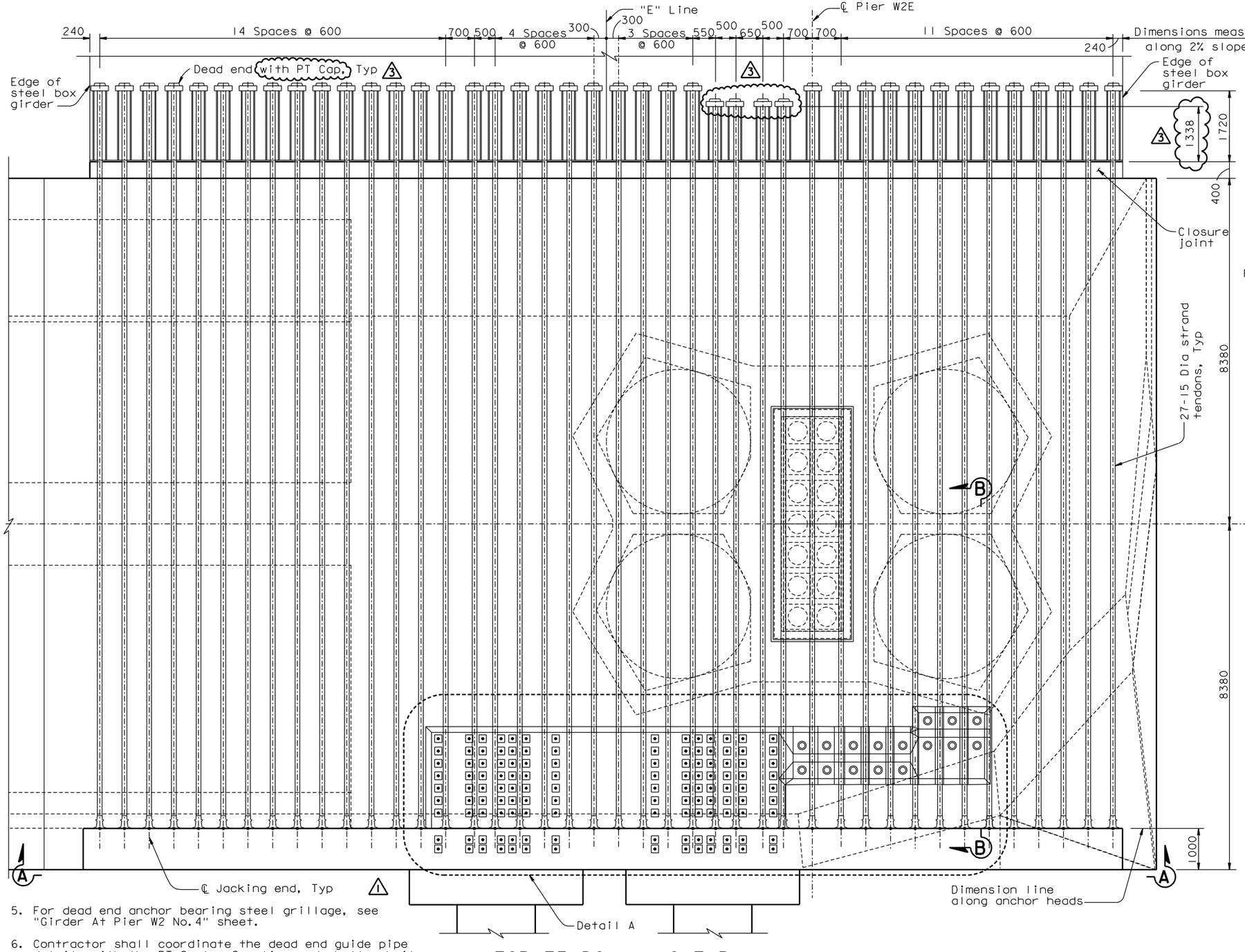

TOP TENDON LAYOUT PLAN ("E" Line)

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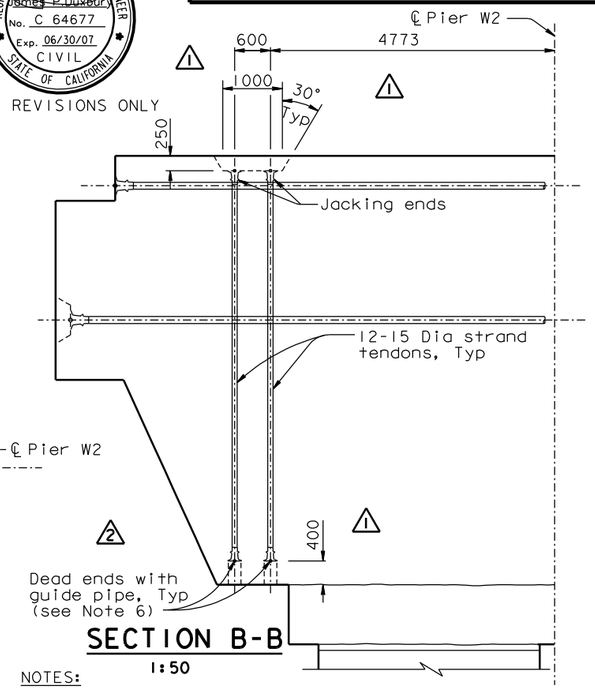

SECTION B-B

1:50

NOTES:

1. For Section A-A, see "W2 Cap Beam Post-Tensioning Details No.9" sheet.
2. For Detail A, see "W2 Cap Beam Post-Tensioning Details No.10" sheet.
3. All W2 cap beam continuity tendons are ASTM A416 Grade 270 (fu=1860 MPa), low relaxation, 27-15 Dia seven wire strand PT, unless specified otherwise. For additional prestressing details, see "Prestressing Notes" sheet.
4. For blockout details, see "W2 Cap Beam Blockout Details" sheets.
5. For dead end anchor bearing steel grillage, see "Girder At Pier W2 No.4" sheet.
6. Contractor shall coordinate the dead end guide pipe details with the PT System Supplier and shall submit them to the Engineer for review and approval. Contractor shall grout the guide pipe after stressing operations have been completed.

MARK	DATE	REVISIONS	BY	CH'D	CCO#
3	02/16/07	BULKHEAD AT GIRDER PIER W2	JD	AS	27
2	01/31/07	CORROSION PROTECTION	JD	AS	16
1	07/21/06	W2 CAP BEAM ISD	JD	NV	23

CONTRACT CHANGE ORDER NO. ____
SHEET ___ OF ___

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	466R3	1204

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

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

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DESIGN OVERSIGHT
SIGN OFF DATE 02/16/07

	BY	CHECKED
DESIGN	J. Sun	M. Chen
DETAILS	J. Duxbury	M. Chen
QUANTITIES	S. Shi	D. Harrison

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

R. Manzanarez
PROJECT ENGINEER

CU 04
EA 0120F1

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE
(SUPERSTRUCTURE & TOWER)

W2 CAP BEAM POST-TENSIONING DETAILS NO.5

Rev. Date: 5-18-98

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

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 08/08/99 05/31/01 04/08/02 07/01/02 12/19/02

SHEET 049R3 OF

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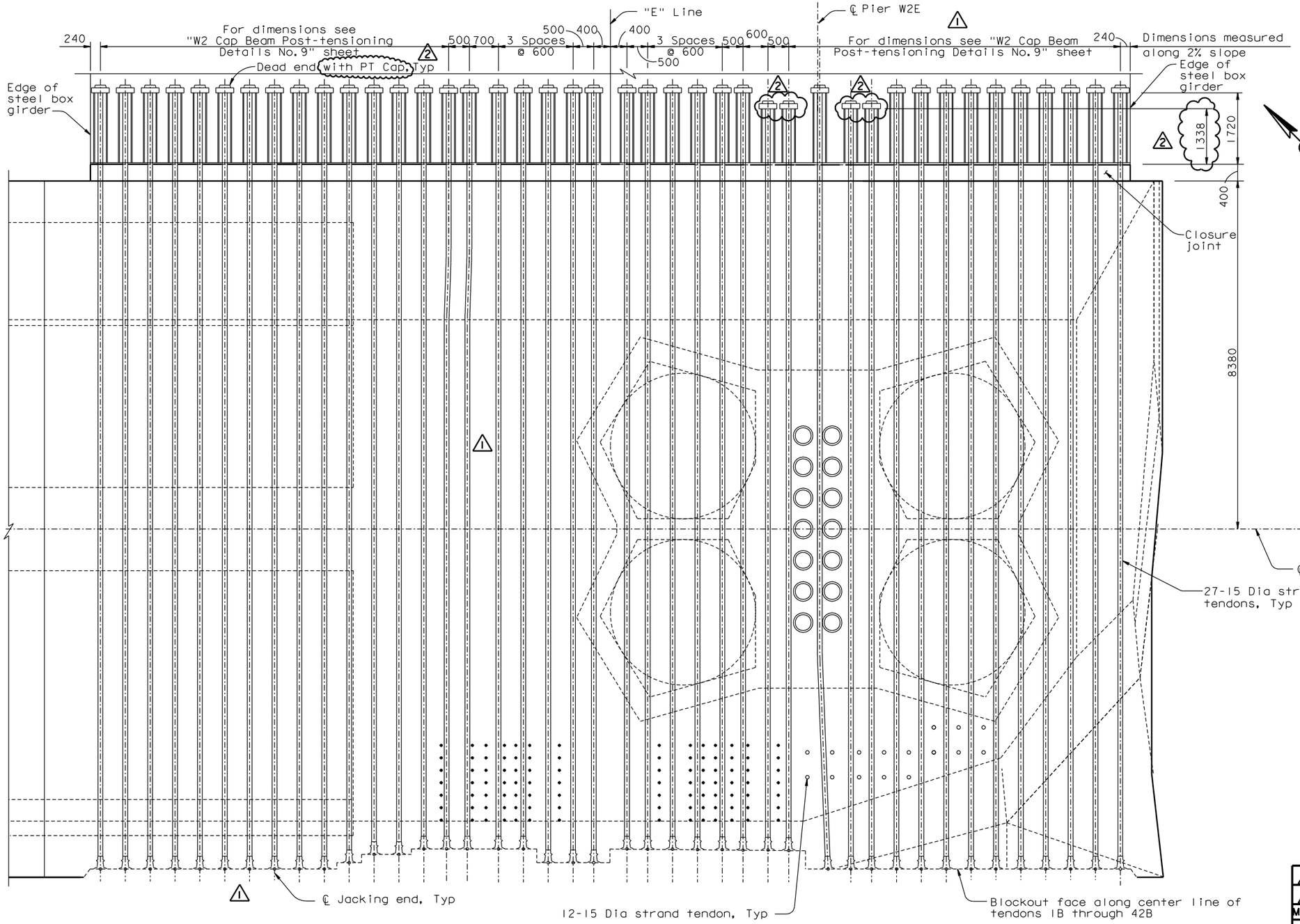

NOTES:

1. All W2 cap beam continuity tendons are ASTM A416 Grade 270 (fu=1860 MPa), low relaxation, 27-15 Dia seven wire strand PT, unless specified otherwise. For additional prestressing details, see "Prestressing Notes" sheet.
2. For blockout details, see "W2 Cap Beam Blockout Details" sheets.
3. For dead end anchor bearing steel grillage, see "Girder At Pier W2 No.4" sheet.

BOTTOM TENDON LAYOUT PLAN ("E Line")

1:50

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	467R2	1204

REGISTERED ENGINEER - CIVIL

12-6-04
PLANS APPROVAL DATE

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		REVISIONS			
2	02/16/07	BULKHEAD AT GIRDER PIER W2	JD	AS	27
1	07/21/06	W2 CAP BEAM ISD	JD	NV	23

REGISTERED PROFESSIONAL ENGINEER — James P. Duxbury — No. C 64677 — Exp. 06/30/07 — CIVIL — STATE OF CALIFORNIA

CONTRACT CHANGE ORDER NO. ____
SHEET ___ OF ___

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R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
Ryan Valizadeh / Vong Toan / Y. Lu
SIGN OFF DATE 02/16/07

	BY	CHECKED
DESIGN	J. Sun	M. Chen
DETAILS	J. Duxbury	M. Chen
QUANTITIES	S. Shi	D. Harrison

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

R. Manzanarez
PROJECT ENGINEER

CU 04
EA 0120F1

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE
(SUPERSTRUCTURE & TOWER)

W2 CAP BEAM POST-TENSIONING DETAILS NO.6

Rev. Date: 5-18-98

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

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 08/08/99 | 05/31/01 | 04/08/02 | 07/01/02 | 12/19/02

SHEET 050R2 OF

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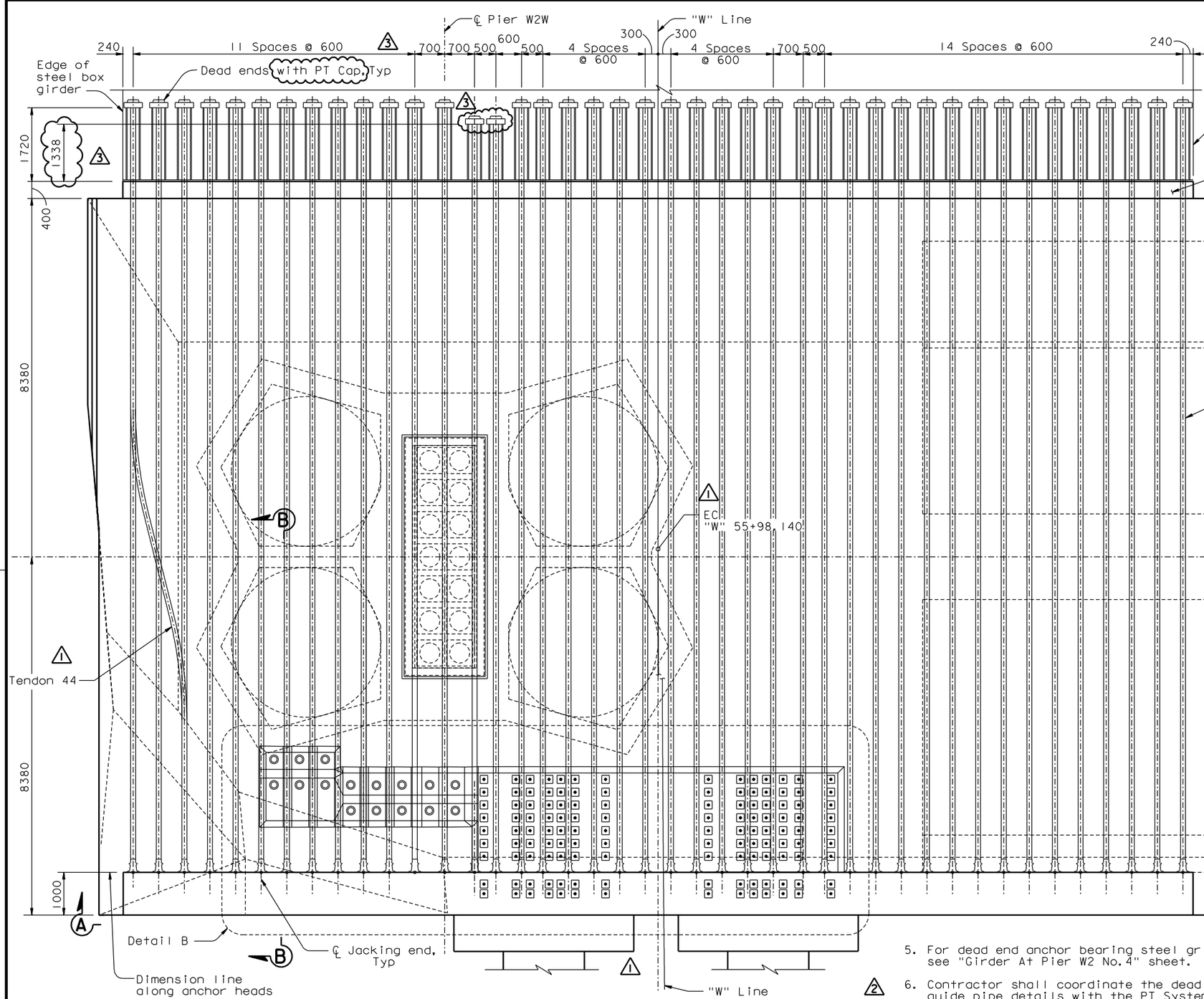
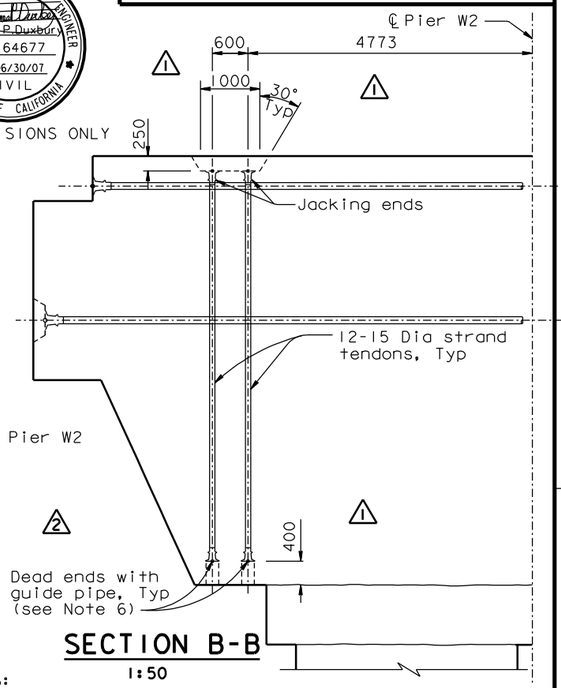


