAN FRANCISCO - OAKLAND BAY BRIDGE RECONSTRUCTION

STRUCTURE - YERBA BUENA ISLAND

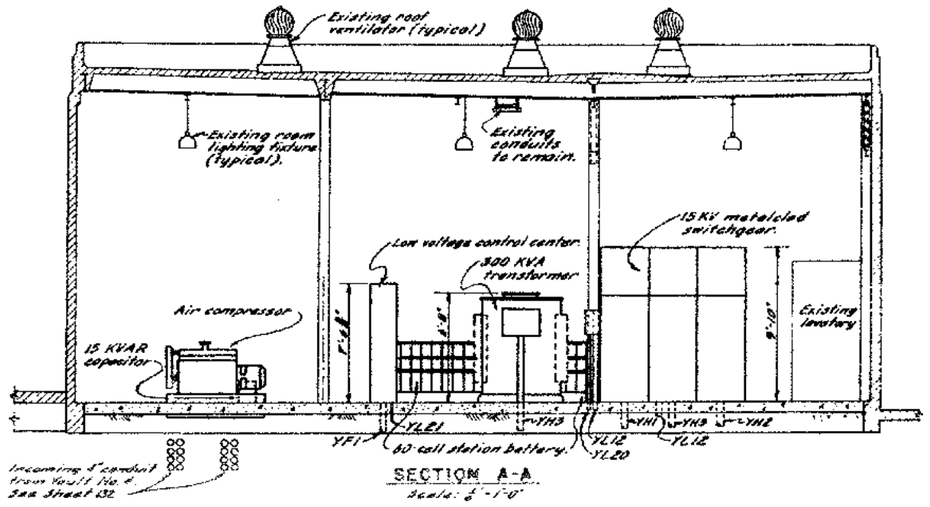
YERBA BUENA SUBSTATION - STRUCTURAL

SCALE AS SHOWN | BRIDGE 33-25 34-03 34-04 | SHEET NO. 130 | DRAWING C-4028-130R

DATE APPROVED July 28, 1960



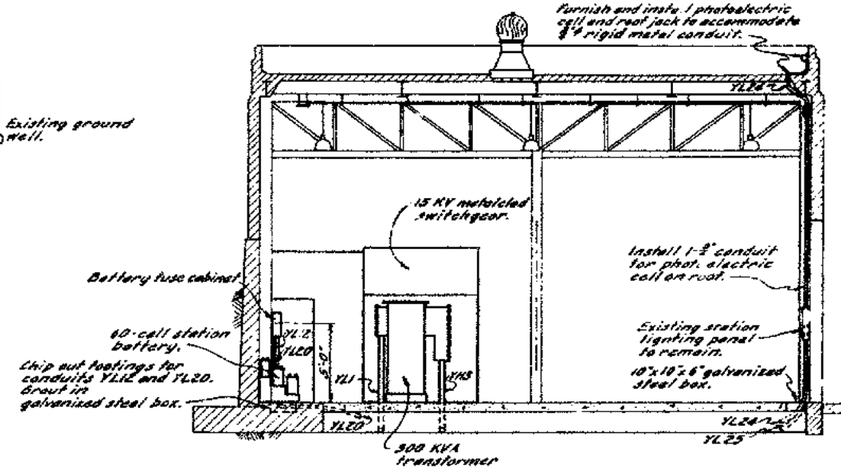
EQUIPMENT PLAN
Scale: 1/4" = 1'-0"



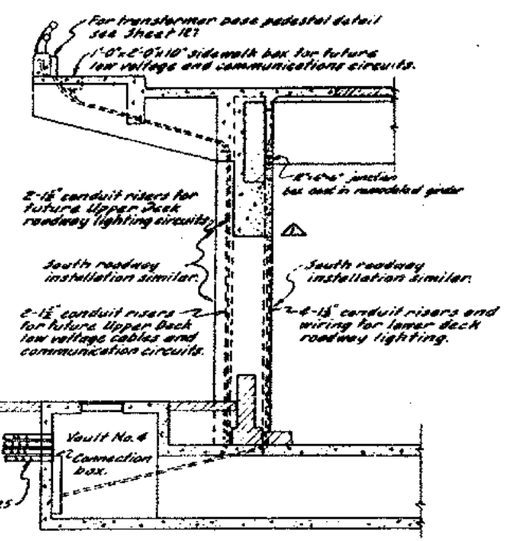
SECTION A-A
Scale: 1/4" = 1'-0"

NOTES

1. Contractor shall preserve the existing substation grounding system. Repair all ground conductors damaged during conduit installation. Connections to buried ground cables shall be made by Cadweld process.
2. State will furnish all necessary bare copper ground conductors. Contractor shall furnish and install all clamps and connectors.
3. Contractor shall furnish and install five pounds of rock salt in both outdoor ground wells and flush with water.
4. 2-25 KVA, 4160-480/240 V State furnished transformers for temporary electrical power are stored in Yerba Buena Substation.
5. For details of substation conduit installation, see Sheet 132



SECTION B-B
Scale: 1/4" = 1'-0"



LOCATION KEY

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIV. OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
ELECTRICAL-YERBA BUENA SUBSTATION INSTALLATIONS

MARK	DATE	REVISION	BY	CH'K
1	8-1-66	As built with revisions	L.L.S.	K.B.T.

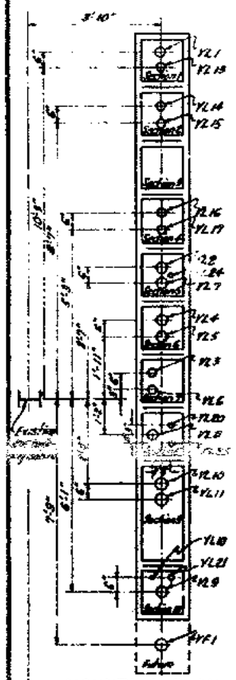
SCALE AS SHOWN | BRIDGE 53-28 54-33 54-04 | SHEET NO. 131 | DRAWING C-4-0E9-131R

PROJECTS ENGINEER — LICENSE 14751

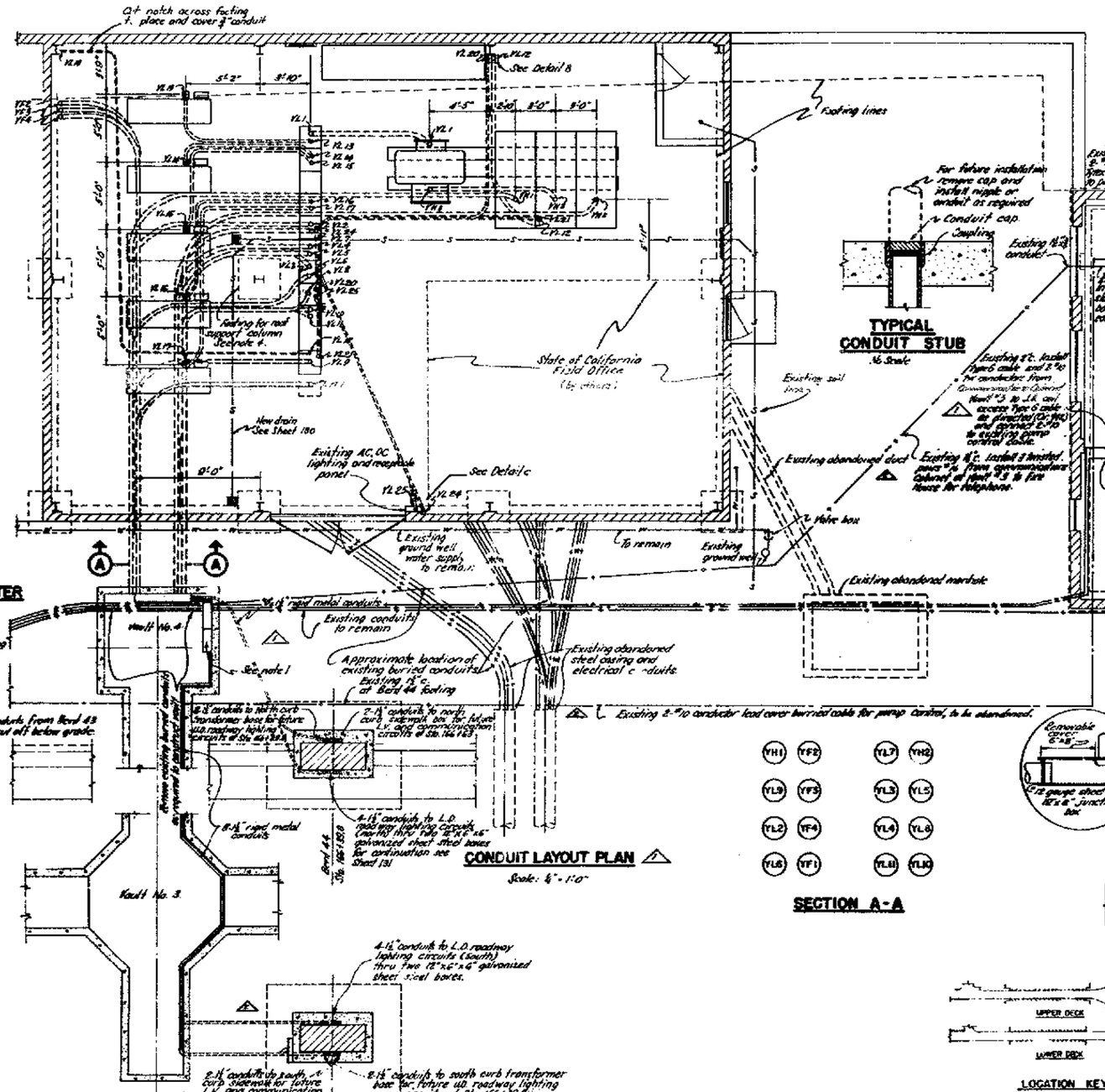
DATE APPROVED July 22, 1960

SUBSTATION RACEWAY SCHEDULE

NO.	SIZE	FROM	TO	FOR	CIRCUITS
YH 1	4"	Vault No. 4	15 kV Metalclad Switchgear (west unit)	Incoming 12 kV feeder from Pier 44 substation	3
YH 2	4"	Vault No. 4	15 kV Metalclad switchgear (east unit)	Incoming 12 kV feeder from Pier 19 substation	3
YH 3	3"	15 kV Metalclad switchgear (center unit)	15 terminal compartment station transformer	Substation 12 kV feeder.	3
YL1	4"	15 terminal compartment station transformer	Section 1 LV control center	480 V station feeder.	4
YL2	3"	Section 6 LV control center.	Vault No. 4	480 V street light circuits, lower deck	240
YL3	4"	Section 7 LV control center.	Vault No. 4	Future 480V street light circuits	288
YL4	2"	Section 6 LV control center.	Vault No. 4	480 V, 3 phase, 3 wire, 2 circuits, feeder to Pier 45	2
YL5	4"	Section 6 LV control center.	Vault No. 4	Future 480V street light circuits	4
YL6	4"	Section 7 LV control center.	Vault No. 4	480V bridge utility transformers	240
YL7	4"	Section 5 LV control center.	Vault No. 4	480V bridge utility transformers	240
YL8	4"	Section 8 LV control center.	Vault No. 4	208/120 V Yardhouse feeder and EV signs.	4
YL9	4"	Section 10 LV control center.	Vault No. 4	2-#6 per type 6 cable (shown) and ground wire	4
YL 10	4"	Section 9 LV control center.	Vault No. 4 connection box.	Fluorescent lights L.D. Pier and the 18 Substation	24
YL 11	2"	Section 9 LV control center.	Vault No. 4 connection box.	Future low voltage circuits	
YL 12	3½"	Junction and Pull box at station battery.	125 V DC 60 cell battery (Center wall)	Battery feeder to DC B's	2
YL 13	2½"	Section 1 LV control center.	Junction box, air compressor #8 YB 1	Motor feeder and pilot controls	4
YL 14	2½"	Section 2 LV control center.	Junction box, air compressor No. YB 2	Motor feeder and pilot controls	3
YL 15	2½"	Section 2 LV control center.	Junction box, air compressor No. YB 3	Motor feeder and pilot controls	4
YL 16	2½"	Section 4 LV control center.	Junction box, air compressor No. YB 4	Motor feeder and pilot controls	4
YL 17	2½"	Section 4 LV control center.	Junction box, air compressor No. YB 5	Motor feeder and pilot controls	4
YL 18	¾"	Section 10 LV control center.	West wall flow switch	Sprinkler alarm	2
YL 19					
YL 20	1½"	Section 8 LV control center.	Junction and Pull box at station battery.	Rectifier feeder to battery	1
YL 20A		Section 8 LV control center. Panel 5W	Battery	D.C. power	3
YL 21	1½"	Section 10 LV control center.	15 kV Metalclad switchgear (center unit)	Future supervisory control	4
YL 22					
YL 23					
YL 24	¾"	Section 8 LV control center	Manholes out on road	Heater and control	4
YL 25	¾"	Section 8 LV control center	Existing lighting and receptacle panel	Substation AC, DC lighting feeder	2
YF 1	4"	Vault No. 4 connection box	Future Section LV control center	Future	
YF 2	4"	Vault No. 4	West wall	Future	
YF 3	4"	Vault No. 4	West wall	Future	
YF 4	4"	Vault No. 4	West wall	Future	

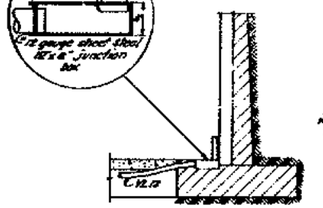


MOUNTING PLAN
LOW VOLTAGE CONTROL CENTER
Scale ¼"=1'-0"

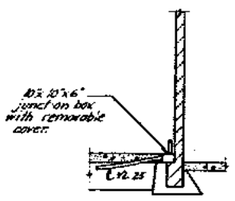


CONDUIT LAYOUT PLAN
Scale: ¼"=1'-0"

SECTION A-A



DETAIL - B
No Scale



DETAIL - C
No Scale

LOCATION KEY

NOTES

1. Intercept partitioned junction box Vault #4 with existing buried conduits serving S.F.O.B.B. Fire Station. Restore power and communication circuits as shown on Sheet 130 and as indicated. No circuit may be interrupted without the permission of the Engineer.
2. Contractor shall remove and store all existing cables and shall remove all conduits or conflicting electrical facilities to 1'0" below new floor elevation.
3. ⚠
4. Contractor shall conduct his excavation and shore foundation for roof support column to prevent structural damage to the building.
5. Contractor shall encase all buried conduit installed on the exterior of the substation. Conduit installed beneath the new floor of the substation shall be protectively coated as specified.

0 1 2 5 10 THS
SCALE IN INCHES

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO – OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
ELECTRICAL - YERBA BUENA SUBSTATION CONDUITS

MARK	DATE	REVISION DESCRIPTION	BY	CH'K
⚠	6-1-64	As built with revisions	L.L.S	H.B.T.
⚠	7-6-61	Locations of existing conduits corrected.	W.F.	H.B.T.

SCALE AS SHOWN | BRIDGE 33-80 34-03 34-04 | SHEET NO 132 | DRAWING C-4029-13

DATE APPROVED July 22, 1960

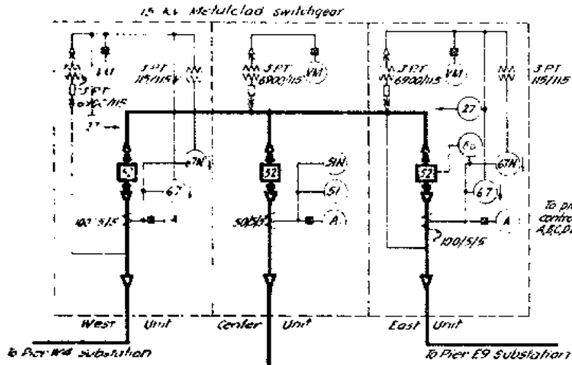
LEGEND

	A.C.B. air circuit breaker	a, aa	Auxiliary contact, closed when O.C.B. closed
(A)	Ammeter	A	Ampere.
	Battery	b	Auxiliary contact, closed when O.C.B. open
	Capacitor	CS	Control switch closing
	Contacts, open when device de-energized	CS	Control switch tripping
	Contacts, closed when device de-energized	H.O.A	Hand off automatic
	Current transformer	H.T.	High temperature
(E)	Elapsed time indicator.	H.P.	Horsepower
	Fuse	I.C.S.	Indicating contactor switch
(G)	Green indicating lamp.	I.I.T.	Indicating instantaneous switch
	Hand-off-automatic selector switch	L	Lighting contactor
	High voltage cable stress cone	L.O.P.	Low oil pressure
	Instrument switch.	Loc.Rem	Local-remote transfer switch
	Fire alarm	M	Motor starter contactor
	Low voltage cable lug	N.L.A.B.	See spec. section No. 61
	Mating connectors.	N.A.I.B.	See spec. section No. 61
	Motor running overcurrent protection	Neg.	Negative bus, 125 volt D.C.
(M)	Motor	O.L.	Overcurrent running device contact
	O.C.B. oil circuit breaker	P.E.X.	Photoelectric controlled relay
	Potential transformer.	P	Poles.
	Push button, normally closed momentary contact.	Pos.	Positive bus
	Push button, normally open momentary contact.	T.D.P.U.	Time delay in pickup relay
	Rectifier.	T.D.D.O.	Time delay in dropout relay.
	Relay coil	T.H.	Throwover device.
(R)	Red indicating lamp.	V.	Volts.
S.I.	Seal in.	27	Undervoltage relay
	Resistor	51	Overcurrent relay
(V)	Voltmeter	51N	Ground overcurrent relay
(W)	White indicator lamp	52CC	O.C.B. main closing coil
(T)	Time switch	52TC	O.C.B. main tripping coil
		52X	O.C.B. aux. closing coil.
		52Y	O.C.B. aux. cut off coil
		67	Directional overcurrent relay
		67N	Directional ground overcurrent relay
		FS	Flow switch

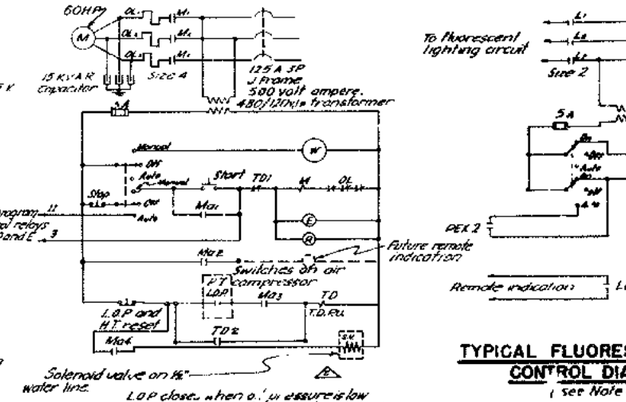
NOTES

1. Seven installations as shown. Four installations as shown except with size 1 contactor and 20A 3pole A.C.B. One installation with time clock in place of photoelectric controlled relay.
2. Contractor shall install 5-twisted pairs #16 AWG telephone wires in raceway provided, but connect only wires shown.
3. Contractor shall connect flow switches to nearest low voltage transformer, service box or roadside electric service box. Run to Fire House via type E or type G cable; see Sheet 122.
4. Install 2 #16 twisted pair wires in ¾" conduit as shown in sheet 132; Circuit 939 in YL-18
5. The entire unit in Fire House except alarm bell shall be contained in a steel enclosure and shall be mounted as directed.

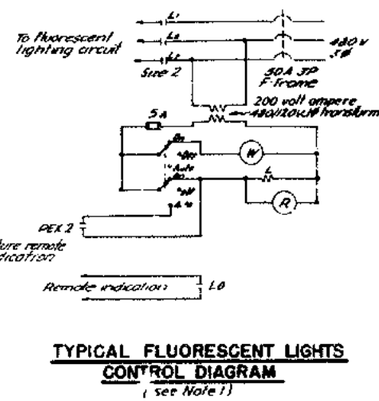
Normal Operation: Bell silent, white light on.
In Tunnel: Sprinkler head melts or coat closes open. Bell rings white light on.
Abnormal Flow: Bell silent, red light on.



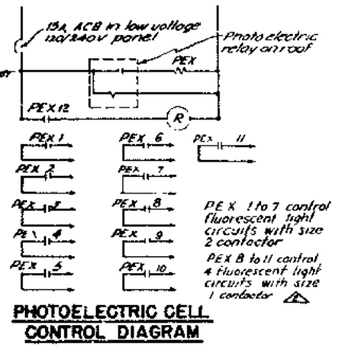
ONE LINE DIAGRAM YERBA BUENA SUBSTATION



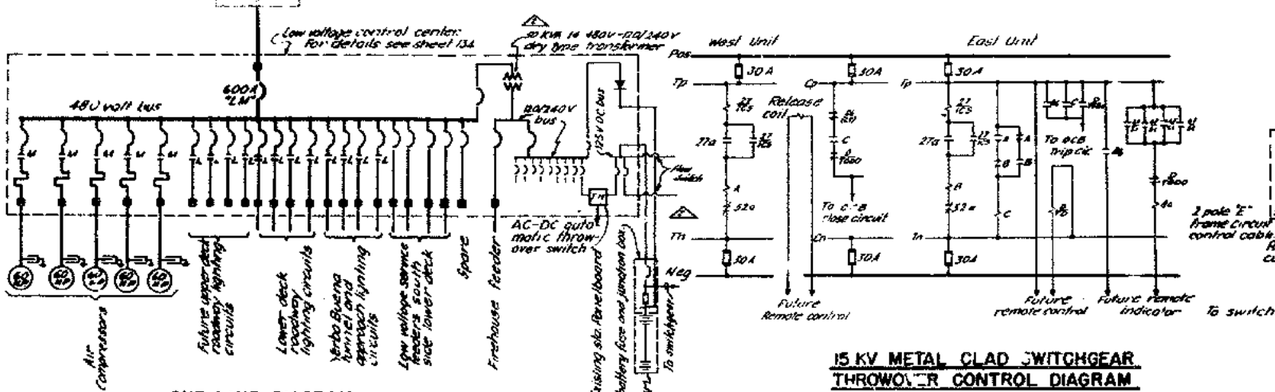
TYPICAL AIR COMPRESSOR CONTROL DIAGRAM



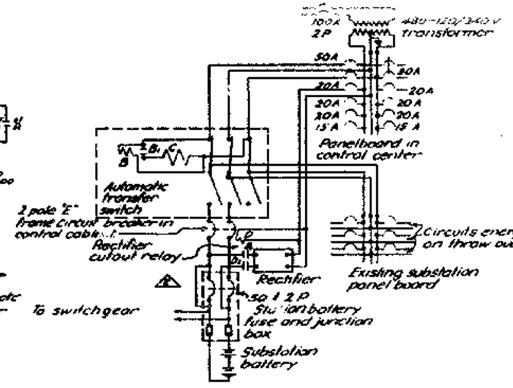
TYPICAL FLUORESCENT LIGHTS CONTROL DIAGRAM
(see Note 1)



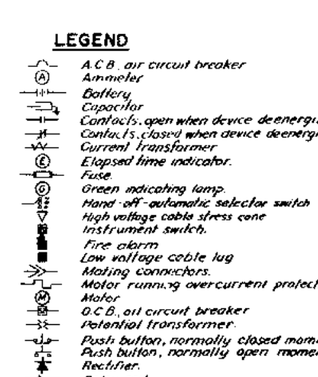
PHOTOELECTRIC CELL CONTROL DIAGRAM



15 KV METAL CLAD SWITCHGEAR THROWOVER CONTROL DIAGRAM



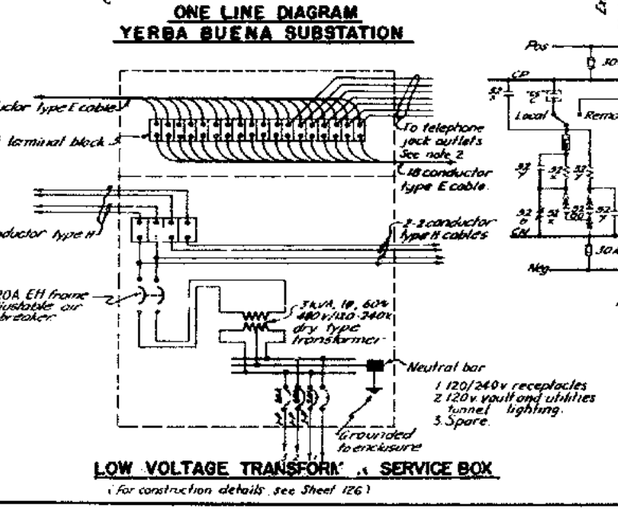
WIRING DIAGRAM A.C.-D.C. AUTOMATIC THROWOVER



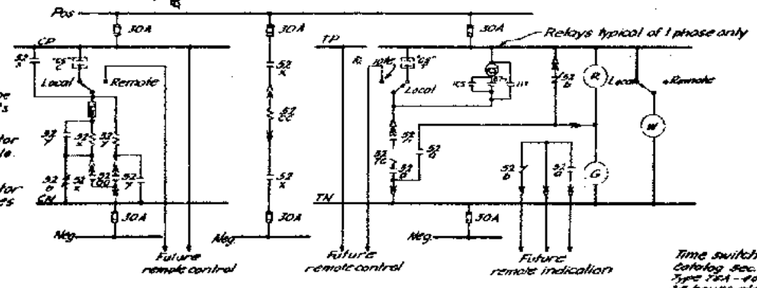
(For material list see Sheet 1)

SPRINKLER ALARM DIAGRAM

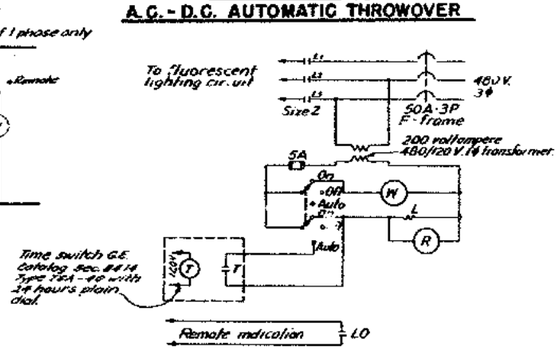
In substation compartment "On" light on. Flow light off.



LOW VOLTAGE TRANSFORMER & SERVICE BOX
(For construction details see Sheet 126)



TYPICAL OIL CIRCUIT BREAKER CONTROL DIAGRAM



FLUORESCENT LIGHTS CONTROL DIAGRAM FOR CIRCUIT 250

MARK	DATE	DESCRIPTION OF REVISION	BY	CHK.
2	6-1-61	As built with revisions	L.L.S.	A.A.F.
1	5-7-61	Revised "Typical Air Compressor Control Diagram"	L.L.S.	A.A.

SCALE 0 1 2 3 4 5 6 10 THS SCALE IN INCHES

SUPPLEMENTAL CONTRACT DRAWING

DIVISION OF TRANSBAY TOLL CROSSINGS

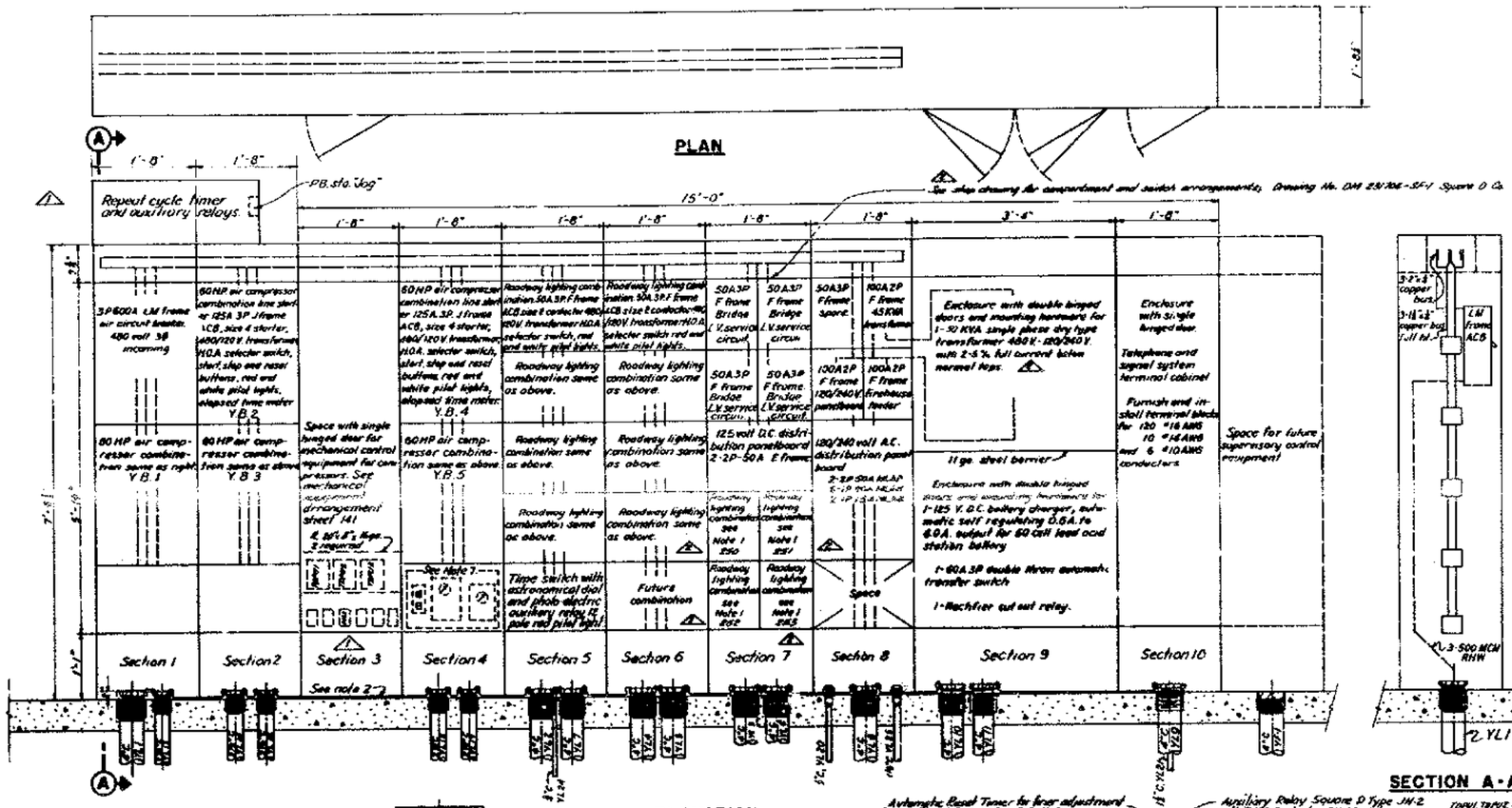
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
ELECTRICAL-YERBA BUENA SUBSTATION DIAGRAMS

SCALE NONE | BRIDGE 33-25, 34-03, 34-04 | SHEET NO 133 | DRAWING C-4029-133A

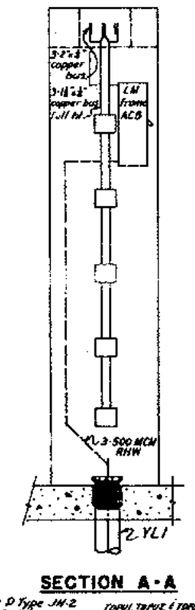
PROJECTS ENGINEER LICENSE NO.

DATE APPROVED July 22, 1960

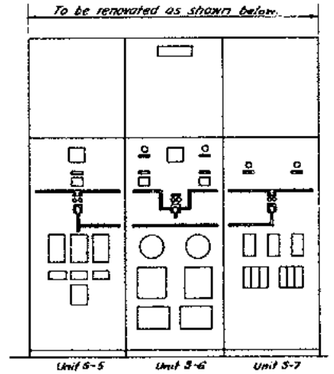
PLAN



SECTION A-A

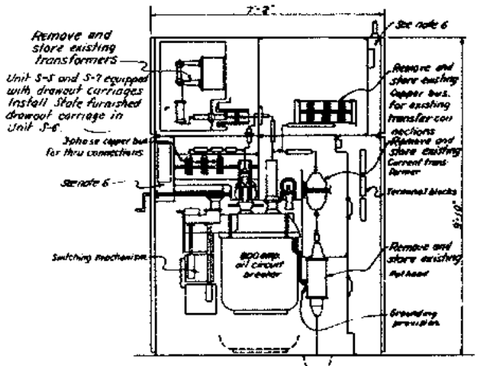


To be renovated as shown below.



EXISTING 15 KV M/C SWITCHGEAR (see Note 4)

Scale: 1/8" = 1'-0"



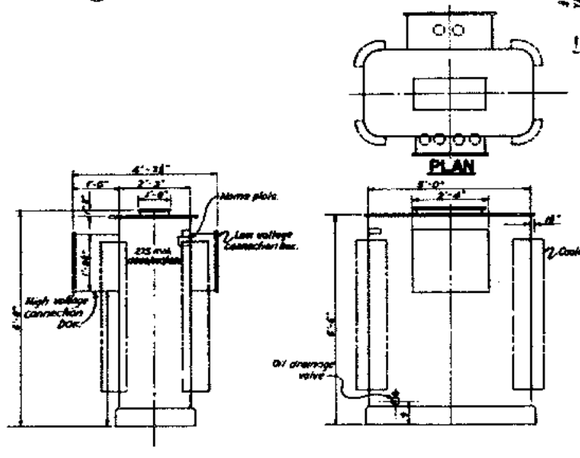
TYPICAL SECTION OF EXISTING 15 KV M/C SWITCHGEAR

Scale: 1/2" = 1'-0"

ELEVATION

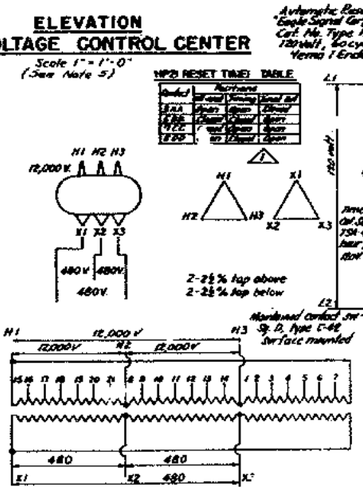
LOW VOLTAGE CONTROL CENTER

Scale 1" = 1'-0" (See Note 5)

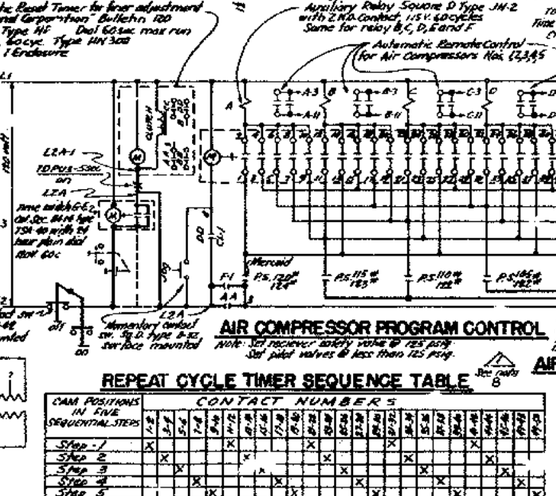


EXISTING TRANSFORMER

Scale: 1/2" = 1'-0"



NEW CONNECTIONS



AIR COMPRESSOR PROGRAM CONTROL

Note: Set receiver safety valve @ 135 psig. Set pilot valves @ less than 125 psig.

