Lower Hassayampa River Watercourse Master Plan

Maricopa County

Final Hydraulics Report, Hassayampa River (II) Volume 3

Contract Number: FCD 2004C001

Prepared for:

JE FULLER HYDROLOGY & GEOMORPHOLOGY, INC.

JE Fuller/ Hydrology & Geomorphology, Inc.

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Prepared by:

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WEST Consultants, Inc
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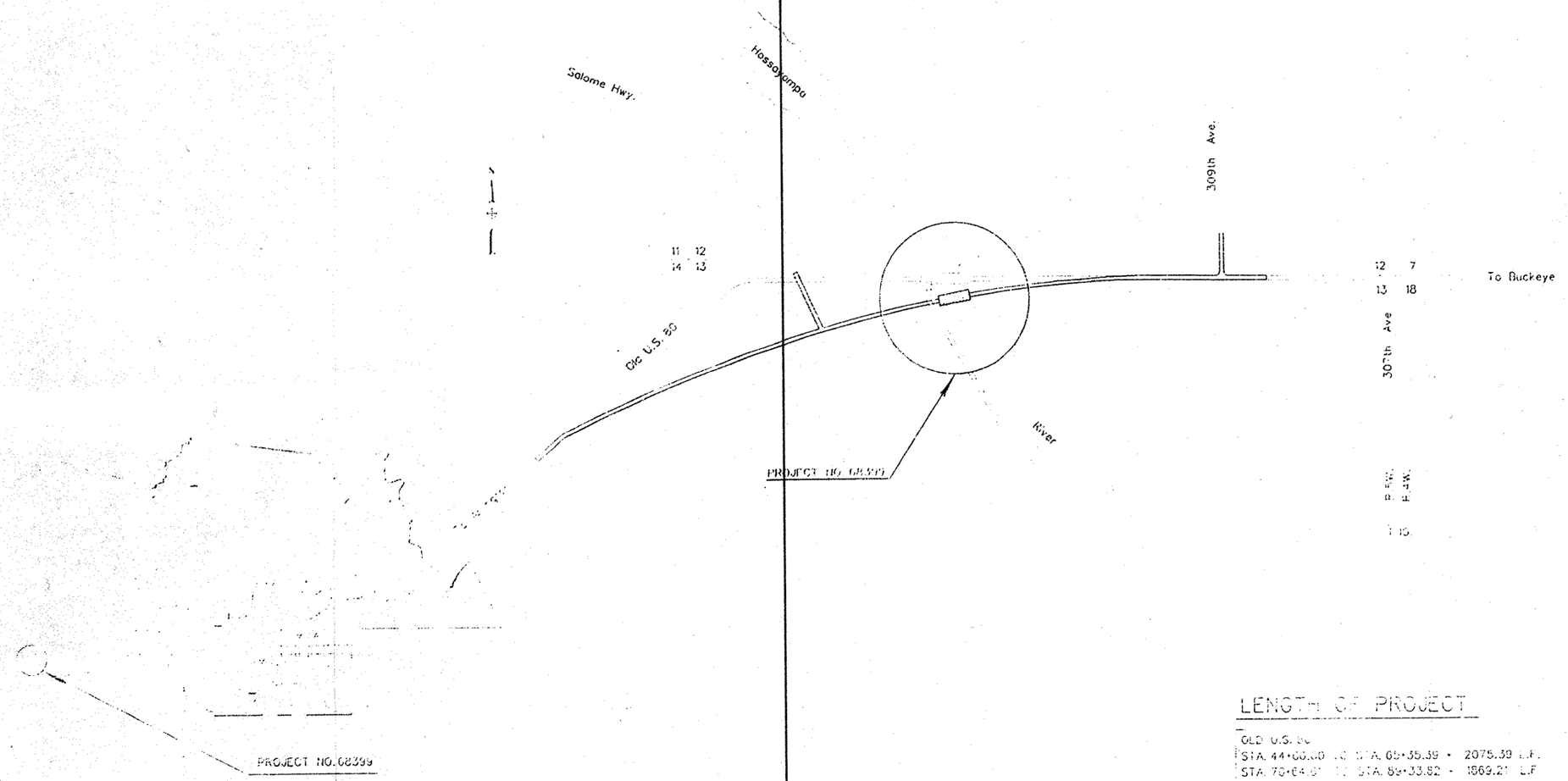
February 2006