TOP TENDON LAYOUT PLAN ("W" Line)

1:50



SECTION B-B

1:50

NOTES:

1. For Section A-A, see "W2 Cap Beam Post-Tensioning Details No.9" sheet.
2. For Detail B, see "W2 Cap Beam Post-Tensioning Details No.10" sheet.
3. All W2 cap beam continuity tendons are ASTM A416 Grade 270 (fu=1860 MPa), low relaxation, 27-15 Dia seven wire strand PT, unless specified otherwise. For additional prestressing details, see "Prestressing Notes" sheet.
4. For blockout details, see "W2 Cap Beam Blockout Details" sheets.
5. For dead end anchor bearing steel grillage, see "Girder At Pier W2 No.4" sheet.
6. Contractor shall coordinate the dead end guide pipe details with the PT System Supplier and shall submit them to the Engineer for review and approval. Contractor shall grout the guide pipe after stressing operations have been completed.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

MARK	DATE	REVISIONS DESCRIPTIONS	BY	CH'D	CCO#
3	02/16/07	BULKHEAD AT GIRDER PIER W2	JD	AS	27
2	01/31/07	CORROSION PROTECTION	JD	AS	16
1	07/21/06	W2 CAP BEAM ISD	JD	NV	23

CONTRACT CHANGE ORDER NO. ____
SHEET ___ OF ___

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	468R3	1204

REGISTERED ENGINEER - CIVIL
12-6-04
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SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE (SUPERSTRUCTURE & TOWER)

W2 CAP BEAM POST-TENSIONING DETAILS NO. 7

DESIGN	BY J. Sun	CHECKED M. Chen	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION
DETAILS	BY J. Duxbury	CHECKED M. Chen	
QUANTITIES	BY S. Shi	CHECKED D. Harrison	

R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
Ryan Valizadeh / Vong Toan / Y. Lee
SIGN OFF DATE 02/16/07

R. Manzanarez
PROJECT ENGINEER

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

Rev. Date: 5-18-98

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

CU 04
EA 0120F1

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REVISION DATES (PRELIMINARY STAGE ONLY)										SHEET	OF
08/07/99	05/31/01	04/08/02	07/01/02	12/19/02						051R3	

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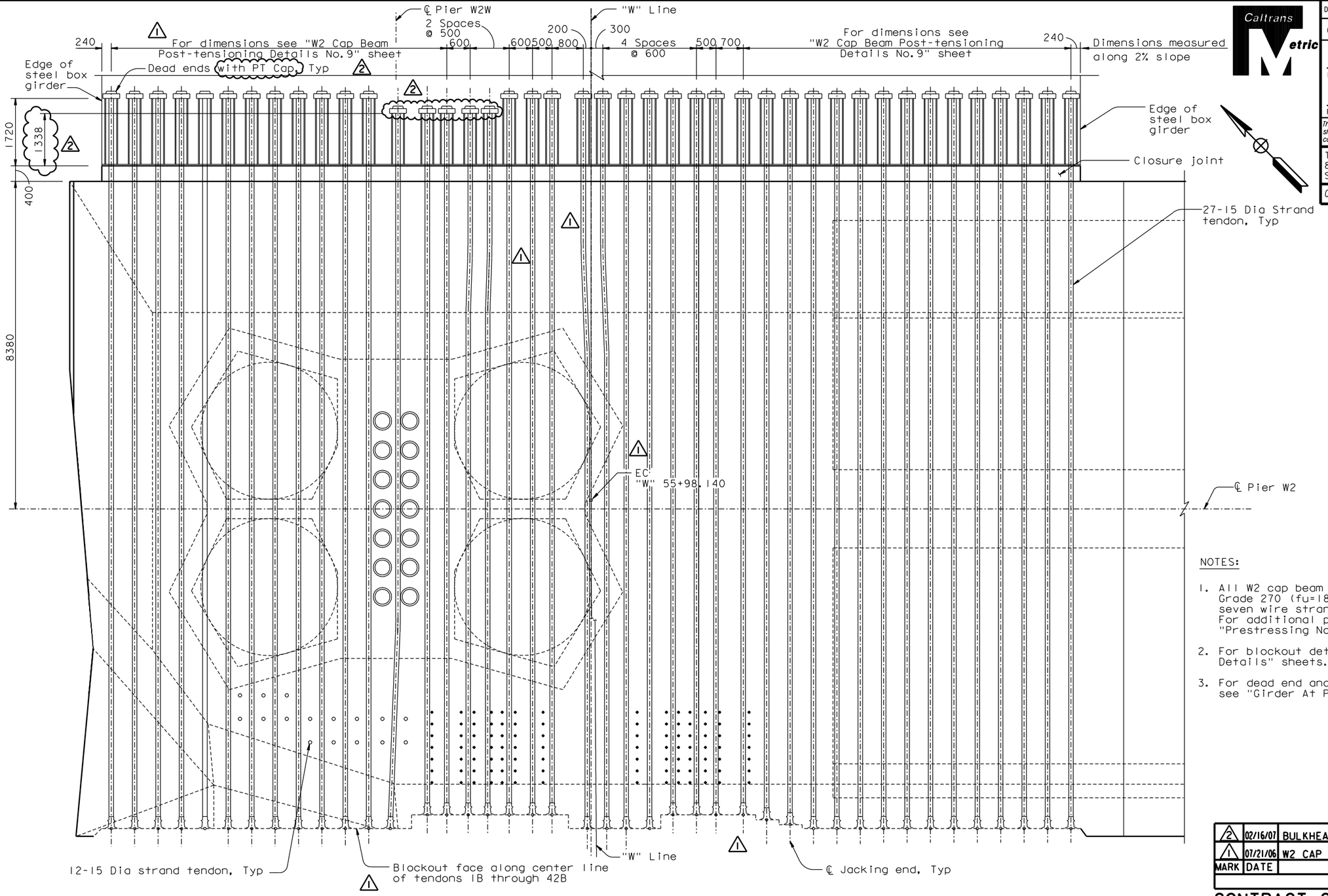

BOTTOM TENDON LAYOUT PLAN ("W" Line)

1:50

NOTES:

1. All W2 cap beam continuity tendons are ASTM A416 Grade 270 (fu=1860 MPa), low relaxation, 27-15 Dia seven wire strand PT, unless specified otherwise. For additional prestressing details, see "Prestressing Notes" sheet.
2. For blockout details, see "W2 Cap Beam Blockout Details" sheets.
3. For dead end anchor bearing steel grillage, see "Girder At Pier W2 No.4" sheet.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	469R2	1204

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12-6-04
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MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			
2	02/16/07	BULKHEAD AT GIRDER PIER W2	JD	AS	27
1	07/21/06	W2 CAP BEAM ISD	JD	NV	23

CONTRACT CHANGE ORDER NO. ____
SHEET ___ OF ___

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R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
Sign Off Date 02/16/07

	BY	CHECKED
DESIGN	J. Sun	M. Chen
DETAILS	J. Duxbury	M. Chen
QUANTITIES	S. Shi	D. Harrison

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

R. Manzanarez
PROJECT ENGINEER

CU 04
EA 0120F1

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE (SUPERSTRUCTURE & TOWER)

W2 CAP BEAM POST-TENSIONING DETAILS NO.8

Rev. Date: 5-18-98

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

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY): 08/08/99 | 05/31/01 | 04/08/02 | 07/01/02 | 12/19/02

SHEET 052R2 OF

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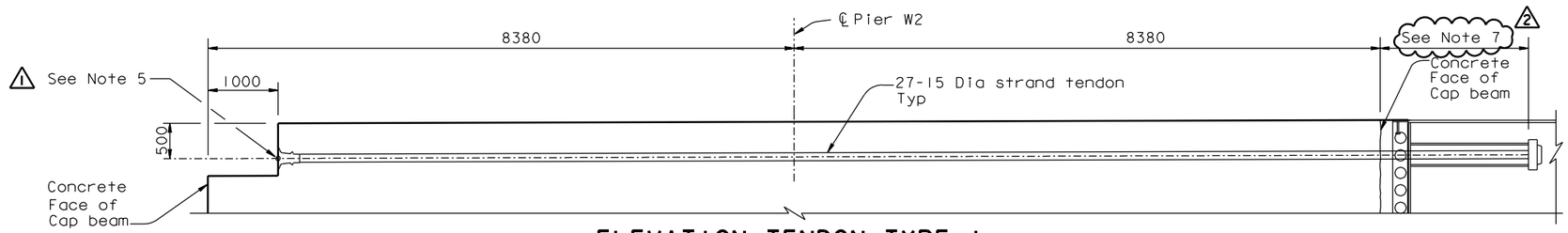
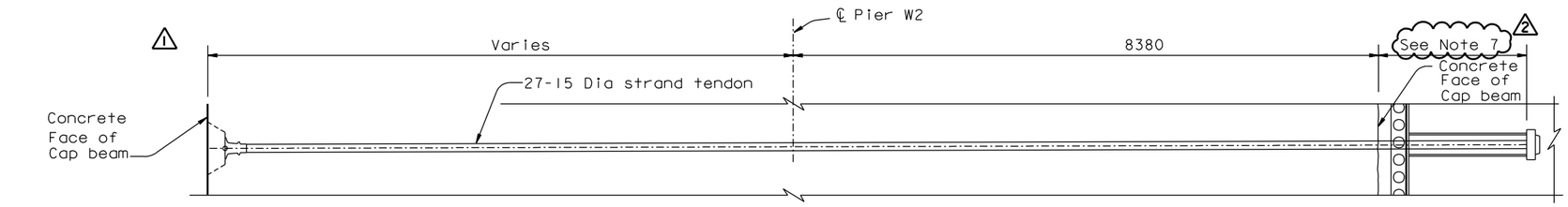


ELEVATION-TENDON TYPE 1



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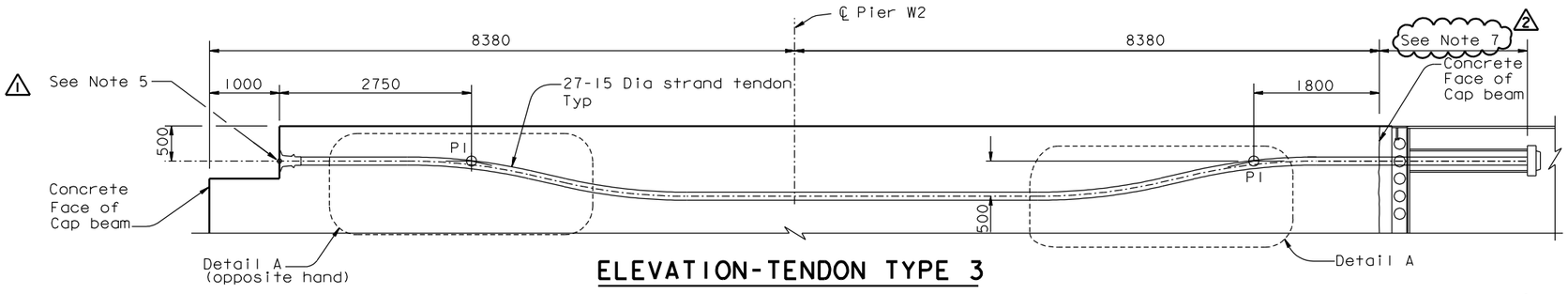

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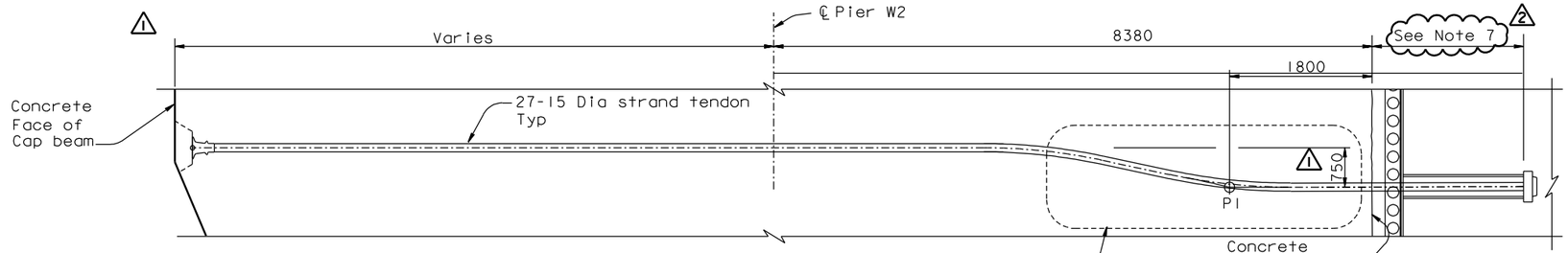

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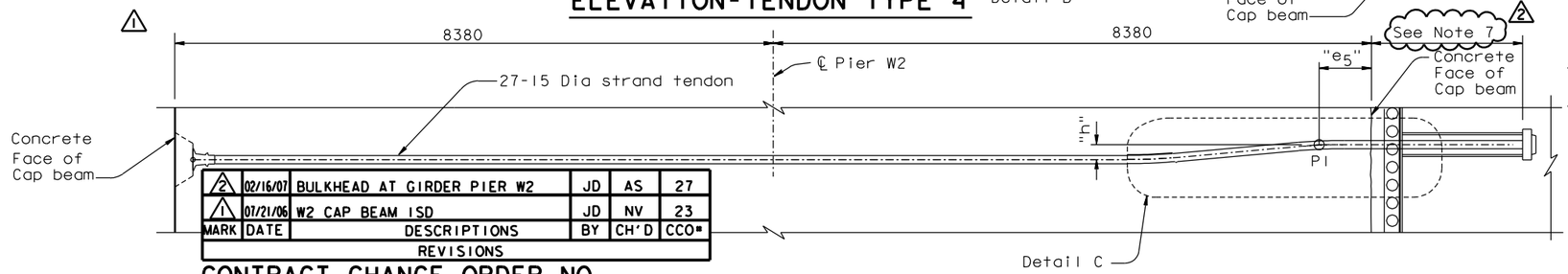
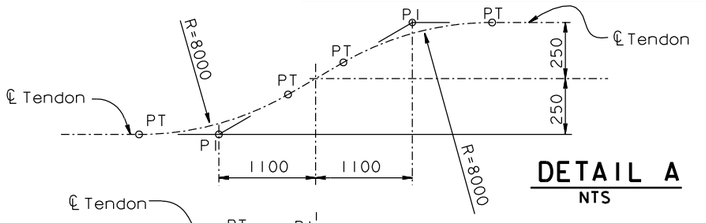


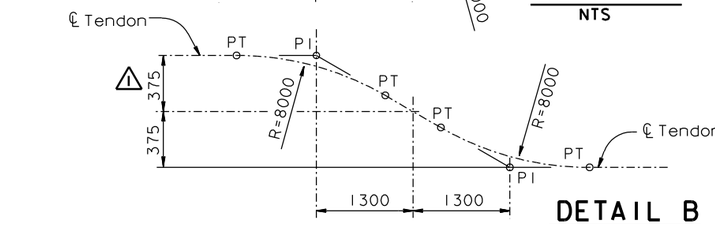
ELEVATION-TENDON TYPE 5

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			
2	02/16/07	BULKHEAD AT GIRDER PIER W2	JD	AS	27
1	07/21/06	W2 CAP BEAM ISD	JD	NV	23

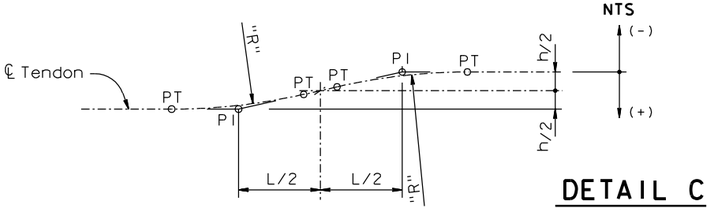
CONTRACT CHANGE ORDER NO. ____
SHEET ___ OF ___



DETAIL A
NTS



DETAIL B
NTS



DETAIL C
NTS

NOTES:

1. For additional details, see "W2 Cap Beam Post-Tensioning Details No.5" through "W2 Cap Beam Post-Tensioning Details No.10" sheets.
2. For tendon type designation, see "W2 Cap Beam Post-Tensioning Details No.12" sheet.
3. For PT blockout dimensions, see "W2 Cap Beam Blockout Details" sheets.
4. For dimension "h","L","e5" and "R", see "W2 Cap Beam Post-Tensioning Details No.12" sheet.
1. 5. Adjust vertical face to be normal to the axis of the tendon.
1. 6. Jacking of continuity tendons shall not crush the ducts of the CBT transverse tendons. Where necessary, extra strong steel pipes (ASTM A53 Type S, Grade B, f_y =240 MPa) shall be provided together with necessary hardware connecting the steel pipes to galvanized corrugated steel duct.
7. For extents of post-tensioning into the Girder at Pier W2, see Top and Bottom tendon layout plans on "W2 Cap Beam Post-Tensioning Details No.5 thru No.8" sheets.
2.