RENOVATED 15 KV M/C SWITCHGEAR

Scale: 1/2" = 1'-0"

REPEAT CYCLE TIMER SEQUENCE TABLE

CAM POSITIONS IN FIVE SEQUENTIAL STEPS	CONTACT NUMBERS
Step 1	X X X

CIRCUIT SCHEDULE

NO.	FROM	TO	FOR	DESCRIPTION	TYPE	FURN. BY
New 12	Splice at Lower Deck south side Y.B. Anchorage	Y.B. Substation 15KV metalclad switchgear (West unit)	Bridge power cable to Pier W-4	3-1c #2/0 AWG 15KV	F †	Contractor
New 14	Y.B. Substation, 15KV metalclad switchgear east end	HV Junction box Pier YB1	" " " " E-9	3-1c #2/0 AWG 15KV	F †	"
New 15	" " " center	300 KVA Transformer, Y.B. Substation	Transformer primary feeder	3-1c #2 AWG 15KV	F	"
105A 105A	Termination at S.F.O.B.B. substation 3 Splice at vault 1, vault 2	Splice at vault 1 Splice at vault 2 Splice at vault 3	S.F.O.B.B. Power Relocated S.F.O.B.B. cable	4-1c #2 AWG 5KV R.I.N.J. 3c #2 AWG 5KV with ground 4-1c #2 AWG 5KV R.I.N.J.	F ♦ R	State Contractor
105B	" " Vault 3	" " Box Upper Deck north side Pier YB1	S.F.O.B.B. power "	4-1c #2 AWG 5KV R.I.N.J.	R †	Contractor
107	" " " 3	Terminals of 25 KVA Transformer, Vault 3	2400v " feeder	2-1c #6 AWG 5KV	A	Use up State stock Item 75 complete with contractor furnished Item 83
Revise 7	Constant current transformer S.F.O.B.B. Substation 3	Crossover at Bent 9 and return to S.F.O.B.B. substation 3	Upper Deck lights east side of west portal	1-1c #6 AWG 5KV	A	
Revise 8	" " " S.F.O.B.B. " 3	" " " 9 "	" "	1-1c #6 AWG 5KV	A	
Revise 9	" " " S.F.O.B.B. " 3	" " Pier YB1 "	" east " east "	1-1c #6 AWG 5KV	A	
Revise 10	" " " S.F.O.B.B. " 3	" " YB1 "	" "	1-1c #6 AWG 5KV	A	
Revise 11	" " " S.F.O.B.B. " 3	" " Bent 29 "	Upper Deck lights inside tunnel	1-1c #6 AWG 5KV	A ♦	
Revise 12	" " " S.F.O.B.B. " 3	" " " 29 "	" "	1-1c #6 AWG 5KV	A ♦	
Revise 13	South side YB1	North side Pier YB1	Crossover for series loop	1-1c #6 AWG 5KV	A	
Revise 14	" " "	" " "	" "	1-1c #6 AWG 5KV	A	
240	Splice at Lower Deck south side Y.B. Anchorage	Y.B. Substation low voltage control center	Lower Deck lighting south curb to west	3c #6 AWG 600v	L	Contractor
241	" "	" "	" "	3c #6 AWG 600v	L	"
242	" "	" "	L.V. transformer service box south curb to west	2c #6 AWG 600v	H ■	State
243	" "	" "	" "	3c #6 AWG 600v	H ■	"
244	Y.B. Substation low voltage control center	Roadway pull box Pier Y.B.1	Lower Deck lighting south curb to east	3c #6 AWG 600v	L	Contractor
245	" "	" "	" "	3c #6 AWG 600v	L	
246	" "	" "	L.V. transformer service box south curb to east	2c #6 AWG 600v	H ■	State
247	" "	" "	" "	2c #6 AWG 600v	H ■	"
248	Terminal of 25 KVA transformer Vault 3	Splice with fire house feeder vault 4	Temporary feeder	1-3c #6 AWG 600v	L	Contractor
250	Y.B. Substation low voltage control center	Junction box and raceways west of Bent 34	Lower Deck fluorescent roadway lighting	3-1c #4 AWG Building wire	TW †	Contractor
251	" "	" " 34	" "	3-1c #4 AWG "	TW †	"
252	" "	" " east " 34	" "	3-1c #4 AWG "	TW †	
253	" "	" " 34	" "	3-1c #4 AWG "	TW †	"
254-256	Vault No. 2, 3, 4, and 5	Utilities tunnels	Utilities vault and tunnel lighting	4-1c #12 AWG "	TW	
257-260	" " 1, 2, 3, 4, and 5	" " branch and columns	120v receptacle circuits	3-1c #10 AWG "	TW	
261	Terminal of 25 KVA transformer S.F.O.B.B. substation 3	Future	Future	1-3c #6 AWG 600v	O	Not in Contract
262	" "	"	"	1-3c #6 AWG 600v	O	
263	" " Vault 3	"	"	1-3c #6 AWG 600v	O	
264	" "	"	"	1-3c #6 AWG 600v	O	
329	Splice near vault 1	Splice Upper Deck North side YB1	96 volt D.C. feeder	3c #4 AWG	U	State
330	Terminal S.F.O.B.B. Substation 3	Splice near vault 1	" " "	3c #4 AWG	L	Contractor
332	Station battery and 400A fuses	15KV metalclad switchgear center unit	Oil circuit breaker trip and close power	2-1c 500 MCM Rubber insulated	RHW	Contractor
333	Y.B. Substation low voltage control center rectifier	Y.B. substation battery, rise and junction box	Battery charging	2-1c #4 AWG and 6-1c #12 AWG	TW	"
333A	Low voltage control center transformer switchgear	Battery	D.C. Power	7-#4 TW Building wire	TW	"
334	Terminal cabinet at S.F.O.B.B. substation 3	Terminal box at Upper Deck North side Pier Y.B.1	96 volt D.C. interlock	-#6 AWG 600v	H ■	State
430	Y.B. Substation 300 KVA Transformer	Low voltage control center - Section 1	Transformer secondary feeder	3 - 500 MCM Rubber insulated	RHW	Contractor
433	Y.B. Substation low voltage control center	Firehouse lighting and power panel	Feeder	3-1c #1 AWG Building wire	TW	Contractor
434	" "	Existing Y.B. Substation lighting panel	Lighting panel feeder	3-1c #6 "	TW	"
435	" "	Junction box at air compressor Y.B.1	Feeder and control	3-1c #1 AWG and 3-1c #12 AWG	TW	"
436	" "	" " Y.B.2	" "	3-1c #1 AWG and 4-1c #12 AWG	TW	"
437	" "	" " Y.B.3	" "	3-1c #1 AWG and 3-1c #12 AWG	TW	"
438	" "	" " Y.B.4	" "	3-1c #1 AWG and 3-1c #12 AWG	TW	"
439	" "	" " Y.B.5	" "	3-1c #1 AWG and 3-1c #12 AWG	TW	"
440	" "	Photo-electric cell on roof	Power and control to photocell	3-1c #12 AWG Building wire	TW	"
930	Terminal S.F.O.B.B. Substation 3	Splice north side Pier YB1 via terminal cabinet vault 3	Tow car - Fire Alarm system	1-12c #10 AWG 600v	P	Contractor
931	" S.F.O.B.B. " 3	" " 3	S.F.O.B.B. control cable	1-26 pair telephone cable	G	"
932	" S.F.O.B.B. " 3	" " 3	S.F.O.B.B. "	1-26 pair telephone cable	G	"
933	" south side Lower Deck Y.B. Anchorage	Roadway pull box " 3	Signal cable	1-15c	E ■	State
934	" "	" " 3	Telephone and control cable	1-50 pair	M ■	"
935	Control sta 304 at S.F.O.B.B. substation 3	Control station at Upper Deck north side Pier YB1 via vault 3	Lane signal control cable	1-25c (13 #14 AWG and 12 #10 AWG)	S ■	"
937	Control sta 304 at S.F.O.B.B. substation 3	Control station at Upper Deck north side Pier YB1 via vault 3	Lane signal system power	2c-#6 AWG 600v	T ■	State
938	Y.B. Substation low voltage control center	Fire-house via vault 4	Sprinkler alarm system control panel	3-1c #12 AWG	TW	Contractor
939	Flow Switch east wall	Fire-house via low voltage control center	Sprinkler alarm system detector	1-2c #14 TW pair	TW	"
940	Communication terminal cabinet vault 4	S.F.O.B.B. Fire-house via splice in vault 4	Tow car - fire Alarm system	1-12c #10 AWG 600v	P	Contractor
941	" "	Y.B. substation low voltage control center	Communication and control	1-26 pair telephone cable	G	"
942	Y.B. substation low voltage control center	S.F.O.B.B. Fire house terminal	" "	1-26 pair telephone cable	G	"
G30	Terminal on steel bridge at Y.B. anchorage	Terminal on steel bridge at Pier Y.B.1	Equipment ground and bridge tie	1-1 #500 MCM insulated cable	■	State

† Contractor shall connect #4 AWG portions of Circuit 250-253 inclusive to #8 wiring as shown on Sheet 120.
♦ Relocate existing cable presently in place on north side upper deck. Store unused remainder in Key System Car Inspection Building.
■ Relocate existing cable presently in place. Complete run with State furnished cable. Contractor shall obtain State cable from the Key System Car Inspection Building.
■ Contractor shall obtain State furnished cable from the Key System Car Inspection Building.
● Use existing conductors in portion of run through tunnel.
▼ Install State furnished #6 bare copper wire in same conduits as high voltage cable indicated. Ground to circuit G30 at cable terminals or splices.

HIGH VOLTAGE CABLES

Full Scale

a Conductor #6 AWG 7 strand copper.
b Semi-conducting tape.
c 0.125" polyethylene insulation. ▲
d 3/64" polyvinyl chloride outer jacket.

▲ NOTE:
Operating voltage specified for test purposes shall be 6,400 volts or 8,000 volts during test.

5KV Street lighting

TYPE A

a Conductor #2 AWG 19 strand copper.
b Semi-conducting tape.
c 0.22" polyethylene insulation. ▲
d Butyl sponge semi-conducting bedding tape.
e 0.005" tinned copper shielding tape.
f Polyvinyl chloride filled tape.
g 3/32" Polyvinyl chloride outer jacket.

▲ NOTE:
Operating voltage shall be 12,000 volts.

15 KV Power distribution

TYPE F

a Conductor #2 AWG 19 strand copper.
b 0.20 (approx.) rubber insulation. ▲
c Semi-conducting tape.
d #6 AWG stranded copper ground wire.
e Jute fill.
f Reinforced rubber sheath and tape.
g 0.10 (approx.) jute and compound.
h Heavy cotton braid.
Weights: approximately 5 lbs per ft.

▲ NOTE: Operating voltage shall be 4,160 volts.

5KV Power Distribution

TYPE Q

DATE APPROVED July 22, 1960

a Conductor #2 AWG 19 strand copper.
b Semi-conducting tape.
c 0.156" Butyl rubber insulation ▲
d 3/64" Polyvinyl chloride jacket.

▲ NOTE:
Operating voltage specified for test purposes shall be 4,160 volts.

5KV Power Distribution

TYPE R

LOW VOLTAGE CABLES

Full Scale

a Conductor #6 AWG 7 strand copper.
b 3/64" rubber insulation.
c Caulking.
d Non-metallic armor.
e Sisal braid and finish.
(Weight approximately 1 lbs per ft.)

480 volt power distribution

TYPE H

a Conductor #6 AWG 7 strand copper.
b 0.045" Polyethylene insulation.
c 0.047" Polyvinyl chloride jacket color coded.
d Water repellent filler.
e 2 polyvinyl chloride impregnated bedding tapes.
f 0.3" interlocked bronze armor jacket.

480 volt street lighting

TYPE L

a 3-#6 AWG 7 strand copper.
b 3/64" Rubber insulation.
c Jute fills.
d Tape insulation.
e Flamenol jacket 3/64"
f #12 AWG stranded copper ground wire.
Weights: approximately 0.44 lbs per ft.

120v Power Distribution

TYPE O
(Not in Contract)

a Conductor #4 AWG 7 strand copper.
b 3/64" type P insulation.
c Paper wrap.
d Jute fill.
e Interlocked galvanized steel armor.
Weights: approximately 11 lbs per ft.

96 volt direct current feeder

TYPE U

a 15 conductors; 3-#10, 3-#14 twisted pairs and 9-#14 stranded copper with 3/64" rubber insulation.
b Jute filler.
c Impregnated paper armor.
d Caulked sisal braid and finish.
Weights approximately 175 lbs per ft.

Multi-Conductor Control

TYPE E

a 26 tw pair #19 AWG copper conductor cover with 0.015" polyethylene insulation color coded with maximum eccentricity of 5%.
b Non-hygroscopic mylar and butyl base rubber base tape.
c 0.008" longitudinally applied corrugated aluminum shielding tape.
d Polyvinyl chloride jacket 3/64"

Telephone

TYPE G

a Paper insulated conductors
25 pr - #19
25 pr - #22
b Paper wrapping.
c Lead sheath.
d Steel tape.
e Asphalt coating.
Weights: approximately 2.5 lbs per ft.

Telephone

TYPE M

a 12-#10 AWG 7 strand copper.
b 0.030" Polyethylene insulation.
c 0.010" Polyvinyl chloride jacket color coded.
d Tape insulation.
e Polyvinyl chloride jacket 3/64"

Tow car - Fire alarm

TYPE P

SIGNAL AND COMMUNICATION CABLES

Full Scale

a 4-#14 AWG twisted quad color coded, stranded copper conductors with 3/64" polyvinyl chloride insulation.
b 9-#14 AWG layer same as above.
c 12-#10 AWG layer color coded, stranded copper conductors with 3/64" p.v.c. insulation.
d 3/64" Polyvinyl chloride jacket.
e 0.025" Bronze interlocking armor ▲
Weights: approximately 1.2 lbs per ft. without armor, 1.5 lbs per ft. with armor.

Lane Signal Control

TYPE S

▲ NOTE: Bronze interlocking armor on portion of run from station 22A (Bent 49) to station 23 (Pier YB1), only.

a 2-#6 AWG 7 strand copper conductors with 3/64" rubber etc. ...
Weights: approximately 0.5 lbs per ft.

Lane Signal Power

TYPE T

SCALE IN INCHES

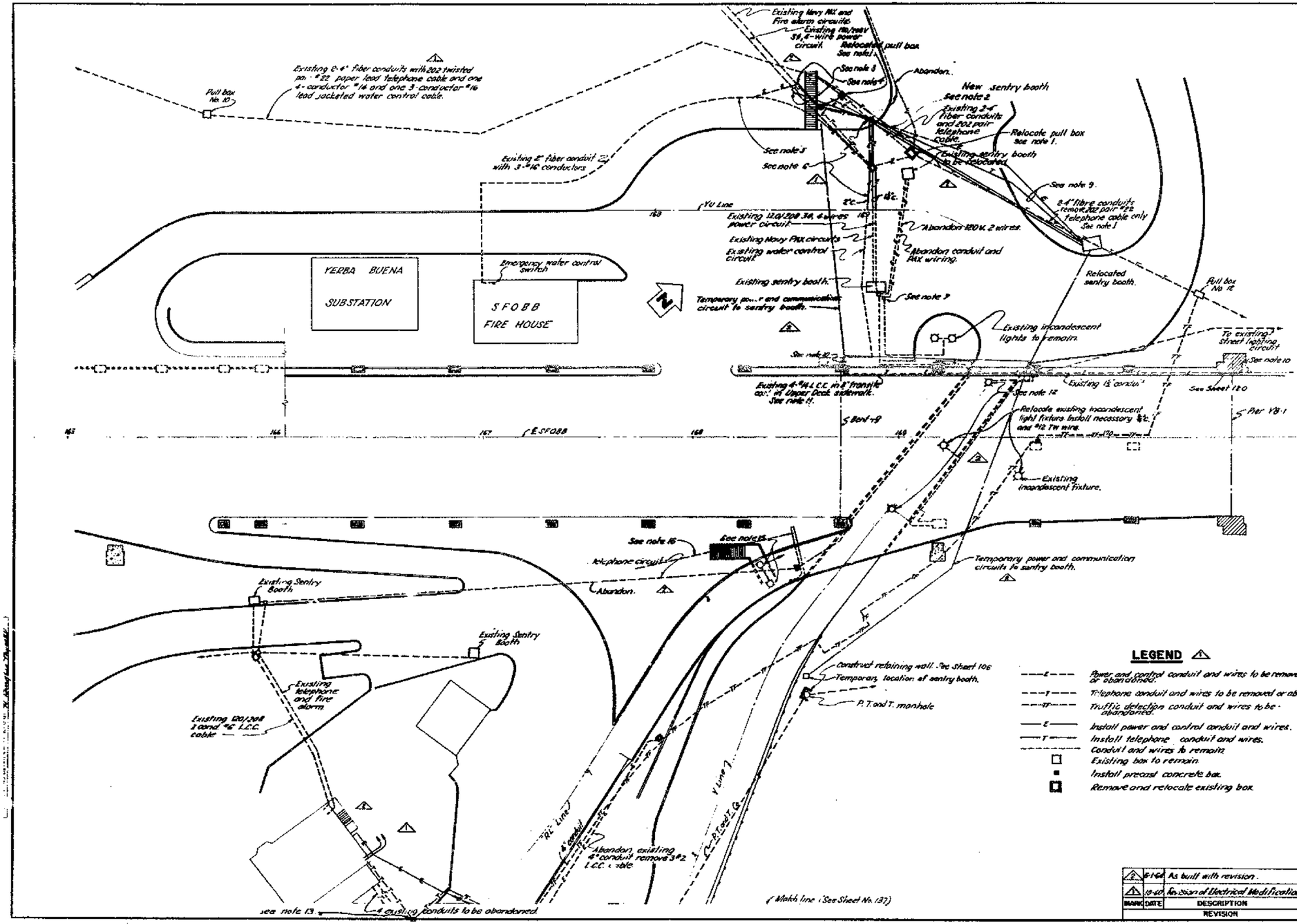
MARK	DATE	DESCRIPTION	BY	CH'K
1	6.1.64	As built with revisions	L.L.S.	H.G.T.
		REVISION		

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

**SAN FRANCISCO - OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND**

ELECTRICAL - CABLE AND CIRCUIT SCHEDULE

SCALE FULL SIZE | BRIDGE 33-25, 34-03, 34-04 | SHEET No. 135 | DRAWING C-4029-61



NOTES △1 △2

1. Intercept existing 2-4" fibre conduits with relocated pull box at locations shown. Remove and store existing 202 twisted pairs, #22 paper-lead telephone cables from point of interception to existing Pull Box No. 12.
2. Install 2-4" asbestos cement conduits, concrete encased to relocated pull box (See Note 1) at location shown. Furnish and install 202 pair #22 paper-lead cable from this new box to Pull Box No. 12. Splice new cable to existing telephone cable.
3. Intercept existing 3½" fibre conduit with new pull box (State No. 6) at location shown. Install 1½" conduit from this box to new box described in Note 6. Replace existing wiring with new TW building wire of equivalent size and number of conductors.
4. Intercept existing Navy PAX telephone and fire alarm circuits with new pull box (State No. 6) at locations shown. Install 1½" rigid steel conduit with at least 3 twisted pairs #16 from point of interception to relocated box in Note 6 to replace existing systems.
5. Intercept existing 2" fibre conduit with new 1½" conduit to State No. 6 pull box in Note 4. Install 1½" rigid steel conduit with 1-#12 TW to Brooks box in Note 6 for rerouting of water control circuits.
6. Install precast concrete box (Brooks Products Inc. #23 with R-16 Hex and steel cover) at location as shown. Install 1-1½" rigid steel conduits with necessary fittings to intercept existing raceway from Bent 49 and existing sentry booth in this area. Existing raceway is to remain, but new TW building wire of similar size and number is to be used to replace existing systems (Approximately 7-#12 TW for 120/208 V. power distribution system)
7. Install 120 V. connection at sentry box and new circuit as necessary to maintain existing incandescent lights at North Column, Bent 50.
8.
9. Install 2-1½" rigid steel conduit and building wire of equivalent size and number to reestablish power, lighting and communication to relocated sentry booth.
10.
shall maintain the 4 conductor #14 water control circuit in operation by temporary "By Pass" from existing Pull Box No. 10 to Pier YB-1.
11. Contractor shall remove and relocate existing 4 conductor #14 lead jacketed water control circuit using the longest portions possible between new box and terminations. Remaining portion of rebuilt circuit shall be developed with 4-#12 TW. (See Sheet 121)
12. Contractor shall maintain existing incandescent soffit roadway lighting in operation throughout construction period.
13.
14. Contractor is reminded to maintain in operation all existing systems not designated to be abandoned or otherwise specified, but is herein notified that the Navy PAX Telephone System will be rerouted (or "By Passed") as necessary by others.
15. Contractor shall install 2-100 watt vapor light incandescent fixtures to light pedestrian undercrossing and run 1-¾" conduit back to low voltage transformer service box in Vault #5.
16. Ten pair paper lead telephone cable relocated to ¾" conduit.

LEGEND △1

- Power and control conduit and wires to be removed or abandoned.
- Telephone conduit and wires to be removed or abandoned
- Traffic detection conduit and wires to be abandoned.
- Install power and control conduit and wires.
- Install telephone conduit and wires.
- Conduit and wires to remain.
- Existing box to remain.
- Install precast concrete box.
- Remove and relocate existing box.

SCALE IN INCHES

MARK	DATE	DESCRIPTION	BY	CH'K.
△2	5-1-64	As built with revision.	clc	
△1	10-60	Revision of Electrical Modifications	MF	

REVISION

SUPPLEMENTAL CONTRACT DRAWING

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

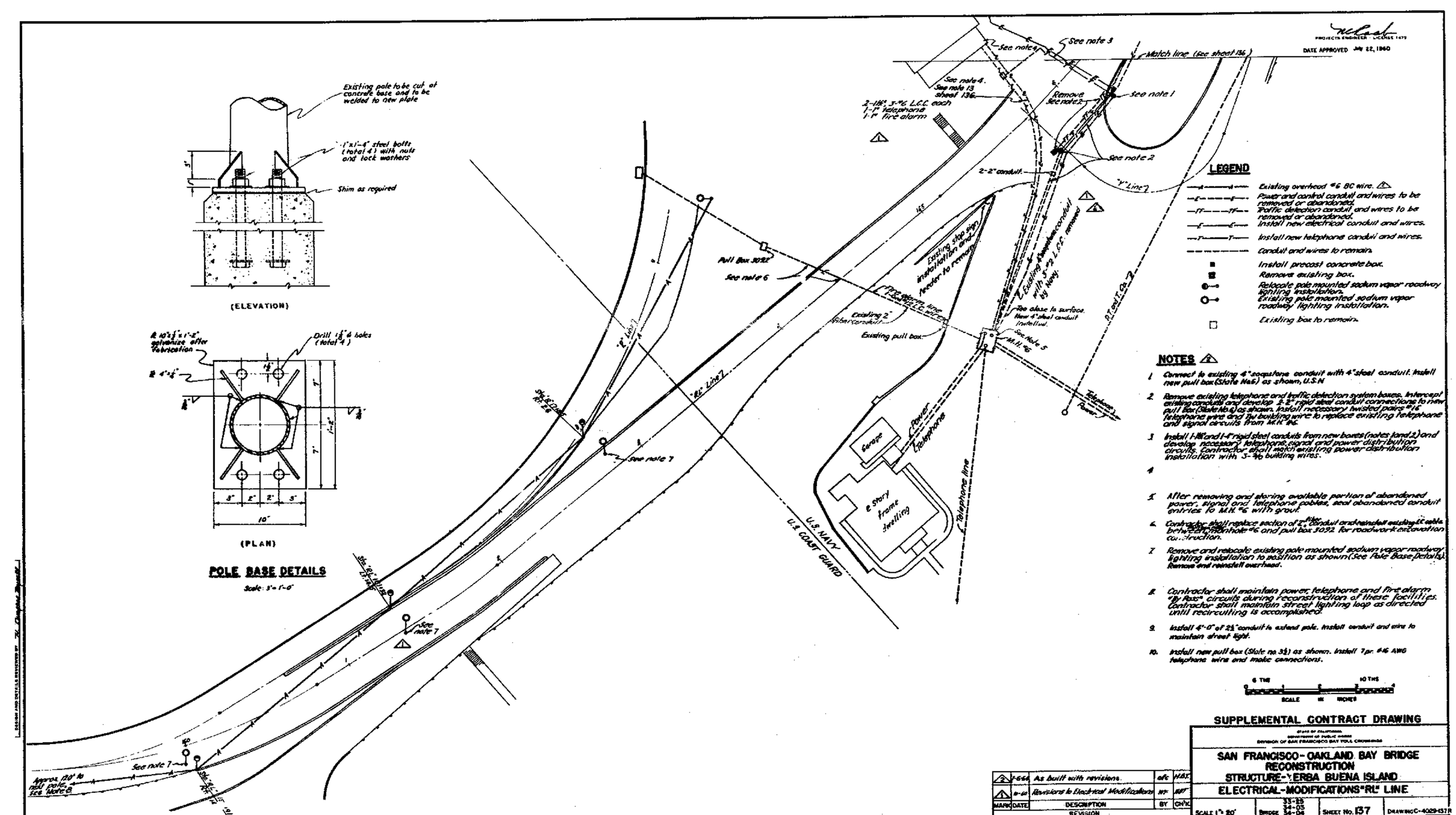
SAN FRANCISCO - OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

ELECTRICAL-MODIFICATIONS "YU" AND "Y" LINES

SCALE 1" = 20' | BRIDGE 33-25 34-03 34-04 | SHEET No 136 | DRAWING C-4029-136R

PROJECT ENGINEER LICENSE

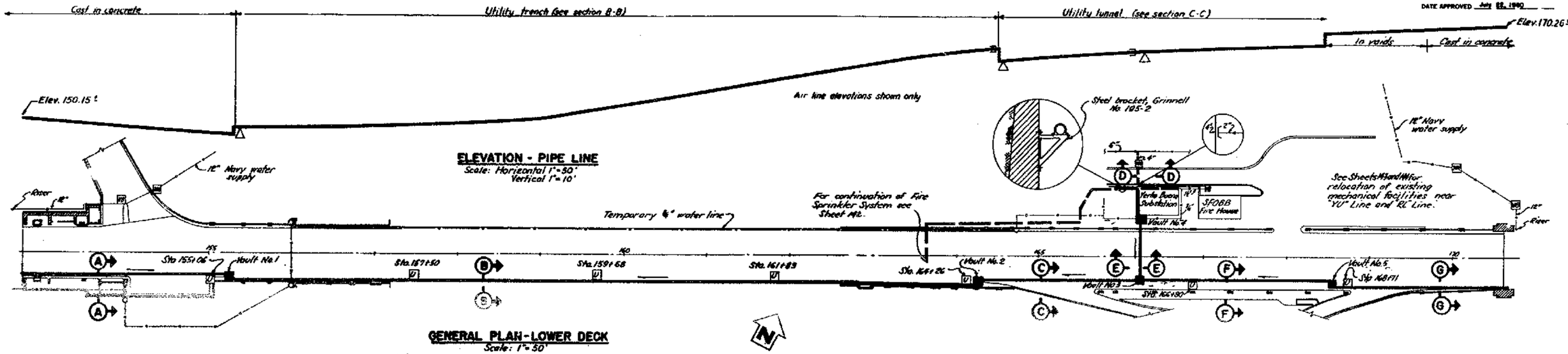
DATE APPROVED July 22, 1960



PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960
Existing pole to be cut at concrete base and to be welded to new plate
1"x1'-4" steel bolts (total 4) with nuts and lock washers
Shim as required
(ELEVATION)
Drill 1 1/8" ϕ holes (total 4)
(PLAN)
POLE BASE DETAILS
Scale: 3" = 1'-0"
See note 3
See note 4
Match line (see sheet 136)
See note 4.
See note 13 sheet 136
2-1 1/4", 3-#6 L.C.C. each
1-1" telephone
1-1" fire alarm
Remove See note 2
See note 1
See note 2
2-2" conduit
"Y" Line
Existing stop sign installation and feeder to remain
Existing 4" soapstone conduit with 3-#2 L.C.C. removed by Navy
Pull Box 3092
See note 6
Fire alarm line
Existing 2" fiber conduit
Existing pull box
Tee close to surface. New 4" steel conduit installed.
See Note 5
M.H. #6
P.T. and T. Co.
Telephone
Power
"R" Line
"R" Line
See note 7
See note 7
See note 7
Garage
Power
Telephone
2 story frame dwelling
Telephone line
U.S. NAVY
U.S. COAST GUARD
Approx. 120' to next pole, See Note 8
LEGEND
Existing overhead #6 BC wire.
Power and control conduit and wires to be removed or abandoned.
Traffic detection conduit and wires to be removed or abandoned.
Install new electrical conduit and wires.
Install new telephone conduit and wires.
Conduit and wires to remain.
Install precast concrete box.
Remove existing box.
Relocate pole mounted sodium vapor roadway lighting installation.
Existing pole mounted sodium vapor roadway lighting installation.
Existing box to remain.
NOTES
1. Connect to existing 4" soapstone conduit with 4" steel conduit. Install new pull box (State No. 6) as shown, U.S.N.
2. Remove existing telephone and traffic detection system boxes. Intercept existing conduits and develop 2-2" rigid steel conduit connections to new pull box (State No. 6) as shown. Install necessary twisted pairs #16 telephone wire and Tw building wire to replace existing telephone and signal circuits from M.H. #6.
3. Install 1-1 1/4" and 1-1" rigid steel conduits from new boxes (notes 1 and 2) and develop necessary telephone, signal and power distribution circuits. Contractor shall match existing power distribution installation with 3-#6 building wires.
4.
5. After removing and storing available portion of abandoned power, signal and telephone cables, seal abandoned conduit entries to M.H. #6 with grout.
6. Contractor shall replace section of 2" fiber conduit and reinstall existing L.C. cable between manhole #6 and pull box 3092 for roadwork excavation construction.
7. Remove and relocate existing pole mounted sodium vapor roadway lighting installation to position as shown (See Pole Base Details). Remove and reinstall overhead.
8. Contractor shall maintain power, telephone and fire alarm "By Pass" circuits during reconstruction of these facilities. Contractor shall maintain street lighting loop as directed until recircuiting is accomplished.
9. Install 4'-0" of 2 1/2" conduit to extend pole. Install conduit and wire to maintain street light.
10. Install new pull box (State no. 3 1/2) as shown. Install 7 pr. #16 AWG telephone wire and make connections.
6 THS
10 THS
SCALE IN INCHES
SUPPLEMENTAL CONTRACT DRAWING
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
ELECTRICAL-MODIFICATIONS "RL" LINE
2 1-6-66 As built with revisions. ofc HBT
1 11-60 Revisions to Electrical Modifications WF HBT
MARK DATE DESCRIPTION BY CH'K
REVISION
SCALE 1" = 20'
BRIDGE 33-25 34-03 34-04
SHEET No. 137
DRAWING C-4029-137R

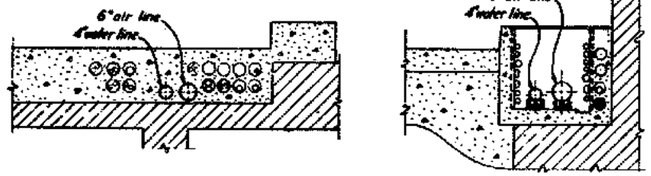
PROJECTS ENGINEER - LICENSE 1879

DATE APPROVED July 22, 1940



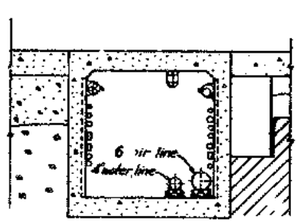
ELEVATION - PIPE LINE
Scale: Horizontal 1"=50'
Vertical 1"=10'

GENERAL PLAN-LOWER DECK
Scale: 1"=50'

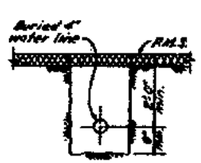


SECTION A-A
Scale: 1"=1'-0"

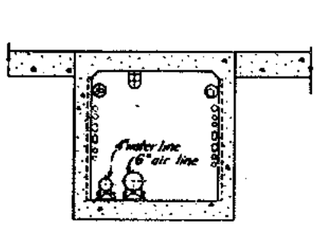
SECTION B-B
Scale: 1"=1'-0"



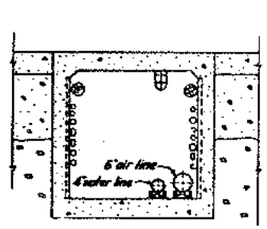
SECTION C-C
Scale: 1"=1'-0"



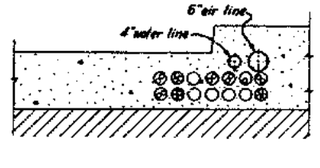
SECTION D-D
Scale: 1"=1'-0"



SECTION E-E
Scale: 1"=1'-0"



SECTION F-F
Scale: 1"=1'-0"



SECTION G-G
Scale: 1"=1'-0"

NOTES:

1. Install automatic air relief traps at high points of water line, and automatic moisture traps at low points of air line.
2. Install strainers upstream of all air and water traps, automatic valves, gauges and other delicate equipment. Clean all strainers after flushing and testing of pipe lines.
3. Used, Strike owned pipe stored in storage area, as designated by the Engineer, will be made available to the Contractor.
4. Install all exposed pipe parallel to walls and ceilings except for slopes indicated on the plans.
5. Install unions and valves at all piping connections to equipment and flange unions at 180 max. intervals.
6. Install air and water outlets at 250' max. intervals.
7. Furnish and install pipe support assemblies on all pipes above ground at 10 max. intervals and within 12" of all fittings.
8. All unwrapped piping shall be cleaned of all soil, oil or grease and loose paint, painted where exposed; coated with 2 coats of Inertol where buried or placed in voids; and directly cast in concrete as specified on Sheet No. 2.
9. Galvanize welded air line fittings and all pipe clamps, hangers, etc. after fabrication.
10. Install new Lunkenheimer no. 1428 valves on all ferrous pipe, and Lunkenheimer no. 2230 valves on non-ferrous pipes, unless otherwise shown on the plans. Valves in trenches and tunnels shall be supplied with wrench nuts.
11. Install C.I. valve boxes on all underground valves unless shown otherwise on plans.
12. Install removeable, flanged sections in the air line through utility trench to permit future access to electrical splicing chambers shown on Sheets No. 120 and No. 124.

LEGEND (For Sheets No. 138, 139, 140 and 141)

- Air and water line route
- Water supply route
- Existing water pipes
- U — Utility outlet (see Sheet 139)
- VB — Valve box
- FH — Fire hydrant
- WM — Water meter
- Utility vault
- Strainer
- Union
- Cap
- Angle valve
- Pressure regulating valve
- Gate valve
- Globe valve
- Safety valve
- Threaded joint
- Flanged joint
- Welded joint
- Anchor
- Expansion joint

0 5 10 15 20 FEET
SCALE IN FEET

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

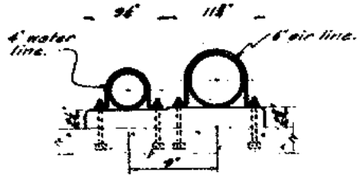
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

MECHANICAL - GENERAL

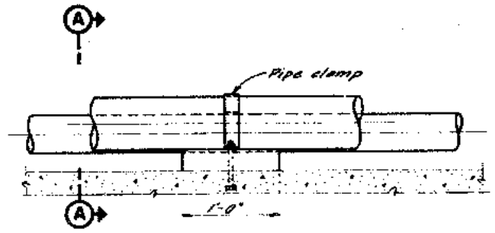
MARK	DATE	REVISION	BY	CHK
1	5-1-40	As built without revision	cfc	H.B.T.