F. Bridge As-Builts & Channel Improvement Design Plans

U.S. 80 Highway Bridge As-Builts

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

PLANS FOR THE CONSTRUCTION OF
OLD U.S. 80 HIGHWAY BRIDGE AT HASSAYAMPA RIVER
PROJECT NO. 68399



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LENGTH OF PROJECT

	OLD U.S. 80	
	STA. 44+00.00 TO STA. 65+35.39 =	2075.39 L.F.
	STA. 70+64.61 TO STA. 89+33.82 =	1869.21 L.F.
APPROACH ROADS —	SALOME HWY.	
	STA. 20+00.00 TO STA. 28+00.00 =	800.00 L.F.
	309th AVENUE	
	STA. [illegible] TO STA. [illegible] =	[illegible] L.F.
	STA. 25+[illegible] TO STA. 30+64.61 =	523.27 L.F.
	TOTAL PROJECT LENGTH =	[illegible] MILES

MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION

ISSUED FOR PUBLIC BIDDING BY:

DIRECTOR — DATE: 1-25-15

COUNTY BOARD OF SUPERVISORS

JIM BRUNER - CHAIRMAN

DISTRICT 1	TOM RIDDLES
DISTRICT 2	JIM BRUNER
DISTRICT 3	BETSEY BAYLESS
DISTRICT 4	ED KING
DISTRICT 5	MARY ROSE WILCOX

PROJECT NO. 68399

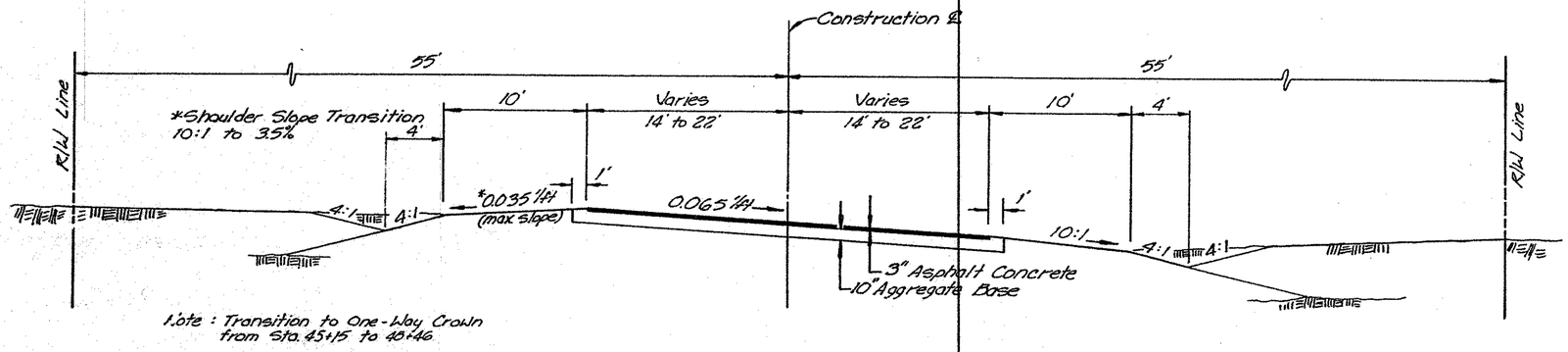
D C B A A B C D

OLD U.S. 80 - SALOME HWY. TO 309th AVE.
MARICOPA COUNTY

COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	2	40	1-14-88

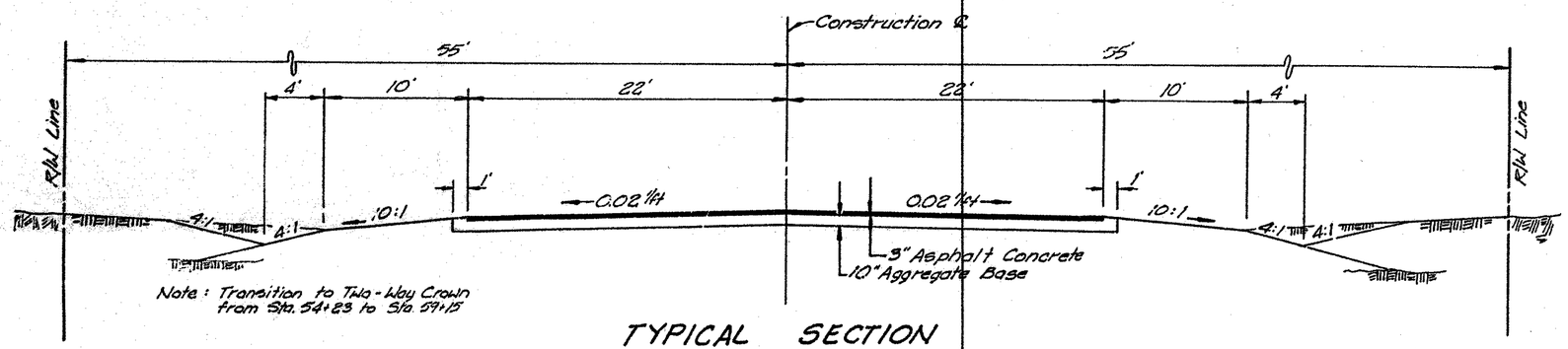
ROYDEN ENGINEERING CO.
3055 W. INDIAN SCHOOL RD.
PHOENIX, ARIZONA
TEL. 279-3541

DESIGN	R.A.B.
DRAWN	D.N.R.
CHECK	J.R.R.
DATE	1-14-87



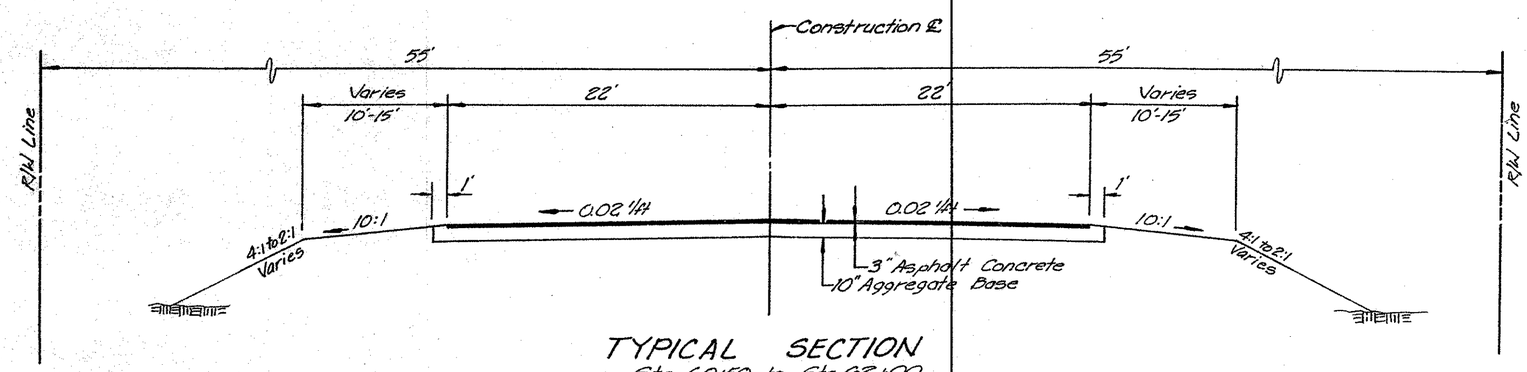
Note: Transition to One-Way Crown from Sta. 45+15 to 48+46

TYPICAL ONE-WAY CROWN
Sta. 48+46 to Sta. 54+23



Note: Transition to Two-Way Crown from Sta. 54+23 to Sta. 59+15

TYPICAL SECTION
Sta. 59+15 to Sta. 60+50
Sta. 78+00 to Sta. 86+17
Sta. 86+51 to Sta. 88+80
Sta. 10+67 to Sta. 12+00 (309th Ave.)