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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	472R2	1204

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12-6-04
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER — James P. Duxbury — No. C 64677 — Exp. 06/30/07 — CIVIL — STATE OF CALIFORNIA

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R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
Ryan Valizadeh / Vong Toan / Y Lu
SIGN OFF DATE 02/16/07

	BY	CHECKED
DESIGN	J. Sun	M. Chen
DETAILS	J. Duxbury	M. Chen
QUANTITIES	S. Shi	D. Harrison

PREPARED FOR THE STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

CHECKED
R. Manzanarez
PROJECT ENGINEER

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE
(SUPERSTRUCTURE & TOWER)

W2 CAP BEAM POST-TENSIONING DETAILS NO. 11

Rev. Date: 5-18-98

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

CU 04
EA 0120F1

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REVISION DATES (PRELIMINARY STAGE ONLY)										SHEET	OF
05/08/99	05/31/01	01/08/02	01/09/02	12/19/02						055R2	

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04	SF	80	13.2/13.9	497S25R2	1204

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12-6-04
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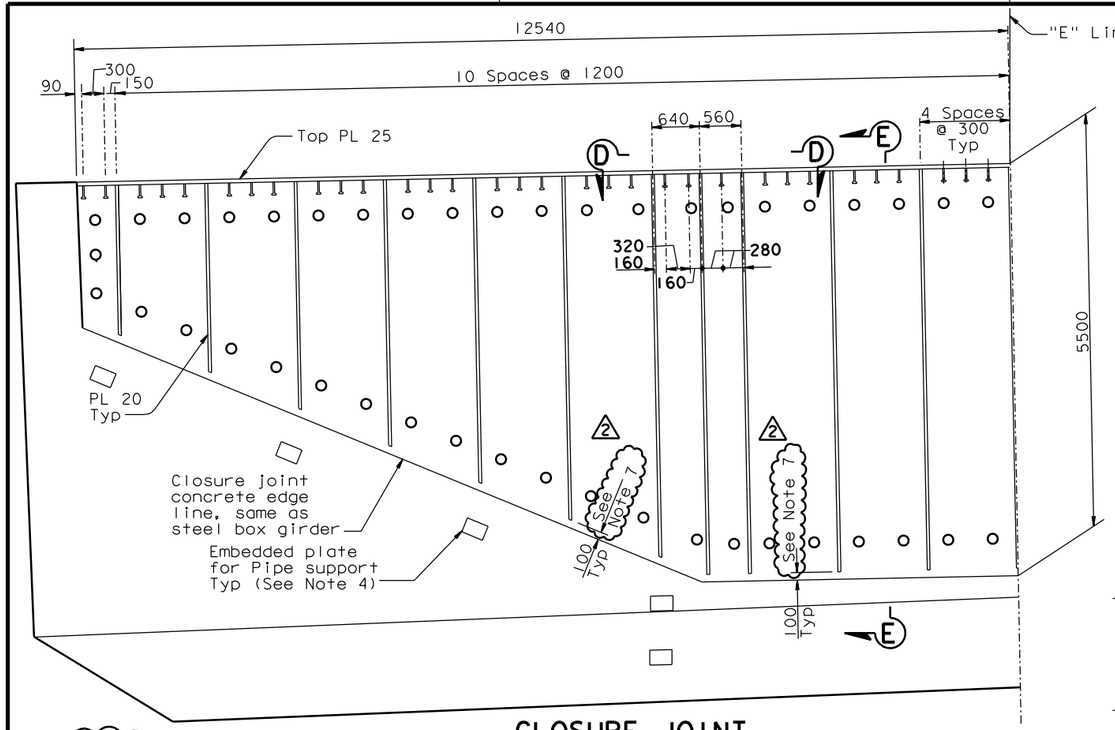


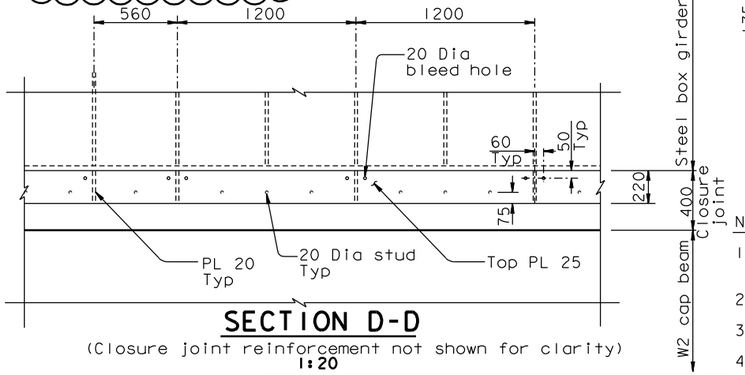
CLOSURE JOINT

(Closure joint reinforcement not shown for clarity)

1:40

NOTES:

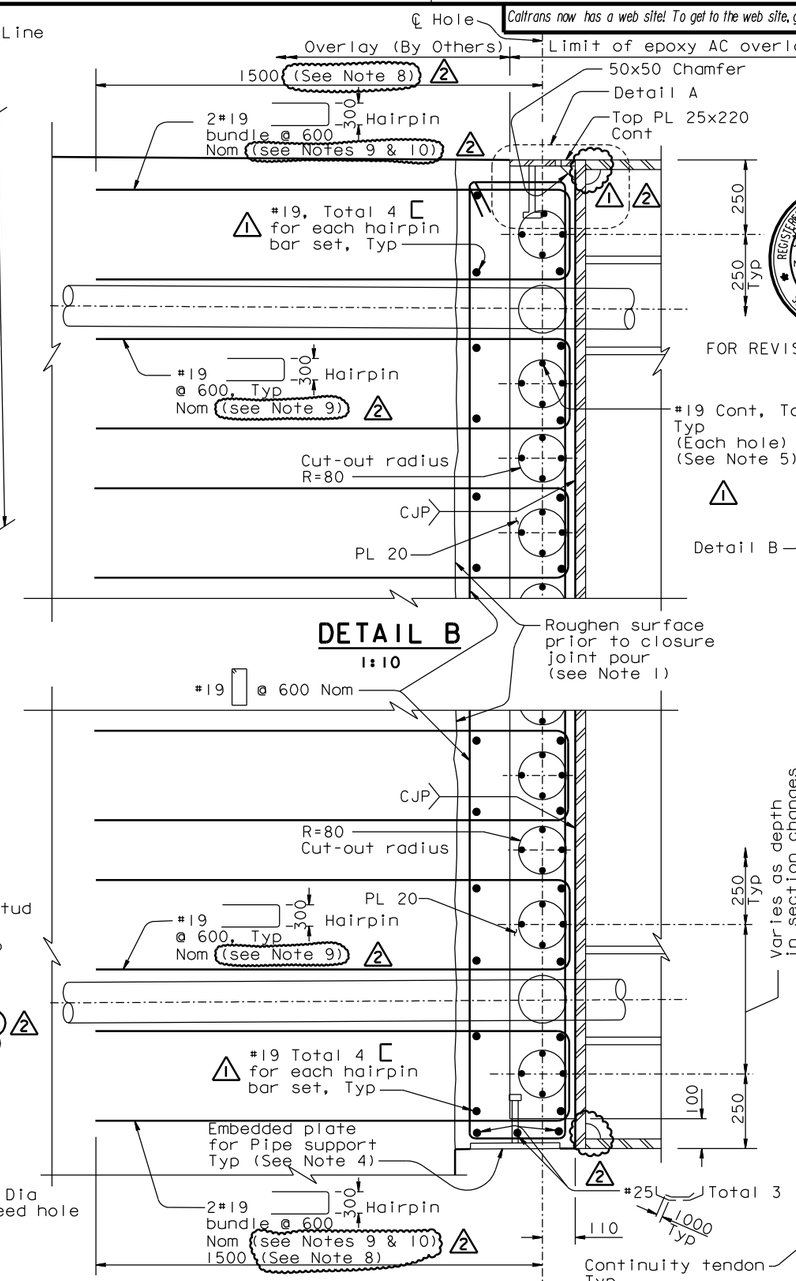
6. For extents of post-tensioning into the Girder at Pier W2, see Top and Bottom Tendon layout on "W2 Cap Beam Post-tensioning Details No.5 thru No.8" sheets.
7. For Westbound continuity tendons 28B, 29A and 29B and for Eastbound continuity tendons 29A and 29B, the Contractor may terminate the PL20 vertical stiffener 125 mm above the bottom tendons and below the top tendons.
8. At the Contractor's option, hairpin dimension may be reduced to 1200 min.
9. At the Contractor's option, ultimate splice couplers may be used on #19 hairpins.
10. Bundled hairpins shall be placed along the entire box girder interface perimeter.

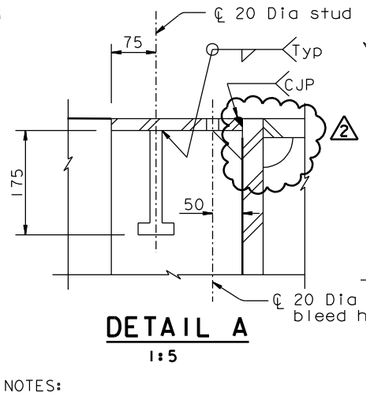


SECTION D-D

(Closure joint reinforcement not shown for clarity)

1:20





DETAIL A

1:5

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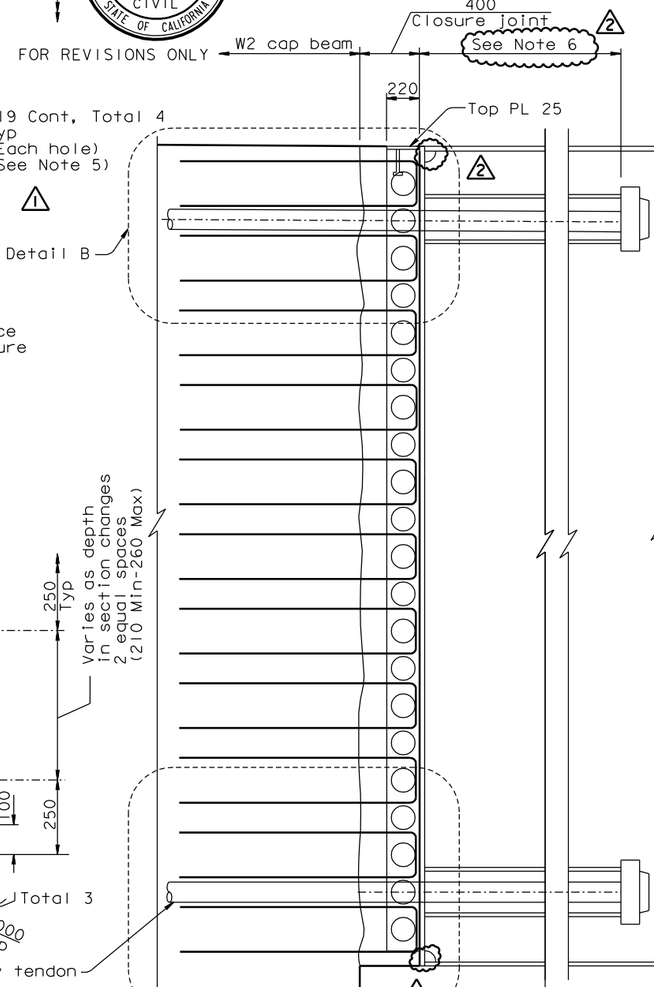

SECTION E-E

1:20

NOTES:

1. Roughen the existing W2 Cap Beam concrete surface to a minimum of 5 mm amplitude prior to pouring the closure joint.
2. Reinforcement spacing shall be adjusted to avoid PT ducts if required.
3. All plate shall be ASTM A709M HPS 485W, unless specified otherwise.
4. For pipe support locations and details, see "Road Plans".
5. At the Contractor's option, 2-#29 bundled bars may be used. 1

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MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			
2	02/16/07	BULKHEAD AT GIRDER PIER W2	JD	AS	27
1	01/31/07	WEST DEVIATION SADDLE GEOMETRY	JD	AS	15
0	07/21/06	GENERAL REVISIONS	JD	AS	23

CONTRACT CHANGE ORDER NO. ____
SHEET ___ OF ___

	BY	CHECKED
DESIGN	J. Sun	M. Chen
DETAILS	J. Duxbury	M. Chen
QUANTITIES	S. Shi	D. Harrison

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

R. Manzanarez
PROJECT ENGINEER

CU 04
EA 0120F1

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

R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
SIGN OFF DATE 02/16/07

Rev. Date: 5-18-98

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

DISREGARD PRINTS BEARING EARLIER REVISION DATES

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE
(SUPERSTRUCTURE & TOWER)

W2 CAP BEAM REINFORCEMENT DETAILS NO. 49

REVISION DATES (PRELIMINARY STAGE ONLY)										SHEET	OF
07/21/06										080S25R2	

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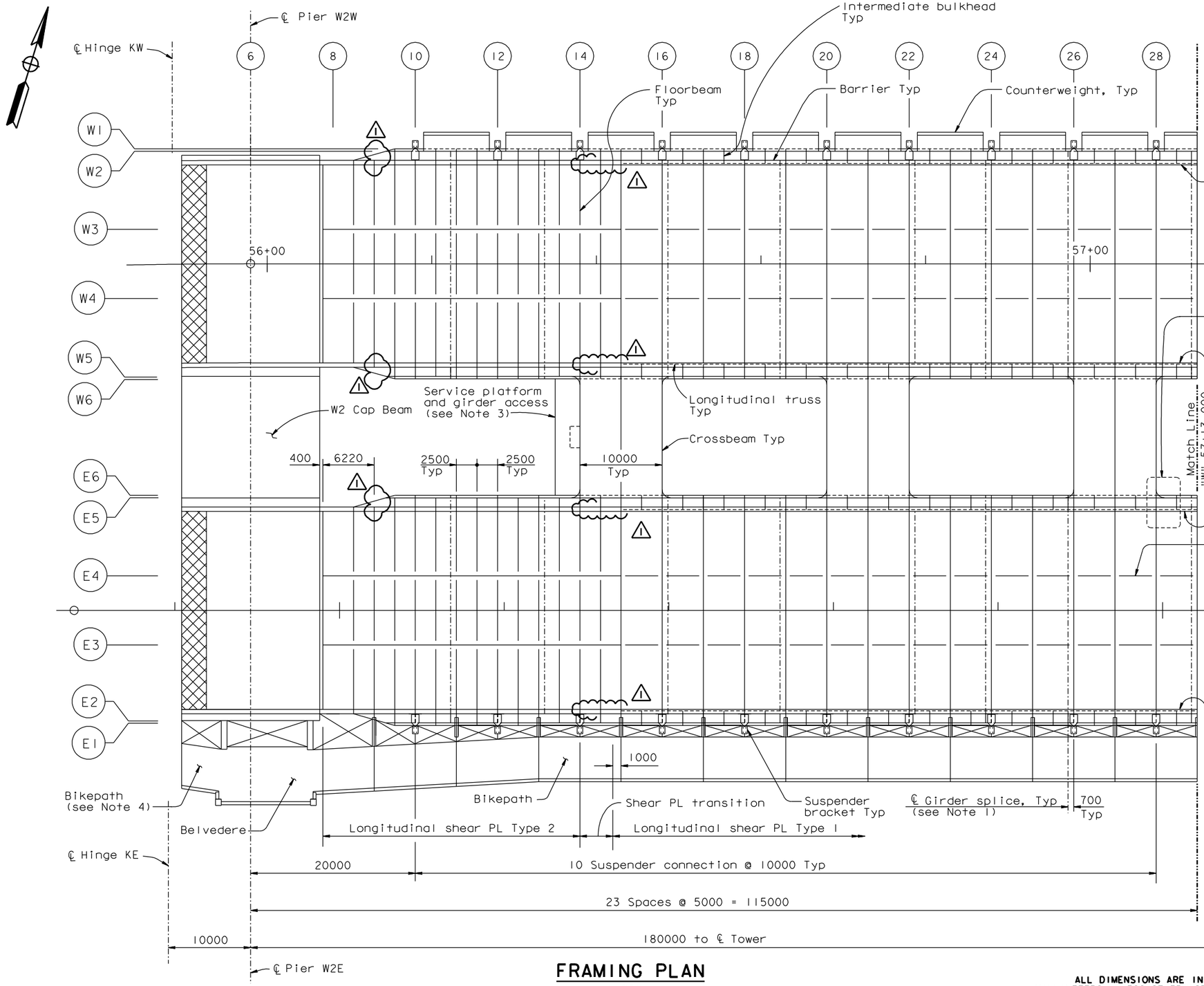

FRAMING PLAN

1:250

LEGEND:

Blockout for modular joint

NOTES:

1. For girder splice details, see "Typical Girder Details" sheets.
2. For modular joint details, see "Hinge K Expansion Joint Details" sheet.
3. For service platform details, see "Road Plans". For girder access details, see "Girder Access Details" sheets.
4. Indicated area of bikepath to be installed by Others after demolition of existing structure. For details, see "Bikepath Layout" sheets.