SCALE As shown | BRIDGE 33-33, 34-33, 34-34 | SHEET No. 138 | DRAWING C-4029-138

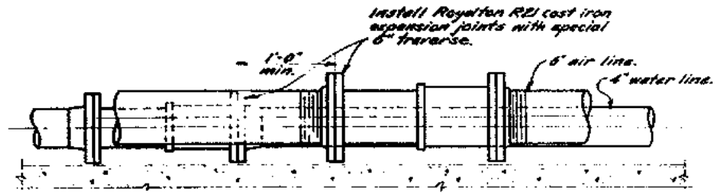
DATE APPROVED July 22, 1960



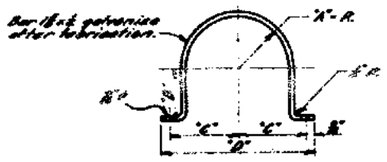
SECTION A-A
Scale: 1½"=1'-0"



ANCHOR DETAIL
Scale: 1½"=1'-0"



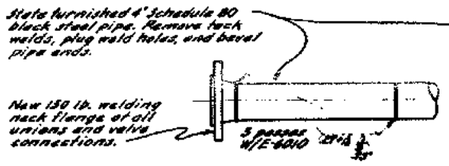
EXPANSION JOINTS
Scale: 1½"=1'-0"



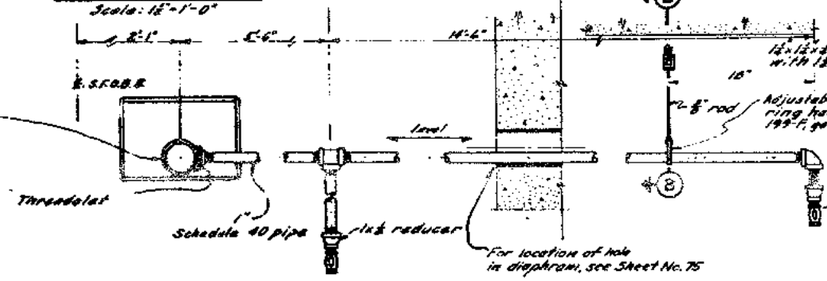
PIPE CLAMP DETAIL
Scale: 3"=1'-0"

PIPE SIZE	A	B	C	D
4"	2¼"	2¼"	3¼"	7¾"
6"	3⅜"	3⅜"	4⅝"	9¾"

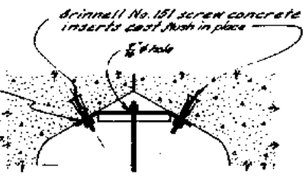
PIPE CLAMP DIMENSIONS



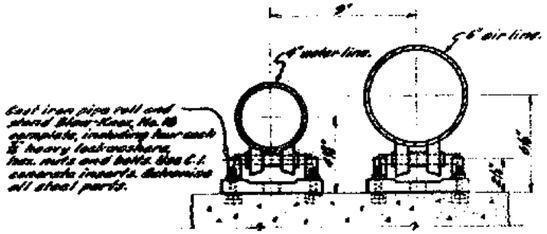
WATER PIPING DETAIL
Scale: 1½"=1'-0"



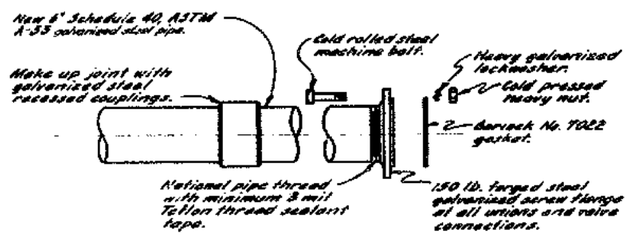
SPRINKLER DETAILS
Scale: 1½"=1'-0"



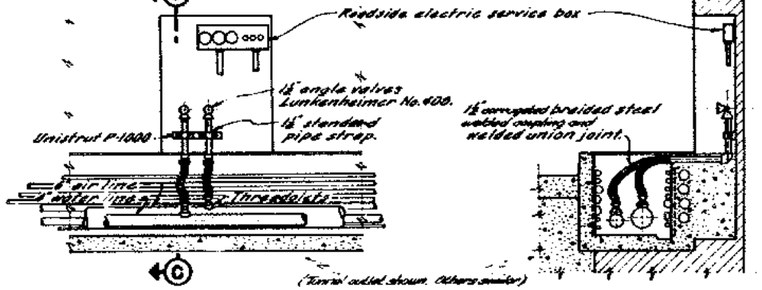
SECTION B-B
Scale: 1½"=1'-0"



PIPE ROLL AND STAND
Scale: 3"=1'-0"

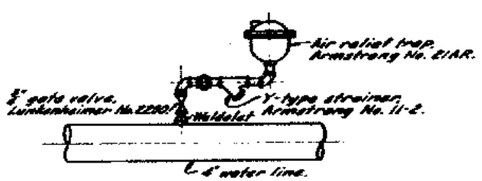


AIR PIPING DETAIL
Scale: 1½"=1'-0"

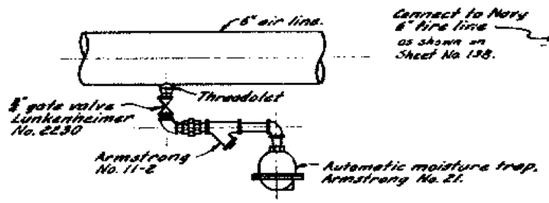


UTILITY OUTLETS
Scale: ¾"=1'-0"

SECTION C-C
Scale: ¾"=1'-0"

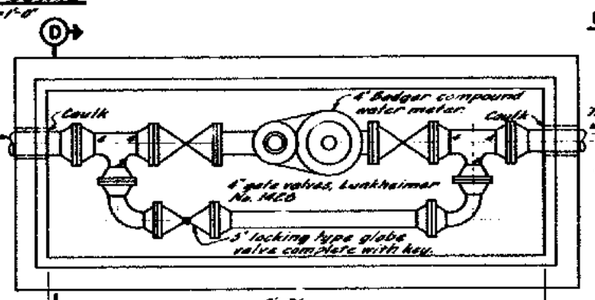


AIR RELIEF TRAP
Scale: 1½"=1'-0"

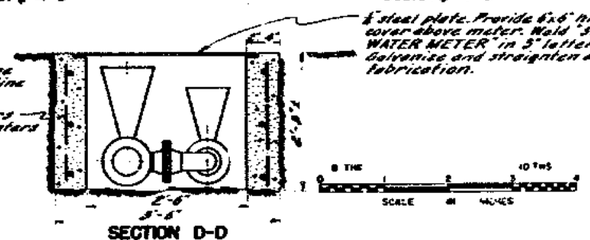


MOISTURE TRAP
Scale: 1½"=1'-0"

The use of metallic wheel cutters will not be permitted. All cuts shall be reamed and cleaned.



PLAN - WATER METER INSTALLATION
Scale: 1"=1'-0"



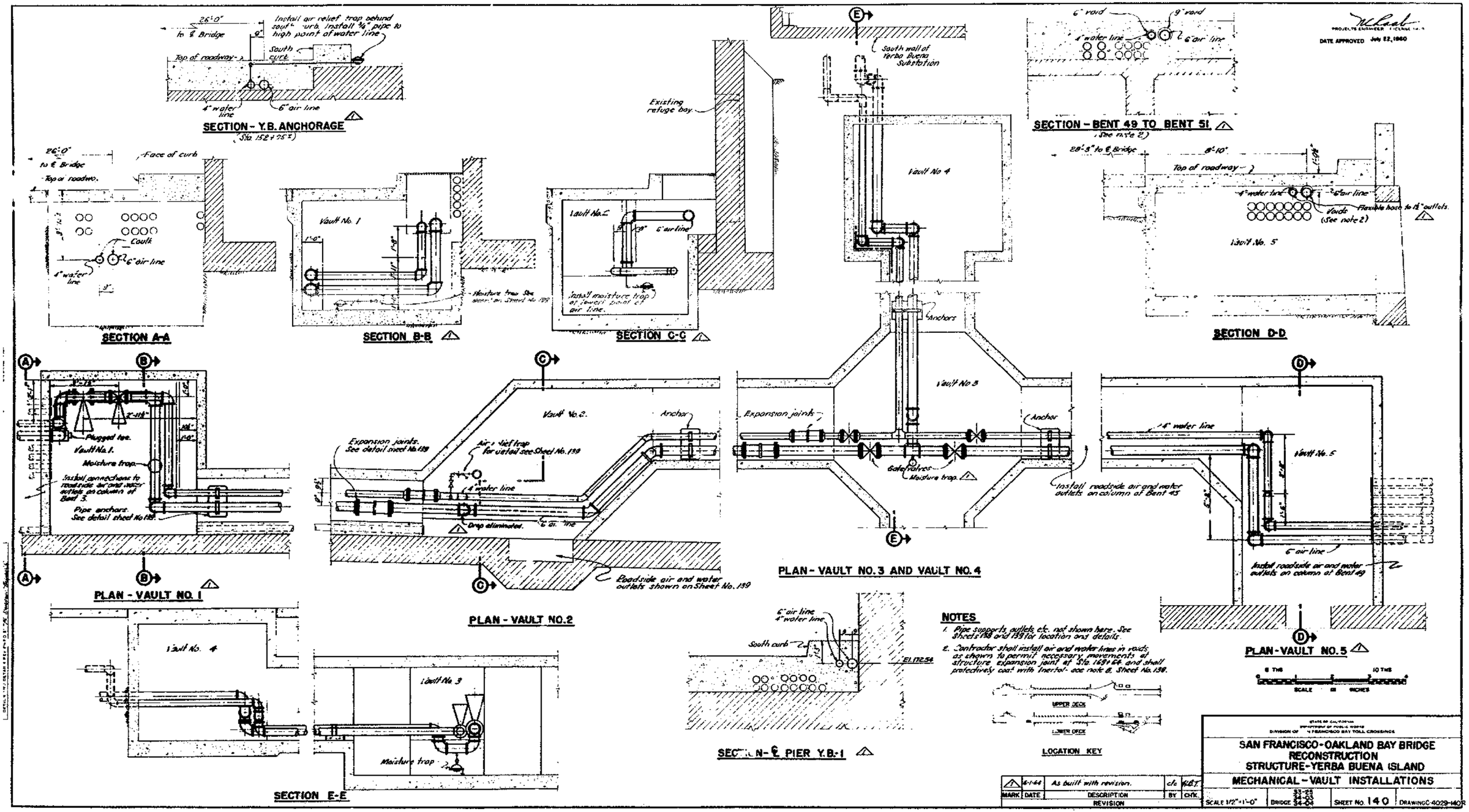
SECTION D-D
Scale: 1"=1'-0"

MARK	DATE	DESCRIPTION REVISION	BY	CHK.
1	6-1-64	As built without revision	clc	H.B.I

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
MECHANICAL - PIPING DETAILS

SCALE AS SHOWN | BRIDGE 33-25, 34-03, 34-04 | SHEET NO 139 | DRAWING C-4029-C



NOTES

1. Pipe supports, outlets, etc. not shown here. See Sheets 138 and 139 for location and details.
2. Contractor shall install air and water lines in voids as shown to permit necessary movements of structure expansion joint at Sta. 169+64 and shall protectively coat with Inertol - see note 8, Sheet No. 138.

MARK	DATE	DESCRIPTION	BY	CHK.
1	6-1-64	As built with revision.	c/c	H.B.T.

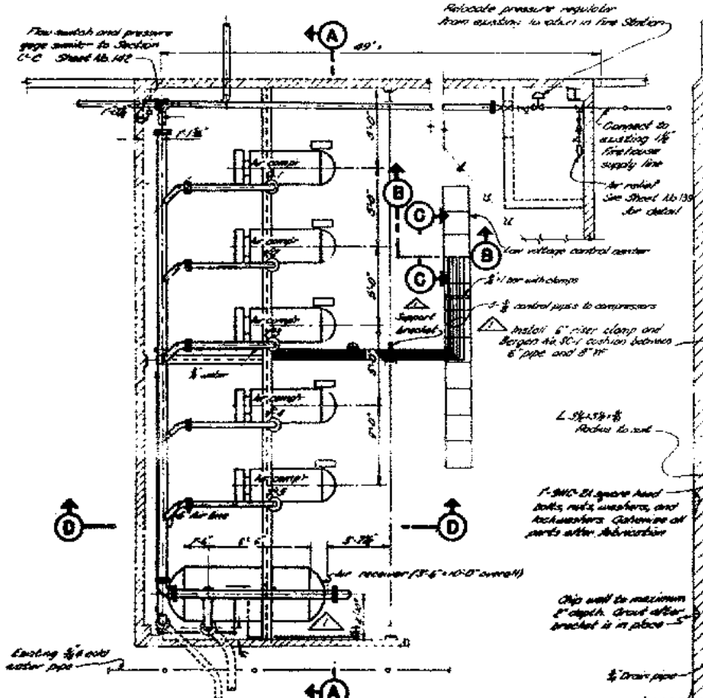
REVISION

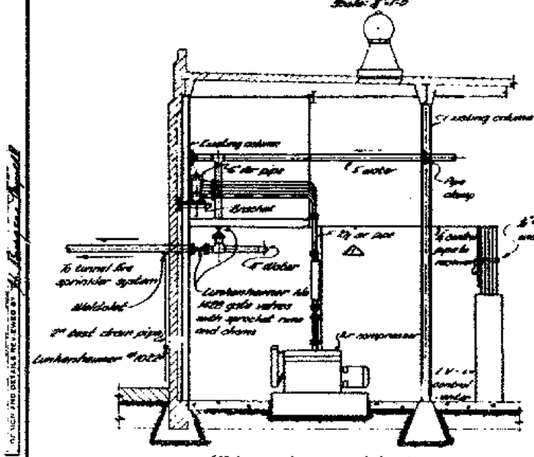
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

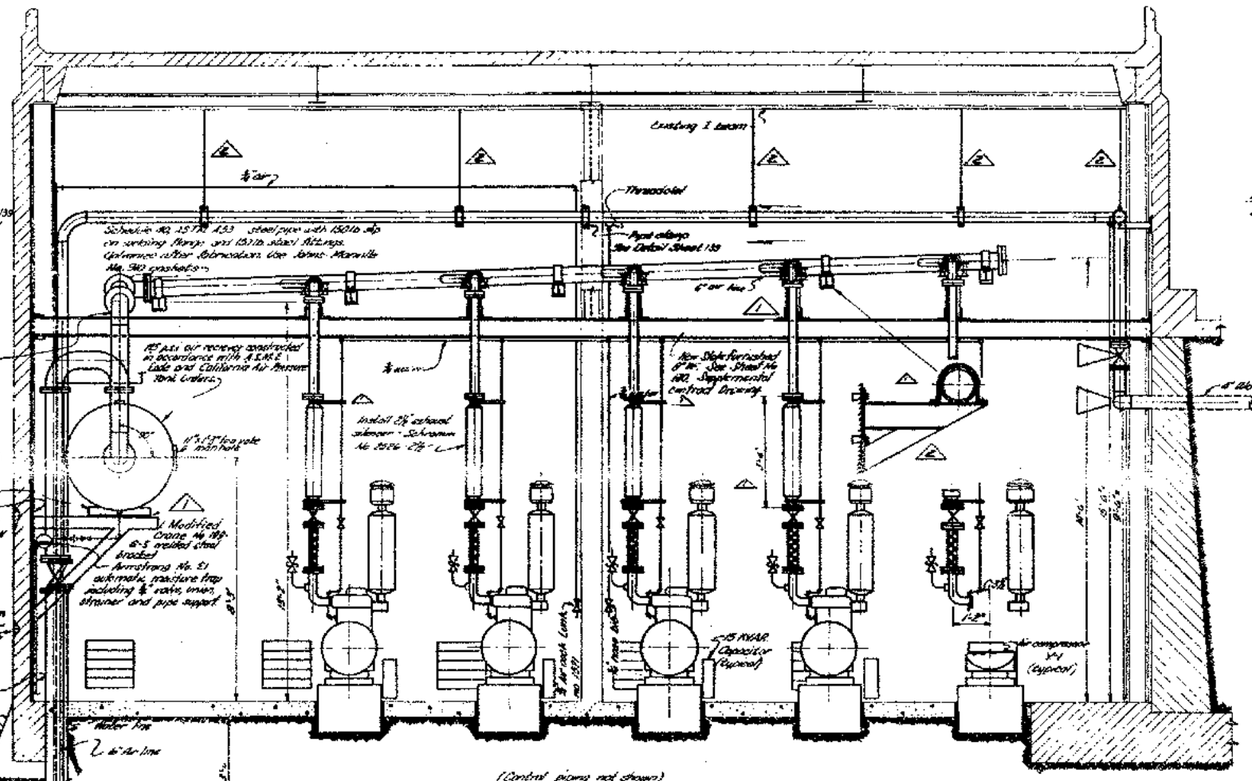
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
MECHANICAL - VAULT INSTALLATIONS

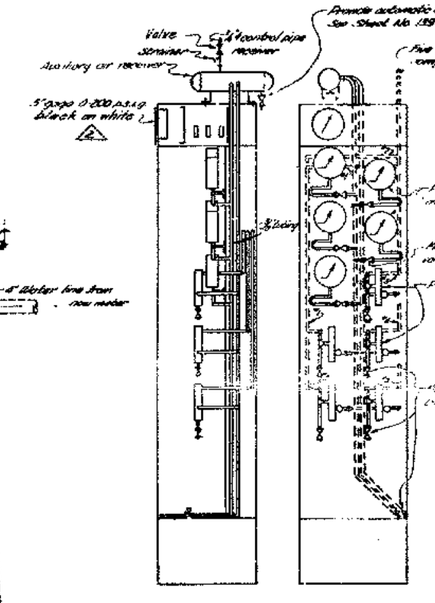
SCALE 1/2"=1'-0" | BRIDGE 33-25 34-03 34-04 | SHEET No. 140 | DRAWING C-4029-140R

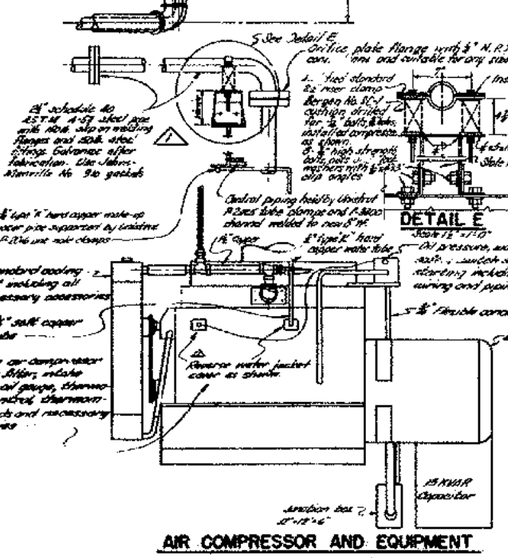
W. Paul
PROJECT ENGINEER — LICENSE 14111
DATE APPROVED July 22, 1980

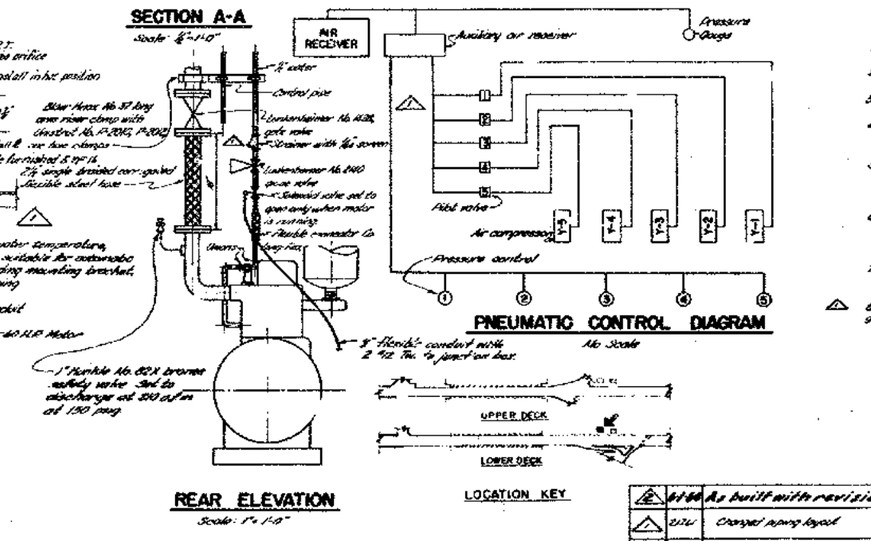












NOTES:

1. Use A.S.T.M. B-88, type L, hard drawn copper pipe with soldered socket fittings at ends of final hole. Control center air control piping.
2. Use 3/8 O.D. seamless, soft copper tubing with flared fitting inside of control center.
3. Support control piping on 5'-0" maximum intervals.
4. All necessary wiring and terminations shall be part for in their respective bid items of work.
5. All miscellaneous mechanical equipment shown or necessary to install and operate the compressor station shall be included as Miscellaneous Mechanical work, unless specifically included in other items of work.
6. Before fabrication or installation of mechanical equipment, submit detail drawings or brochures of all components of the mechanical system including piping diagrams, interconnecting details, materials and relative location to building and other equipment.
7. Securely affix permanent identification sign to wall by 3" steel and drain pipe stating "Test Drain for Automatic Sprinklers," to be handled by authorized persons only."
8. All bolted connections on compressors and supports shall have lockwashers.
9. Connect unloader tubes to compressors with galvanized steel nipples.

SCALE IN INCHES 0 5 10 THS

SUPPLEMENTAL CONTRACT DRAWING

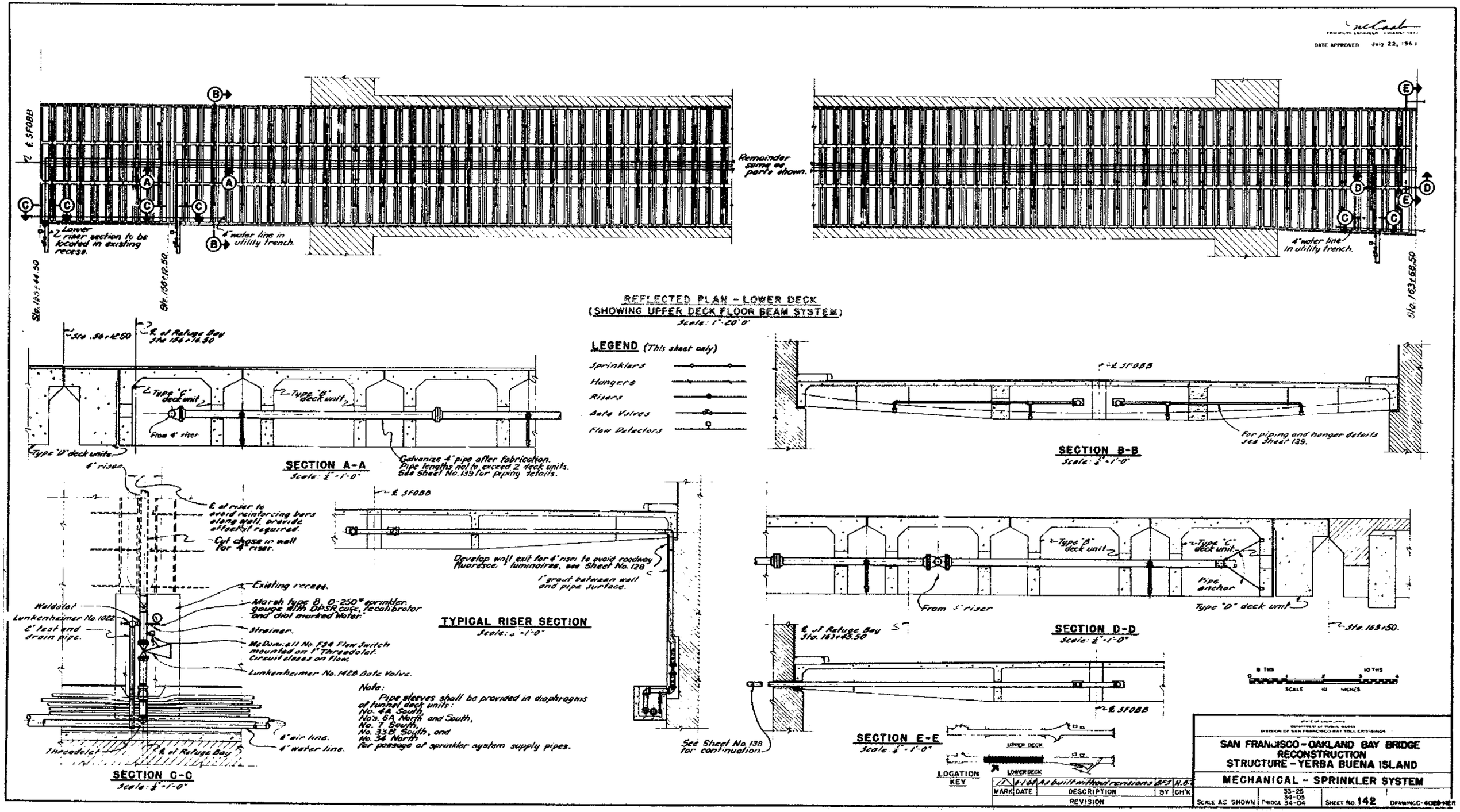
STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO-BAY TOLL CROSSINGS

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
MECHANICAL - AIR COMPRESSORS

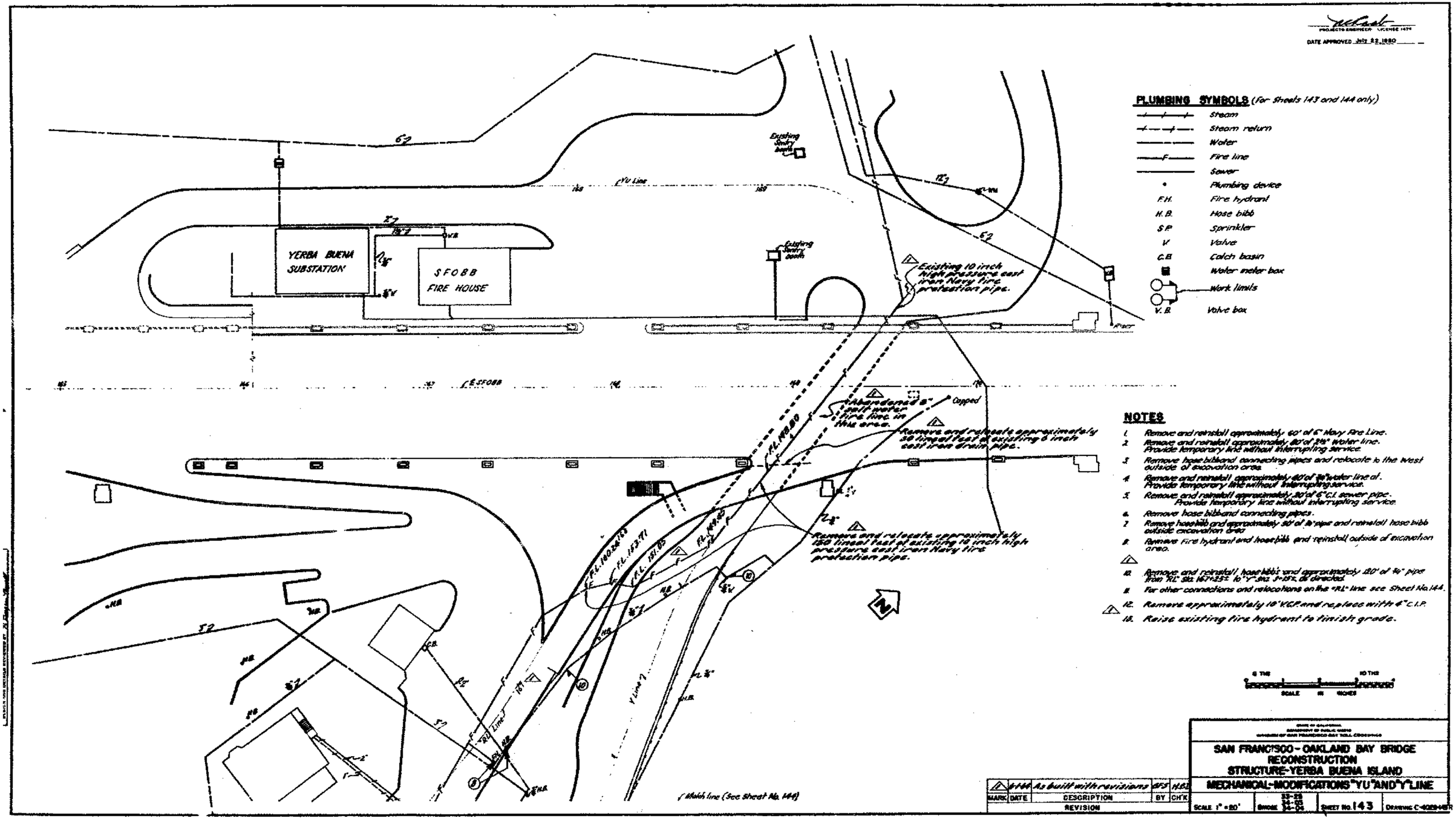
MARK	DATE	DESCRIPTION REVISION	BY	CHK'D
2	6/16	As built with revisions	AFS	MET
1	2/80	Changed piping layout	AC	JH

SCALE AS SHOWN | BRIDGE 13-33, 13-34, 14-03, 14-04 | SHEET No 141 | DRAWING C-6089-141R

DO NOT FIND DETAILS REFERRED TO ON THIS SHEET
W. Paul



DATE APPROVED July 22, 1963
Remainder same as parts shown.
Lower riser section to be located in existing recess.
4" water line in utility trench.
Sta. 163+44.50
Sta. 156+12.50
Sta. 163+68.50
REFLECTED PLAN - LOWER DECK
(SHOWING UPPER DECK FLOOR BEAM SYSTEM)
Scale: 1"=20'0"
LEGEND (This sheet only)
Sprinklers
Hangers
Risers
Gate Valves
Flow Detectors
Sta. 156+12.50
℄ of Refuge Bay Sta. 156+16.50
Type "C" deck unit
Type "B" deck unit
From 4" riser
Type "D" deck units
Galvanize 4" pipe after fabrication. Pipe lengths not to exceed 2 deck units. See Sheet No. 139 for piping details.
SECTION A-A
Scale: 1/4"=1'-0"
℄ SFOBB
For piping and hanger details see Sheet 139.
SECTION B-B
Scale: 1/4"=1'-0"
4" riser
℄ of riser to avoid reinforcing bars along wall, provide offset if required.
Cut chase in wall for 4" riser.
Existing recess.
Marsh type B, 0-250# sprinkler, gauge with DPSR case, recalibrator and dial marked Water.
Strainer.
McDonnell No. F34 Flow Switch mounted on 1" Threadolet. Circuit closes on flow.
Lunkenheimer No. 142B Gate Valve.
Weldolet
Lunkenheimer No. 1022
2" test and drain pipe.
6" air line.
4" water line.
Threadolet
℄ of Refuge Bay
SECTION C-C
Scale: 1/4"=1'-0"
Develop wall exit for 4" riser to avoid roadway fluorescent luminaires, see Sheet No. 128
1" grout between wall and pipe surface.
TYPICAL RISER SECTION
Scale: 1/4"=1'-0"
Note:
Pipe sleeves shall be provided in diaphragms of tunnel deck units:
No. 4A South,
No's. 6A North and South,
No. 7 South,
No. 33B South, and
No. 34 North
for passage of sprinkler system supply pipes.
See Sheet No. 138 for continuation
Type "B" deck unit
Type "C" deck unit
Pipe anchor
From 4" riser
Type "D" deck unit
Sta. 163+50.
SECTION D-D
Scale: 1/4"=1'-0"
℄ of Refuge Bay Sta. 163+45.50
℄ SFOBB
SECTION E-E
Scale: 1/4"=1'-0"
UPPER DECK
LOWER DECK
LOCATION KEY
1 | 6-1-64 | As built without revisions | GFS | H.G.
MARK | DATE | DESCRIPTION | BY | CH'K
REVISION
SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
MECHANICAL - SPRINKLER SYSTEM
SCALE AS SHOWN
PRIDGE 33-25 34-03 34-04
SHEET No. 142



PROJECTS ENGINEER LICENSE 1474
DATE APPROVED July 22, 1980
PLUMBING SYMBOLS (For Sheets 143 and 144 only)
Steam
Steam return
Water
Fire line
Sewer
Plumbing device
F.H. Fire hydrant
H.B. Hose bibb
S.P. Sprinkler
V. Valve
C.B. Catch basin
Water meter box
Work limits
V.B. Valve box
YERBA BUENA SUBSTATION
SFOBB FIRE HOUSE
Existing Sentry booth
Existing 10 inch high pressure cast iron Navy fire protection pipe.
Abandoned 8" salt water fire line in this area.
Capped
Remove and relocate approximately 30 lineal feet of existing 6 inch cast iron drain pipe.
Remove and relocate approximately 150 lineal feet of existing 10 inch high pressure cast iron Navy fire protection pipe.
Riser
Y Line
RL Line
Match line (See Sheet No. 144)
NOTES
1. Remove and reinstall approximately 60' of 6" Navy Fire Line.
2. Remove and reinstall approximately 80' of 2½" Water line. Provide temporary line without interrupting service.
3. Remove hose bibb and connecting pipes and relocate to the West outside of excavation area.
4. Remove and reinstall approximately 40' of 3/4" water line at. Provide temporary line without interrupting service.
5. Remove and reinstall approximately 20' of 6" C.I. sewer pipe. Provide temporary line without interrupting service.
6. Remove hose bibb and connecting pipes.
7. Remove hose bibb and approximately 30' of 3/4" pipe and reinstall hose bibb outside excavation area.
8. Remove Fire hydrant and hose bibb and reinstall outside of excavation area.
10. Remove and reinstall hose bibb and approximately 120' of 3/4" pipe from "RL" Sta. 167+25± to "Y" Sta. 3+15±, as directed.
11. For other connections and relocations on the "RL" line see Sheet No. 144.
12. Remove approximately 10' V.C.P. and replace with 4" C.I.P.
13. Raise existing fire hydrant to finish grade.
SCALE IN INCHES
SAN FRANCISCO - OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
MECHANICAL-MODIFICATIONS "YU" AND "Y" LINE
As built with revisions
MARK DATE DESCRIPTION BY CH'K
REVISION
SCALE 1" = 20'
SHEET No. 143

PROJECTS ENGINEER — LICENSE 1479

DATE APPROVED JULY 2 5, 1960

Match line (See sheet No. 143)