TYPICAL SECTION
Sta. 60+50 to Sta. 62+00
Sta. 76+50 to Sta. 78+00

GENERAL NOTES

1. All work to conform to MAG Uniform Standard Specifications for Public Works Construction dated 1979 and current revisions thereto, together with the MCHD Supplement to the MAG Uniform Standard Specifications and the Special Provisions.
2. Standard Details refer to MAG Standard Details for Public Works Construction unless noted otherwise.
3. All existing utility lines shown on plans are from available utility records. Contractor shall varify the actual field locations before starting construction.
4. Disposal of all waste material, broken concrete, etc. will be the responsibility of the Contractor, subject to the approval of the Engineer.
5. All stationing is Construction Centerline stationing unless otherwise noted.
6. All callout distances Lt. & Rt. are from Construction Centerline unless noted otherwise.
7. All trees, bushes, & fences inside the R/W which interfere with construction shall be removed or relocated by the Contractor.
8. All paved turnouts shall have the same base requirements as the adjacent roadway.
9. All pipe called out on the plans as RGRCP shall be Rubber Gasket Reinforced Concrete Pipe, Class III.
10. The Contractor shall obtain any necessary permits from the Local Government for work within it's jurisdiction.
11. Elevation Datum - USGS.
12. Roadway Striping by ~~MCHD~~. Contractor

ROADWAY STANDARDS

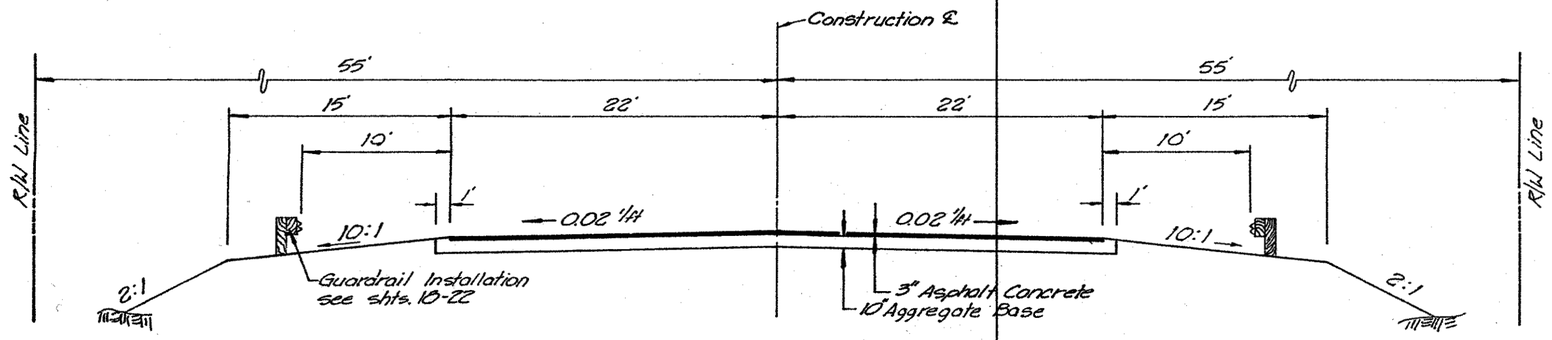
M.A.G. Std. Dtl.		Description
120-2	Types "D" & "E"	Survey Marker
135-1		Steel Guard Rail
550		Spillway Inlet & Outlet
205		Paved Turnouts
501-1		Headwall
501-4		Headwall
502-1		Trash Rack
505		Concrete Pipe Collar
535	Type "F"	Catch Basin