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MARK	DATE	REVISIONS DESCRIPTIONS	BY	CH'D	CCO#
1	02/16/07	BULKHEAD AT GIRDER PIER W2	MN	AS	27

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SHEET ___ OF ___

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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12-6-04
PLANS APPROVAL DATE

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DETAILS	BY G. Baker	CHECKED T. McMeans		
QUANTITIES	BY G. Baker	CHECKED M. Roberts		

R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
Ryan Valizadeh / Vong Toan / Y. Liu
SIGN OFF DATE 02/16/07

Rev. Date: 5-18-98

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

BRIDGE NO. 34-0006L/R
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SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE (SUPERSTRUCTURE & TOWER)

GIRDER FRAMING PLAN NO. 1

SHEET 202R1 OF

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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
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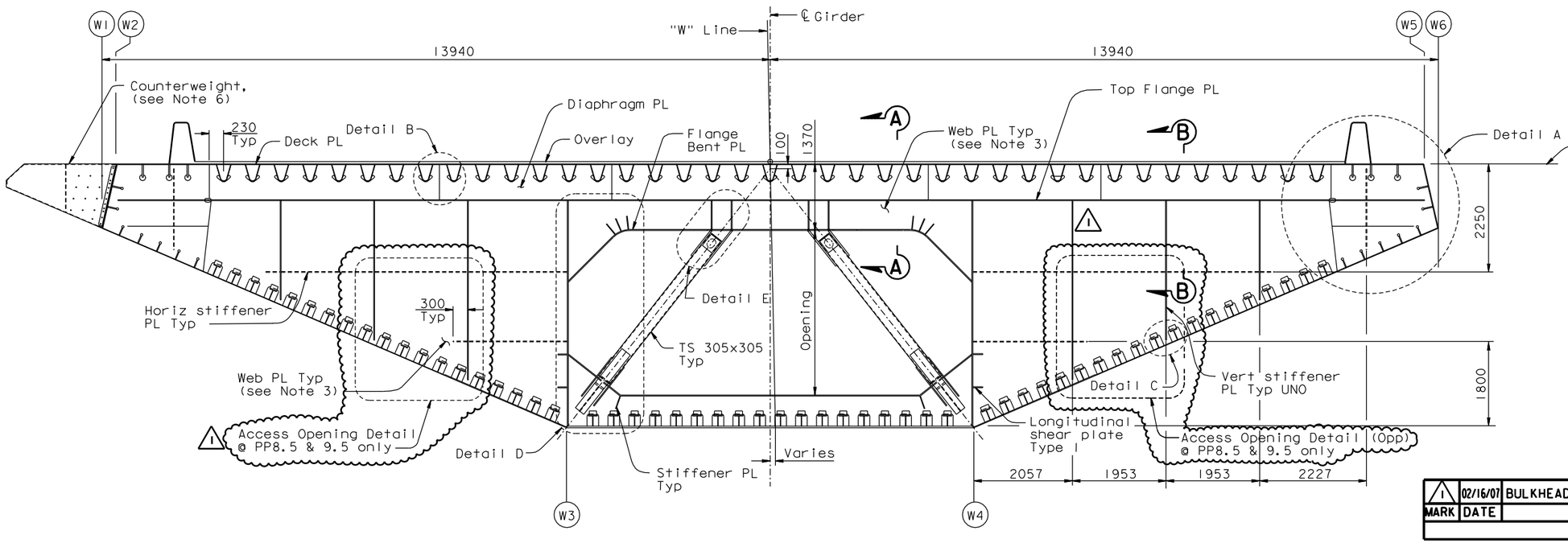
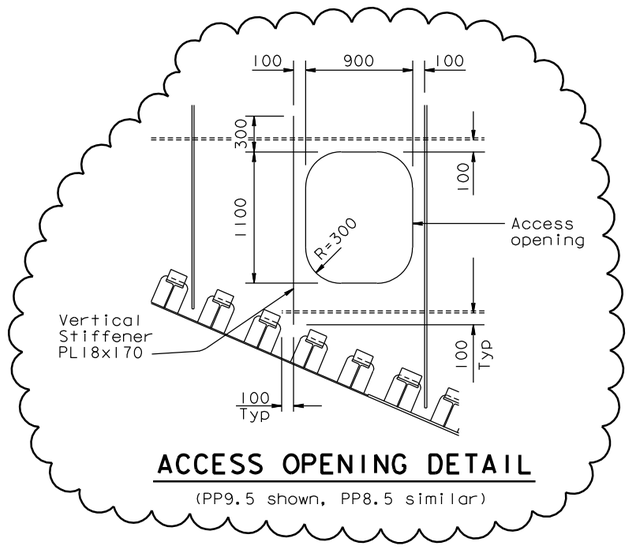


"W" LINE

TYPICAL FLOORBEAM SECTION (See Note 1)

1:50



ACCESS OPENING DETAIL

(PP9.5 shown, PP8.5 similar)

NOTES:

1. Typical floorbeam is located at Panel Points 9 through 115 and intermediate Panel Points 8.5 to 9.5.
2. For floorbeam at intermediate Panel Points 10.5, 11.5, 12.5, 13.5, 111.5, 112.5, 113.5, 114.5, 115.2 and 115.5, see "Typical Floorbeam Details No.8" sheet.
3. For extents and thickness of floorbeam web, see "Typical Floorbeam Details No.2" sheet.
4. All dimensions are taken with respect to a reference line tangent to top deck plate.
5. For Sections A-A and B-B and Details B and C, see "Typical Floorbeam Details No.4" sheet.
6. For counterweight details, see "Typical Girder Details No.17" sheet.
7. For "Typical Floorbeam Details" sheets all bolts shall be detailed according to the bolt dimension table. See "Typical Girder Details No.1" sheet. All bolts are HS, unless noted otherwise.
8. For "Typical Floorbeam Details" sheets unless noted otherwise all fillet welds shall be 6 mm for plate sizes not greater than 20 mm. For plates greater than 20 mm fillet welds shall be 8 mm unless noted otherwise.
9. For Detail A, see "Typical Floorbeam Details No.3" sheet.
10. For Details D and E, see "Typical Floorbeam Details No.5" sheet.

Daniel J. Turner
REGISTERED PROFESSIONAL ENGINEER — Daniel J. Turner — No. C 65033 — Exp. 06/30/07 — CIVIL — STATE OF CALIFORNIA

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CONTRACT CHANGE ORDER NO. ____
SHEET ___ OF ___

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DESIGN OVERSIGHT
Ryan Valizadeh / Vonal Bean / Y. Liu
SIGN OFF DATE 02/16/07

	BY	CHECKED
DESIGN	G. Baker	P. Ritchie
DETAILS	S. Camo	T. McMeans
QUANTITIES	C. Mauch	M. Roberts

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

R. Manzanarez
PROJECT ENGINEER

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE (SUPERSTRUCTURE & TOWER)

TYPICAL FLOORBEAM DETAILS NO. 1

Rev. Date: 5-18-98

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

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SHEET 229R1 OF

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

REGISTERED PROFESSIONAL ENGINEER — George S. Baker — No. C57112 — Exp. 12/31/05 — CIVIL — STATE OF CALIFORNIA

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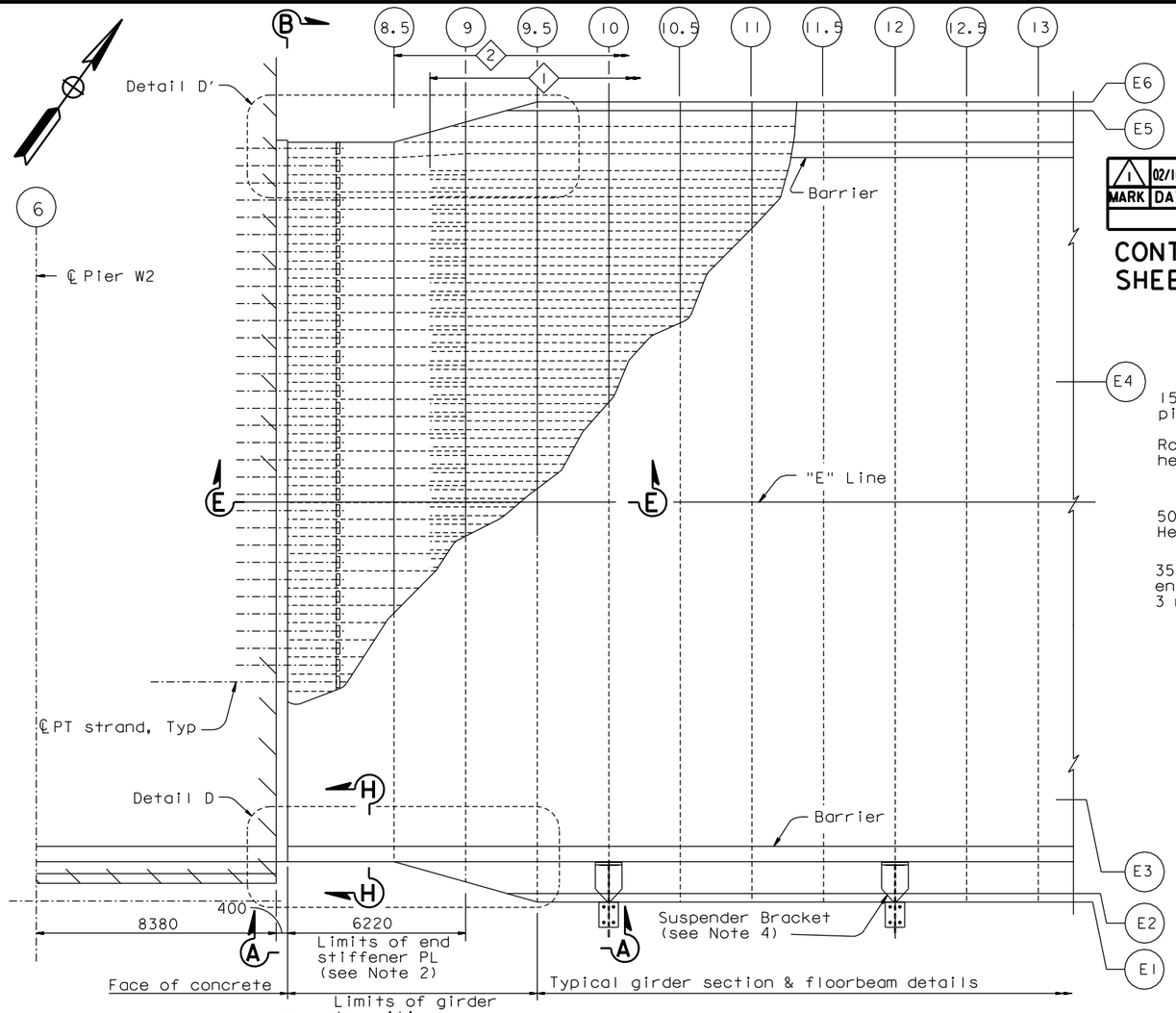
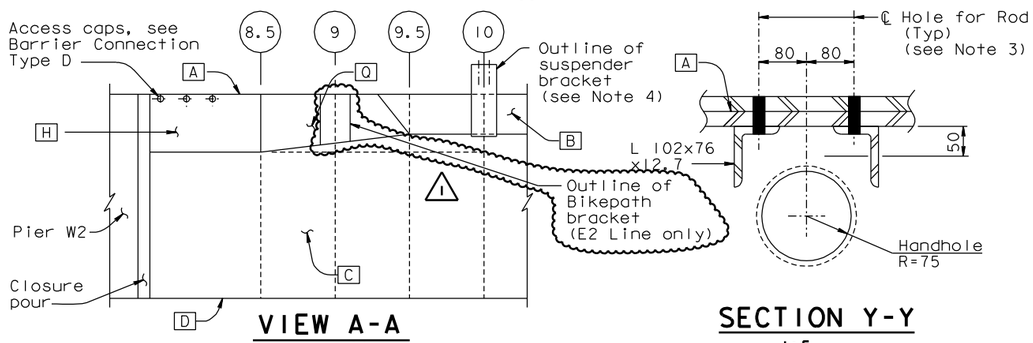
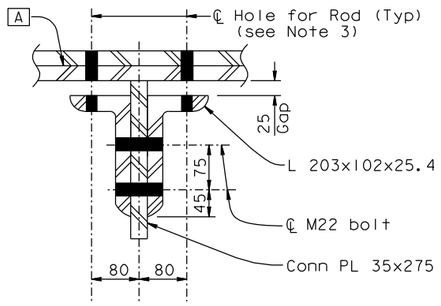


PLAN AT PIER W2
1:100



VIEW A-A
1:100

SECTION Y-Y
1:5



SECTION X-X
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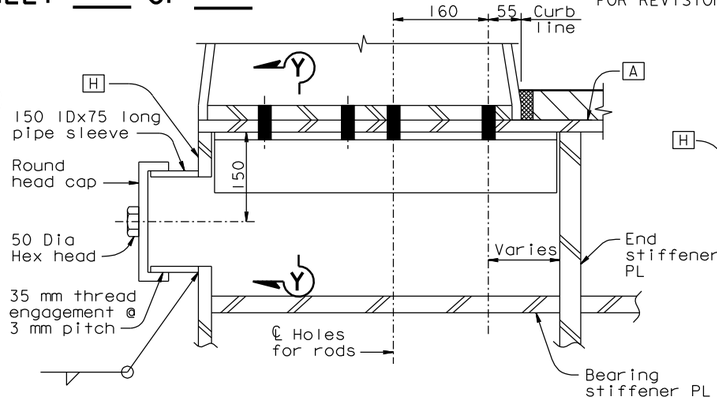
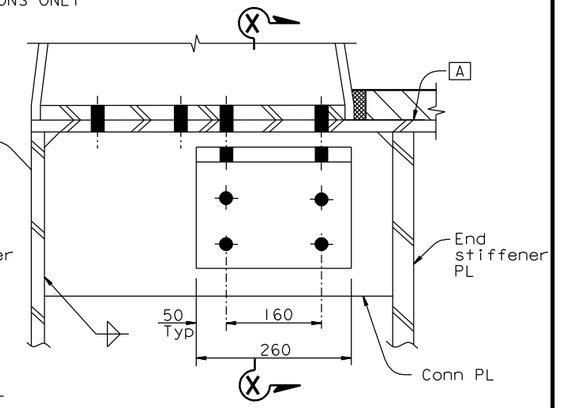


TYPE D



TYPE E

BARRIER CONNECTION DETAILS (See Note 3)
1:5

LEGEND:

- [A] Girder face designation A
- ------- Stiffener Type 2, 3, 9, 10, 11 or other stiffener
- ———— Stiffener Type 1 leg
- ◇ 1 Stiffener Type 1 designation

NOTES:

1. For layout of girder transition, see "Girder At Pier W2 No.5" sheet. For floorbeam at PP8.5 and PP9, see "Girder At Pier W2 No.6" sheet.
2. For limits of end stiffener plate and layout of transition to typical girder stiffeners, see "Girder At Pier W2 No.3 and 4" sheets.
3. For location of barrier connection Types D and E, see "Girder At Pier W2 No.3" sheet. For connection details not shown, see "Typical Girder Details No.14" sheet.
4. For suspender bracket, see "Suspender Bracket Details No.1, 2 and 3" sheets.
5. For "Girder At Pier W2" sheets all bolts shall be detailed according to the bolt dimension table, see "Typical Girder Details No.1" sheet. All bolts are HS unless noted otherwise.
6. For "Girder At Pier W2" sheets unless noted otherwise all fillet welds shall be 6 mm for plate sizes not greater that 20 mm. For plates greater than 20 mm fillet welds shall be 8 mm unless noted otherwise.
7. For end-view Section B-B, see "Girder At Pier W2 No.2" sheet.
8. For Section H-H and Details D and D', see "Girder At Pier W2 No.3" sheet.
9. For Section E-E, see "Girder At Pier W2 No.4" sheet.