"RC" Line

"RE" Line

"RA" Line

"RB" Line

"RD" Line

"RF" Line

"RG" Line

"RH" Line

"RJ" Line

"RK" Line

"RL" Line

"RM" Line

"RN" Line

"RP" Line

"RQ" Line

"RR" Line

"RS" Line

"RT" Line

"RU" Line

"RV" Line

"RW" Line

"RX" Line

"RY" Line

"RZ" Line

"SA" Line

"SB" Line

"SC" Line

"SD" Line

"SE" Line

"SF" Line

"SG" Line

"SH" Line

"SJ" Line

"SK" Line

"SL" Line

"SM" Line

"SN" Line

"SP" Line

"SQ" Line

"SR" Line

"SS" Line

"ST" Line

"SU" Line

"SV" Line

"SW" Line

"SX" Line

"SY" Line

"SZ" Line

"TA" Line

"TB" Line

"TC" Line

"TD" Line

"TE" Line

"TF" Line

"TG" Line

"TH" Line

"TJ" Line

"TK" Line

"TL" Line

"TM" Line

"TN" Line

"TP" Line

"TQ" Line

"TR" Line

"TS" Line

"TT" Line

"TU" Line

"TV" Line

"TW" Line

"TX" Line

"TY" Line

"TZ" Line

"UA" Line

"UB" Line

"UC" Line

"UD" Line

"UE" Line

"UF" Line

"UG" Line

"UH" Line

"UJ" Line

"UK" Line

"UL" Line

"UM" Line

"UN" Line

"UP" Line

"UQ" Line

"UR" Line

"US" Line

"UT" Line

"UU" Line

"UV" Line

"UW" Line

"UX" Line

"UY" Line

"UZ" Line

"VA" Line

"VB" Line

"VC" Line

"VD" Line

"VE" Line

"VF" Line

"VG" Line

"VH" Line

"VJ" Line

"VK" Line

"VL" Line

"VM" Line

"VN" Line

"VP" Line

"VQ" Line

"VR" Line

"VS" Line

"VT" Line

"VU" Line

"VV" Line

"VW" Line

"VX" Line

"VY" Line

"VZ" Line

"WA" Line

"WB" Line

"WC" Line

"WD" Line

"WE" Line

"WF" Line

"WG" Line

"WH" Line

"WJ" Line

"WK" Line

"WL" Line

"WM" Line

"WN" Line

"WP" Line

"WQ" Line

"WR" Line

"WS" Line

"WT" Line

"WU" Line

"WV" Line

"WW" Line

"WX" Line

"WY" Line

"WZ" Line

"XA" Line

"XB" Line

"XC" Line

"XD" Line

"XE" Line

"XF" Line

"XG" Line

"XH" Line

"XJ" Line

"XK" Line

"XL" Line

"XM" Line

"XN" Line

"XP" Line

"XQ" Line

"XR" Line

"XS" Line

"XT" Line

"XU" Line

"XV" Line

"XW" Line

"XX" Line

"XY" Line

"XZ" Line

"YA" Line

"YB" Line

"YC" Line

"YD" Line

"YE" Line

"YF" Line

"YG" Line

"YH" Line

"YJ" Line

"YK" Line

"YL" Line

"YM" Line

"YN" Line

"YP" Line

"YQ" Line

"YR" Line

"YS" Line

"YT" Line

"YU" Line

"YV" Line

"YW" Line

"YX" Line

"YY" Line

"YZ" Line

"ZA" Line

"ZB" Line

"ZC" Line

"ZD" Line

"ZE" Line

"ZF" Line

"ZG" Line

"ZH" Line

"ZJ" Line

"ZK" Line

"ZL" Line

"ZM" Line

"ZN" Line

"ZP" Line

"ZQ" Line

"ZR" Line

"ZS" Line

"ZT" Line

"ZU" Line

"ZV" Line

"ZW" Line

"ZX" Line

"ZY" Line

"ZZ" Line

Garage

2 Story frame dwelling

U.S. NAVAL STATION
U.S. COAST GUARD STATION

Valves

Car Port

Note:
For Plumbing Symbols and Notes, See Sheet No. 143

SCALE

MARK	DATE	DESCRIPTION	BY	CHK
		REVISION		
2	6/66	As built with revisions		

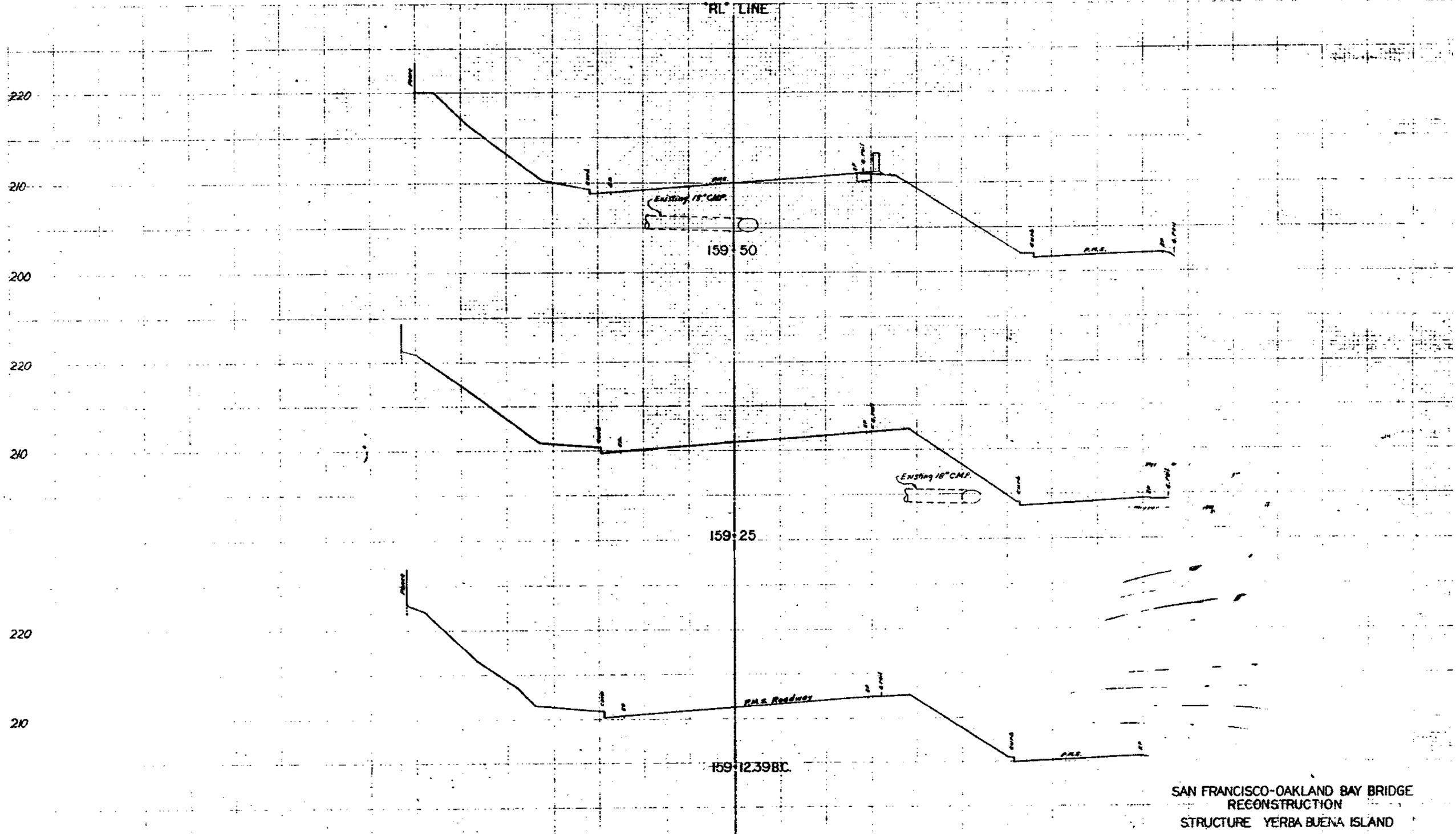
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
MECHANICAL-MODIFICATIONS "RC" LINE

SCALE 1" = 20'

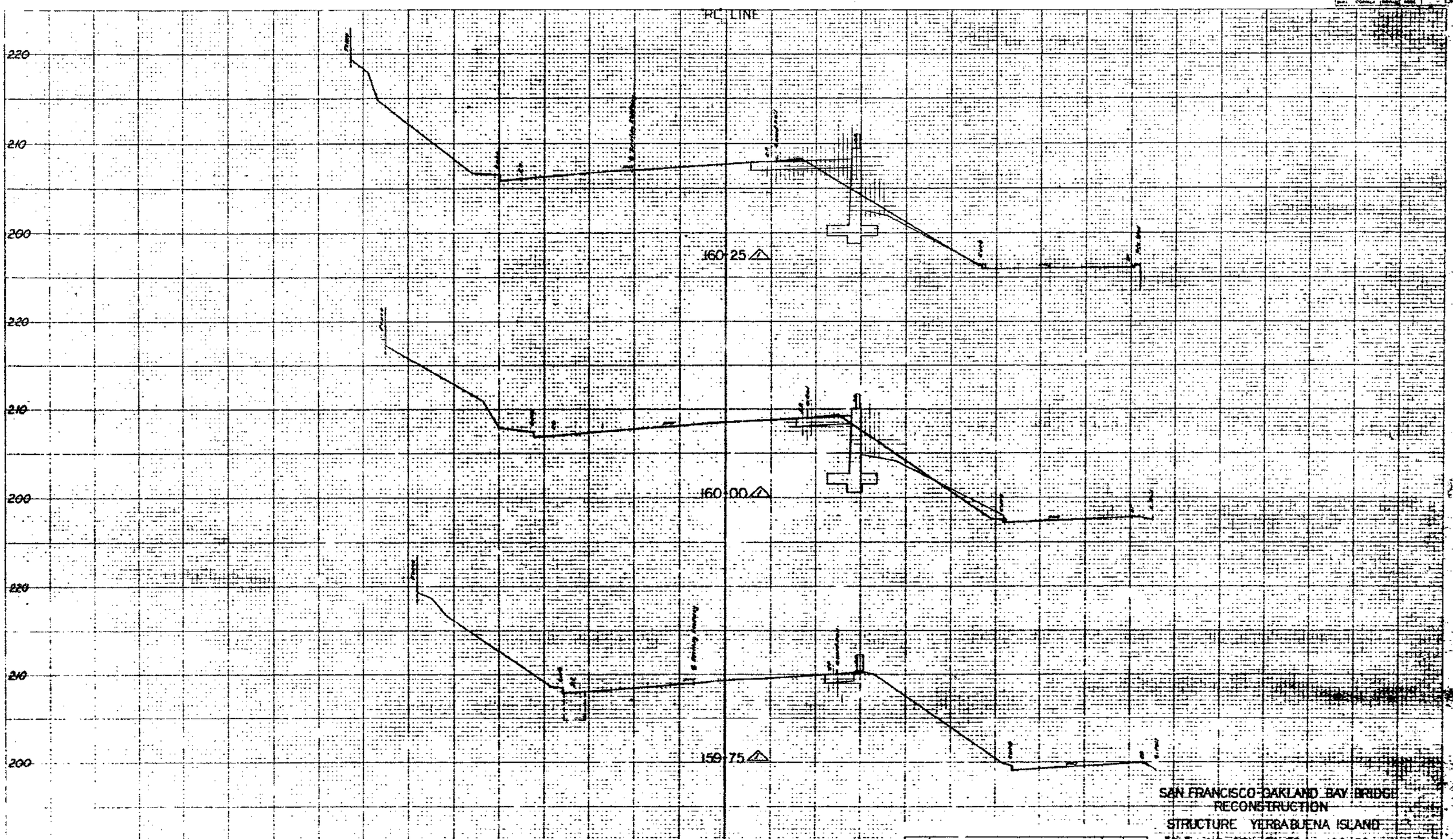
BRIDGE 33-23 34-03 34-04

SHEET No. 144

DRAWING C-4029-M



SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND



SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBABUENA ISLAND

"R" LINE

210

200

161+00

160+78.84 EC

240

200

210

200

160+50

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION.
STRUCTURE YERBA BUENA ISLAND

"RL" LINE

210

200

161 + 75

210

200

161 + 56.13 BC

210

200

161 + 25

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION-
STRUCTURE YERBA BUENA ISLAND

"RL" LINE

210

200

190

162+25

210

200

162+00

190

210

200

161+96.90 EC

190

"RL" LINE

200

190

180

162+9043

200

190

180

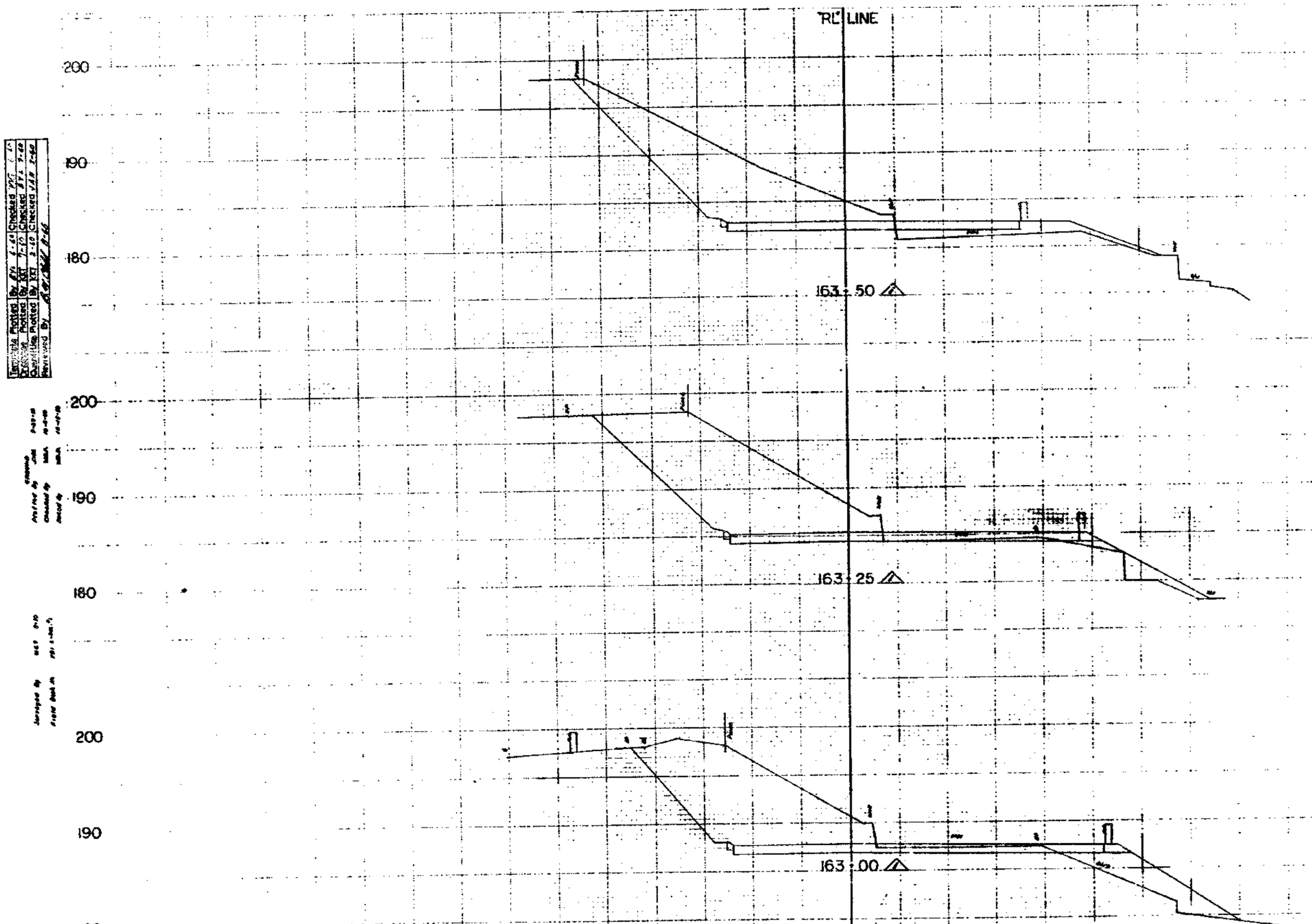
162+75

200

190

162+50

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"RL" LINE Sta. 162+50 to 162+90.43



MARK	DATE	DESCRIPTION	BY	CH'K
1	6-1-66	As built with revisions	GFS	RML

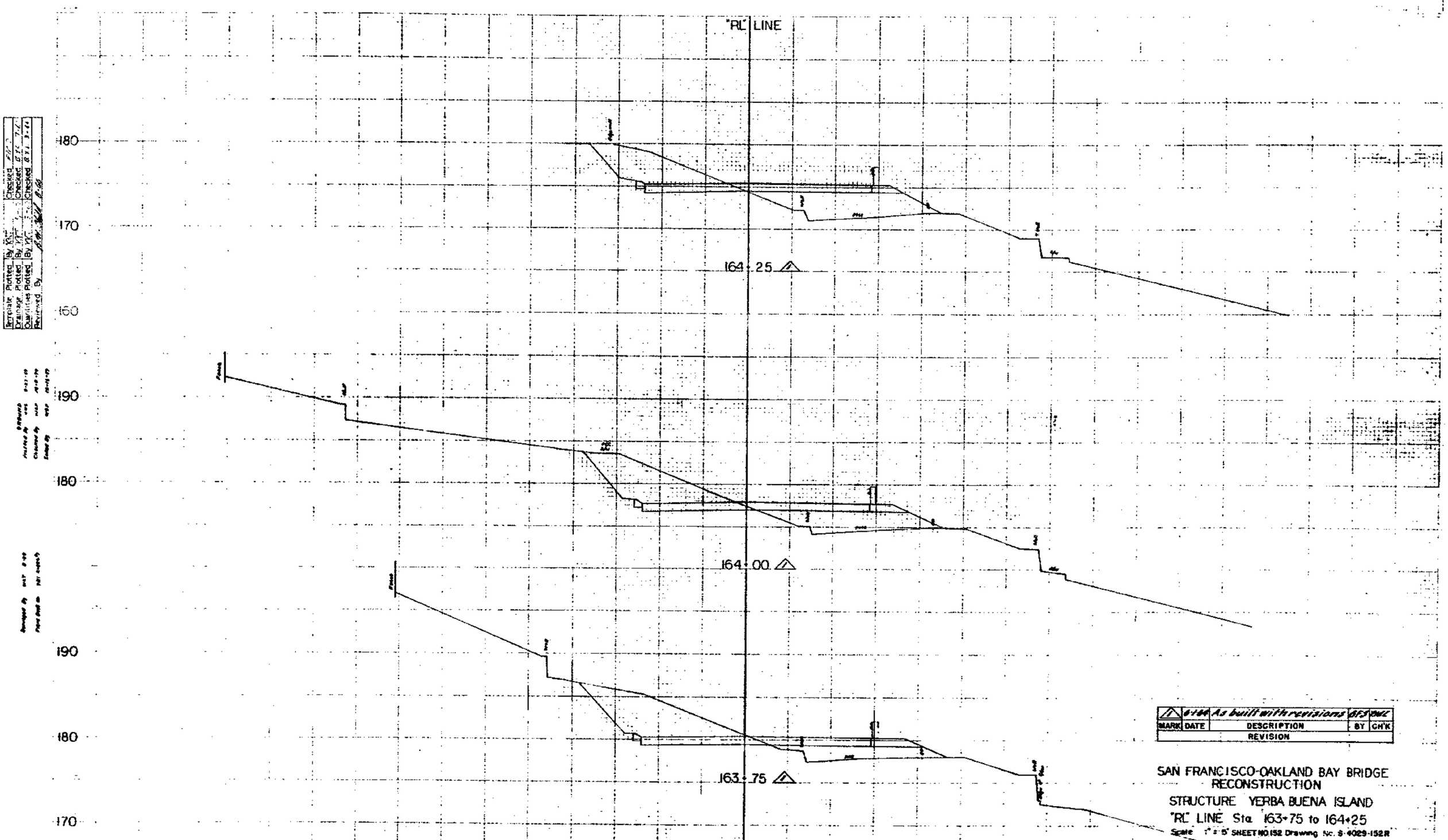
REVISION

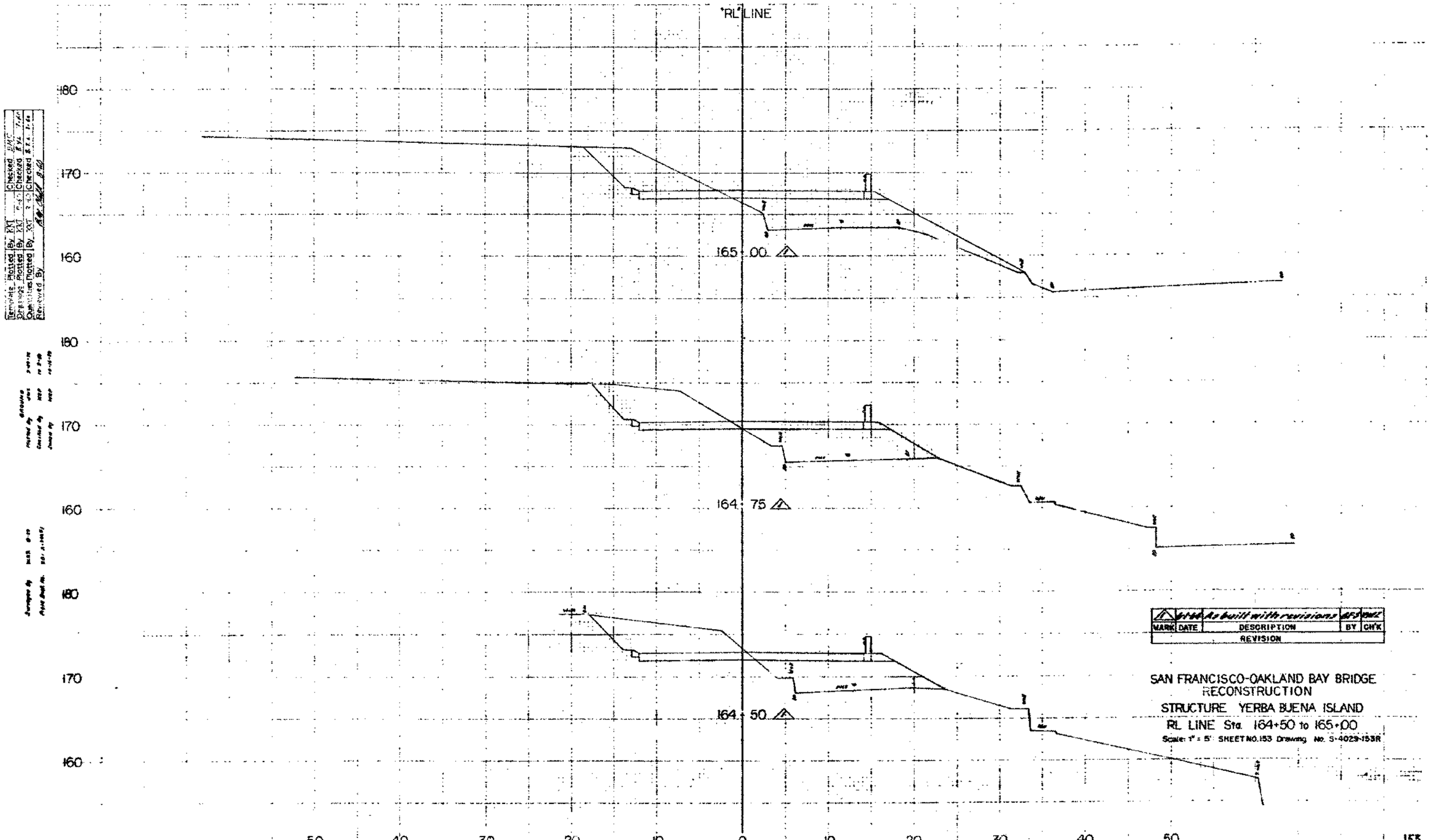
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION

STRUCTURE YERBA BUENA ISLAND

"RL" LINE Sta. 163+00 to 163+50

Scale 1" = 5' SHEET NO.151 Drawing No. S-4029-151R

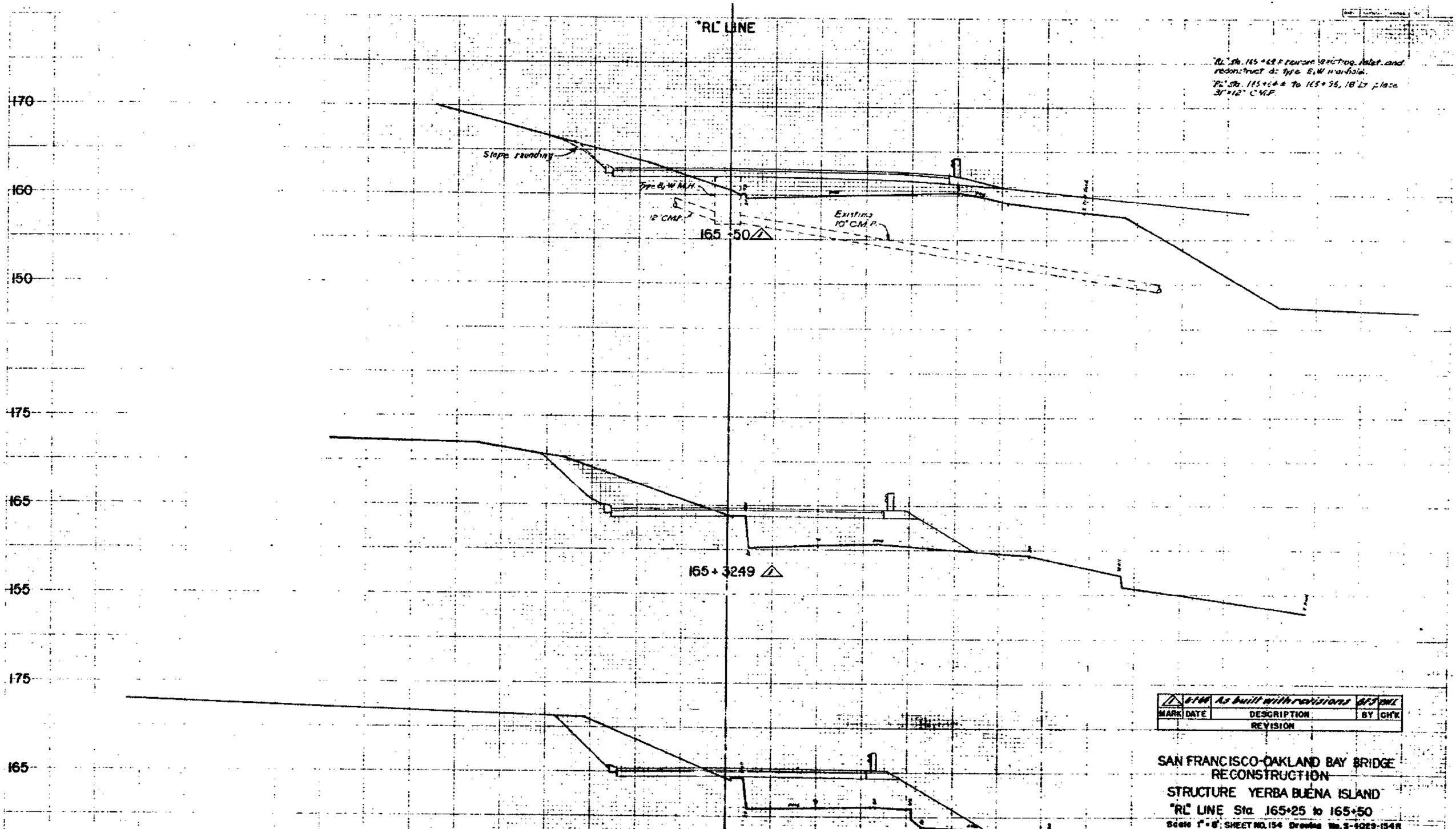

"RL" LINE
180
170
160
190
180
190
180
170
164+25
164+00
163+75
Template Plotted By
Drainage Plotted By
Quantities Plotted By
Reviewed By
Checked
Checked
Checked
As built with revisions
MARK
DATE
DESCRIPTION
BY
CH'K
REVISION
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"RL" LINE Sta. 163+75 to 164+25
Scale 1" = 5' SHEET NO. 152 Drawing No. S-4029-152R



MARK	DATE	DESCRIPTION	BY	CH'K
1	6-1-64	As built with revisions	GFS	[illegible]

REVISION

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
RL LINE Sta. 164+50 to 165+00
Scale: 1" = 5' SHEET NO. 153 Drawing No. S-4029-153R


"RL" LINE
"RL" Sta. 165+69± remove existing inlet and reconstruct as type B, W manhole.
"RL" Sta. 165+64± to 165+96, 18' Lt place 31"x12" C.M.P.
170
160
150
175
165
155
175
165
Slope rounding
Type B, W M.H.
12" C.M.P.
Existing 10" C.M.P.
165+50
165+32.49
As built with revisions
MARK
DATE
DESCRIPTION
BY
CH'K
REVISION
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"RL" LINE Sta. 165+25 to 165+50
Scale 1" = 8'; SHEET NO. 154 Drawing No. S-4029-154R

"RL" LINE

165

155

145

170

160

150

170

160

150

Conform to existing pavement

166+25

"RL" Line Quantities

"L" Line Quantities

166+00 ⚠

"RL" sta. 165+96, 18'Lt construct type A, inlet with type 1 frame and type 1 grate.

Type A inlet

12"CMP

"RL" Line Quantities

"L" Line Quantities

165+75 ⚠

MARK	DATE	DESCRIPTION	BY	CH'K
⚠	6-66	As built with revisions	DFS	RMC
		REVISION		

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION

STRUCTURE YERBA BUENA ISLAND

"RL" LINE Sta. 165+75 to 166+25

Scale 1"=5' SHEET NO. 155 Drawing No. S-4029-155R

RL LINE

170
165
160

Conform to existing pavement

167+00

"A" Line Quantities

"Y" Line Quantities

170
165
160

Conform to existing pavement

166+75

165
160
155
150

Conform to existing pavement

"A" Line Quantities

"Y" Line Quantities

166+50

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"RL" LINE Sta 166+50 to 167+00
Scale 1" = 8' Sht. No. 156 Drawing No. S 4029-156R

"RL" LINE

170
165
160

167 + 71.60 BC

170
165
160

167 + 50

170
165
160

Conform to existing pavement

167 + 26.03 EC

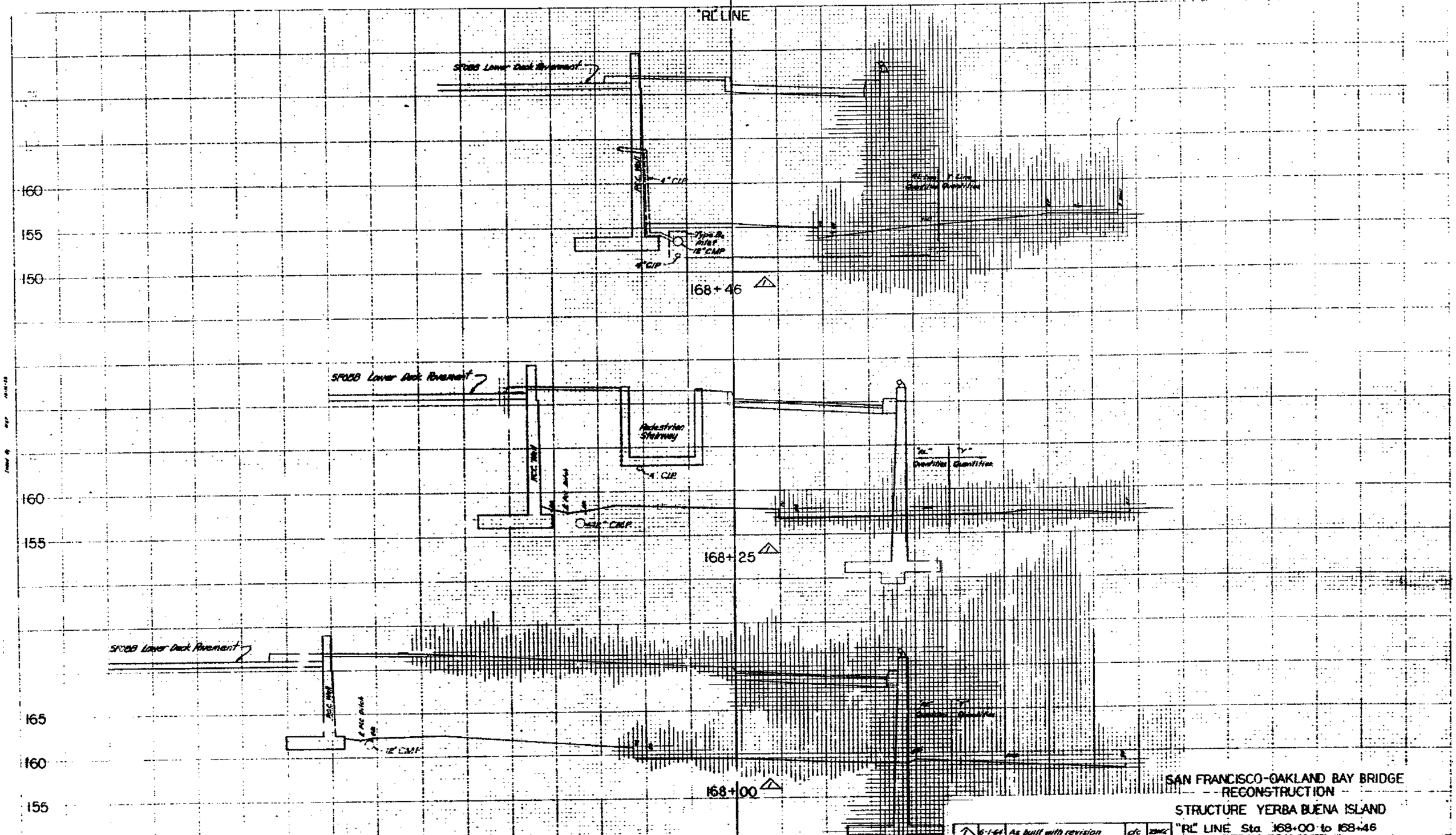
170
165
160

Conform to existing pavement

167 + 20.14

MARK	DATE	DESCRIPTION	BY	CHK.
1	6-1-64	As built with revision.	cfc	RWL
		REVISION		

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"RL" LINE Sta. 167+20.14 to 167+71.60
Scale 1" = 5' Sht. No. 157 Drawing No. S 4029-157R



SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"RL" LINE Sta. 168+00 to 168+46

1	6-1-64	As built with revision	cfc	zwc

DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

CROSS SECTION

Scale: 1 Inch = 5 Feet

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION

"Y" LINE

"Y" Line Quantities

"D" Line Quantities

Existing manhole

Existing storm pipes

0+50

"Y" Line Quantities

"D" Line Quantities

0+42.65BC

0+25

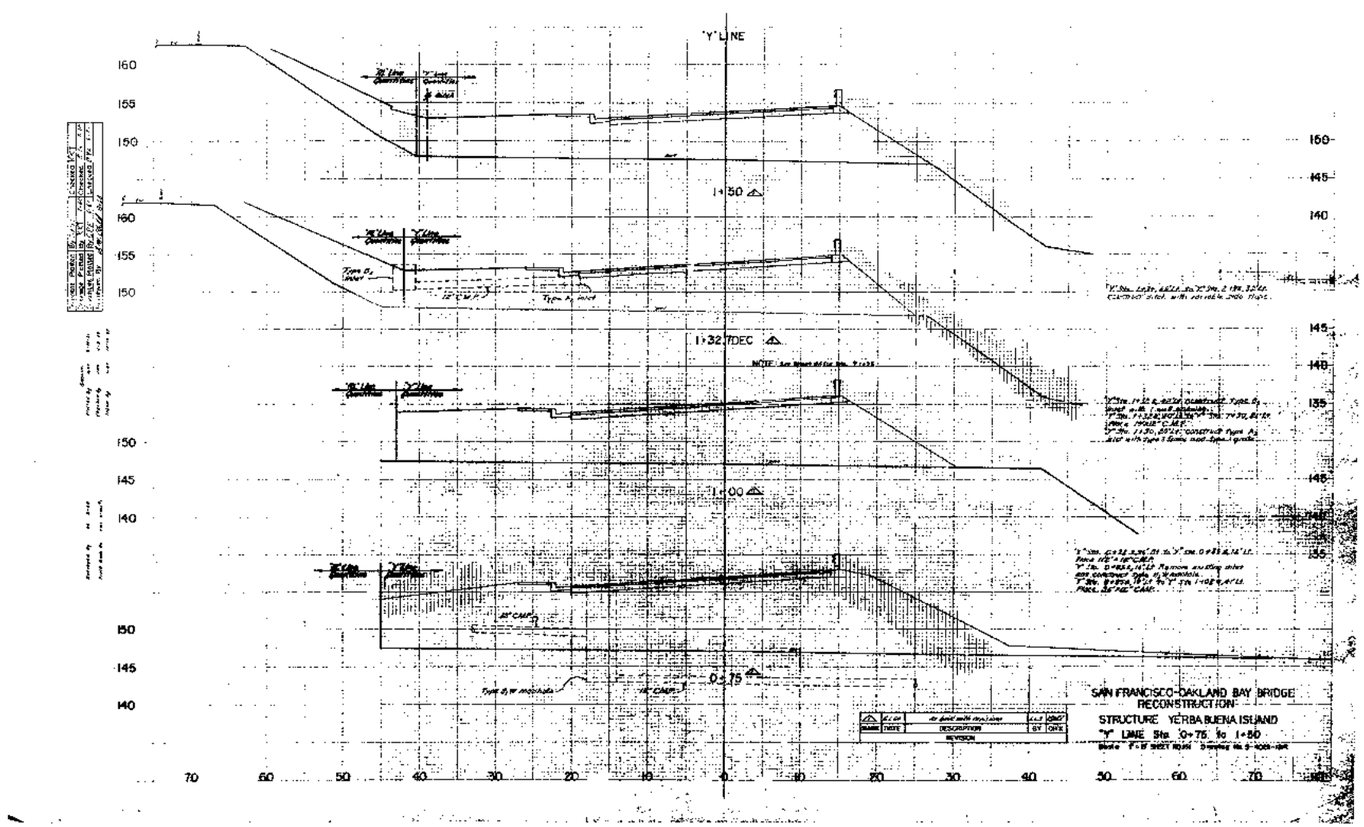
Quantities for the "Y" 0+00 and "Y" 0+25 cross-sections are included in the "RL" line cross-sections.