OLD U.S. 80 - SALOME HWY. TO 309th AVE.
MARICOPA COUNTY

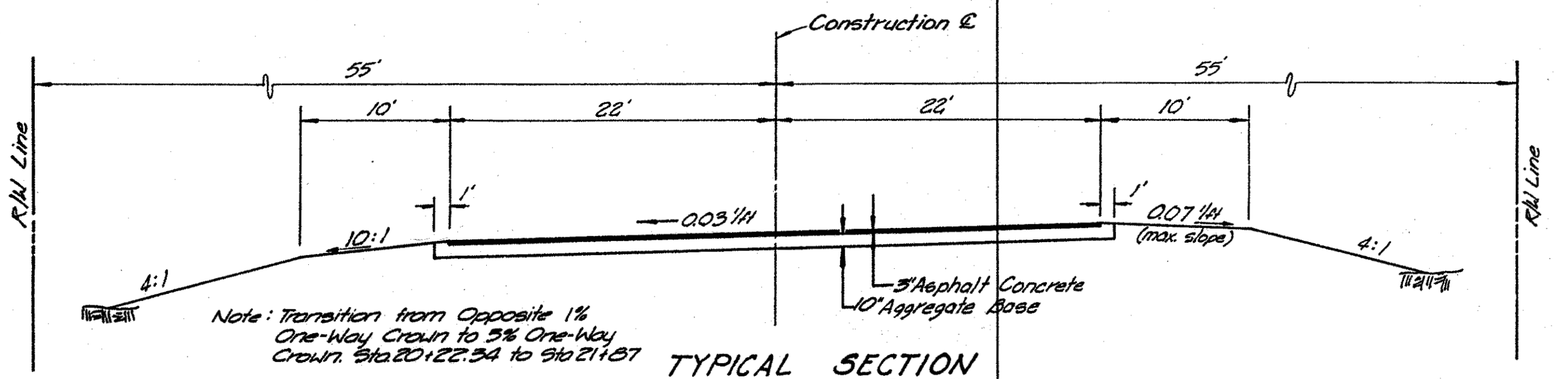
COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	3	40	1-14-94