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R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
SIGN OFF DATE 02/16/07

	BY	CHECKED
DESIGN	G. Baker	P. Ritchie
DETAILS	M. Gulyas	T. McMeans
QUANTITIES	C. Mauch	M. Roberts

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

R. Manzanarez
PROJECT ENGINEER

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BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE
(SUPERSTRUCTURE & TOWER)

GIRDER AT PIER W2 NO. 1

Rev. Date: 5-18-98

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

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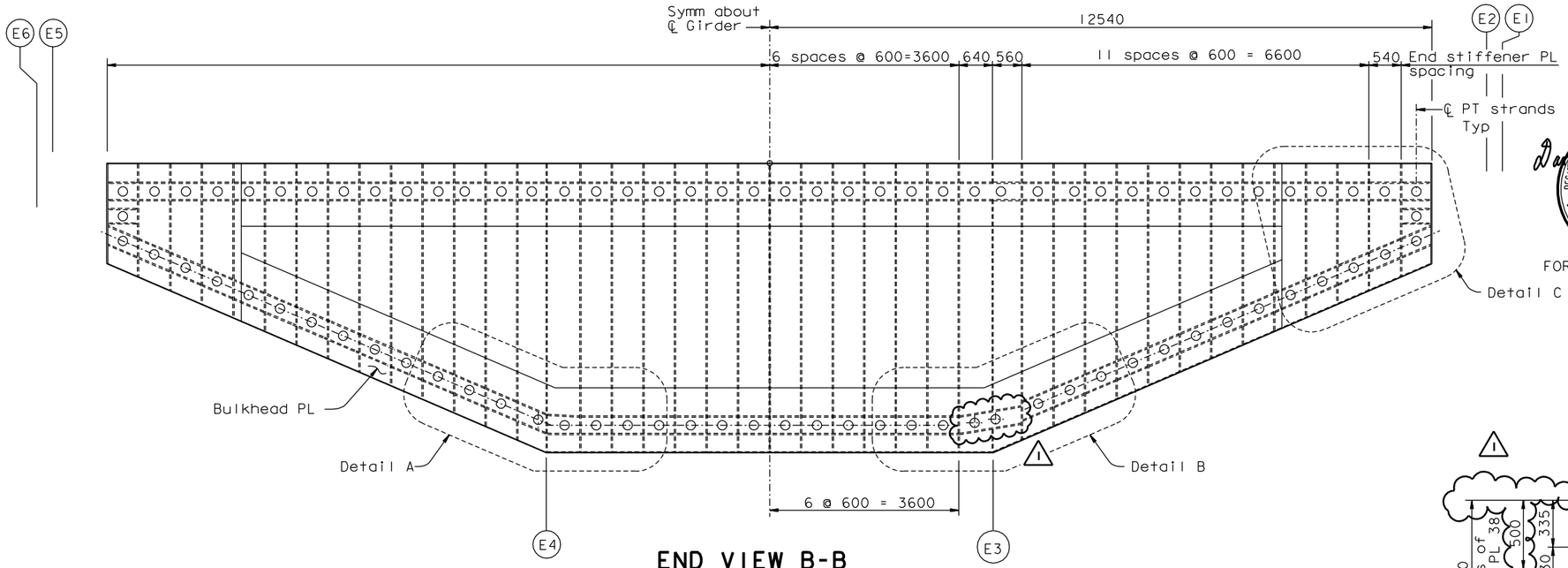
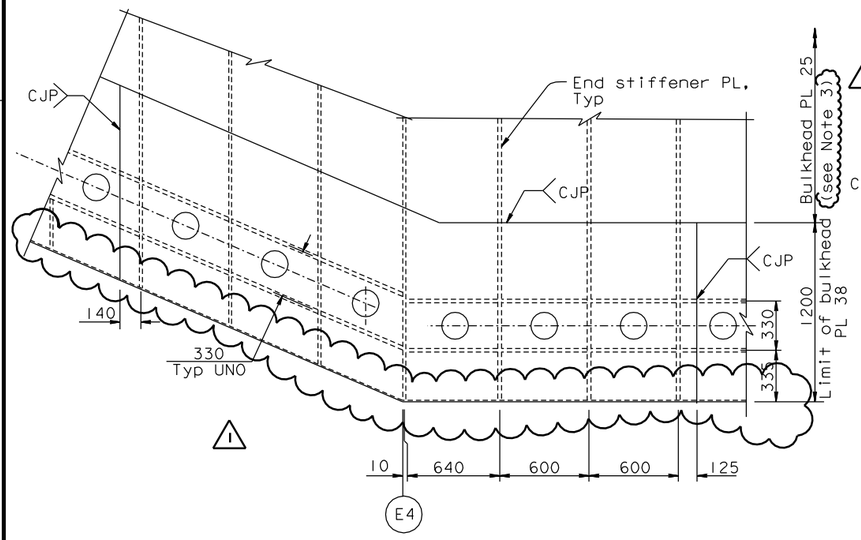
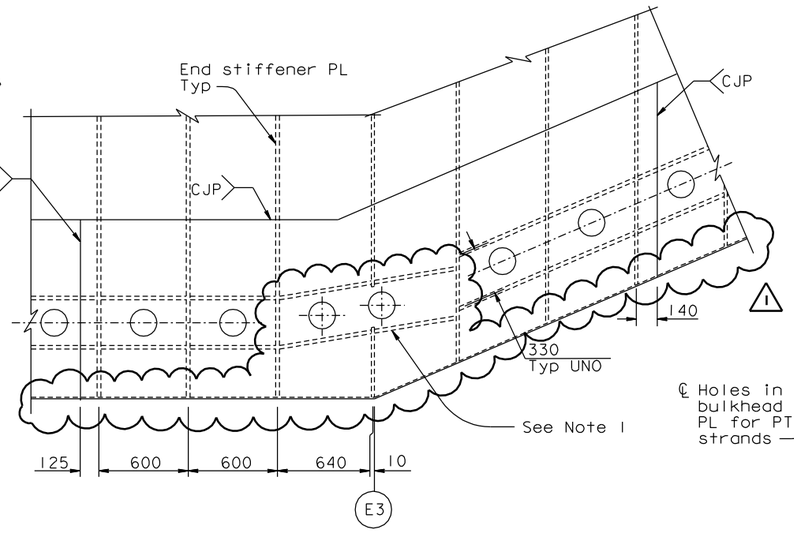


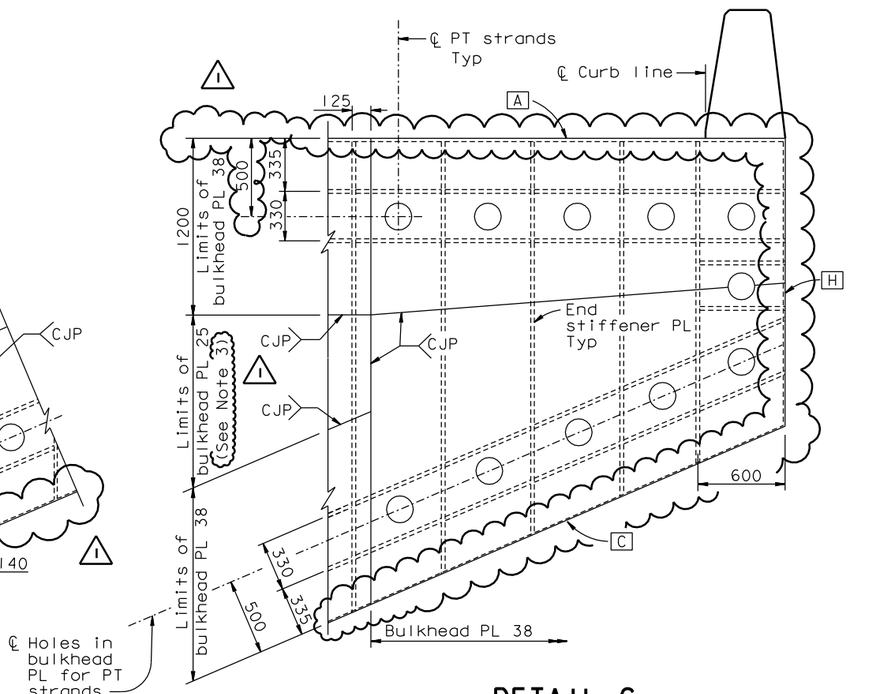
END VIEW B-B
1:50



DETAIL A
1:20



DETAIL B
1:20



DETAIL C
1:20

NOTES:

1. Top and bottom strands above the E3 and W3 working points shall be placed in openings. For opening details, see Detail E on "Girder At Pier W2 No.4" sheet.
2. For locations of PT strands, see "W2 Cap Beam Post-Tensioning Details" sheets.
3. At the Contractor's option, PL 38 may be used subject to review and approval of the Engineer.

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	666R1	1204

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REGISTERED ENGINEER - CIVIL
12-6-04
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Daniel J. Turner
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GIRDER AT PIER W2 NO. 2

R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
SIGN OFF DATE 02/16/07

	BY	CHECKED
DESIGN	G. Baker	P. Ritchie
DETAILS	S. Camo	T. McMeans
QUANTITIES	S. Mauch	M. Roberts

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PROJECT ENGINEER

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Rev. Date: 5-18-98

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

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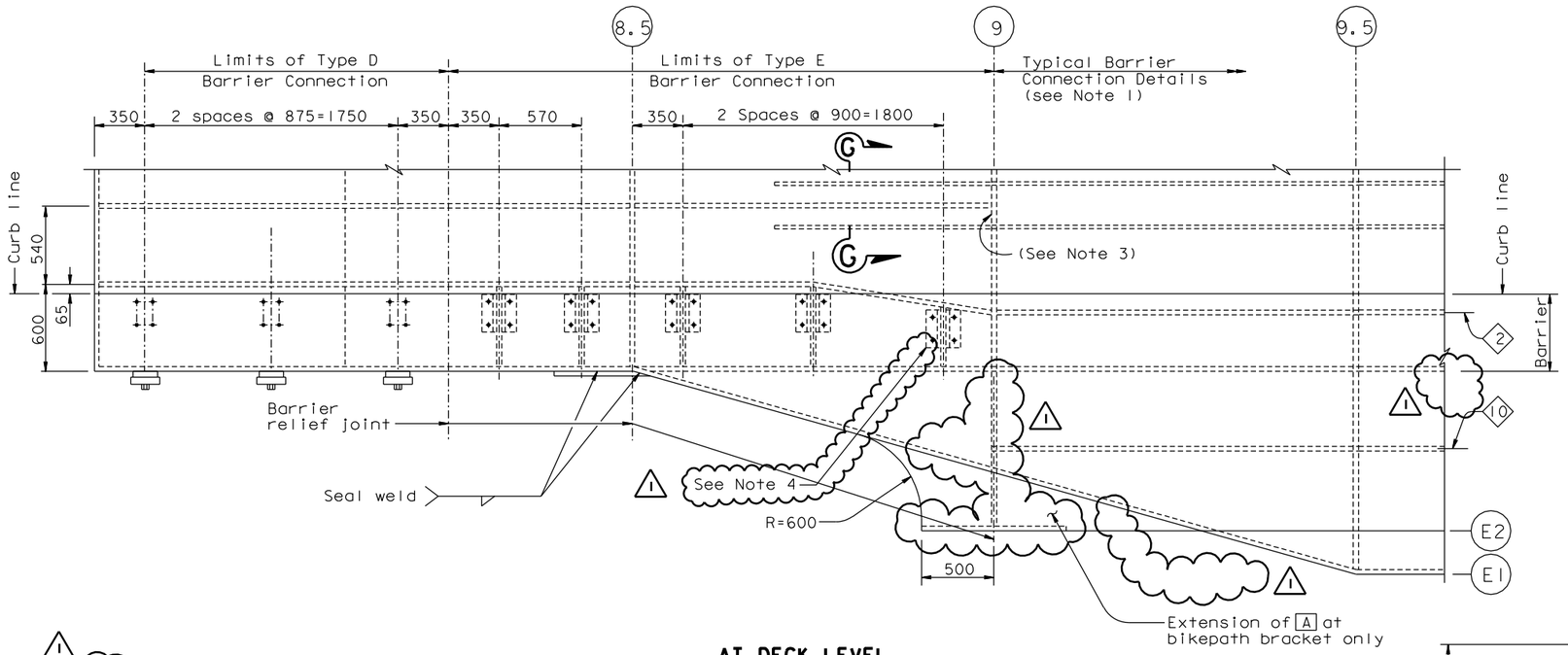
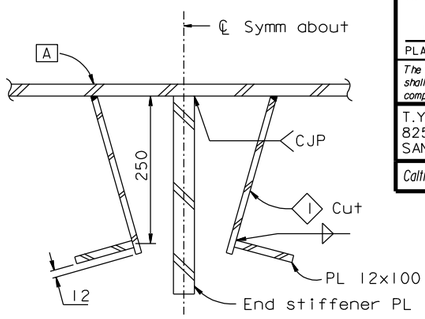
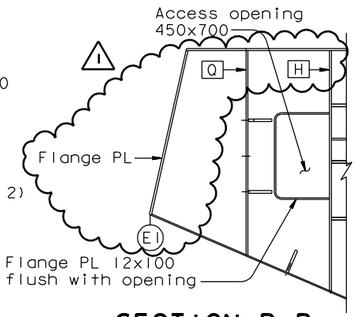
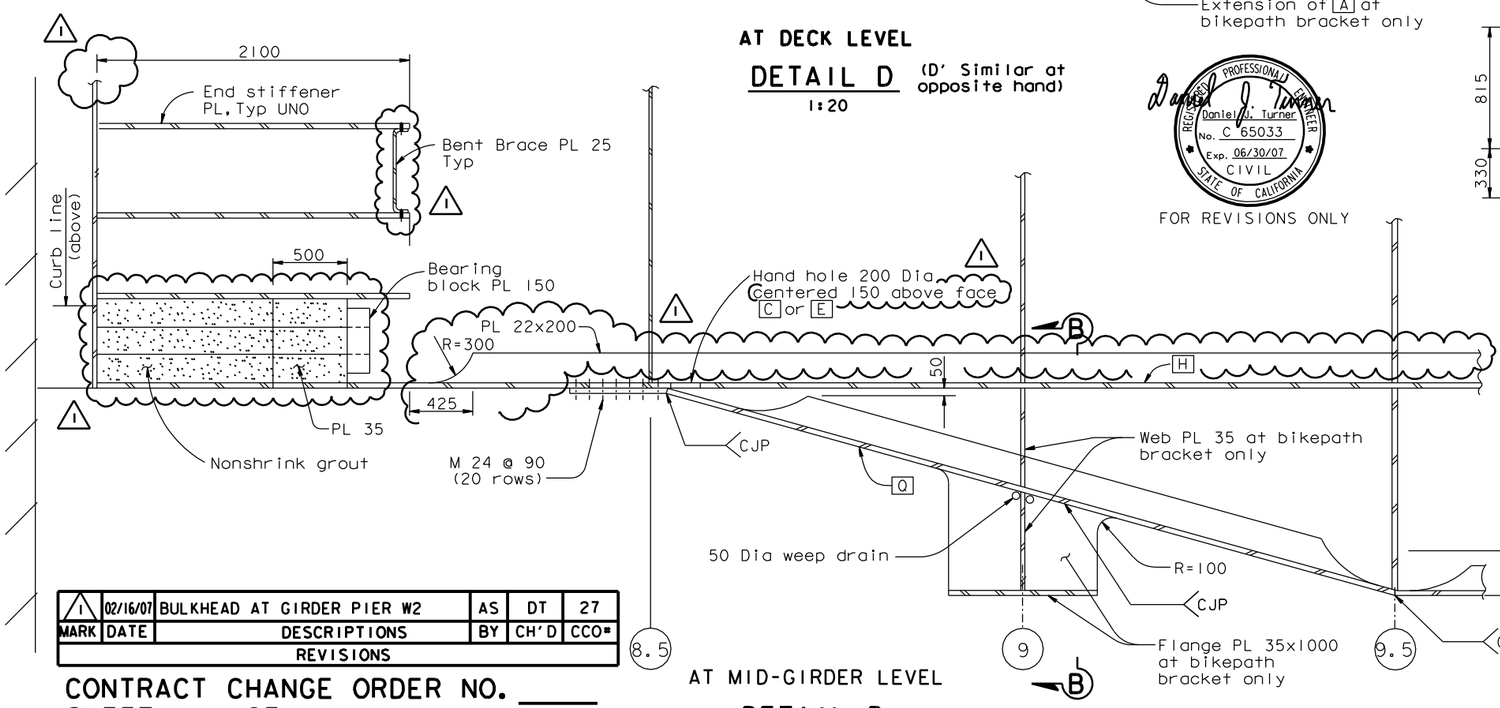