155
150
145
160
155
150
160
155
150
165
160

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION

STRUCTURE YERBA BUENA ISLAND

"Y" LINE Sta. 0+00 to 0+50


"Y" LINE
1+50
1+32.7 DEC
1+00
0+75
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"Y" LINE Sta 0+75 to 1+50

"Y" LINE

160
155
150

2+50 ⚠

160
155
150

2+25 ⚠

160
155
150

2+00 ⚠

160
155
150

1+75 ⚠

150
145
140
150
145
140
150
145
140
150
145
140

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"Y" LINE, Sta 1+75 to 2+50

"Y" LINE

165
160
155

3+25

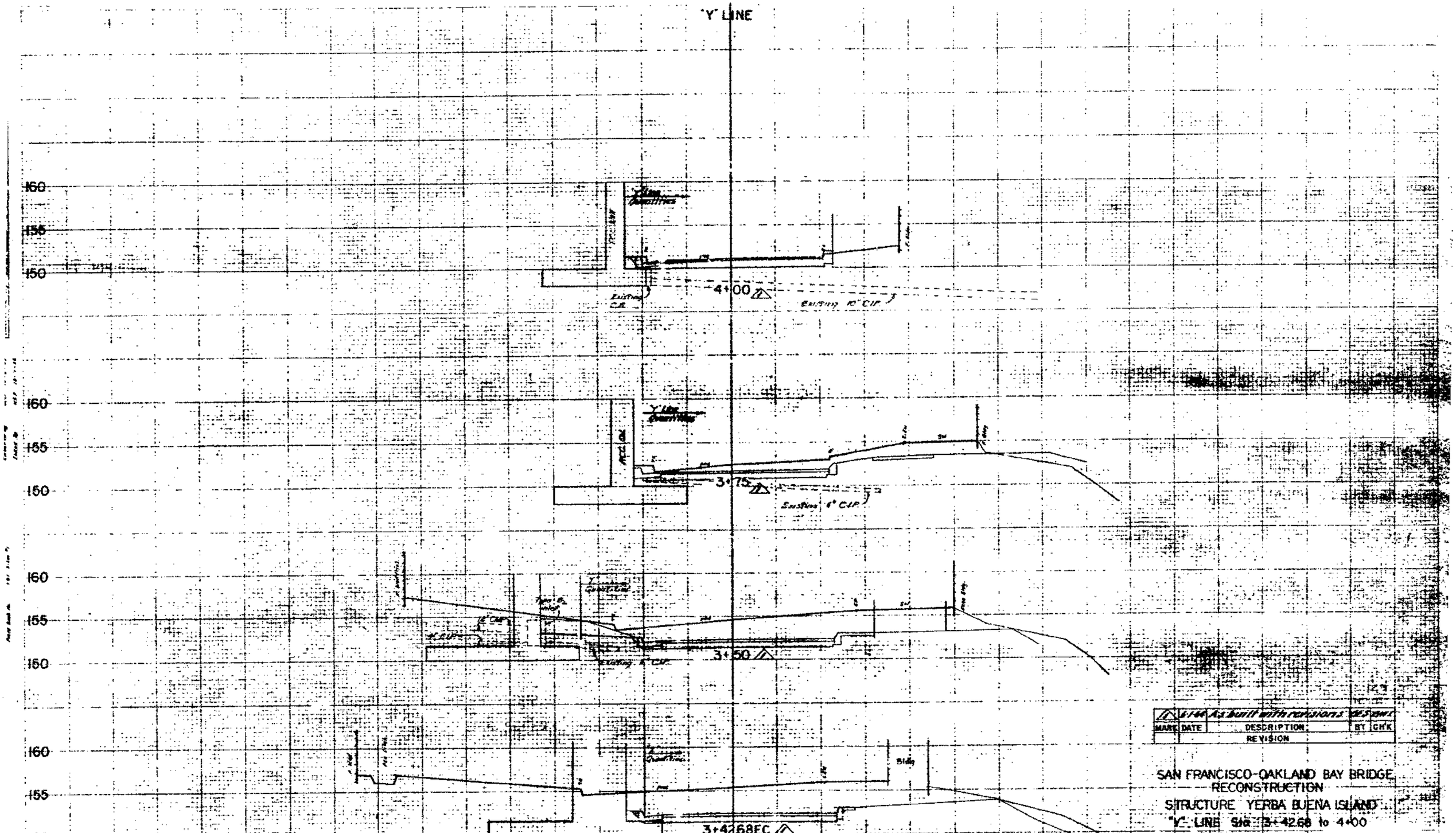
155
150
145

3+00

160
155
150
145

2+76.40BC

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE, YERBA BUENA ISLAND

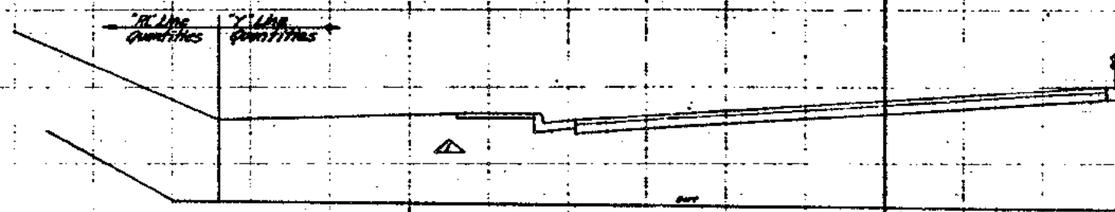


MARK	DATE	DESCRIPTION	BY	CH'K
1	6-1-64	As built with revisions		

REVISION

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"Y" LINE Sta 3+42.68 to 4+00

"Y" LINE



155
150
145

1+25

155
150
145

4+36.06 P.O.T.

160
155
150

4+25

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND.
"Y" LINE Sta. 4+25 to 4+36.06

"YU" LINE

195
190
185

163+00

195
190
185

162+68.24

195
190
185

162+75

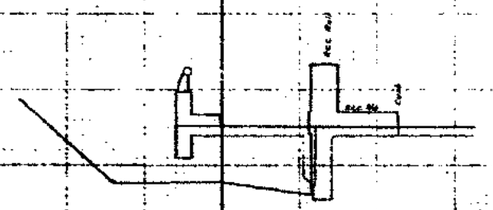
190
185

162+58.22

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND

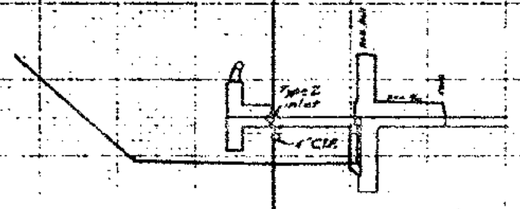
"YU" LINE

190
185
180



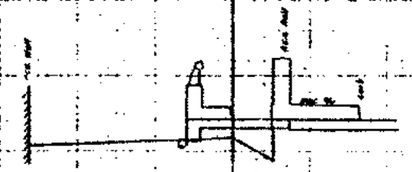
163+78

190
185
180



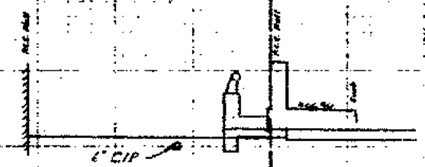
163+75

190
185
180



163+50

190
185
180



163+25

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION

STRUCTURE YERBA BUENA ISLAND
"YU" LINE Sta. 163+25 to 163+78

"YU" LINE

190
185
180
175

164 + 50

190
185
180
175

164+40.44

190
185
180

164+25

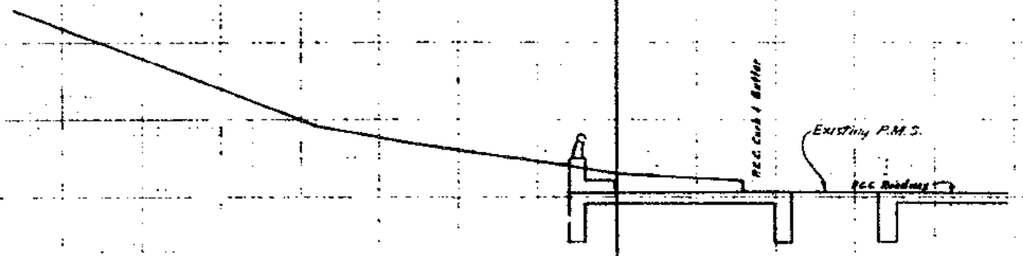
190
185
180

164 + 00

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"YU" LINE Sta. 164+00 to 164+80

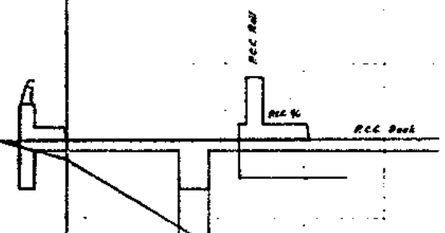
"YU" LINE

200
195
190



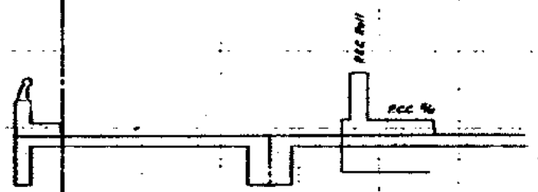
165+12.55 EC

200
195
190
185

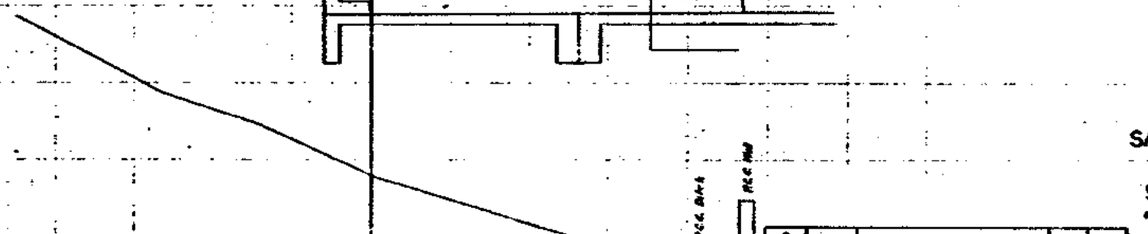


165+00

190
185
180
175



190
185
180



SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
"YU" LINE Sta. 164+75 to 165+12.53

"YU" LINE

205
200
195
190
185
210

165 + 54.65 BC

205
200
195
190
185

165 + 50

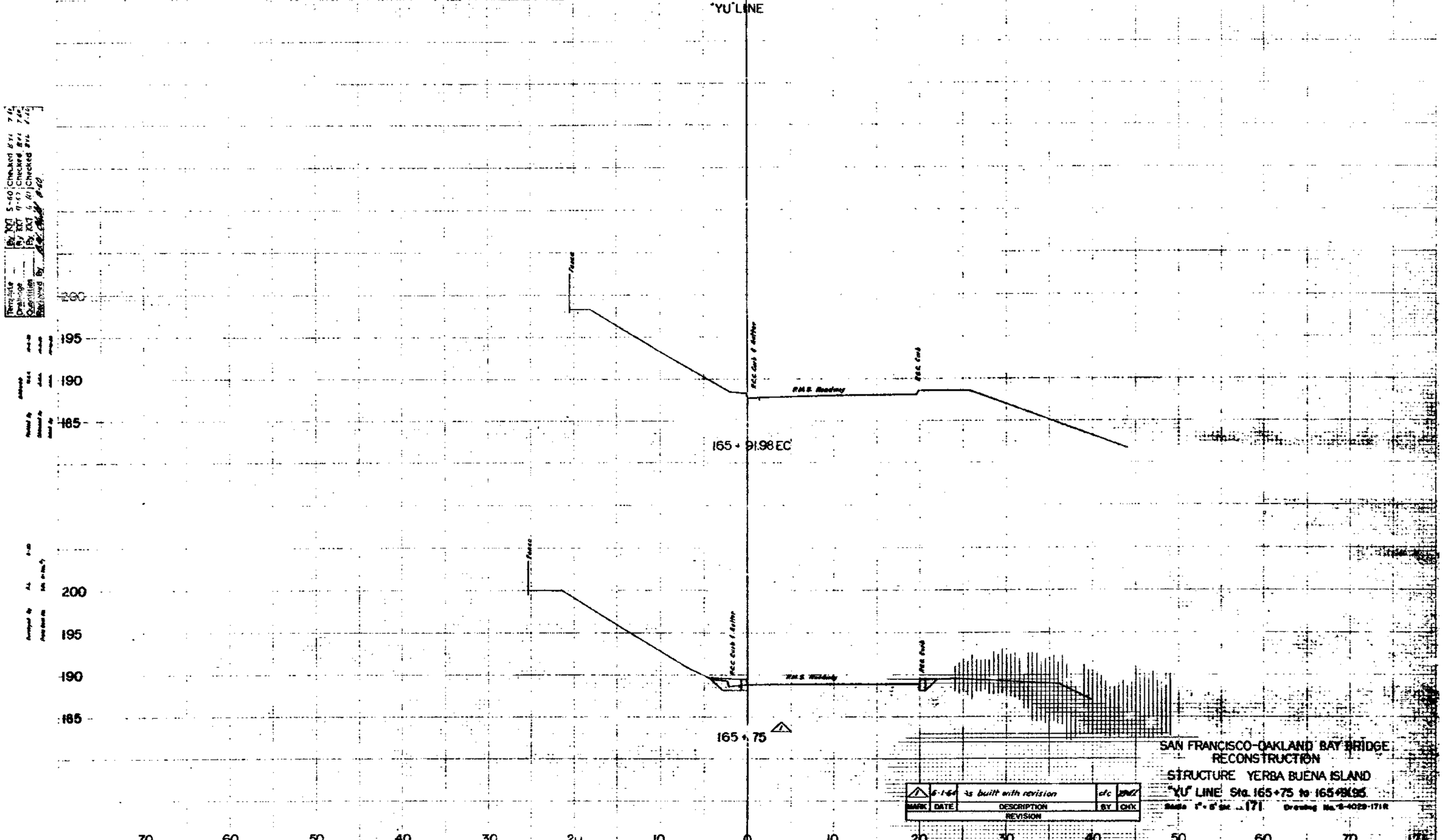
195
190

165 + 25

MARK	DATE	DESCRIPTION	BY	CHK.
1	6-1-61	As built with revision.	cfc	[illegible]

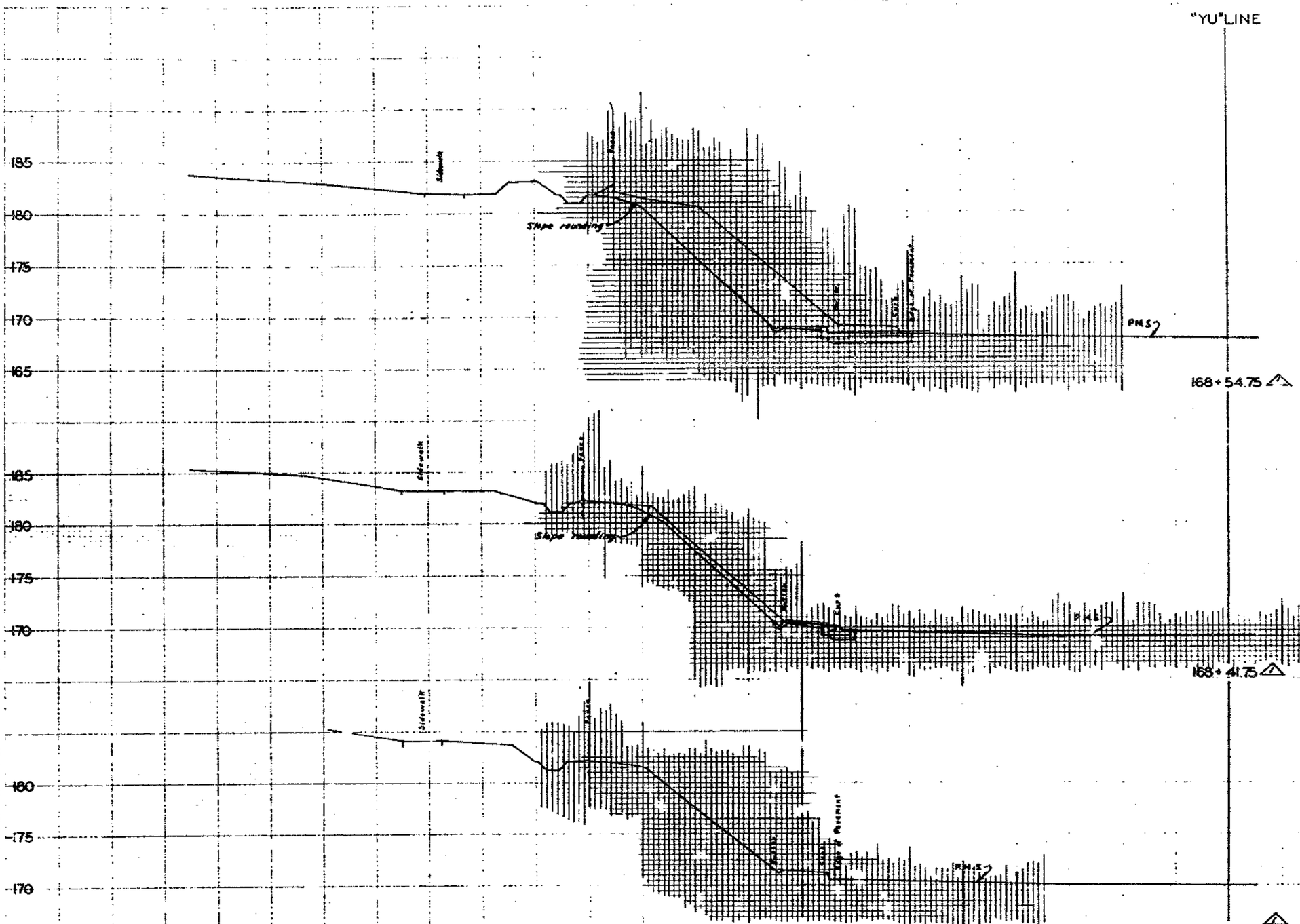
REVISION

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"YU" LINE Sta. 165+25 to 165+54.62
Scale 1" = 5' Sht. No. 170 Drawing No. S 4029-170-R

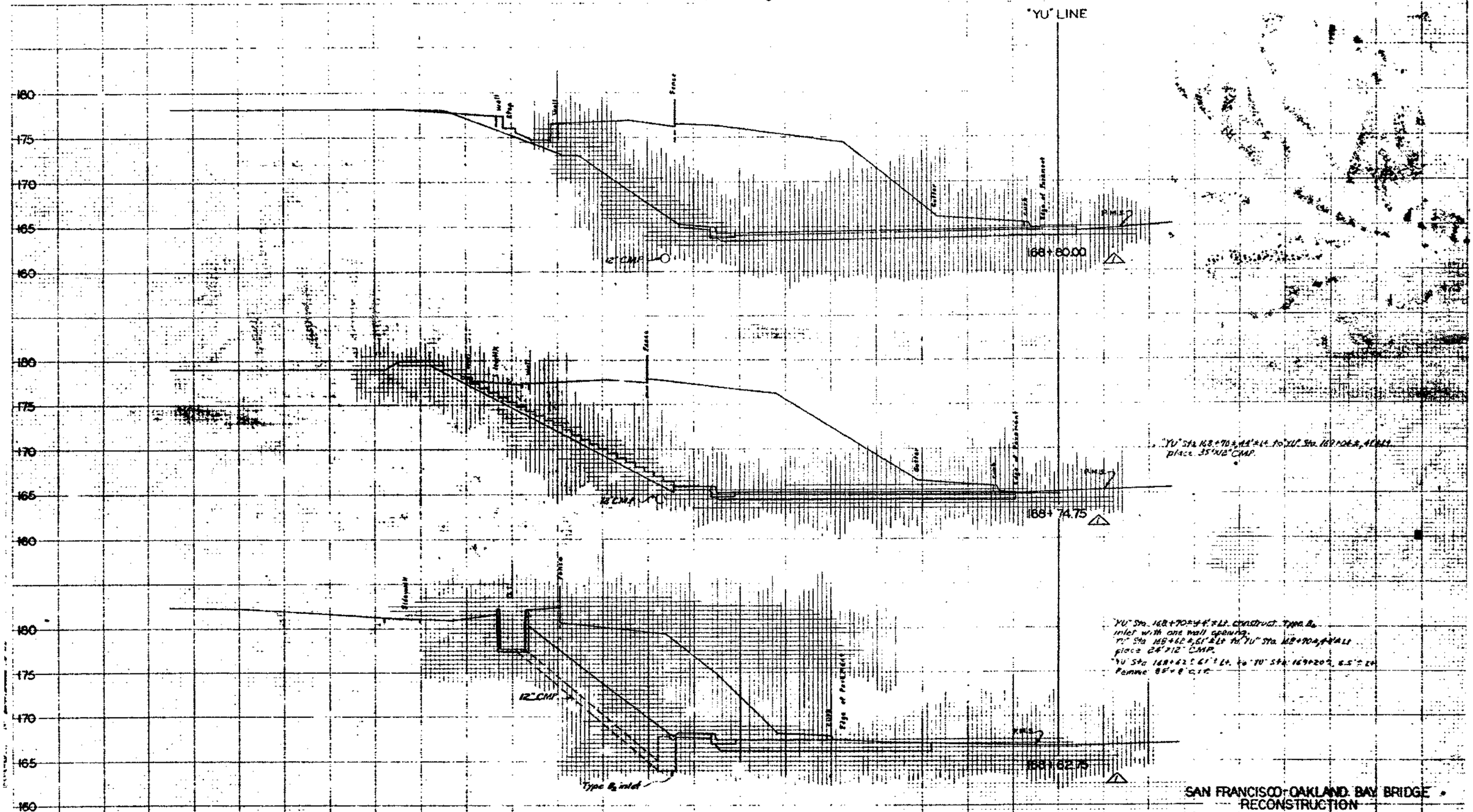


"YU" LINE
Fence
R.C.C. Curb & Gutter
P.M.S. Roadway
R.C.C. Curb
165 + 91.98 EC
165 + 75
200
195
190
185
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
Template
Drainage
Quantities
Reviewed By
By KKT 5-60 Checked
By KKT 9-62 Checked
By KKT 6-61 Checked
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
"YU" LINE Sta. 165+75 to 165+91.95
Scale 1" = 5' Sht. 171
Drawing No. S-4029-171R
1 6-1-64 As built with revision cfc
MARK DATE DESCRIPTION BY CHK
REVISION