ROYDEN ENGINEERING CO.
3055 W. INDIAN SCHOOL RD.
PHOENIX, ARIZONA
TEL. 279-3541

DESIGN	RAB
DRAWN	DR
CHECK	JRR
DATE	1-14-87

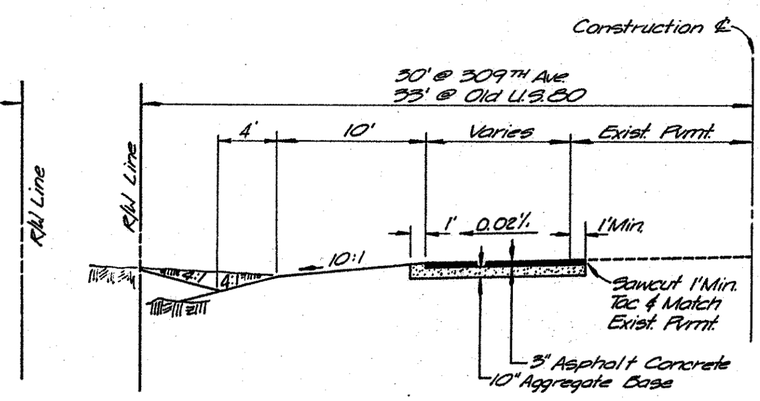


TYPICAL SECTION
Sta. 62+00 to Sta. 65+55.39
Sta. 70+44 to Sta. 78+00

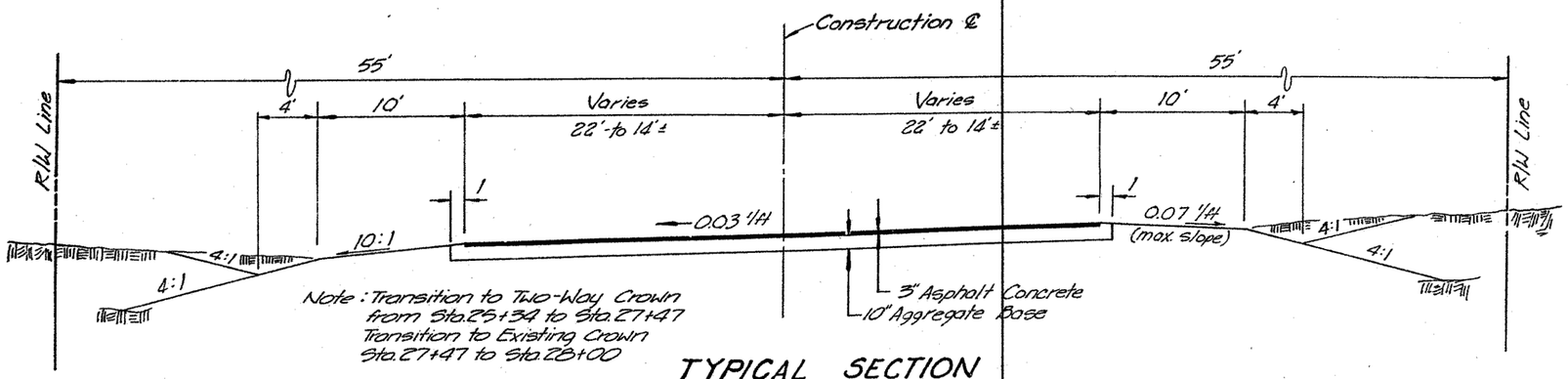


Note: Transition from Opposite 1% One-Way Crown to 3% One-Way Crown. Sta. 20+22.34 to Sta. 21+87

TYPICAL SECTION
Sta. 21+87 to Sta. 22+50
(Salome Hwy.)



TYPICAL SECTION
WIDENING STRIPS
Sta. 89+34 to Sta. 95+00 Lt.
Sta. 89+34 to Sta. 92+00 Rt.
Sta. 12+50 to Sta. 18+70 Lt.



Note: Transition to Two-Way Crown from Sta. 25+34 to Sta. 27+47
Transition to Existing Crown Sta. 27+47 to Sta. 28+00

TYPICAL SECTION
Sta. 22+50 to Sta. 25+34

OLD U.S. 80 - SALOME HWY. TO 309th AVE.
MARICOPA COUNTY

Curve Data

(1) D = 3°30'
Δ = 29°15'00"
R = 1637.02'
T = 427.18'
L = 835.71

(2) D = 0°27'53"
Δ = 6°30'00"
R = 12327.39'
T = 700.00'
L = 1398.50'