SECTION G-G (See Note 2)
1:5



SECTION B-B
1:25



AT DECK LEVEL

DETAIL D (D' Similar at opposite hand)
1:20

AT MID-GIRDER LEVEL

DETAIL D (D' Similar at opposite hand)
1:20

Daniel J. Turner — REGISTERED PROFESSIONAL ENGINEER — No. C 65033 — Exp. 06/30/07 — CIVIL — STATE OF CALIFORNIA

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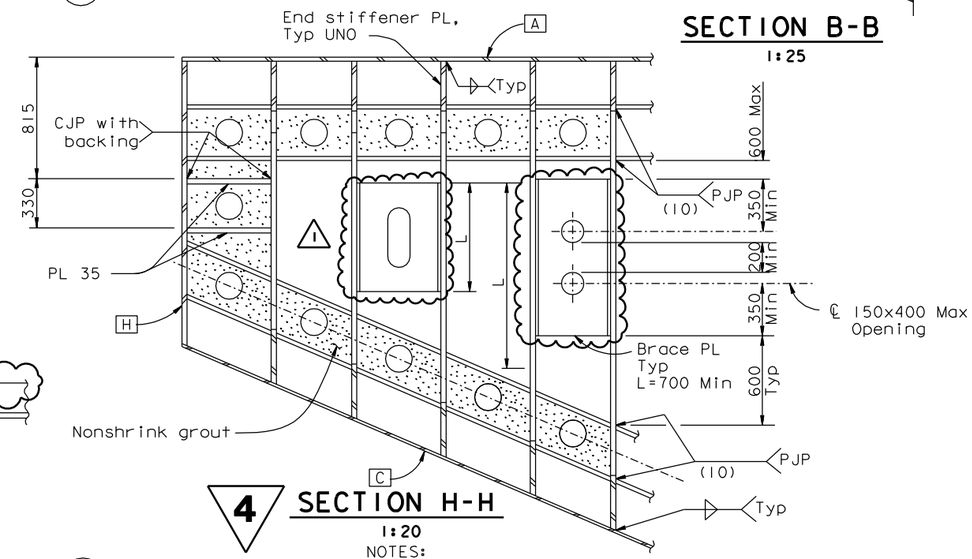

4 SECTION H-H
1:20

NOTES:

1. For typical barrier connection details, see "Typical Girder Details No. 14" sheet. For barrier connection Type D and E, see "Girder At Pier W2 No. 1" sheet.
2. For girder stiff ◇1 transition details not shown, see "Girder At Pier W2 No. 4" sheet.
3. For all girder stiffeners ◇1 (Type 2) the gap in the closure plates shall be caulked at PP9.
4. △1 Base plate connection bolts in the barrier shall be adjusted to fit the anchor bolts in this connection.

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1	02/16/07	BULKHEAD AT GIRDER PIER W2	AS	DT	27

CONTRACT CHANGE ORDER NO. ____
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DETAILS	BY C. Mauch	CHECKED T. McMeans			KILOMETER POST 13.2/13.9
QUANTITIES	BY C. Mauch	CHECKED M. Roberts		CU 04 EA 0120F1	

R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
SIGN OFF DATE 02/16/07

Rev. Date: 5-18-98

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

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)									SHEET	OF
01/15/99	05/15/99	08/02/99	05/31/01	04/08/02	07/01/02	12/19/02	11/13/05		250R1	

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE (SUPERSTRUCTURE & TOWER)

GIRDER AT PIER W2 NO. 3

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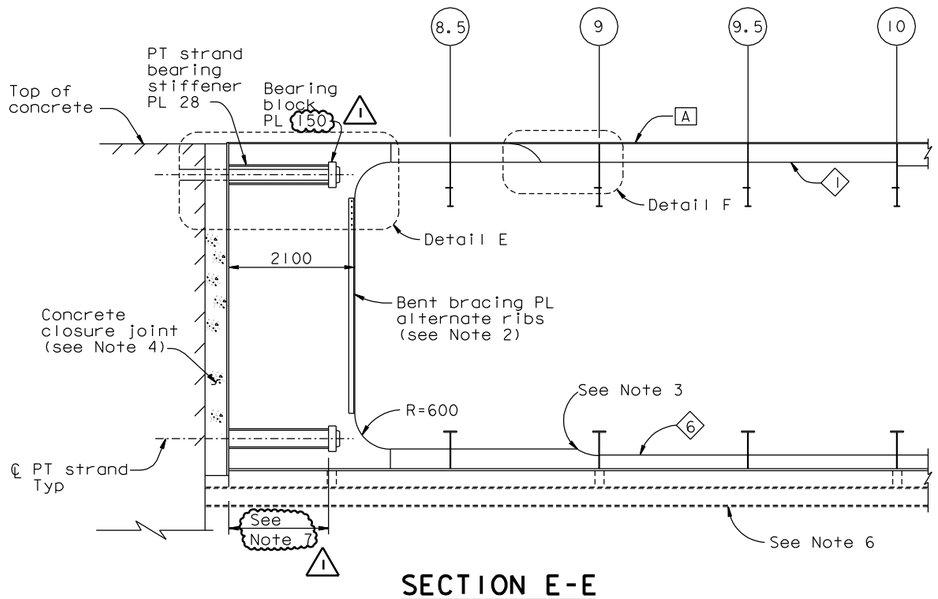
USERNAME => oilshansky



SECTION E-E
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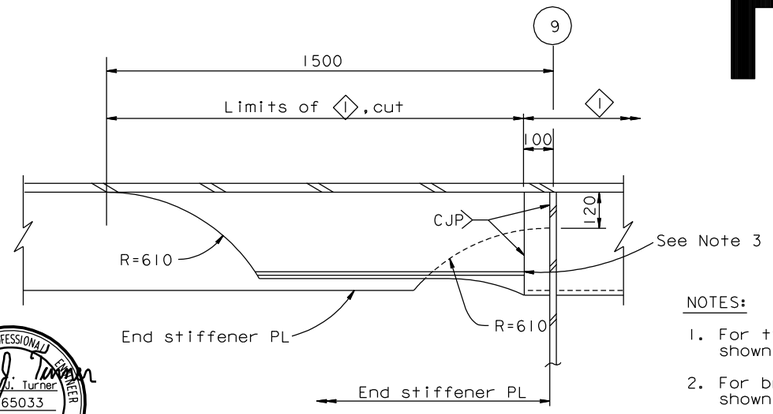


DETAIL F
1:10

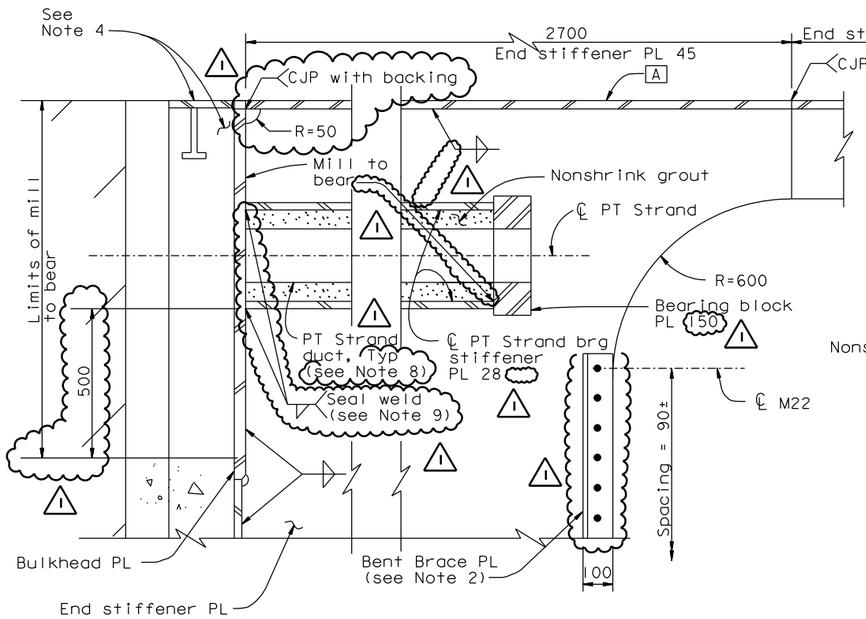
FOR REVISIONS ONLY

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
1	02/16/07	BULKHEAD AT GIRDER PIER W2	GB	DT	27
		REVISIONS			

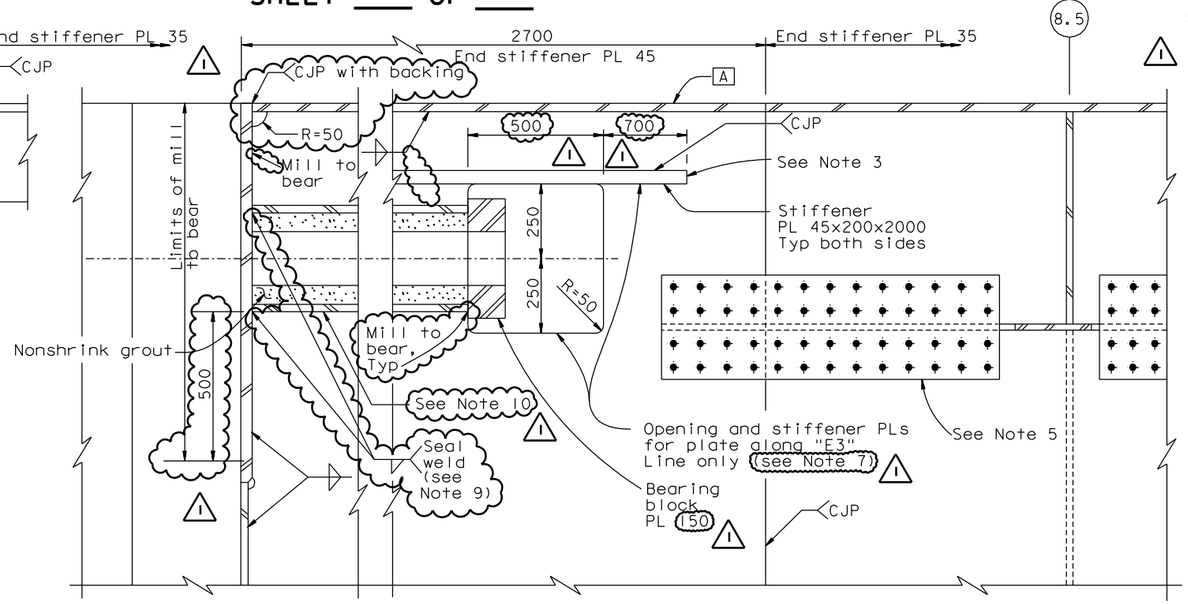
CONTRACT CHANGE ORDER NO. ____
SHEET ___ OF ___

NOTES:

1. For typical girder stiffener 1 details not shown, see "Typical Girder Details No.4" sheet.
2. For bracing details of end stiffener plate not shown, see "Girder At Pier W2 No.3" sheet.
3. For termination of end stiff plate and stiffeners, see typical details on "Typical Girder Details No.16" sheet.
1 4. For concrete closure joint details, see "W2 Cap Beam Reinforcement Details No.49" sheet.
5. For longitudinal shear PL details not shown, see "Typical Girder Details No.7" sheet.
6. For location and details of traveler rail, see "Traveler Rail Details" sheets.
1 7. For Cutout End Stiffener Plate detail, PT standard bearing stiffener PL dimensions and bearing block types, see "Girder At Pier W2 No.4A" and "Girder At Pier W2 No.4B" sheets.
8. The Contractor may substitute the PT duct with a 200 Max diameter standard PT pipe, subject to review and approval of the Engineer. The Contractor may also shop drill a 225 Max diameter hole in the Bulkhead PL to extend the PT pipe into the closure pour side of the Bulkhead PL. The interface between the PT pipe and the Bulkhead PL shall be seal welded all around.
9. At the Contractor's option silicone caulking may be used in lieu of seal weld.
10. At the Contractor's option the 10 mm PJP weld may be replaced with a 14 mm fillet weld at locations where there are openings in the End Stiffener PL or Long Shear PL only.



TYPICAL DETAIL AT END STIFFENER PLATE
1



AT LONG SHEAR PLATE ALONG E3 WORKING LINE
(Long shear plate along E4 Working Line similar except as shown)

DETAIL E (See Note 7) 1
1:10

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	668R1	1204

George Baker
REGISTERED ENGINEER - CIVIL
12-6-04
PLANS APPROVAL DATE
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T.Y. LIN / MOFFATT & NICHOL
825 BATTERY STREET
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Daniel J. Turner — REGISTERED PROFESSIONAL ENGINEER — Daniel J. Turner, No. C 65033, Exp. 06/30/07, CIVIL, STATE OF CALIFORNIA

R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
Ryan Valizadeh / Vong Toan / Y. Liu
SIGN OFF DATE 02/16/07

	BY	CHECKED
DESIGN	G. Baker	P. Ritchie
DETAILS	S. Camo	T. McMeans
QUANTITIES	C. Mauch	M. Roberts

PREPARED FOR THE STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

R. Manzanarez
PROJECT ENGINEER

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

CU 04
EA 0120F1

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE
(SUPERSTRUCTURE & TOWER)

GIRDER AT PIER W2 NO.4

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)								SHEET	OF
01/15/99	05/15/99	08/02/99	05/31/01	04/08/02	07/01/02	12/19/02		251R1	

Rev. Date: 5-18-98

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

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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	668S1	1204

REGISTERED ENGINEER - CIVIL

02-16-07
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
James P.Duxbury
No. C 64677
Exp. 06/30/07
CIVIL
STATE OF CALIFORNIA

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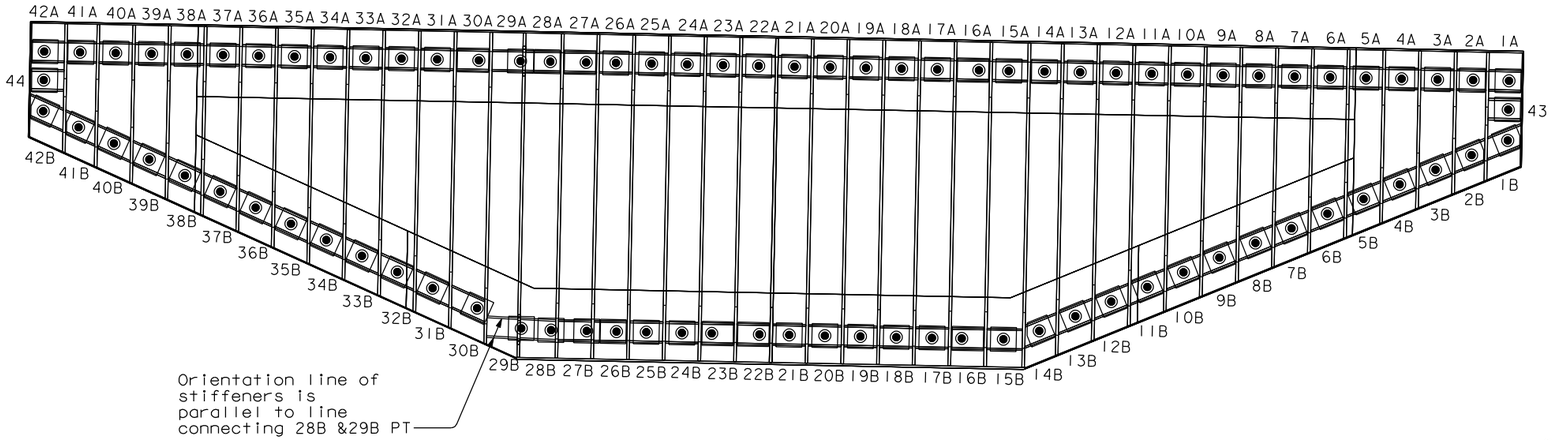
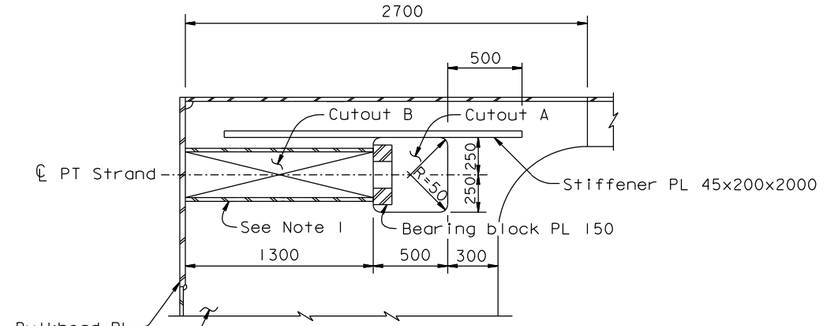