CROSS SECTION



SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION

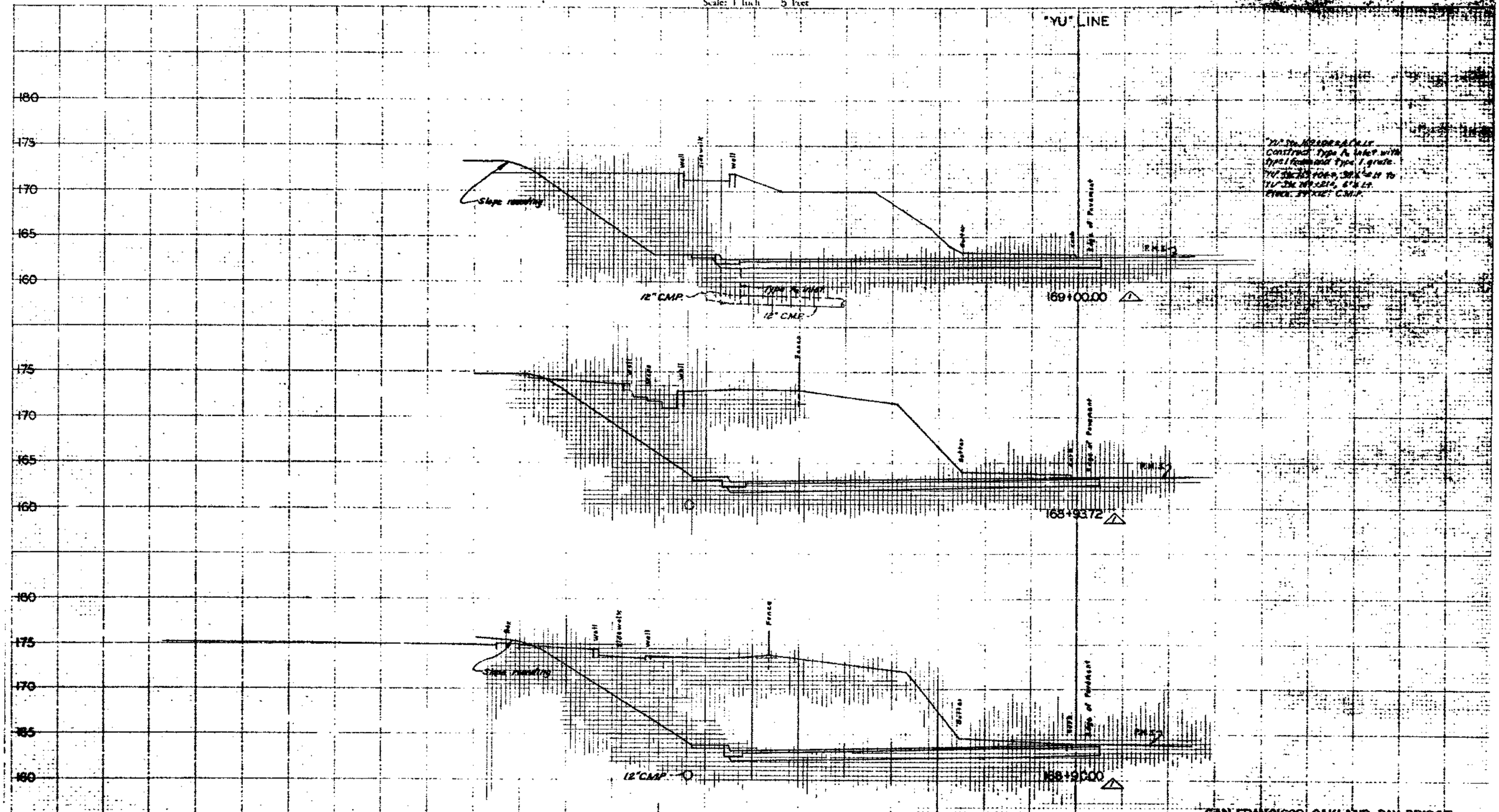


SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND

STATE OF CALIFORNIA
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

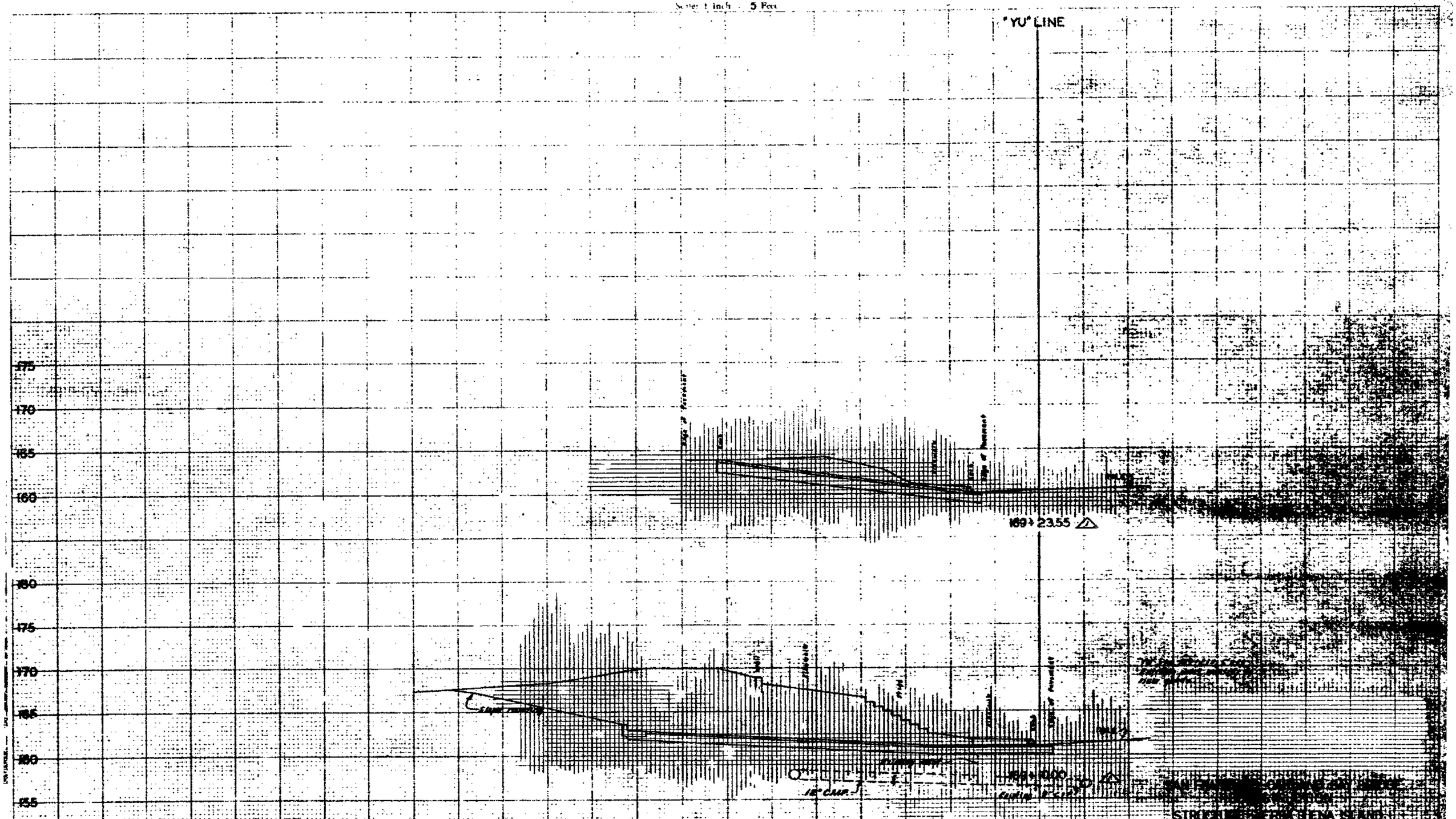
CROSS SECTION

Scale: 1 Inch = 5 Feet



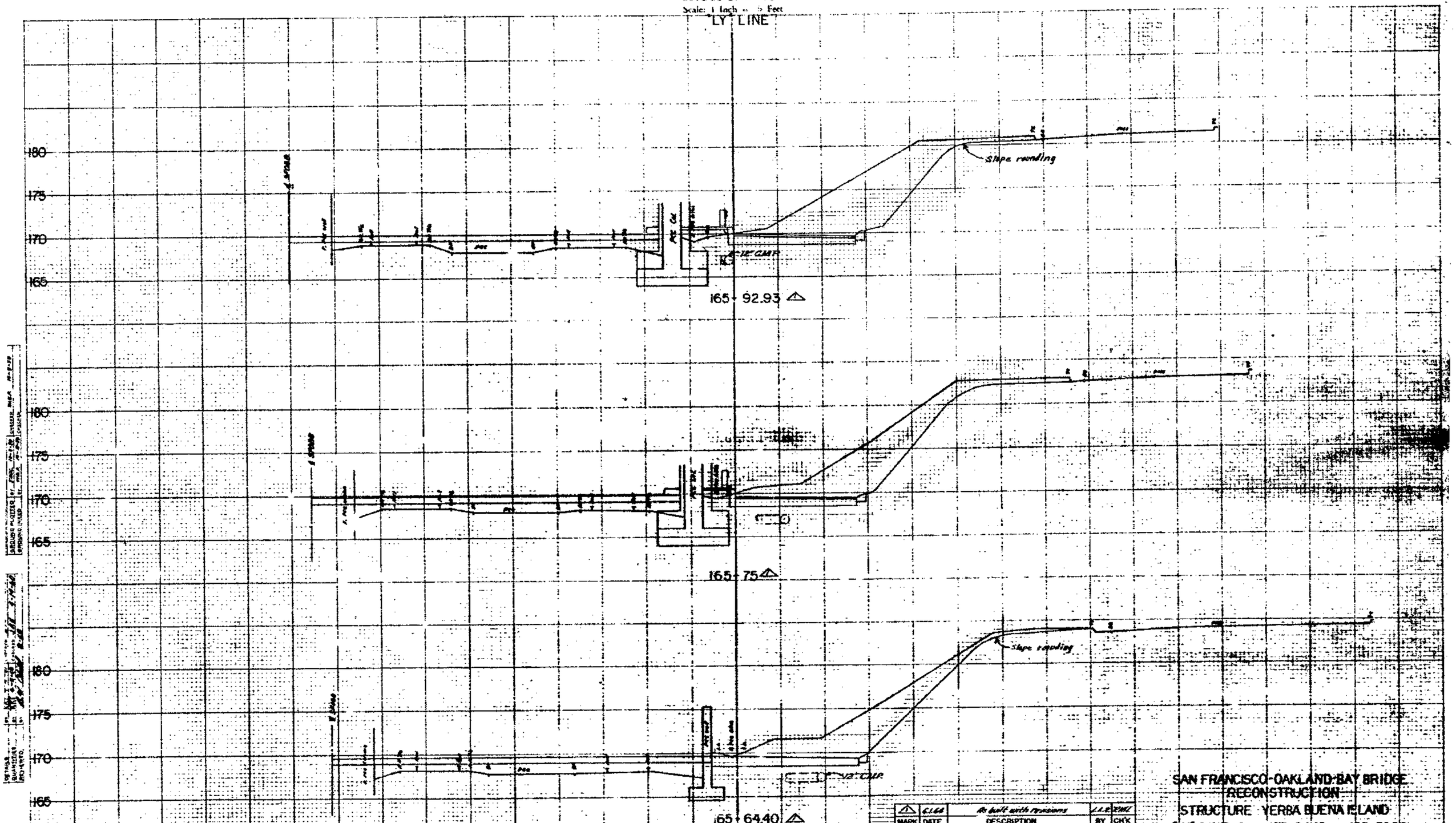
CROSS SECTION

Scale: 1 inch = 5 Feet



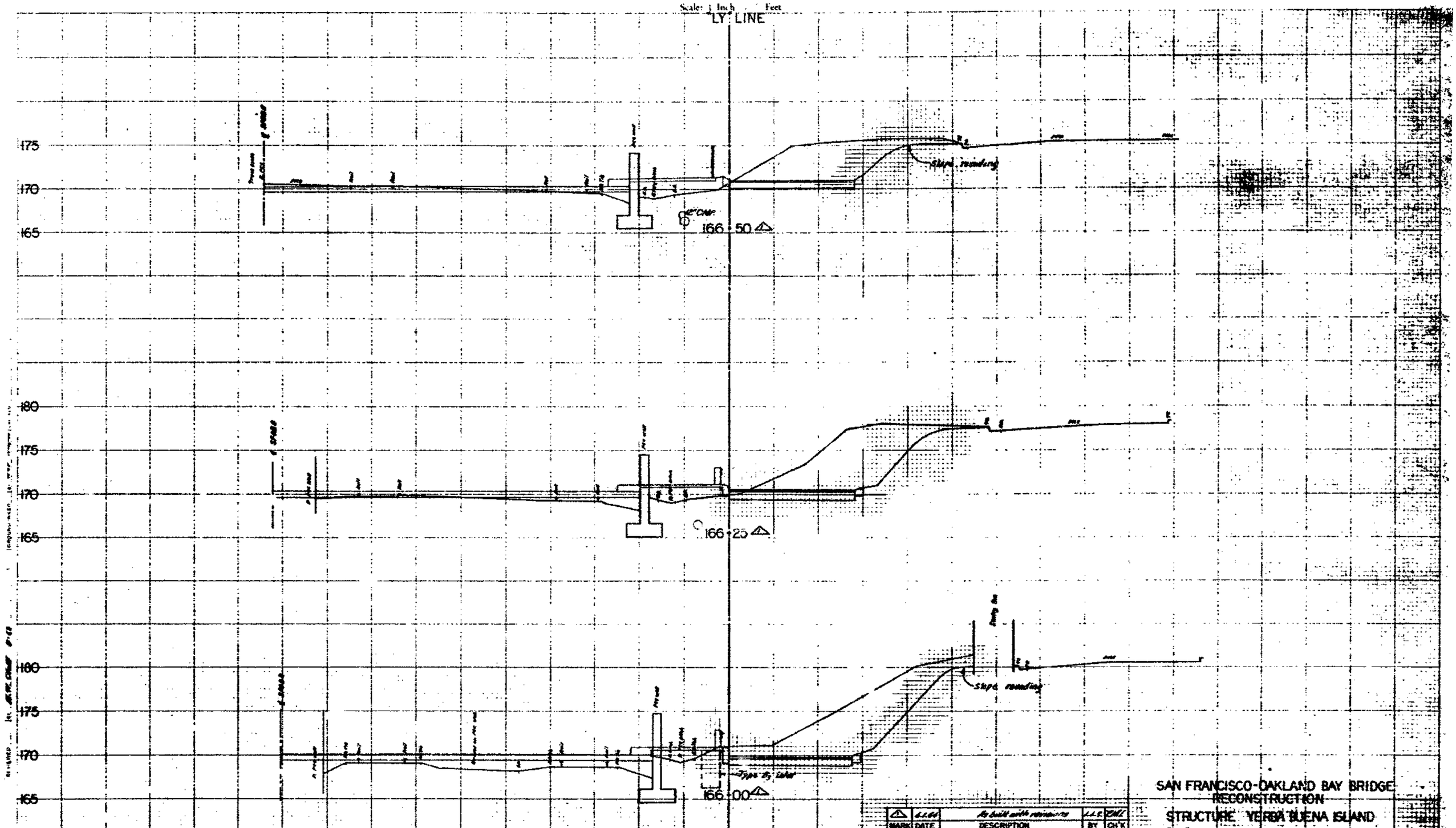
CROSS SECTION

Scale: 1 Inch = 5 Feet



MARK	DATE	DESCRIPTION	BY	CH'K
1	6.1.66	As built with revisions	J.A.R.	RWL

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND

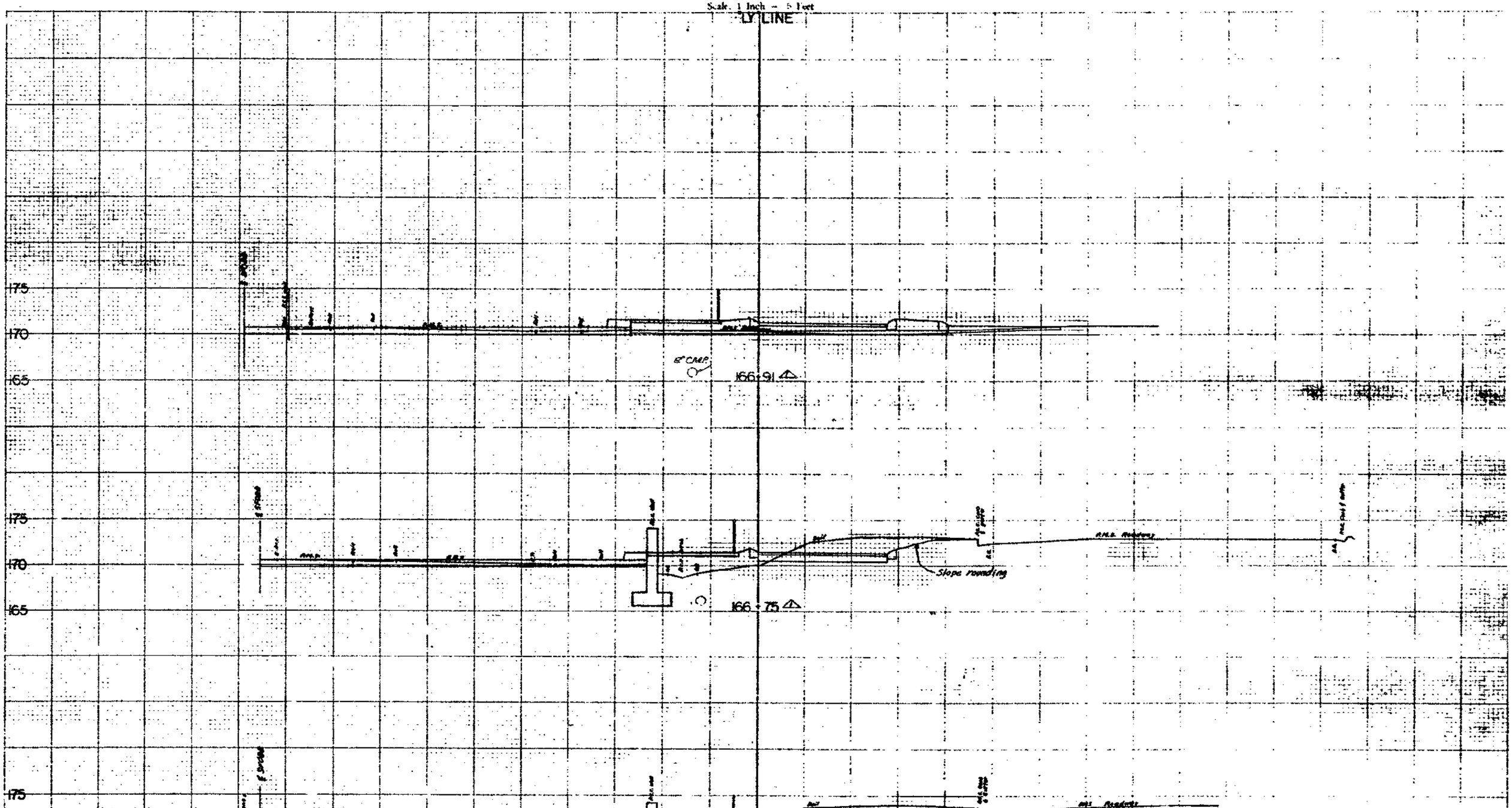


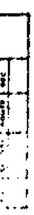
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND

STATE OF CALIFORNIA
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

CROSS SECTION

Scale, 1 Inch = 5 Feet

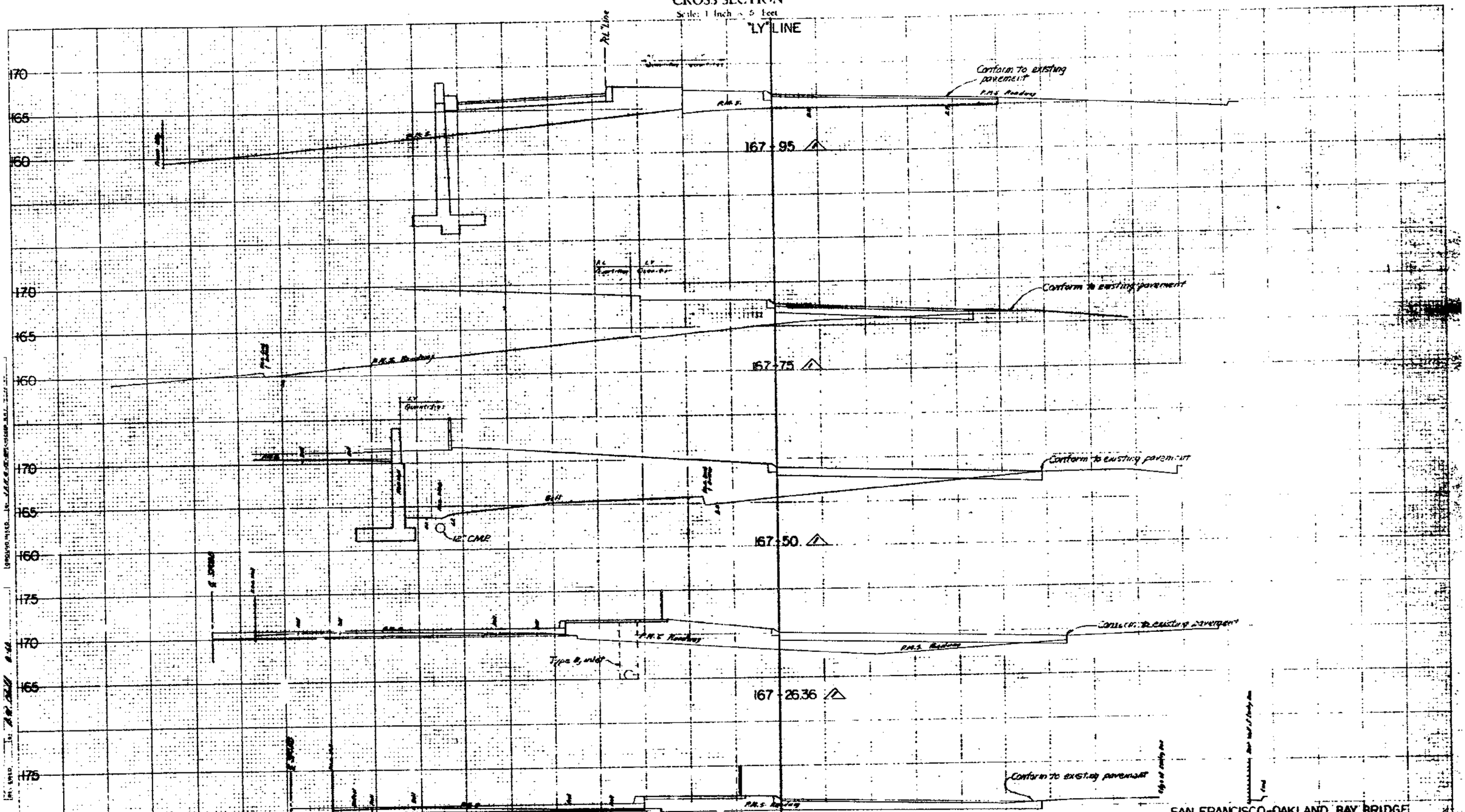




STATE OF CALIFORNIA
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

CROSS SECTION

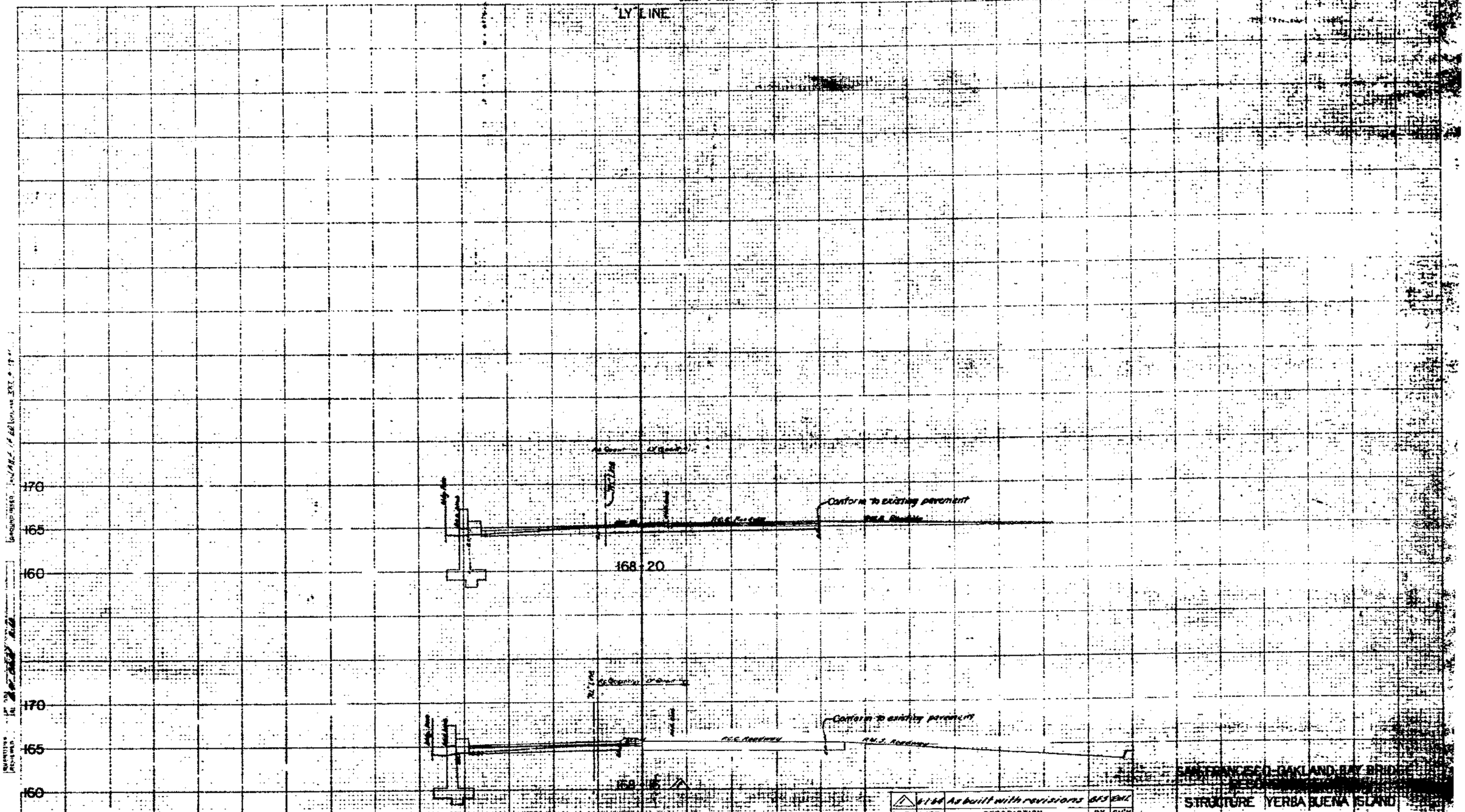
Scale: 1 Inch = 5 Feet

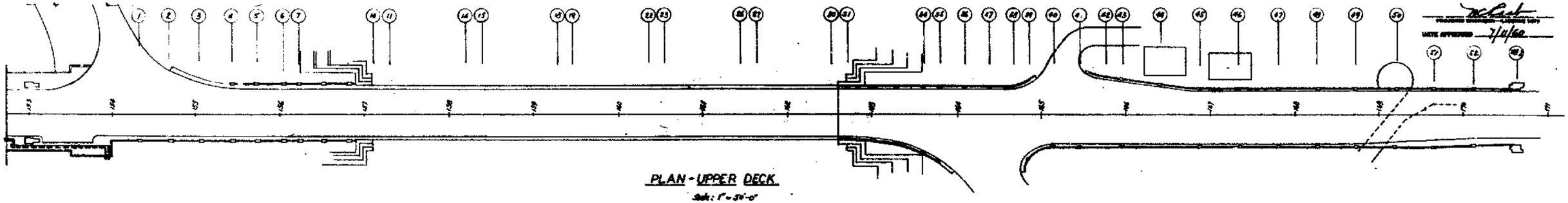


SAN FRANCISCO-OAKLAND BAY BRIDGE

CROSS SECTION

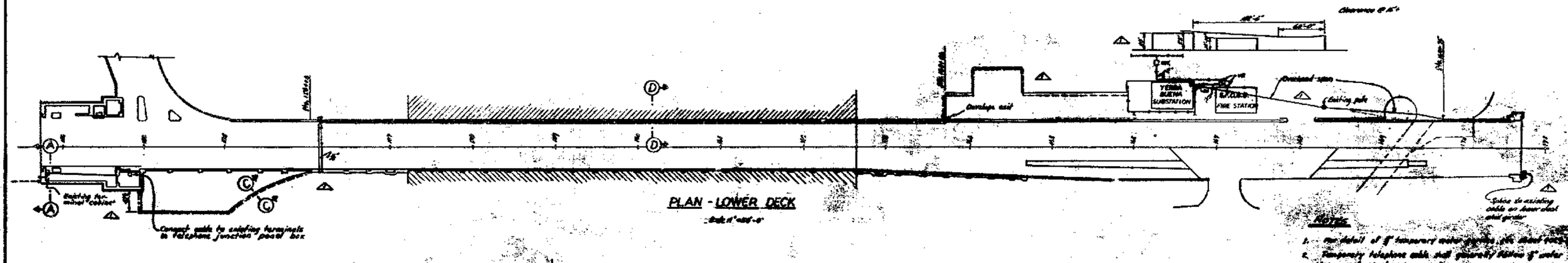
Scale: 1 Inch = 6 Feet





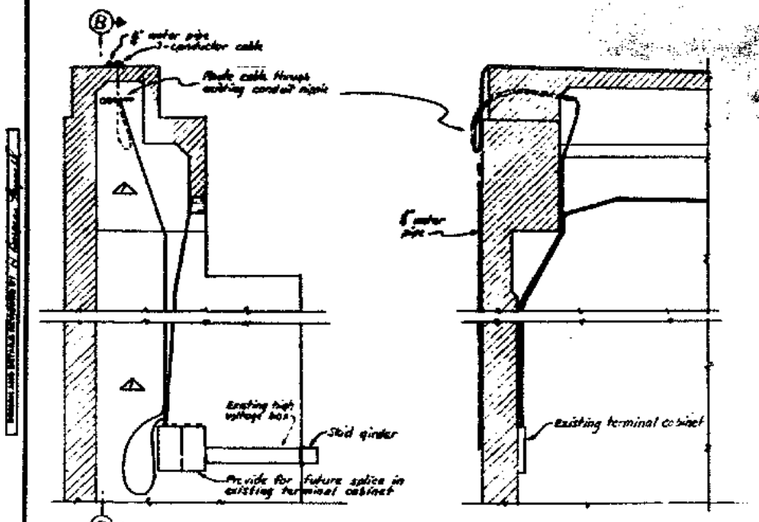
PLAN - UPPER DECK

Scale: 1" = 50'-0"



PLAN - LOWER DECK

Scale 1" = 50'-0"

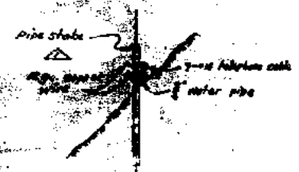


SECTION A-A

Scale 1" = 1'-0"

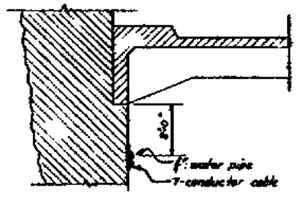
SECTION B-B

Scale 1" = 1'-0"



SECTION C-C

No scale



SECTION D-D

Scale 1" = 1'-0"

Notes:

1. See detail of 1" temporary water service for detail not shown.
2. Temporary telephone cable shall generally follow 1" water line except as shown.
3. Add one twisted pair spare #19GC three strand cable VSI exchange to VSI substation.

LEGEND

- Red 1" water pipe (See note 1.)
- Existing pipe
- 3-#19 telephone cable
- Box, meter, etc. as noted
- Cable mount
- Cable descent

0 1/16" 1/8" 1/4" 1/2" 1"

SCALE IN INCHES

STATE OF CALIFORNIA — DEPARTMENT OF PUBLIC WORKS — DIVISION OF BAY TOLL CROSSINGS

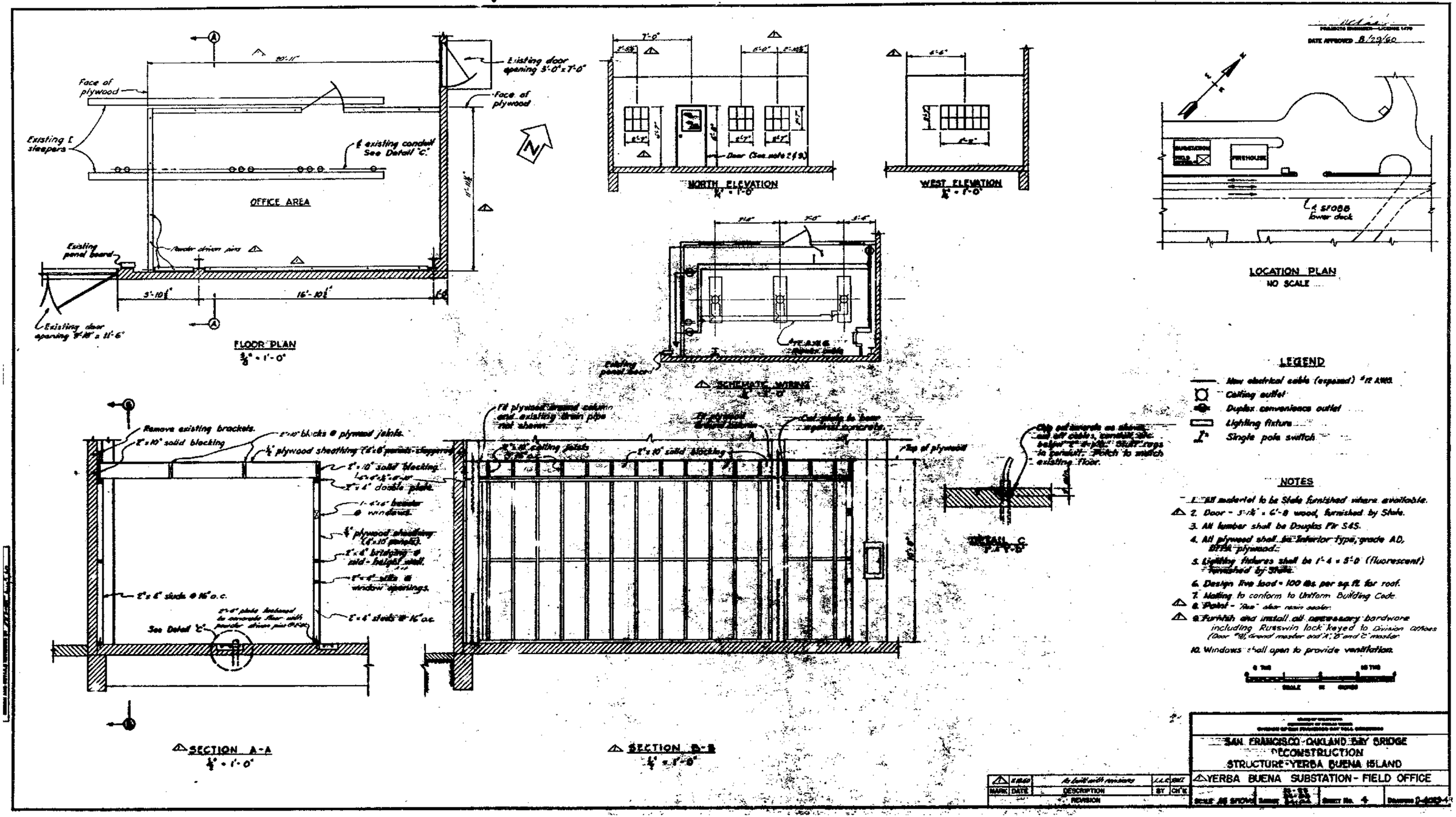
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND

TEMPORARY TELEPHONE SERVICE

MARK	DATE	DESCRIPTION	BY	CHK
1	4-6-60	As built with revisions	J.L.K.	BWT

REVISION

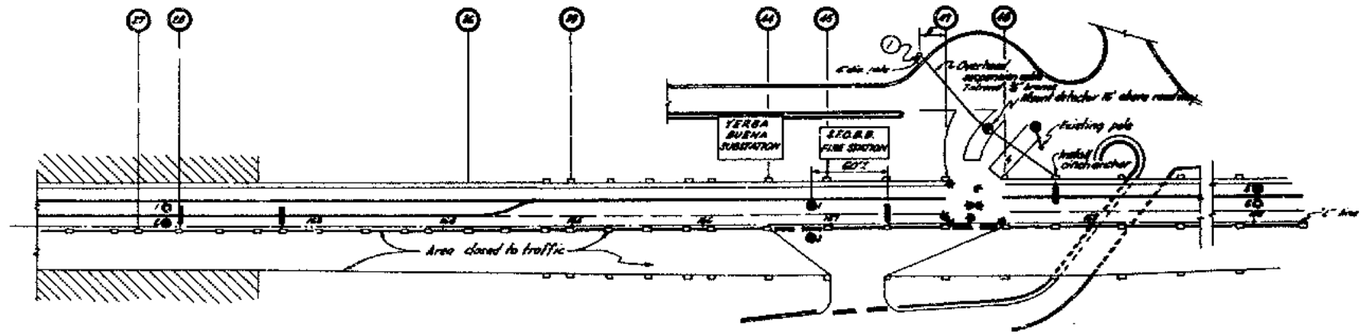
SCALE AS SHOWN | Design 11-28 4-59 | Sheet No. | Drawing D-4029-3



PROJECTS ENGINEER—LICENSE 1470
DATE APPROVED 8/29/60
Face of plywood
Existing ℄ sleepers
℄ existing conduit See Detail "C"
OFFICE AREA
Existing door opening 3'-0" x 7'-0"
Face of plywood
Existing panel board
Powder driven pins
Existing door opening 9'-10" x 11'-6"
FLOOR PLAN
3/8" = 1'-0"
NORTH ELEVATION
1/4" = 1'-0"
Door (See note 2 & 9)
WEST ELEVATION
1/4" = 1'-0"
SCHEMATIC WIRING
Existing panel board
LOCATION PLAN
NO SCALE
SUBSTATION
FIREHOUSE
℄ SF08B lower deck
LEGEND
New electrical cable (exposed) #12 AWG
Ceiling outlet
Duplex convenience outlet
Lighting fixture
Single pole switch
NOTES
1. All material to be State furnished where available.
2. Door - 3'-1¾" x 6'-8 wood, furnished by State.
3. All lumber shall be Douglas Fir S4S.
4. All plywood shall be Interior type, grade AD, DFPA plywood.
5. Lighting fixtures shall be 1'-4 x 5'-0 (fluorescent) furnished by State.
6. Design live load = 100 lbs. per sq. ft. for roof.
7. Nailing to conform to Uniform Building Code.
8. Paint - "Rex" clear resin sealer.
9. Furnish and install all necessary hardware including Russwin lock keyed to Division Offices (Door #9), Grand master and "A", "B" and "C" master.
10. Windows shall open to provide ventilation.
Remove existing brackets.
2"x10" solid blocking
2"x10" blocks @ plywood joints.
½" plywood sheathing (4'x8' panels-stoppered)
2"x10" solid blocking
2"x4" double plate.
1-4"x6" header @ windows.
½" plywood sheathing (4'x10' panels).
2"x4" bridging @ mid-height wall.
2"x4" sills @ window openings.
2"x4" studs @ 16" o.c.
2"x4" studs @ 16" o.c.
See Detail "C"
SECTION A-A
1/4" = 1'-0"
Fill plywood around column and existing drain pipe not shown.
2"x10" ceiling joists
2"x10" solid blocking
Cut plate to bear against concrete.
Top of plywood
SECTION B-B
1/4" = 1'-0"
DETAIL C
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
YERBA BUENA SUBSTATION - FIELD OFFICE
As built with revisions
MARK DATE DESCRIPTION BY CH'K
REVISION
SCALE AS SHOWN
SHEET No. 4

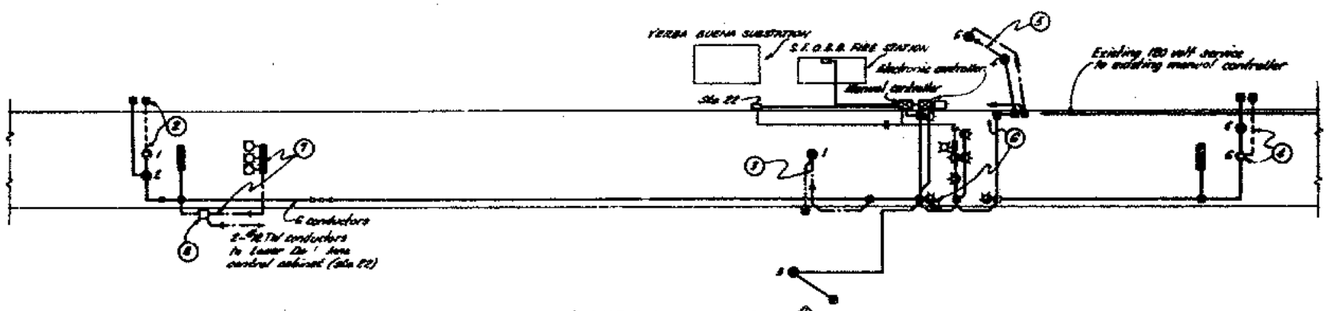
PROJECTS ENGINEER—LICENSE 1470

DATE APPROVED 1/4/61

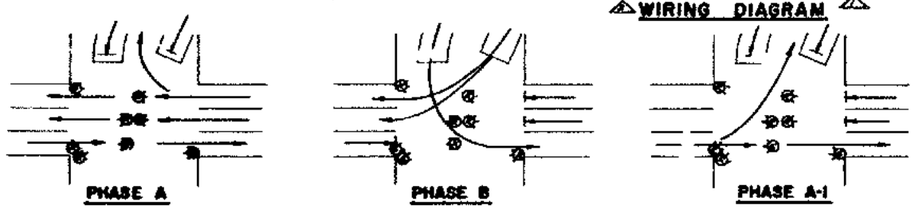


PLAN

Scale 1"=50'

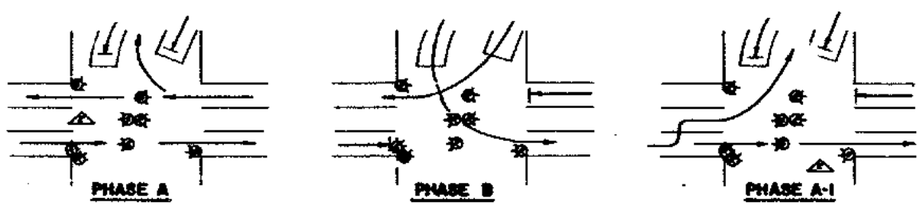


WIRING DIAGRAM



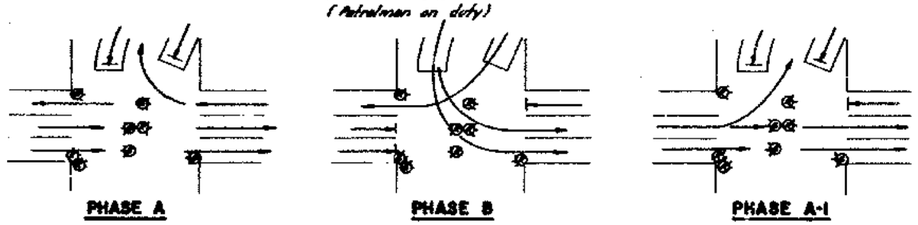
MORNING PEAK HOURS

(Patrolman on duty)



OFF PEAK HOURS, WEEK-ENDS AND HOLIDAYS

(Radar detectors in operation or Patrolman on duty)



EVENING PEAK HOURS

(Patrolman on duty)

NOTES

1. Install State furnished pole and erect overhead suspension cable from Bent #48. Mount detector as shown, and install pullover cable from Bent 47.
2. Remove and relocate detector #1, 5-conductor cable; and manual sensitivity control from near Bent 28 to Bent 45 as shown.
3. Install 3-#12 conductors from relocated detector #1 to existing junction box and connect to neutral, 120 volt, and detector circuits.
4. Remove and relocate detector #6, 5-conductor cable and manual sensitivity control from near 2" sta. 175+00 location to overhead suspension cable North of Bent 48 as shown.
5. Install parallel connections between existing detector #4 and relocated detector #6, for 120 volt power supply. Install relocated manual sensitivity control and lengthen 5 conductor cable with 5-#12 conductors; install one #12 conductor to master electronic controller.
6. Relocate signal head from Bent 48 north side to Bent 47 south side; orient signals as directed by the Engineer.
7. Install traffic sign and incandescent sign lights. Install 2 #12 conductors to existing junction box to obtain 120 volt power supply. (Incandescent sign lights shall be Graybar cat. number 2004 and 5 conduits)
8. Install single pole single throw relay and connect two #12 TW conductors to L.O. line controller at sta. 22.
9. Orient and reconnect traffic signal heads for traffic control patterns as shown below. Interconnect Lane Signal Control System with necessary relaying to produce patterns shown for various traffic peaks.
10. Interconnect Lane Signal Control System with illuminated sign so incandescent lights are not energized during morning peak.

LEGEND

- Existing conductors.
- Remove and relocate existing conductors.
- Install new or relocated conductors.
- Existing luminated sign.
- Install new sign
- Master electronic or manual signal controller.
- Manual remote sensitivity control.
- Radar detector.
- Radar detector to be removed and relocated.
- Existing junction box.
- Existing traffic signal.
- Signal light. (Red and green)
- Install incandescent sign light
- New Junction Box

SCALE IN INCHES

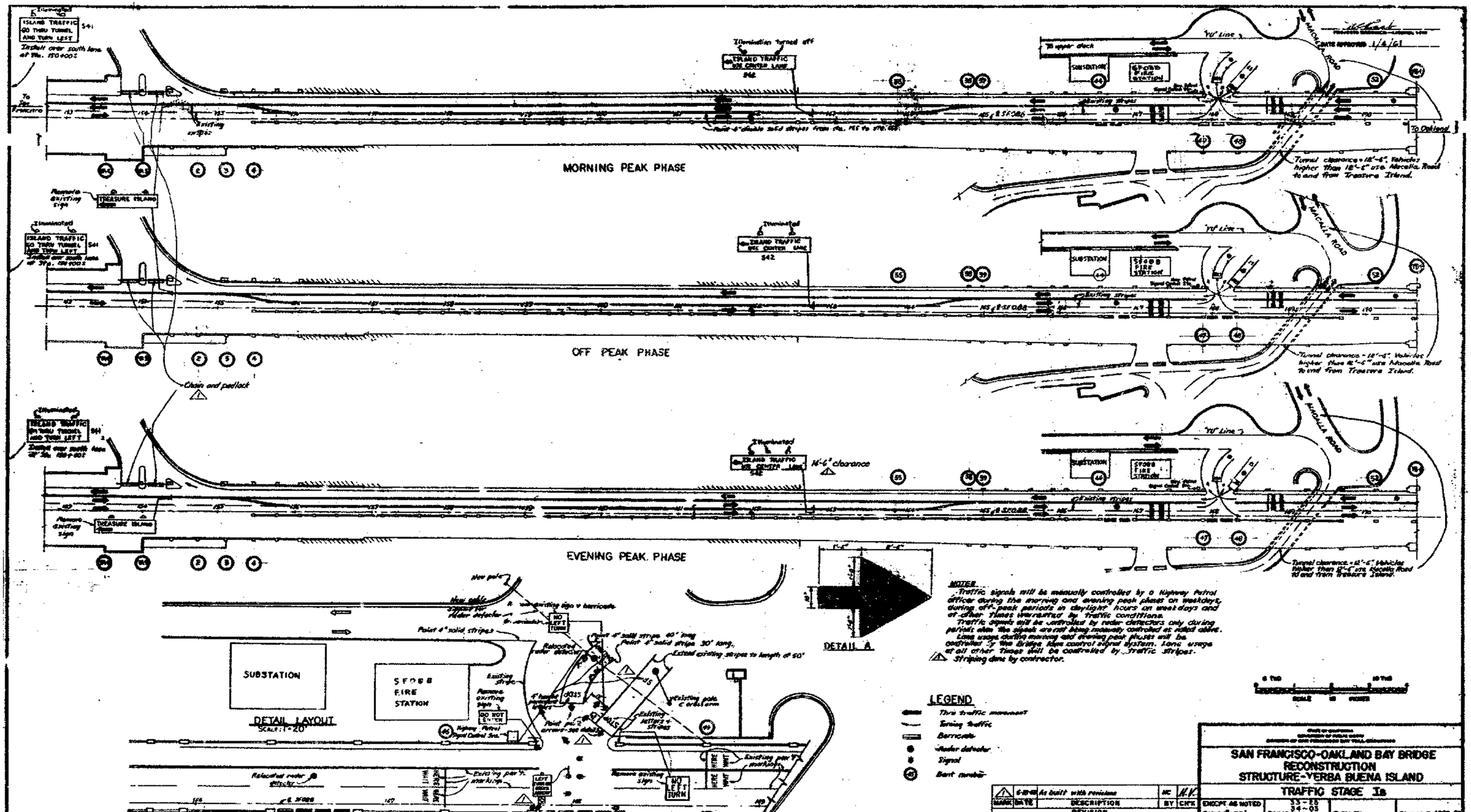
MARK	DATE	DESCRIPTION	BY	CH'K
2	4.10.61	As built with revisions	J.L.R.	R.M.L.
1	1/10/61	Revised traffic phase operations.	M.F.	H.B.T.