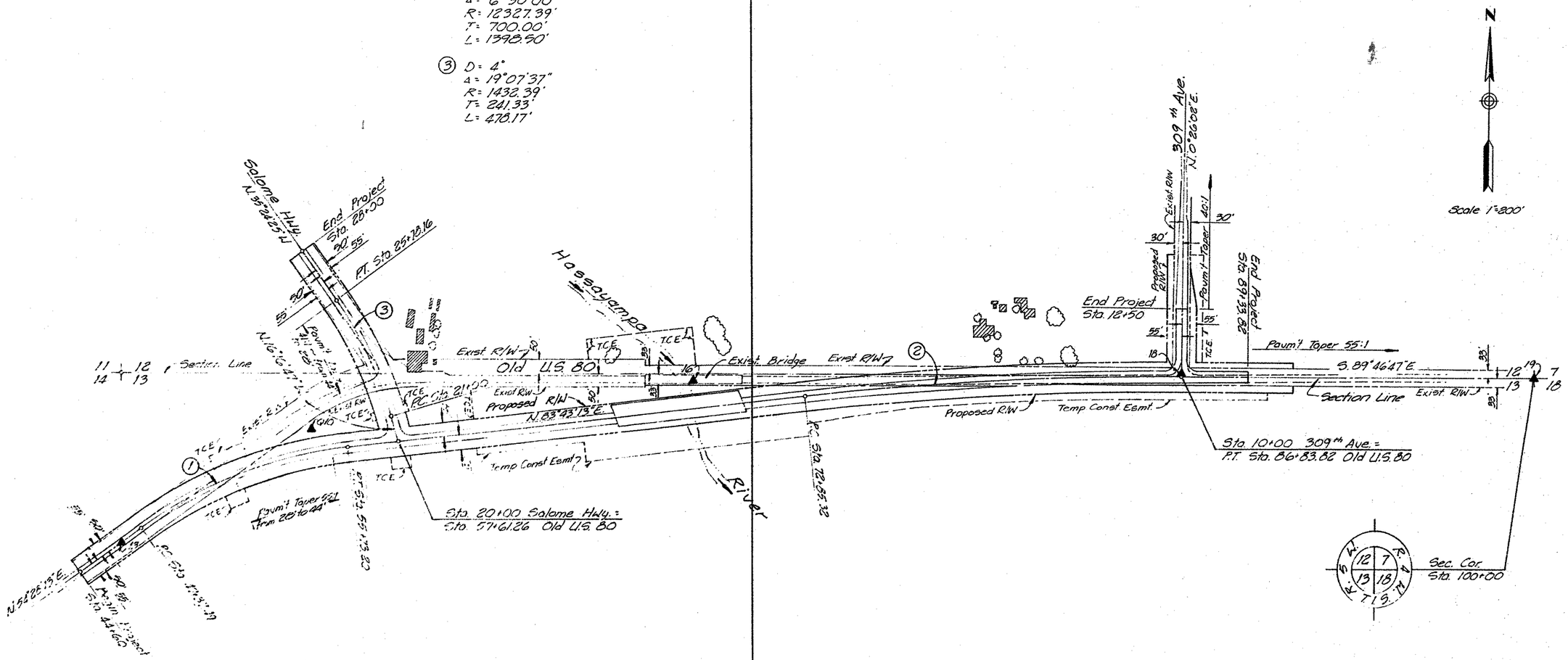
(3) D = 4°
Δ = 19°07'37"
R = 1432.39'
T = 241.33'
L = 478.17'

DESIGN SPEED

OLD U.S. 80 - 55 M.P.H.
SALOME HWY. - 30 M.P.H.

CLASSIFICATION

RURAL COLLECTOR



Bench Marks

13▲ Fd. PK Nail ℄ Old U.S. 80
Elev. 858.42

010▲ Fd. B.C. U.S.G.S. 350'± West of Salome Hwy. & 40'± South of ℄ Old U.S. 80
Elev. 849.227

16▲ Center of Hassayampa Bridge and ℄ of Old U.S. 80, fd. B.C. Flush
Elev. 845.92

18▲ Fd. R/R Spike Center West Lane of Old U.S. 80 & Center South Lane 309th Ave.
Elev. 840.03