'W' LINE (LOOKING EAST)

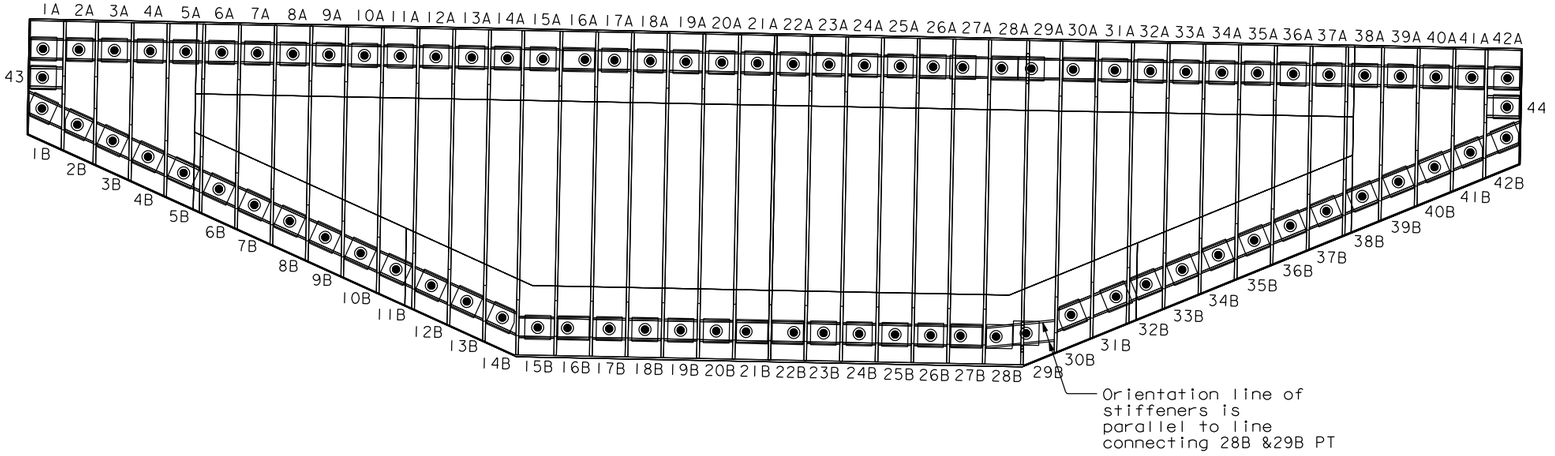


CUTOUT AT END STIFFENER PLATE

1:20

(Nonshrink grout not shown for clarity)

(For details not shown, see Typical Detail at End Stiffener Plate on "Girder At Pier W2 No.4" sheet.



'E' LINE (LOOKING EAST)

NOTES:

1. At the Contractor's option the 10 mm PJP weld may be replaced with a 14 mm fillet weld at locations where there are openings in the End Stiffener PL or Long Shear PL only.

2. Cutout opening may be enlarged to accomodate bearing block geometry subject to review and approval of the Engineer.

BEARING BLOCK PL LAYOUT

1:50

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			
0	02/16/07	BULKHEAD AT GIRDER PIER W2	JD	GB	27

CONTRACT CHANGE ORDER NO. ____
SHEET ____ OF ____

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R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
SIGN OFF DATE 02/16/07

	BY		CHECKED
DESIGN	J. Duxbury		G. Baker
DETAILS	A. Sanjines		M. Nader
QUANTITIES	J. Duxbury		A. Sanjines

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

R. Manzanarez
PROJECT ENGINEER

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE
(SUPERSTRUCTURE & TOWER)

GIRDER AT PIER W2 NO. 4A

Rev. Date: 5-18-98

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

CU 04
EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)										SHEET	OF
02/16/07										251S1	

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Bearing Block Table

WESTBOUND							
PT	Bearing Block	Opening	PT Strand Brg Stiff PL	PT	Bearing Block	Opening	PT Strand Brg Stiff PL
1A	B	None	28x1682	1B	E	None	28x1682
2A	B	None	28x1682	2B	D	None	28x1682
3A	Standard	None	28x1682	3B	C	None	28x1682
4A	Standard	None	28x1682	4B	C	None	28x1682
5A	Standard	None	28x1682	5B	C	None	28x1682
6A	Standard	None	28x1682	6B	C	None	28x1682
7A	Standard	None	28x1682	7B	C	None	28x1682
8A	Standard	None	28x1682	8B	C	None	28x1682
9A	Standard	None	28x1682	9B	C	None	28x1682
10A	Standard	None	28x1682	10B	C	None	28x1682
11A	Standard	None	28x1682	11B	C	None	28x1682
12A	Standard	None	28x1682	12B	C	None	28x1682
13A	Standard	None	28x1682	13B	C	None	28x1682
14A	Standard	None	28x1682	14B	D	None	28x1682
15A	Standard	None	28x1682	15B	Standard	None	28x1682
16A	A	None	28x1682	16B	A	None	28x1682
17A	Standard	None	28x1682	17B	Standard	None	28x1682
18A	Standard	None	28x1682	18B	Standard	None	28x1682
19A	Standard	None	28x1682	19B	Standard	None	28x1682
20A	Standard	None	28x1682	20B	Standard	None	28x1682
21A	Standard	None	28x1682	21B	Standard	None	28x1682
22A	Standard	None	28x1682	22B	A	None	28x1682
23A	Standard	None	28x1682	23B	A	None	28x1682
24A	Standard	None	28x1682	24B	Standard	None	28x1682
25A	Standard	None	28x1682	25B	Standard	None	28x1682
26A	Standard	None	28x1682	26B	A	None	28x1300
27A	A	None	28x1682	27B	Standard	Full Opening	28x1300
28A	A	None	28x1300	28B	Standard	Full Opening	28x1300
29A	Standard	Full Opening	28x1300	29B	Standard	Full Opening	28x1300
30A	A	None	28x1682	30B	Standard	Partial Opening	28x1300
31A	Standard	None	28x1682	31B	C	None	28x1682
32A	Standard	None	28x1682	32B	C	None	28x1682
33A	Standard	None	28x1682	33B	C	None	28x1682
34A	Standard	None	28x1682	34B	C	None	28x1682
35A	Standard	None	28x1682	35B	C	None	28x1682
36A	Standard	None	28x1682	36B	C	None	28x1682
37A	Standard	None	28x1682	37B	C	None	28x1682
38A	Standard	None	28x1682	38B	C	None	28x1682
39A	Standard	None	28x1682	39B	C	None	28x1682
40A	Standard	None	28x1682	40B	C	None	28x1682
41A	B	None	28x1682	41B	D	None	28x1682
42A	B	None	28x1682	42B	E	None	28x1682
43	B	None	35x500				
44	B	None	35x500				

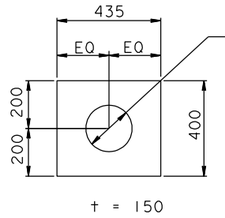
EASTBOUND							
PT	Bearing Block	Opening	PT Strand Brg Stiff PL	PT	Bearing Block	Opening	PT Strand Brg Stiff PL
1A	B	None	28x1682	1B	E	None	28x1682
2A	B	None	28x1682	2B	D	None	28x1682
3A	Standard	None	28x1682	3B	C	None	28x1682
4A	Standard	None	28x1682	4B	C	None	28x1682
5A	Standard	None	28x1682	5B	C	None	28x1682
6A	Standard	None	28x1682	6B	C	None	28x1682
7A	Standard	None	28x1682	7B	C	None	28x1682
8A	Standard	None	28x1682	8B	C	None	28x1682
9A	Standard	None	28x1682	9B	C	None	28x1682
10A	Standard	None	28x1682	10B	C	None	28x1682
11A	Standard	None	28x1682	11B	C	None	28x1682
12A	Standard	None	28x1682	12B	C	None	28x1682
13A	Standard	None	28x1682	13B	C	None	28x1682
14A	Standard	None	28x1682	14B	D	None	28x1682
15A	Standard	None	28x1682	15B	Standard	None	28x1682
16A	A	None	28x1682	16B	A	None	28x1682
17A	Standard	None	28x1682	17B	Standard	None	28x1682
18A	Standard	None	28x1682	18B	Standard	None	28x1682
19A	Standard	None	28x1682	19B	Standard	None	28x1682
20A	Standard	None	28x1682	20B	Standard	None	28x1682
21A	Standard	None	28x1682	21B	A	None	28x1682
22A	Standard	None	28x1682	22B	A	None	28x1682
23A	Standard	None	28x1682	23B	Standard	None	28x1682
24A	Standard	None	28x1682	24B	Standard	None	28x1682
25A	Standard	None	28x1682	25B	Standard	None	28x1682
26A	Standard	None	28x1300	26B	Standard	None	28x1682
27A	Standard	Partial Opening	28x1300	27B	A	None	28x1682
28A	A	None	28x1300	28B	A	None	28x1300
29A	Standard	Full Opening	28x1300	29B	Standard	Full Opening	28x1300
30A	A	None	28x1682	30B	E	None	28x1682
31A	Standard	None	28x1682	31B	Standard	Partial Opening	28x1300
32A	Standard	None	28x1682	32B	C	None	28x1300
33A	Standard	None	28x1682	33B	C	None	28x1682
34A	Standard	None	28x1682	34B	C	None	28x1682
35A	Standard	None	28x1682	35B	C	None	28x1682
36A	Standard	None	28x1682	36B	C	None	28x1682
37A	Standard	None	28x1682	37B	C	None	28x1682
38A	Standard	None	28x1682	38B	C	None	28x1682
39A	Standard	None	28x1682	39B	C	None	28x1682
40A	Standard	None	28x1682	40B	C	None	28x1682
41A	B	None	28x1682	41B	D	None	28x1682
42A	B	None	28x1682	42B	E	None	28x1682
43	B	None	35x500				
44	B	None	35x500				

Bearing Block Type A Table

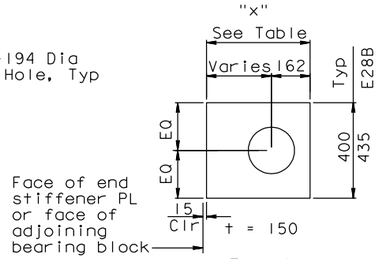
WESTBOUND					
PT	Bearing Block	x	PT	Bearing Block	x
16A	A	525	16B	A	525
27A	A	525	22B	A	525
28A	A	435	23B	A	525
30A	A	525	26B	A	435

EASTBOUND					
PT	Bearing Block	x	PT	Bearing Block	x
16A	A	525	16B	A	525
28A	A	435	21B	A	525
30A	A	525	22B	A	525
			27B	A	525
			28B*	A	435

*Note: Bearing Block 28B shall be 435x435



Standard



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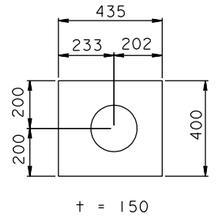

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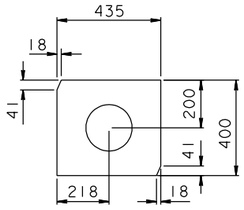

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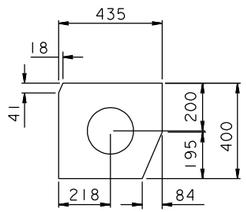

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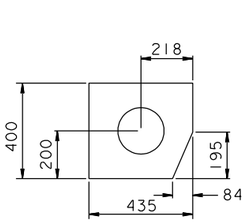

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Type E

BEARING BLOCK TYPES

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			
0	02/16/07	BULKHEAD AT GIRDER PIER W2	JD	GB	27

CONTRACT CHANGE ORDER NO. ____
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DESIGN	BY	J. Duxbury	CHECKED	G. Baker
DETAILS	BY	A. Sanjines	CHECKED	M. Nader
QUANTITIES	BY	J. Duxbury	CHECKED	A. Sanjines

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

R. Manzanarez
PROJECT ENGINEER

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE
(SUPERSTRUCTURE & TOWER)

GIRDER AT PIER W2 NO. 4B

R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
SIGN OFF DATE 02/16/07

Rev. Date: 5-18-98

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

CU 04
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DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 02/16/07

SHEET 251S2 OF

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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	668S2	1204

REGISTERED ENGINEER - CIVIL
02-16-07
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
James P.Duxbury
No. C 64677
Exp. 06/30/07
CIVIL
STATE OF CALIFORNIA

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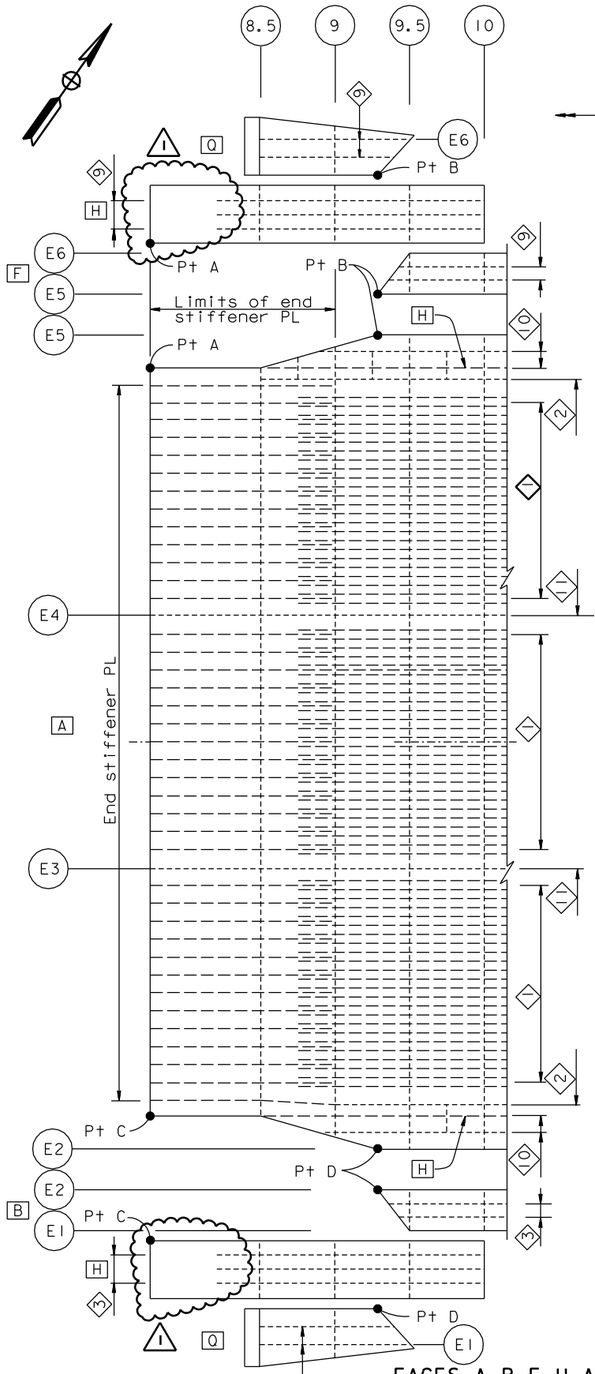
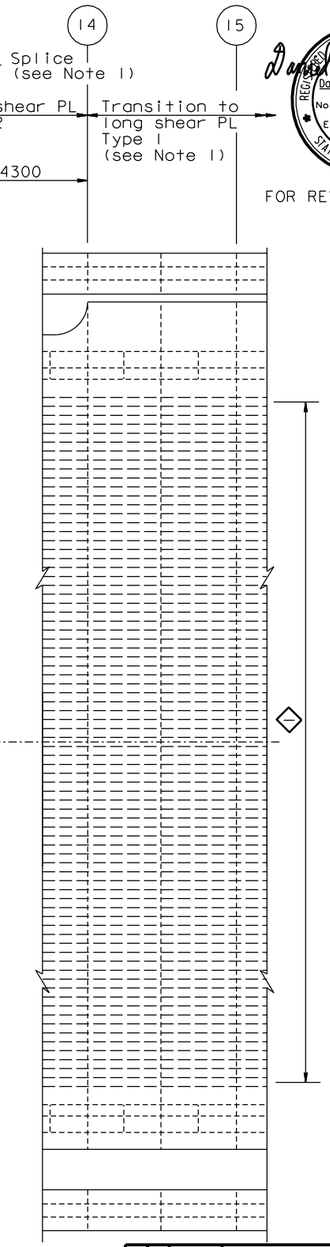