REVISION

SAN FRANCISCO - OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND

TRAFFIC SIGNAL MODIFICATION - STAGE Ia

SCALE AS SHOWN | BRIDGE 33-28 34-03 34-04 | SHEET No. 5 | DRAWING D-4029-BR



MORNING PEAK PHASE
OFF PEAK PHASE
EVENING PEAK PHASE
DETAIL A
DETAIL LAYOUT
SCALE: 1"=20'
SUBSTATION
SFOBB FIRE STATION
TREASURE ISLAND
MACALLA ROAD
To Oakland
To San Francisco
Illumination turned off
Chain and padlock
14'-6" clearance
Existing stripes
Remove existing sign
Relocated radar detector
Existing pole & crossarm
Existing letters & stripes
Existing pav't. markings
Remove existing sign
NO LEFT TURN
DO NOT ENTER
Highway Patrol Signal Control Sys.
NOTES
Traffic signals will be manually controlled by a Highway Patrol officer during the morning and evening peak phases on weekdays, during off-peak periods in daylight hours on weekdays and at other times warranted by traffic conditions.
Traffic signals will be controlled by radar detectors only during periods when the signals are not being manually controlled as noted above.
Lane usage during morning and evening peak phases will be controlled by the Bridge lane control signal system. Lane usage at all other times will be controlled by traffic stripes.
Striping done by contractor.
LEGEND
Thru traffic movement
Turning traffic
Barricade
Radar detector
Signal
Bent number
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
TRAFFIC STAGE Ia
As built with revisions
MARK
DATE
DESCRIPTION
BY
CH'K
REVISION
EXCEPT AS NOTED
SCALE 1"=50'
DRAWING
SHEET NO.

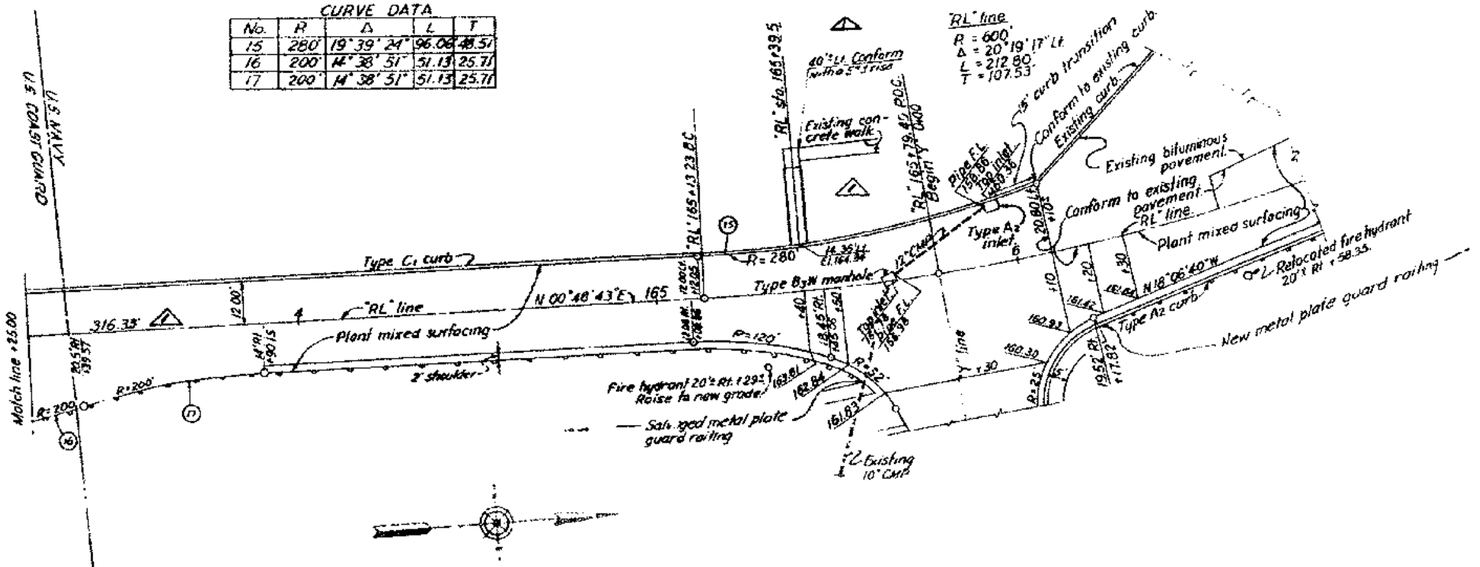
PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960

DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS
RECOMMENDED BY ... SUPERVISING BRIDGE ENGINEER
APPROVED ... BRIDGE ENGINEER

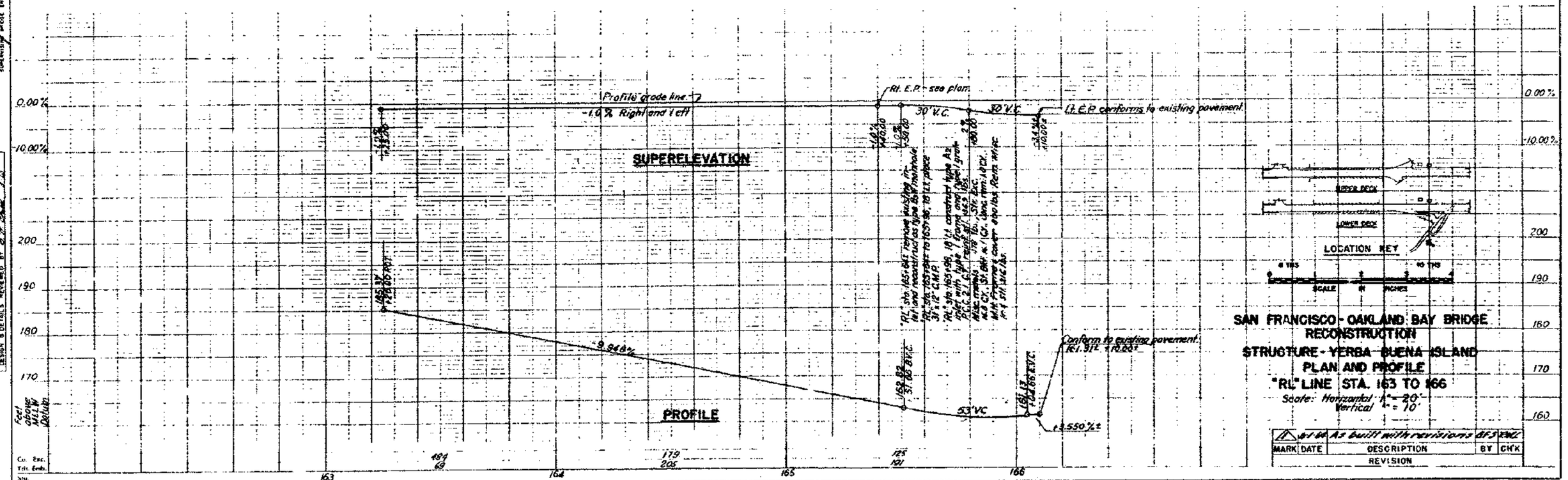
DRAWN	BY	DATE
QUANTITIES	B. Gee	5-13-60
TRACED	Dick	6-8-60
DESIGN & DETAILS REVIEWED BY		

CURVE DATA

No.	R	Δ	L	T
15	280'	19°39'24"	96.06	48.51
16	200'	14°38'51"	51.13	25.71
17	200'	14°38'51"	51.13	25.71



PLAN



SAN FRANCISCO - OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
PLAN AND PROFILE
"RL" LINE STA. 163 TO 166
Scale: Horizontal 1" = 20'
Vertical 1" = 10'

MARK	DATE	DESCRIPTION	BY	CH'K
		REVISION		

Co. Rte. Sec. Sht.

Sheet No. 47 C-4029-47R

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960

San Francisco — N 40°26'47.3"E — ℄ SFOBB — Oakland

New passenger loading platform. — Passenger shelter above — Pipe railing — Stairway — 25' curb transition — New curb & curb — New concrete pavement — Construction joint — New rail

Clr. 3 L.P. Nose = 31 LL "RL" 168+75.17 = 41.79 Rt. SFOBB 168+74.71

Plant mixed surfacing — Type F curb — P.C.C. floating slab — "RL" 168+75.17 Equal to 41.78 Rt. SFOBB 168+75.59 — "RL" 168+49.77 E.C.

"LY" line — 45° skew flare — Type C curb — "RL" line — "RL" 167+35.81 P.C. — "RL" 167+71.62 P.C. — Type F curb — Retaining wall — "RL" 168+20.86 E.C. — "RL" 168+44.32 E.C. — "RL" 168+96.06 P.C. — "RL" 168+24.00 P.C. — "RL" 168+20.86 E.C.

Existing garage — Existing bituminous pavement — Conform to limit of existing bituminous pavement — Existing curb — Conform to existing pavement — Plant mixed surfacing — Type As concrete transition slab over new made soil — "RL" 168+16.59 P.C.

"RL" line R = 100' Δ = 42°18'46" Rt. L = 77.17 T = 40.62

■ New columns.
▨ Existing columns.

PLAN

CURVE DATA				
No.	R	Δ	L	T
13	100'	13°45'23"	24.01	12.06
14	120'	44°12'46"	92.60	48.74
36	614'	1°23'54"	14.98	7.49
1 M A	[illegible]	25°24'30"	41.55	—

SUPERELEVATION

See plan. — 1.8% on rt. — 50' V.C. — 50' V.C. — Profile grade line — -6.0% — -6.0% — See plan. — -6.0% on rt.

Conform to existing pavement — Existing profile — +1.69% — +1.69% — 166+44.32 — 166+96.06 — 166+24.00 — 166+20.86 — 166+16.59 — 166+20.86 — 166+44.32 — 166+96.06 — 167+24.00 — 167+35.81 — 167+71.62 — 168+16.59 — 168+20.86 — 168+44.32 — 168+96.06 — 169+24.00 — 169+35.81 — 169+71.62 — +0.58% — 100' V.C. — 16.327% unfavorable grade — 27.42% — 27.42% — 16.327% unfavorable grade

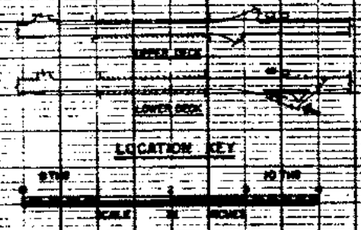
PROFILE

Ft. below MEAN Datum — 15% — 0% — -5% — 180 — 170 — 160

Co. Est. — Yds. Emb. — Sta. — 119 — 140 — 143 — 474 — 38 — 526

166 — 167 — 168 — 169

LOCATION KEY

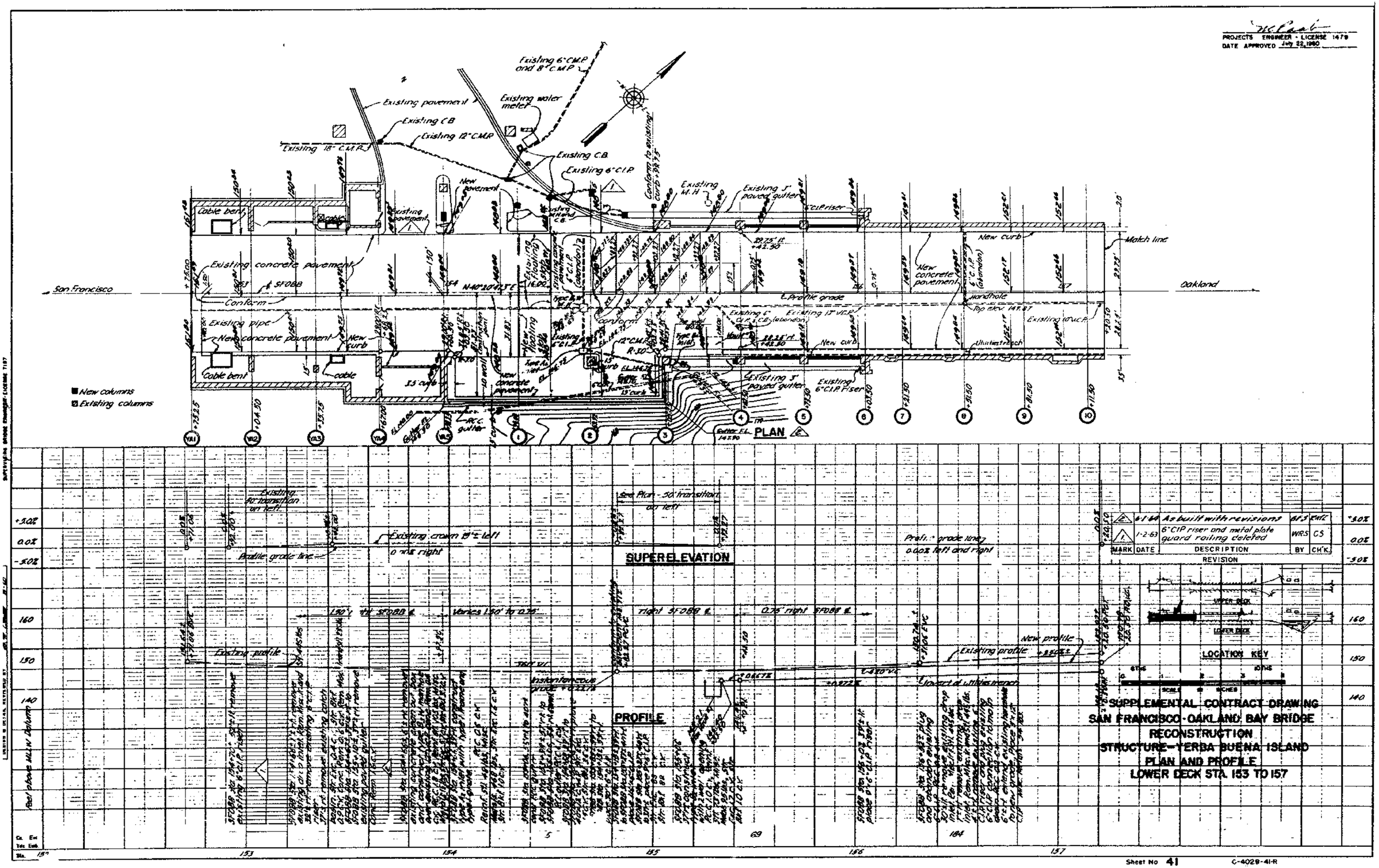


SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
PLAN AND PROFILE
"RL" LINE STA. 166 TO 169
Scale: Horizontal 1" = 20'
Vertical 1" = 10'

MARK	DATE	DESCRIPTION	BY	CH'K
1	6-14	As built with revisions	GFS	EMC

REVISION

Sheet No. 48 — C-4029-48R


PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960
Existing 6" C.M.P. and 8" C.M.P.
Existing pavement
Existing water meter
Existing C.B.
Existing 12" C.M.P.
Existing 18" C.M.P.
Existing C.B.
Existing 6" C.I.P.
Conform to existing curb +99.75
Existing M.H.
Existing 3" paved gutter
6" C.I.P. riser
New pavement
Cable bent
Existing pavement
Existing concrete pavement
San Francisco
Oakland
Conform
Existing pipe
New concrete pavement
New curb
Cable bent
cable
New concrete pavement
Profile grade
Handhole
Top elev. 149.87
Existing 10" V.C.P.
Existing 13" V.C.P.
Existing 6" C.I.P. & C.B. (abandon)
Existing 3" paved gutter
Existing 6" C.I.P. riser
Match line
New curb
Utilities trench
New columns
Existing columns
PLAN
SUPERELEVATION
Existing 50' transition on left
See Plan - 50' transition on left
Existing crown 19'± left
Profile grade line
Profile grade line 0.00% left and right
Existing profile
New profile
Instantaneous grade
Invert of utilities trench
PROFILE
Feet above MLLW Datum
+5.0%
0.0%
-5.0%
160
150
140
153
154
155
156
157
6-1-64 As built with revisions
1-2-63 6" CIP riser and metal plate guard railing deleted
MARK DATE DESCRIPTION BY CH'K.
REVISION
UPPER DECK
LOWER DECK
LOCATION KEY
SCALE IN INCHES
SUPPLEMENTAL CONTRACT DRAWING
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
PLAN AND PROFILE
LOWER DECK STA. 153 TO 157
Sheet No 41
C-4028-41-R

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960

GENERAL NOTES FOR PLAN AND PROFILE

1. Elevation Datum is SFOBB 1933 MLLW Datum (3.10' below U.S.C. & G.S. sea level datum of 1929)
2. Ties to drainage inlets and manholes are approximate and are to the centers of the inlets and manholes.
3. Metal plate guard railing shall be corrugated type.
4. Detail of Type Z inlet on Sheet No 106

ABBREVIATION	MEANING	ABBREVIATION	MEANING
C.Y.	Cubic yards	V.C.P.	Vitrified clay pipe
lbs and #	Pounds	D.I.	Drop inlet
S.F.O.B.B.	San Francisco-Oakland Bay Bridge	F.L.	Flow line
M.L.L.W.	Mean lower low water	E.O.P.	Right edge of pavement
V.C.	Vertical curve	C/L	Center
B.V.C.	Begin vertical curve	Std.	Standard
E.V.C.	End vertical curve	I.P.	Iron
P.V.I.	Point of reverse vertical curve	St.	Steel
P.O.C.	Point on curve	℄	Center line
P.O.T.	Point on "tangent"	Reinf.	Reinforcement
R	Radius of curve	Rem'd.	Remove
B.C.	Beginning of curve	Misc.	Miscellaneous
E.C.	End of curve	Str. Exc.	Structure excavation
P.R.C.	Point of reverse curve	Str. Bkf.	Structure backfill
R/W	Right of way	R.C.	Reinforced concrete
Rt.	Right	P.M.S.	Plant mixed surface
Lt.	Left		
El.	Elevation above MLLW		
R.C.	Reinforced concrete		
C.M.P.	Corrugated metal pipe		
M.H.	Manhole		
C.I.P.	Cast iron pipe		
C.B.	Catch basin		

Elevations of existing deck taken May 1960

Elevations of new work

△ As built elevations

• Designates elevations on bronze carriage bolts. All other elevations are on yellow paint spots

Curve No	R	Δ	L	T
3	56.5'	38°00'06"	37.47	19.46'
4	110'	34°06'39"	65.42	33.71'
5	260'	16°36'38"	75.38	37.96
6	55'	32°24'48"	31.12	15.99
7	90'	40°32'09"	63.67	33.24

PLAN

PROFILE

SUPERELEVATION

LOCATION KEY

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
PLAN AND PROFILE
UPPER DECK STA. 153 TO 157

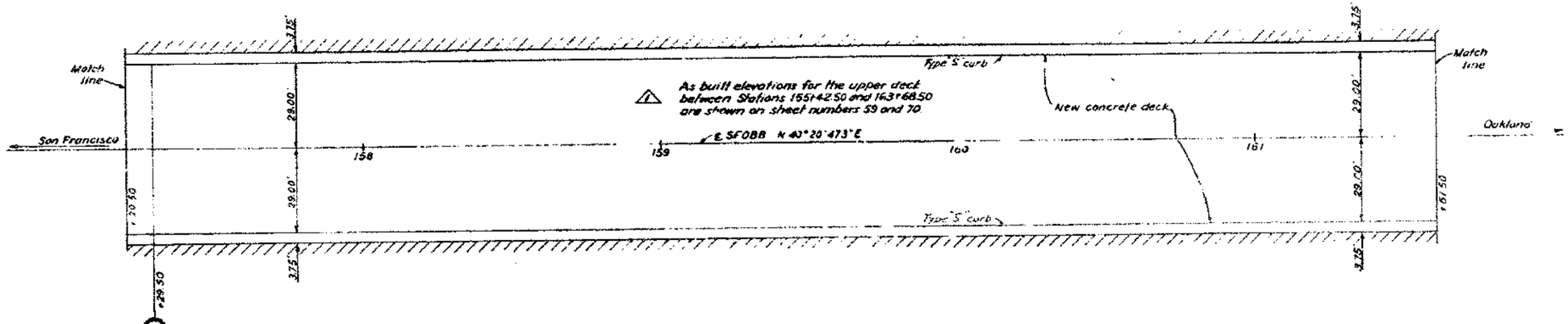
Scale: Horizontal 1"=20'
Vertical 10'

MARK	DATE	DESCRIPTION REVISION	BY	CH'K
△	6-1-64	As built with revision	cf.	RML

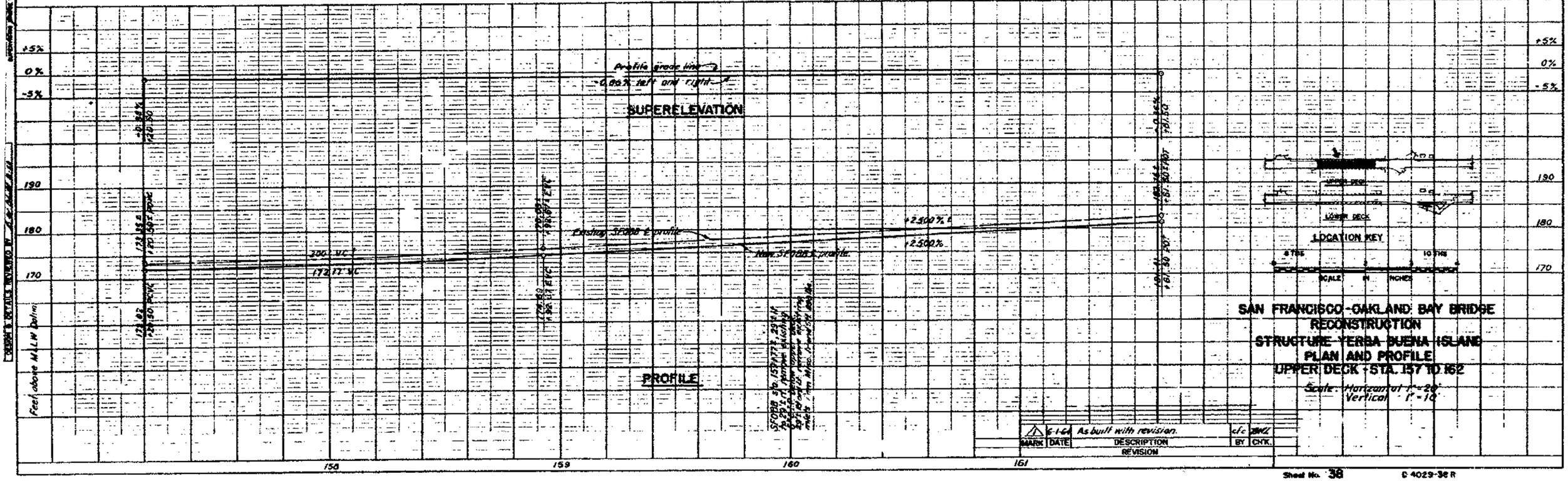
Sheet No 37

C-4029-37R

PROJECTS ENGINEER - LICENSE 1475
DATE APPROVED July 22, 1960



PLAN



MARK	DATE	DESCRIPTION REVISION	BY	CHK.
1	6-1-64	As built with revision.	c/c	BWL

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE YERBA BUENA ISLAND
PLAN AND PROFILE
UPPER DECK - STA. 157 TO 162

Scale: Horizontal 1"=20'
Vertical 1"=10'

Sheet No. 38

C 4029-38 R

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960

CURVE DATA				
No	R	Δ	L	T
8	20'	108° 53' 16"	38.01	28.09
9	500'	7° 28' 08"	65.18	32.64
10	60'	21° 23' 59"	22.41	11.34

"YU" line
R = 280'
Δ = 06° 14' 18" Lt
L = 30.49'
T = 15.25'

Begin "YU" line "YU" 162+60.55 BC = SFOBB 163+60.55 POT

"YU" line
R = 140'
Δ = 29° 24' 32" Lt
L = 71.86'
T = 36.74'

"YU" 165+12.55 EC = SFOBB 166+06.11 POT

For additional details See Sheet No. 50

Existing CB
6' C.I.P. grade 5' 1-0"
Existing 4" C.I.P.
Type S curb
New curb and rail
New concrete deck
Conform line
Existing 4" trench drain over existing
San Francisco line
Oakland line
Existing 12" CMP
Existing 4" C.I.P.
Existing CB
Existing concrete deck
Accelerations lane
Type 7 in 1
New curb and rail
Down 6" C.I.P.
Existing bituminous pavement
Type A curb
End post
Plant mixed surfacing
Existing reinforced concrete retaining wall
Existing reinforced concrete retaining wall
Substation
SFOBB garage
Passenger shelter
Passenger loading platform
New curb
New concrete deck
Conform line
Existing concrete deck
New concrete deck
Conform line
Existing concrete curb and gutter
Conform to existing curb
Conform line
Existing bituminous pavement
Conform to existing curb

R = 500'
L = 65.144
LCH = 65.128
Δ = 7° 27' 56"

R = 150'
T = 154.176
L = 183.917
LCH = 161.909
Δ = 95° 38' 30"
R = 27.16
L = 45.344

E SFOBB N 40° 03' 47.3" E

Begin "R" line SFOBB 164+39.31

"R" line S 55° 23' 13" E

NOTE:
Curb transitions shall be 5' in length when conforming to existing curb unless otherwise noted

As built elevations —— 195.16
Designates elevations on bronze carriage bolts All other as built elevations are on yellow paint spots.
Elevations of existing deck taken May 1960 195.16
Elevations of new work 195.16

PLAN

Sta. 162 163 164 165 166 167

Feet above M.L.L.W. Datum

Existing SFOBB ℄ profile
New SFOBB ℄ profile
Profile grade line
Existing superelevation
New concrete deck as shown
See "R" Line Approach sheets for grass slope of new work as shown
Conform to existing pavement 187.80'
Existing SFOBB ℄ profile
Profile grade line
Existing superelevation
New concrete deck as shown
+1.789% ±

SUPERELEVATION

PROFILE

UPPER DECK
LOWER DECK
LOCATION KEY
8 THS
10 THS
SCALE IN INCHES

SAN FRANCISCO - OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
PLAN AND PROFILE
UPPER DECK STA. 162 TO 167

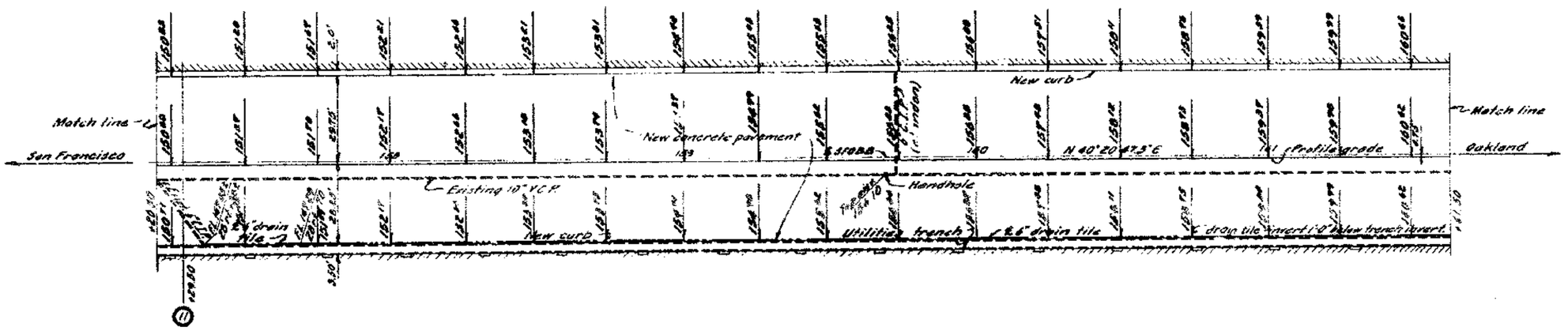
Scale: Horizontal 1" = 20'
Vertical 1" = 10'

MARK	DATE	DESCRIPTION / REVISION	BY	CHK
1	6-1-61	As built with revision	cfc	RMJ

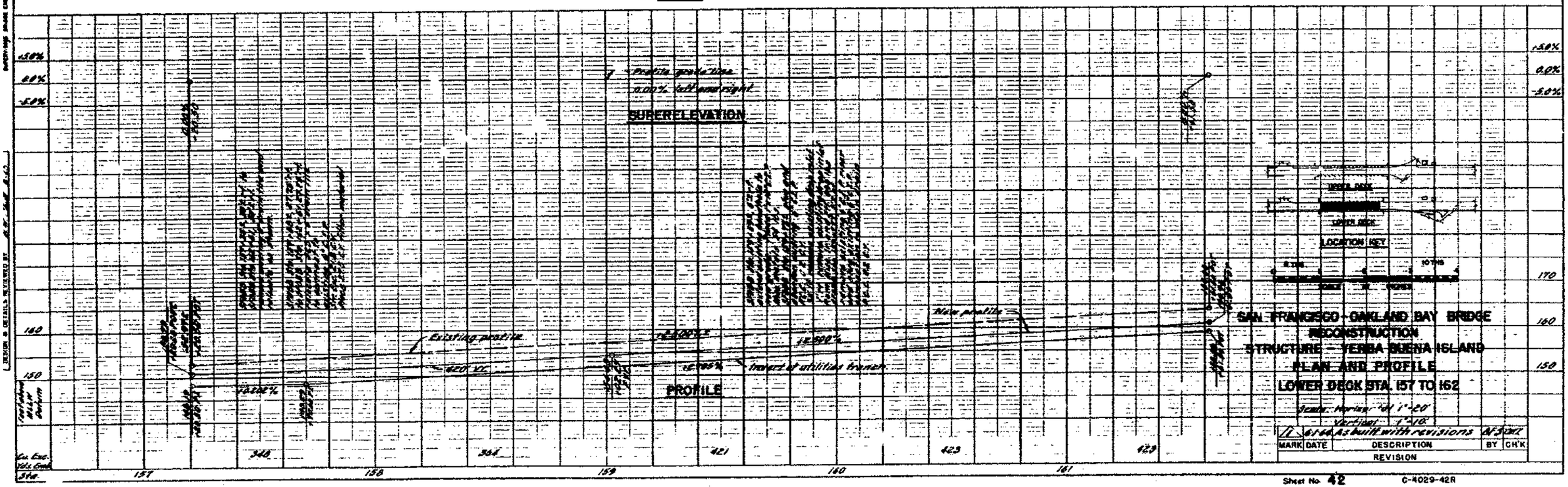
Sheet No. 39

C-4029-39-R

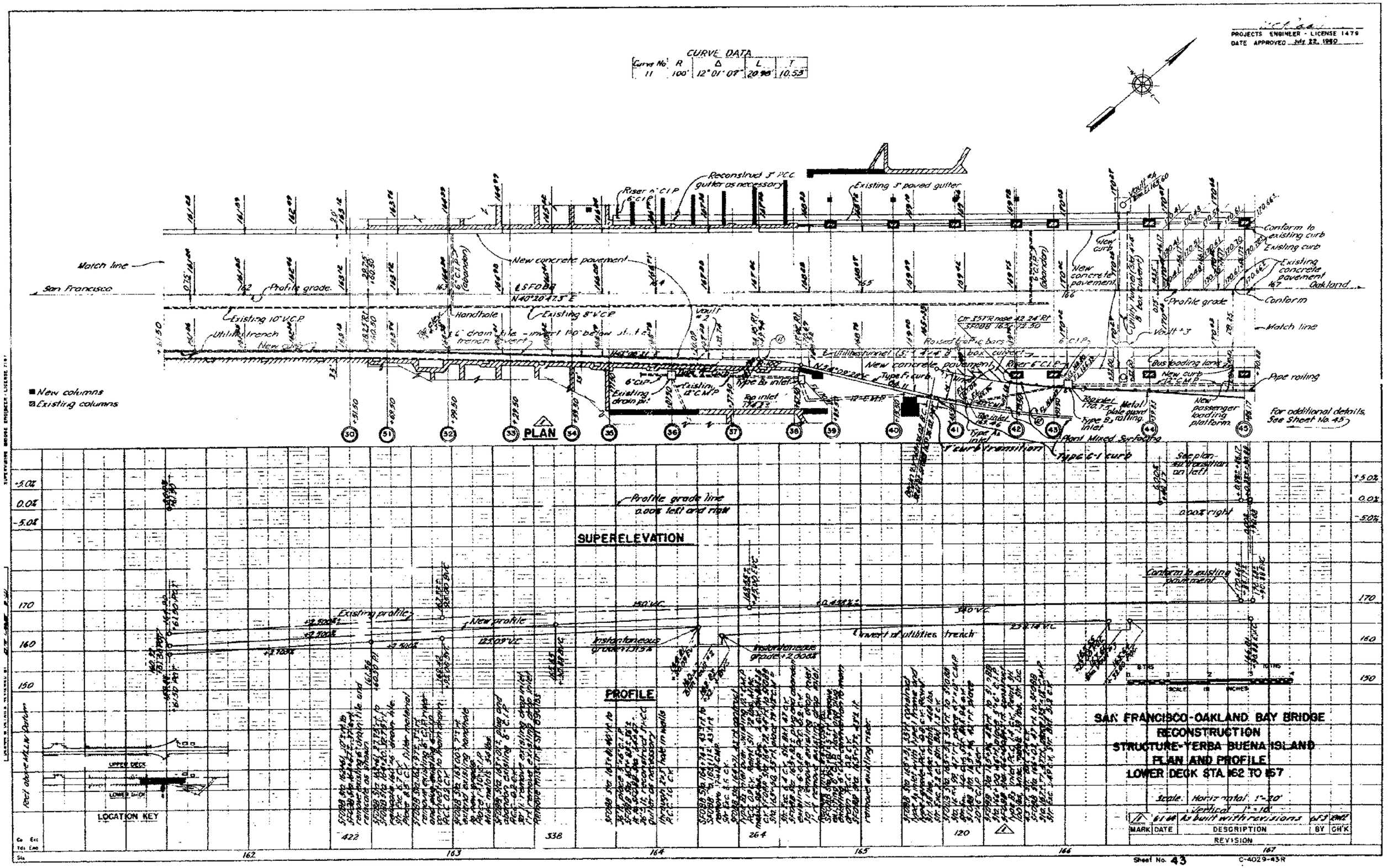
W. Earl
PROJECT ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1952