FACES A, B, F, H AND Q
("E" LINE SHOWN, "W" LINE SIMILAR)

TOP GIRDER FACE LAYOUT

1:100



Daniel J. Turner
REGISTERED PROFESSIONAL ENGINEER
No. C 65033
Exp. 06/30/07
CIVIL
STATE OF CALIFORNIA

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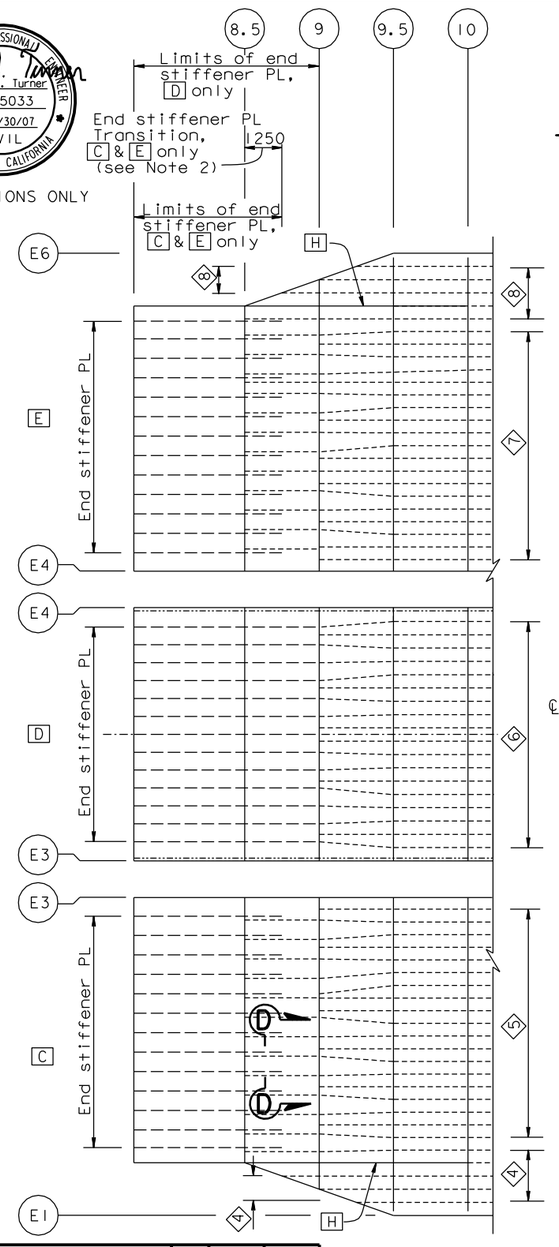

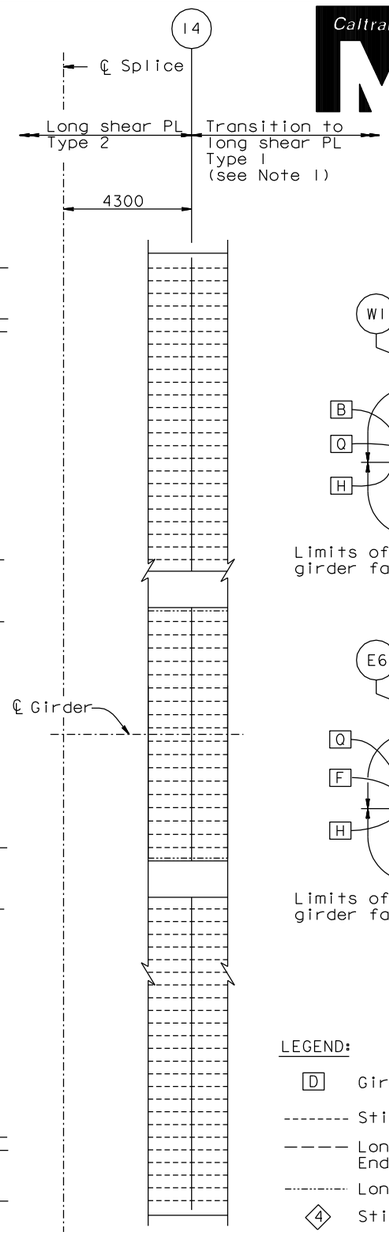

FACES C, D AND E
("E" LINE SHOWN, "W" LINE SIMILAR)

BOTTOM GIRDER FACE LAYOUT

1:100

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
		REVISIONS			
1	02/16/07	BULKHEAD AT GIRDER PIER W2	AS	DT	27

CONTRACT CHANGE ORDER NO. ____
SHEET ___ OF ___

Caltrans Metric

DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	669R1	1204

George Baker
REGISTERED ENGINEER - CIVIL

12-6-04
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER
George S. Baker
No. C57112
Exp. 12/31/05
CIVIL
STATE OF CALIFORNIA

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T.Y. LIN / MOFFATT & NICHOL
825 BATTERY STREET
SAN FRANCISCO, CA 94111

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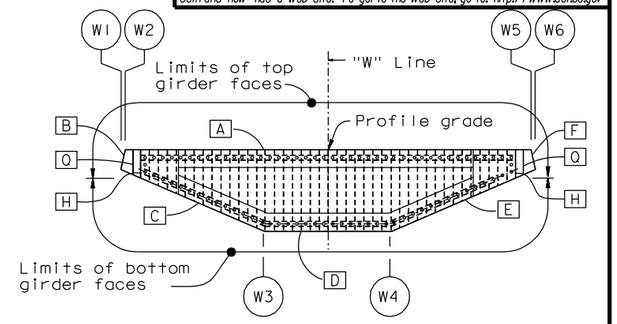
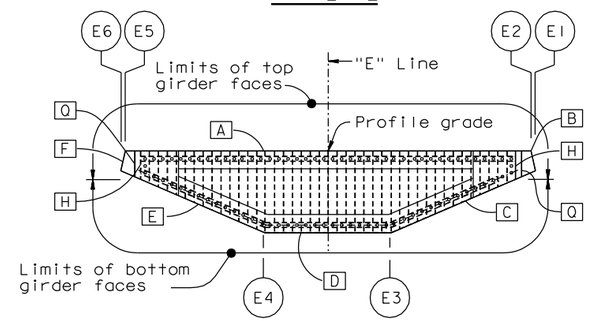


"W" LINE



"E" LINE

KEY CROSS SECTIONS

1:200

LEGEND:

- D — Girder face designation D
- -------- Stiffener type 4, 5, 6, 7 or 8
- — — — Longitudinal stiffener Type I leg or End stiffener PL
- ····· Longitudinal stiffener Type I or 2
- ◇4 Stiffener Type 4 designation

NOTES:

1. For longitudinal shear plate transition details, see "Typical Girder Details No.7" sheet.
2. For Section D-D end stiffener plate transition details for C and E, see "Girder At Pier W2 No.6" sheet.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
Ryan Valizadeh / Vong D. Toan / Y. Liu
SIGN OFF DATE 02/16/07

	BY	CHECKED
DESIGN	G. Baker	P. Ritchie
DETAILS	M. Gulyas	T. McMeans
QUANTITIES	C. Mauch	M. Roberts

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

R. Manzanarez
PROJECT ENGINEER

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE (SUPERSTRUCTURE & TOWER)

GIRDER AT PIER W2 NO. 5

Rev. Date: 5-18-98

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

CU 04
EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY): 01/15/99 | 05/15/99 | 08/02/99 | 05/31/01 | 04/08/02 | 07/01/02 | 12/19/02

SHEET 252R1 OF

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DIST.	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	SF	80	13.2/13.9	670R1	1204

George Baker
REGISTERED ENGINEER - CIVIL

12-6-04
PLANS APPROVAL DATE

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REGISTERED PROFESSIONAL ENGINEER — George S. Baker — No. C 57112 — Exp. 12/31/05 — CIVIL — STATE OF CALIFORNIA

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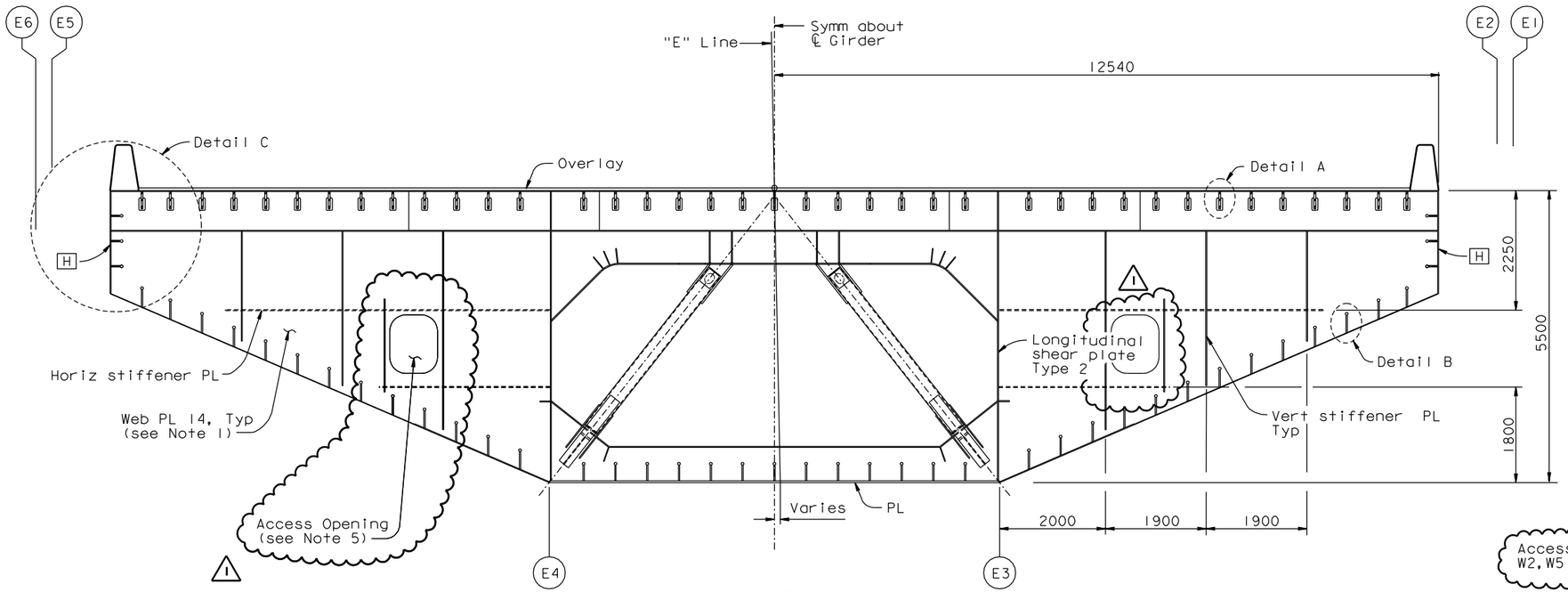
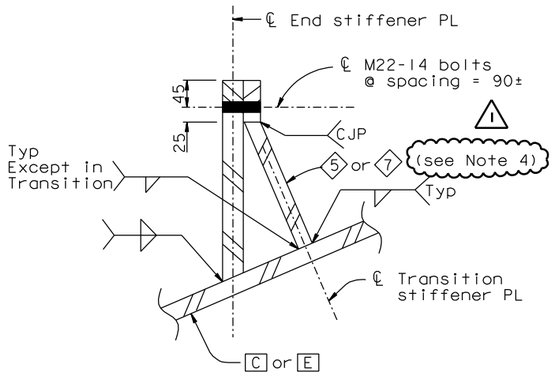


PP8.5

SECTION AT FLOORBEAM

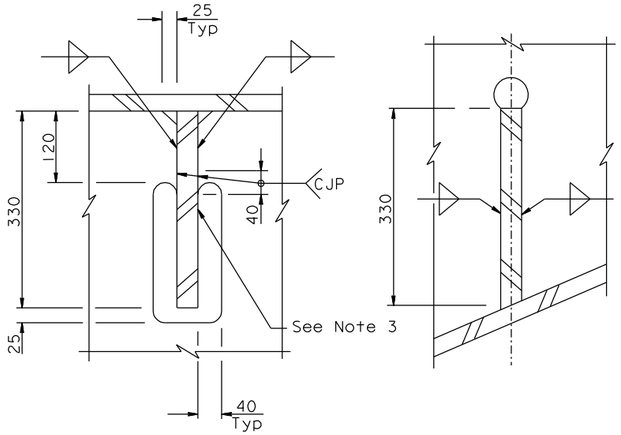
1:50



SECTION D-D

END STIFFENER TRANSITION DETAIL

1:5

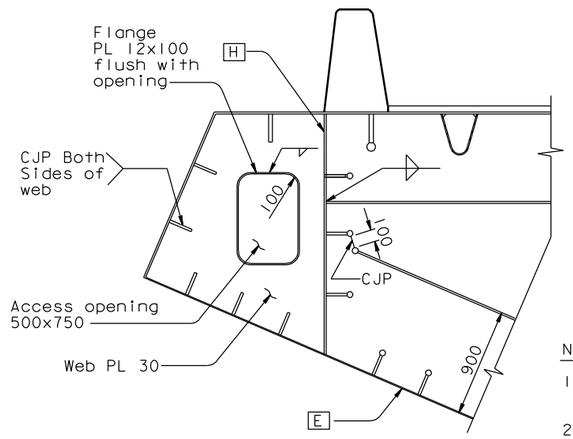


DETAIL A

1:5

DETAIL B

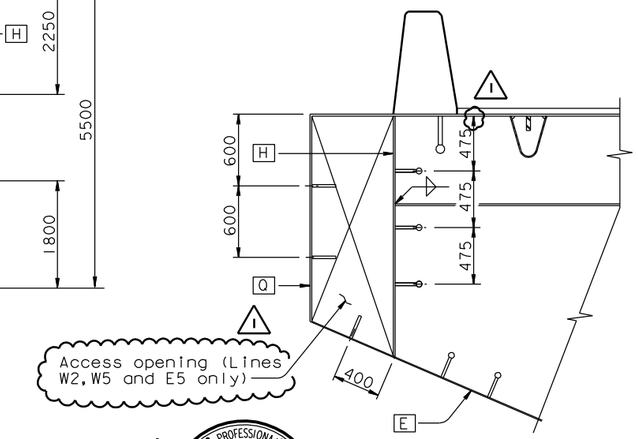
1:5



AT PP9.5, PP10

DETAIL C

1:25



Daniel J. Turner
REGISTERED PROFESSIONAL ENGINEER — Daniel J. Turner — No. C 65033 — Exp. 06/30/07 — CIVIL — STATE OF CALIFORNIA

AT PP9

DETAIL C

1:25

FOR REVISIONS ONLY

MARK	DATE	DESCRIPTIONS	BY	CH'D	CCO#
1	02/16/07	BULKHEAD AT GIRDER PIER W2	AS	DT	27
		REVISIONS			

CONTRACT CHANGE ORDER NO. ____
SHEET ___ OF ___

NOTES:

1. For web PL sizes at chevron braces , see "Typical Floorbeam Details No.2" sheet.
2. For details not shown, see "Typical Floorbeam Details" sheets.
3. Grind off end of CJP welds. Provide 12 mm trailer with transition to cut-out. See similar detail A on "Typical Girder Details No.4" sheet. Grind opening to 6 micron finish in accordance with ANSI B46.1.
4. Stiffeners 5 and 7 may be terminated without transition taper at 50 mm east of PP8.5.
5. For Access Opening details, see "Typical Floorbeam Details No. 1" sheet.

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USERNAME => alishonsky

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN

R. Valizadeh/V. Toan/Y.L./W.L./F.C.
DESIGN OVERSIGHT
SIGN OFF DATE 02/16/07

	BY	CHECKED
DESIGN	G. Baker	P. Ritchie
DETAILS	S. Camo	T. McMeans
QUANTITIES	C. Mauch	M. Roberts

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

R. Manzanarez
PROJECT ENGINEER

BRIDGE NO. 34-0006L/R
KILOMETER POST 13.2/13.9

CU 04
EA 0120F1

DISREGARD PRINTS BEARING EARLIER REVISION DATES →

REVISION DATES (PRELIMINARY STAGE ONLY)									SHEET	OF
01/15/99	05/25/99	08/06/99	05/31/01	04/08/02	07/01/02	12/19/02			253R1	

SAN FRANCISCO OAKLAND BAY BRIDGE
EAST SPAN SEISMIC SAFETY PROJECT
SELF-ANCHORED SUSPENSION BRIDGE (SUPERSTRUCTURE & TOWER)

GIRDER AT PIER W2 NO.6

Rev. Date: 5-18-98

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

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