PLAN



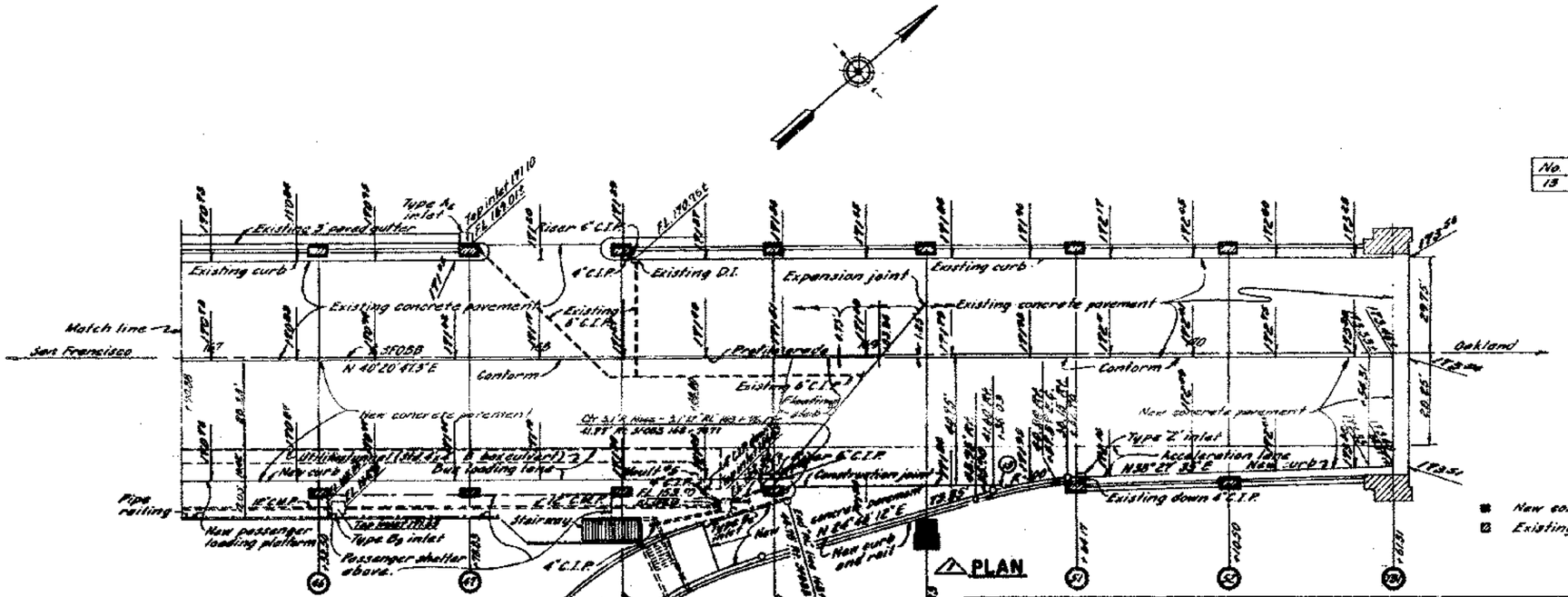
Sheet No. 42 C-4029-42R

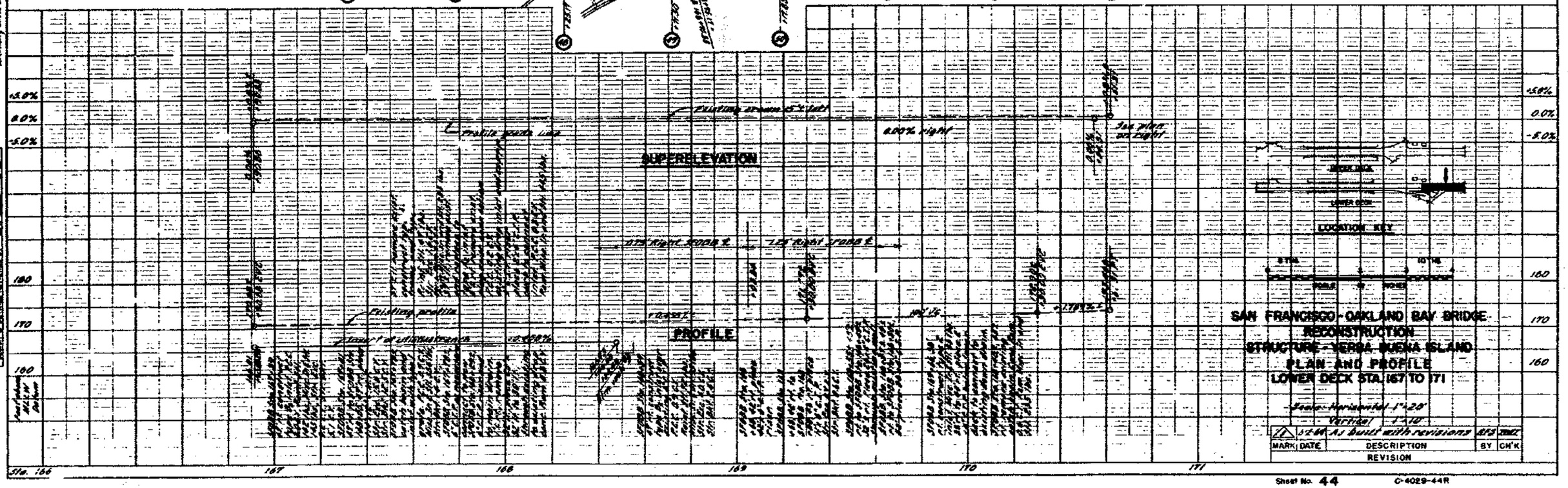

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960
CURVE DATA
Curve No. | R | Δ | L | T
11 | 100' | 12° 01' 07" | 20.98' | 10.53'
Match line
San Francisco
Oakland
Reconstruct 3" P.C.C. gutter as necessary
Existing 3" paved gutter
New concrete pavement
Profile grade
Existing 10" V.C.P.
Utility trench
Handhole
Existing 8" V.C.P.
Conform to existing curb
Existing curb
Existing concrete pavement
Conform
Match line
Pipe railing
Bus loading lane
New passenger loading platform
For additional details, See Sheet No. 45
New columns
Existing columns
PLAN
Plant Mixed Surfacing
Type C-1 curb
Profile grade line
0.00% left and right
0.00% right
SUPERELEVATION
Existing profile
New profile
Invert of utilities trench
Instantaneous grade
PROFILE
LOCATION KEY
UPPER DECK
LOWER DECK
SCALE IN INCHES
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE-YERBA BUENA ISLAND
PLAN AND PROFILE
LOWER DECK STA. 162 TO 167
Scale: Horizontal 1"=20'
Vertical 1"=10'
As built with revisions
MARK | DATE | DESCRIPTION | BY | CH'K
REVISION
Sheet No. 43
C-4029-43R

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960

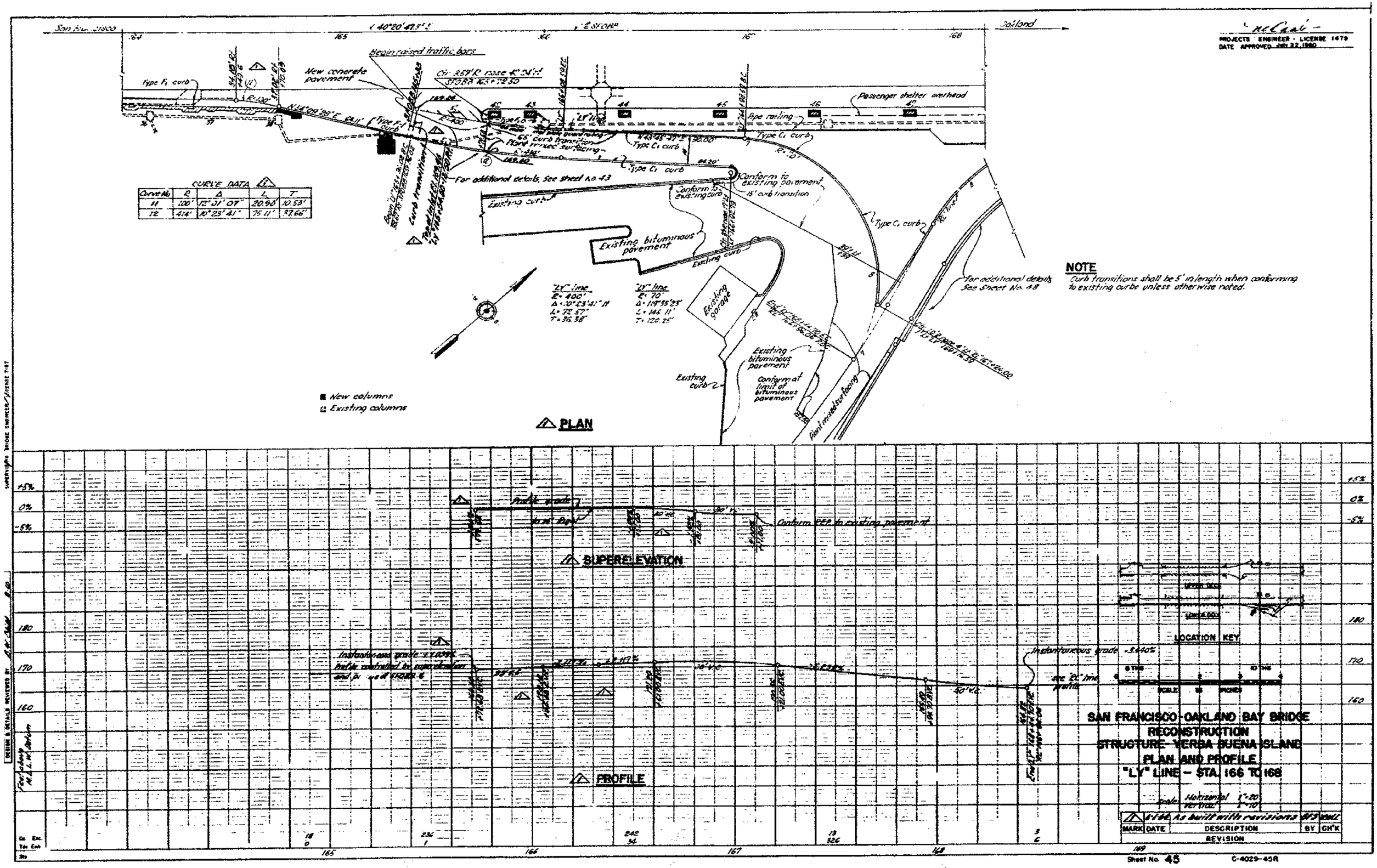
Curve Data

No.	R	Δ	L	T
13	100'	15°45'23"	24.01	12.06





Sheet No. 44 C-4029-44R



PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED JULY 22, 1960
San Francisco
Oakland
Begin raised traffic bars
New concrete pavement
Type F1 curb
Passenger shelter overhead
Pipe railing
Type C1 curb
Plant mixed surfacing
For additional details, See sheet No. 43
Conform to existing pavement
15' curb transition
Existing curb
Existing bituminous pavement
Existing garage
Existing bituminous pavement
Conform at limit of bituminous pavement
Plant mixed surfacing
For additional details See Sheet No. 48
"LY" line
R = 400'
Δ = 10°23'41" lt
L = 72.57'
T = 36.38'
"LY" line
R = 70'
Δ = 119°35'23"
L = 146.11'
T = 120.25'
New columns
Existing columns
PLAN
NOTE
Curb transitions shall be 5' in length when conforming to existing curbs unless otherwise noted.
CURVE DATA
Curve No. | R | Δ | L | T
11 | 100' | 12°01'07" | 20.90' | 10.53'
12 | 414' | 10°23'41" | 75.11' | 37.66'
Profile grade
Conform REP to existing pavement
SUPERELEVATION
Instantaneous grade
Instantaneous grade -3.440%
see "RC" line profile
PROFILE
LOCATION KEY
UPPER DECK
LOWER DECK
SCALE IN INCHES
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE- YERBA BUENA ISLAND
PLAN AND PROFILE
"LY" LINE - STA. 166 TO 168
Scale Horizontal 1" = 20'
Vertical 1" = 10'
MARK | DATE | DESCRIPTION | BY | CH'K
As built with revisions
REVISION
Sheet No. 45
C-4029-45R

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960

"RL" Line
Begin "RL" line
Sta 157+13.38 B.C.
R = 147.35 to P.C.

"R" Line
R = 200'
Δ = 91° 49' Lt
L = 320.50'
T = 208.44'

"RL" Line
R = 309'
Δ = 31° 47' 19" Lt.
L = 166.45'
T = 85.42'

"RL" Line
R = 315'
Δ = 07° 24' 59" Lt.
L = 40.77'
T = 20.42'

"R" Line
R = 300'
Δ = 69° 36' 55" Lt
L = 364.50'
T = 208.56'

U.S. COAST GUARD
U.S. NAVY

Existing bituminous pavement

Existing metal plate guard railing

Salvaged metal plate guard railing

Relocated light pole

Conform to existing pavement

Plant mixed surfacing

R.C. retaining wall and wall mounted metal plate bridge railing

Conform to existing curb

Existing rubble curb

Same alignment as existing curb

Type A curb

Existing curb

Existing bituminous pavement

Existing metal plate guard railing

Existing ramp post

Existing fire alarm box

Existing concrete stairs

Salvaged metal plate guard railing.

Type C1 curb

Type F1 curb

Retaining wall

Match line

"RL" line

"R" line

Curb transition

Ch. 1.0'R = 1.00'rl 488.00

N 08°13'42"E 129.97

N 08°13'42"E 77.29'

N 07°29'16"E 100.00'

N 00°48'43"E 346.33'

N 11°38'24"W

R=300'

R=315'

R=200'

R=342'

L=342'

CURVE DATA

No.	R	Δ	L	T
18	302'	19° 52' 06"	104.72	52.89
19	300'	7° 24' 59"	38.85	19.44
20	314'	17° 42' 26"	97.04	48.91
22	326'	5° 40' 34"	38.22	19.12
23	342'	7° 44' 24"	46.20	23.14

NOTE:
Curb transitions shall be 5' in length when conforming to existing curbs unless otherwise noted.

PLAN

SUPERELEVATION

PROFILE

Existing profile

Profile grade line

Conform to existing pavement 209.72 ± 1.00 P.C.

100' V.C.

-3.44%

-9.44%

-10%

+10%

+5.0%

0%

-5.0%

Feet above MEAN LOW WATER

159 160 161 162 163

Cu. Exc. 6 38 245 569
Yds. Emb. 0 6 9 50

LOCATION KEY

SCALE 4½ INCHES

SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
PLAN AND PROFILE
"RL" LINE STA. 159 TO 163
Scale: Horizontal 1" = 20'
Vertical 1" = 10'

MARK	DATE	DESCRIPTION	BY	CH'K
1	4 1 66	As built with revisions	R.F.	WHZ

REVISION

Sheet No. 46 C-4029-46R

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1980

Begin "Y" line 0+00 P.O.T.
RL 165+79.49 POC

Abutment corner 11.56 Lt Y 3137.81
17.71 Rt RL 168+44.51

Abutment corner 11.50 Lt Y 3141.97
15.25 Rt RL 168+40.77

Existing retaining wall
Existing curb and gutter
Existing C.B.
Existing 4" C.I.P.
Existing 10" C.I.P.
Existing manhole
Existing 4" C.I.P.
Existing riser 4" C.I.P.
Existing 12" C.I.P.
Existing 10" VCP
Existing chain link fence
Existing concrete sidewalk
Concrete sidewalk
Relocated chain link fence
Existing bituminous pavement
Conform to existing pavement
Conform to existing curb, gutter and curbs
Type A2 curb
Type A1 curb
New metal plate guard railing
Salvaged metal plate guard railing
Passenger loading platform
Shuttle bus stop
Plant mixed surfacing
2' shoulder
Electrical boxes
Conform to existing concrete walk
Conform to existing bituminous pavement
Relocated 10 inch cast iron water line
Retaining wall
Existing P.G.&E. manhole
Existing 12" CMP
Existing C.B.
Type A2 inlet
Type B3W manhole
Existing fence
Outboard

"Y" Line
R = 200'
Δ = 18°59'13" Rt.
L = 66.28'
T = 33.45'

"Y" Line
R = 145'
Δ = 114°39'30" Lt.
L = 96.05'
T = 70.17'

CURVE DATA

No	R	Δ	L	T
24	120'	17° 32' 20"	36.73	18.51
25	32'	45° 48' 29"	25.58	13.52
26	57'	94° 19' 57"	93.85	61.48
27	185'	27° 40' 01"	57.35	29.31
28	75'	16° 12' 52"	21.22	10.68
29	80'	35° 12' 05"	49.15	25.38
30	50'	25° 05' 30"	21.91	11.13
31	50'	30° 05' 30"	26.27	13.44
32	200'	12° 23' 28"	43.25	21.71
33	25'	174° 40' 17"	76.21	537.23
34	40'	32° 58' 42"	23.02	11.84
35	37'	37° 58' 42"	24.53	12.73

NOTE:
Curb transitions shall be 5' in length when conforming to existing curb unless otherwise noted
See sheet #106 for retaining wall for Pf & T manhole.

■ New columns
■ Existing columns

PLAN

+6.5% on Rt
See grid
-6.5% on Lt
Profile grade
-10% on Rt and Lt.
-10% gutter cross slope
50' VC
-1.000%
Instantaneous grade -10.378%
-0.594%
Instantaneous grade -2.906%
11.3' VC
71.32' VC
9.76%
Existing profile
Conforms to existing pavement
Begin "Y" line P.O.T.
Feet above M.L.L.W. Datum
"Y" Line Quantities
Cu. Yds. Emb.
Sta.

SUPERELEVATION

PROFILE

UPPER DECK
LOWER DECK
LOCATION KEY
SCALE: IN INCHES

SAN FRANCISCO-OAKLAND BAY BRIDGE RECONSTRUCTION
STRUCTURE- YERBA BUENA ISLAND
PLAN AND PROFILE
"Y" LINE STA. 0 TO 4
Scale: Horizontal 1" = 20'
Vertical 1" = 10'

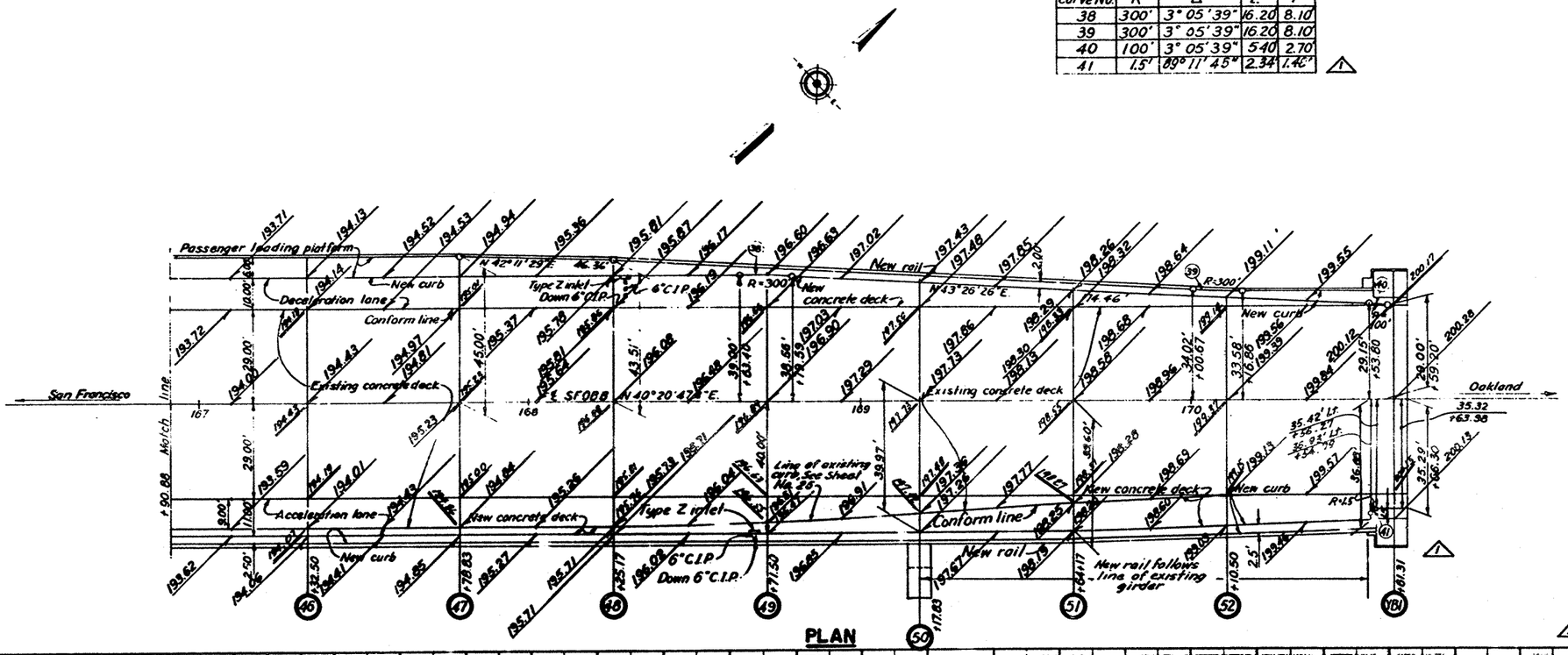
MARK	DATE	DESCRIPTION	BY	CH'K
6	1-84	As built with revisions 8/5 ENG. REVISION		

CURVE DATA
No | R | Δ | L | T
37 | 34' | 30°13'23" | 29.90 | 15.94
PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22, 1960
NOTE:
Curb transitions shall be 5' in length when conforming to an existing curb unless otherwise noted
"YU" Line
R = 280'
Δ = 06°14'18" Lt
L = 30.49'
T = 15.26'
"YU" Line
R = 140'
Δ = 29°24'32" Lt
L = 71.86'
T = 36.74'
"YU" Line
R = 50'
Δ = 128°28'06" Rt
L = 112.11'
T = 103.68'
Existing 4" C.I.P.
Existing C.B.
6" C.I.P. - grade ¼" : 1'-0"
Conform wall
Type 5 curb
New concrete deck
Conform line
Existing concrete deck. See Sheet No. 59 for elevations
℄ SFOBB N40°20'47.3" E
Place plant mixed surfacing where necessary in order to match existing pavement to new structure
Plant mixed surfacing
10' curb transition
End post
Type A curb
Conform line
Existing bituminous pavement
Curb grade shall conform to existing pavement
Conform to existing curb
Existing concrete curb and gutter
Existing bituminous pavement
Existing concrete curb
Existing reinforced concrete retaining wall
Sidewalk
Existing reinforced concrete retaining wall
R = 34.83
Δ = 57°59'40"
L = 35.254
R = 20.006
Δ = 108°59'40"
L = 38.000
L.Ch. = 32.56
New concrete deck
Substation
SFOBB Garage
Existing reinforced concrete retaining wall
Construct concrete stairway with 6⅞" risers 12⅝" treads
℄ Stairway
Conform to existing walk
Existing 2' concrete drain ditch
Existing C.B.
Existing chain link fence
Type B2 inlet
Relocated chain link fence
Relocated electrical boxes
Existing valve boxes
Conform to existing curb and gutter
Conform to existing walk, curb and gutter
Existing concrete walk
New concrete walk
Type A2 curb
"YU" Line 328.62'± N40°20'47.3" E
Conform
Plant mixed surfacing
Existing C.B.
Existing 8" C.I.P.
Existing bituminous pavement
Remove sentry box. Foundation slab to remain.
Existing fence and curb
PLAN
Profile controlled by superelevation and profile on SFOBB ℄
See Grid
New profile grade
Existing profile grade
PROFILE
New profile grade see grid
UPPER DECK
LOWER DECK
LOCATION KEY
SCALE IN INCHES
SAN FRANCISCO - OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
PLAN AND PROFILE
"YU" LINE STA. 163 TO 169
Scale: Horizontal 1" = 20', Vertical 1" = 10'
MARK | DATE | DESCRIPTION | BY | CH'K
1 | 6-1-64 | As built with revisions | BFS | RWL
REVISION
Sheet No. 50
C-4029-50R

PROJECTS ENGINEER - LICENSE 1479
DATE APPROVED July 22 1960

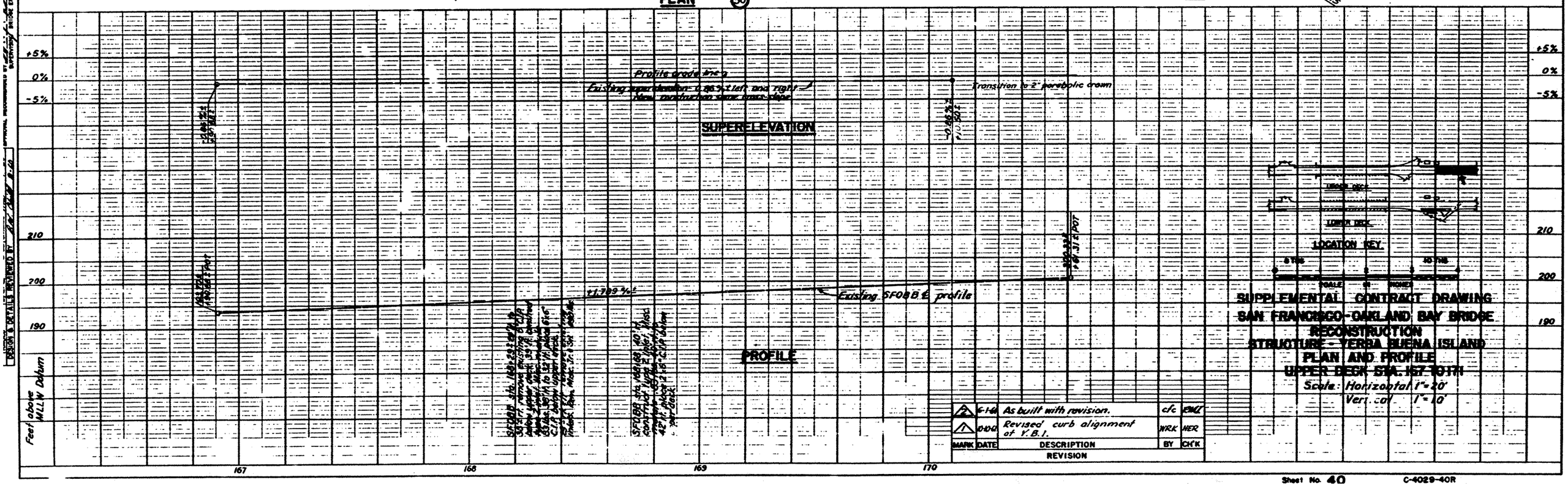
CURVE DATA

Curve No.	R	Δ	L.	T
38	300'	3° 05' 39"	16.20	8.10
39	300'	3° 05' 39"	16.20	8.10
40	100'	3° 05' 39"	5.40	2.70
41	1.5'	89° 11' 45"	2.34	1.46'



PLAN

Elevations of existing deck taken May 1960 195.15
Elevations of new work 195.15
2 As built elevations 195.15



MARK	DATE	DESCRIPTION	BY	CH'K
2	6-14	As built with revision.	c/c	EWL
1	10-60	Revised curb alignment of Y.B.I.	WRK	HER

REVISION

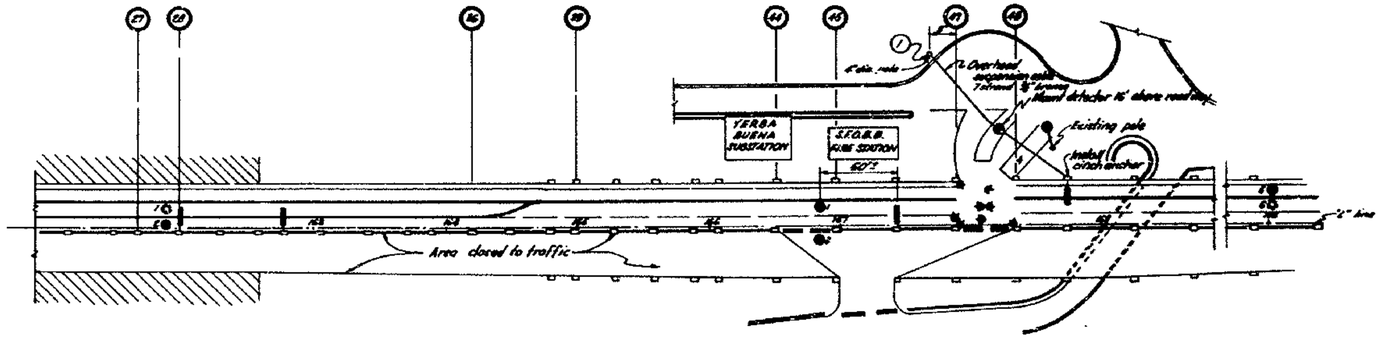
SUPPLEMENTAL CONTRACT DRAWING
SAN FRANCISCO-OAKLAND BAY BRIDGE
RECONSTRUCTION
STRUCTURE - YERBA BUENA ISLAND
PLAN AND PROFILE
UPPER DECK STA. 167+10TH
Scale: Horizontal 1"=20'
Vert. col 1"=10'

DESIGN & DETAILS REVIEWED BY Joe Ward 8-40
BRIDGE ENGINEER - LICENSE 7197

DATE APPROVED 1/4/61

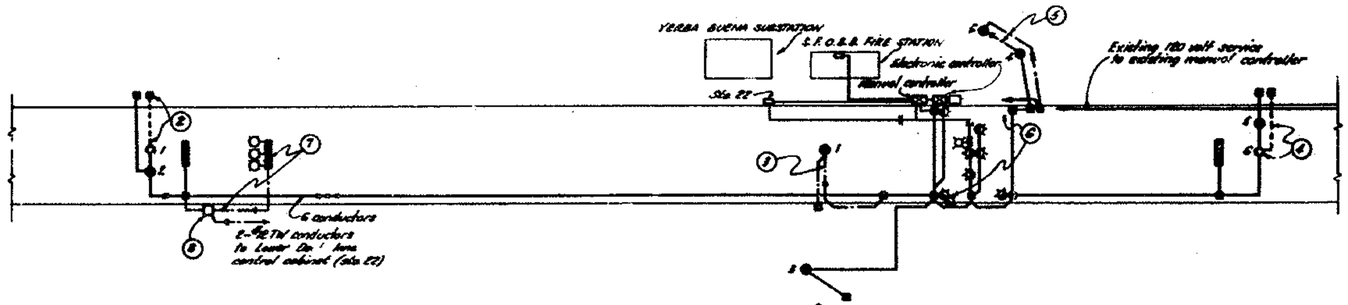
NOTES

1. Install State furnished pole and erect overhead suspension cable from Bent #48. Mount detector as shown, and install pullover cable from Bent 47.
2. Remove and relocate detector #1, 5-conductor cable; and manual sensitivity control from near Bent 28 to Bent 45 as shown.
3. Install 3-#12 conductors from relocated detector #1 to existing junction box and connect to neutral, 120 volt, and detector circuits.
4. Remove and relocate detector #6, 5-conductor cable and manual sensitivity control from near "L" sta. 175+00 location to overhead suspension cable North of Bent 48 as shown.
5. Install parallel connections between existing detector #4 and relocated detector #6 for 110 volt power supply. Install relocated manual sensitivity control and lengthen 5 conductor cable with 5-#12 conductors; install one #12 conductor to master electronic controller.
6. Relocate signal head from Bent 48 north side to Bent 47 south side; orient signals as directed by the Engineer.
7. Install traffic sign and incandescent sign lights. Install 2 #12 conductors to existing junction box to obtain 120 volt power supply. (Incandescent sign lights shall be Graybar cat. number 20[illegible] and 5 conduits)
8. Install single pole single throw relay and connect two #12 TW conductors to L.D. lane controller at sta. 22.
9. Orient and reconnect traffic signal heads for traffic control patterns as shown below. Interconnect Lane Signal Control System with necessary relaying to produce patterns shown for various traffic peaks.
10. Interconnect Lane Signal Control System with illuminated sign so incandescent lights are not energized during morning peak.



PLAN

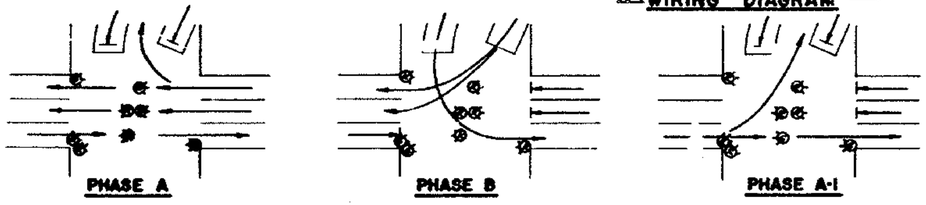
Scale 1"=50'



WIRING DIAGRAM

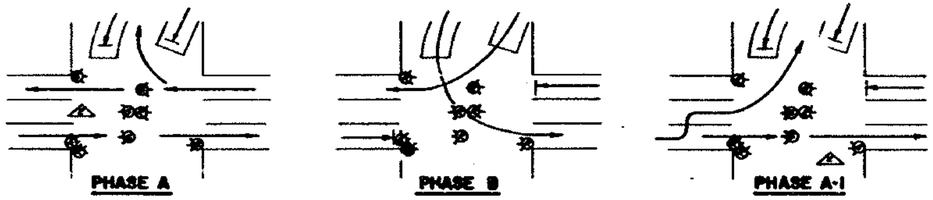
LEGEND

- Existing conductors.
- Remove and relocate existing conductors.
- Install new or relocated conductors.
- Existing luminated sign.
- Install new sign
- Master electronic or manual signal controller.
- Manual remote sensitivity control.
- Radar detector.
- Radar detector to be removed and relocated.
- Existing junction box.
- Existing traffic signal.
- Signal light. (Red and green)
- Install incandescent sign light
- New Junction Box



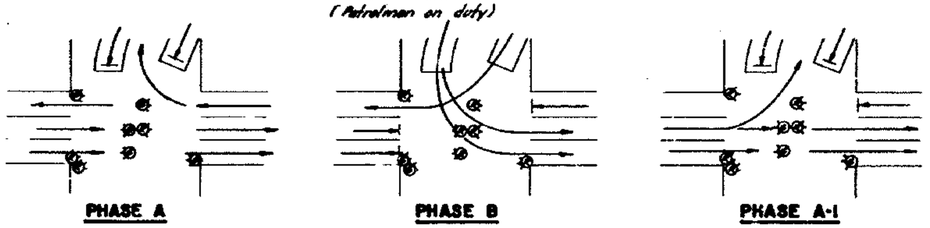
MORNING PEAK HOURS

(Patrolman on duty)



OFF PEAK HOURS, WEEK-ENDS AND HOLIDAYS

(Radar detectors in operation or Patrolman on duty)



EVENING PEAK HOURS

(Patrolman on duty)

0 THS 10 THS
SCALE IN INCHES

MARK	DATE	DESCRIPTION	BY	CH'K
2	4.10.61	As built with revisions	L.L.R.	R.M.T.
1	1/10/61	Revised traffic phase operations.	M.F.	M.R.T.

REVISION

STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF SAN FRANCISCO BAY TOLL CROSSINGS

SAN FRANCISCO - OAKLAND BAY BRIDGE RECONSTRUCTION STRUCTURE-YERBA BUENA ISLAND

TRAFFIC SIGNAL MODIFICATION - STAGE Ia

SCALE AS SHOWN | BRIDGE 33-28 34-03 34-04 | SHEET NO. 5 | DRAWING D-4029-SR