19▲ Fd. "X" on Conc. in H.H. ℄ of Old U.S. 80 & 307th Ave.
Elev. 836.735

GEOMETRICS

COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	4	40	

Jeffrey R. Riddle 4/9/87

ROYDEN ENGINEERING CO.
3055 W INDIAN SCHOOL RD
PHOENIX, ARIZONA
TEL 279-3541

DESIGN	R.A.B.
DRAWN	D.N.R.
CHECK	J.R.R.
DATE	1-14-87

D C B A A B C D

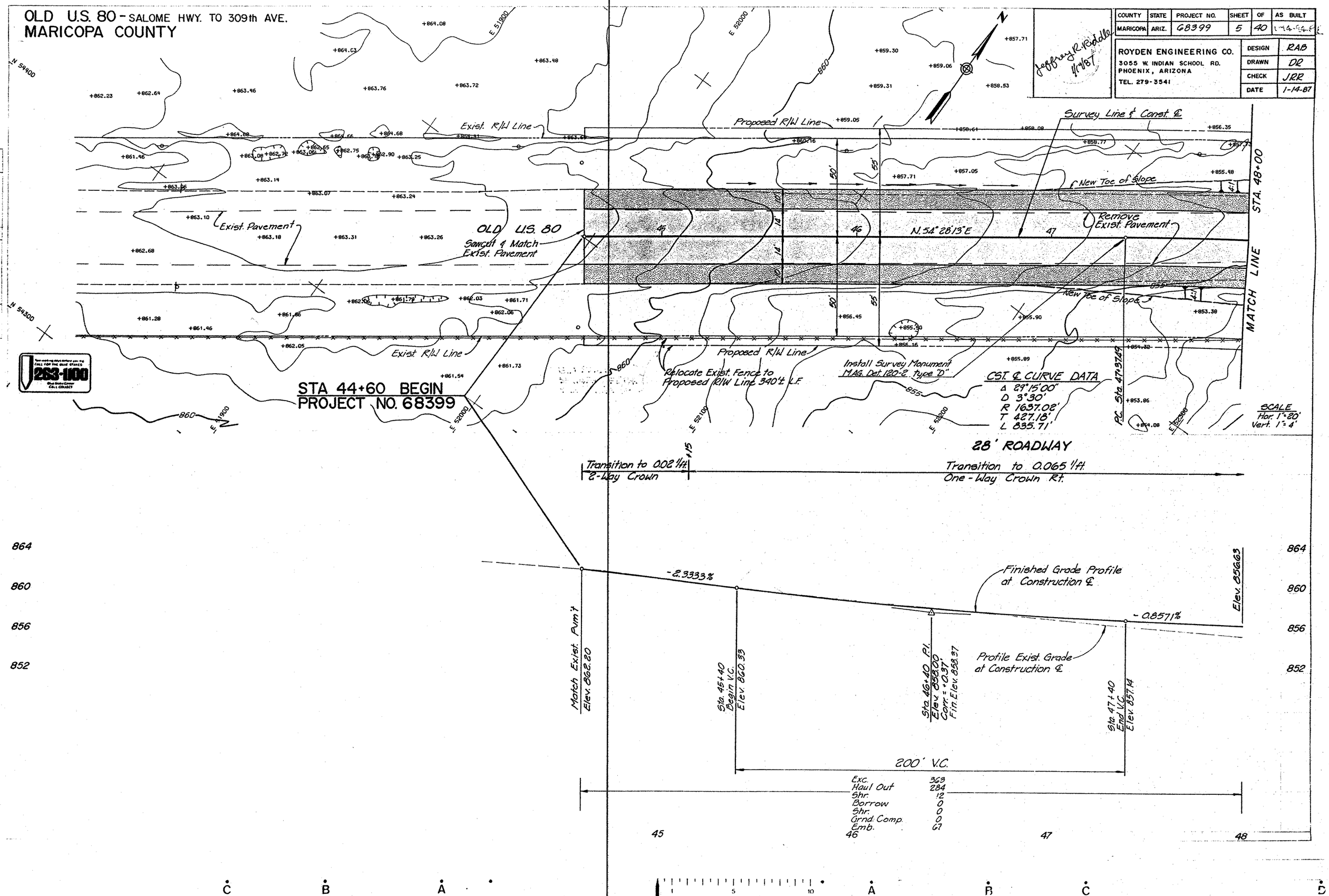
OLD U.S. 80 - SALOME HWY. TO 309th AVE.
MARICOPA COUNTY

COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	5	40	

Jeffrey R. Riddle 1/9/87

ROYDEN ENGINEERING CO.
3055 W. INDIAN SCHOOL RD.
PHOENIX, ARIZONA
TEL. 279-3541

DESIGN	RAB
DRAWN	DR
CHECK	JRR
DATE	1-14-87



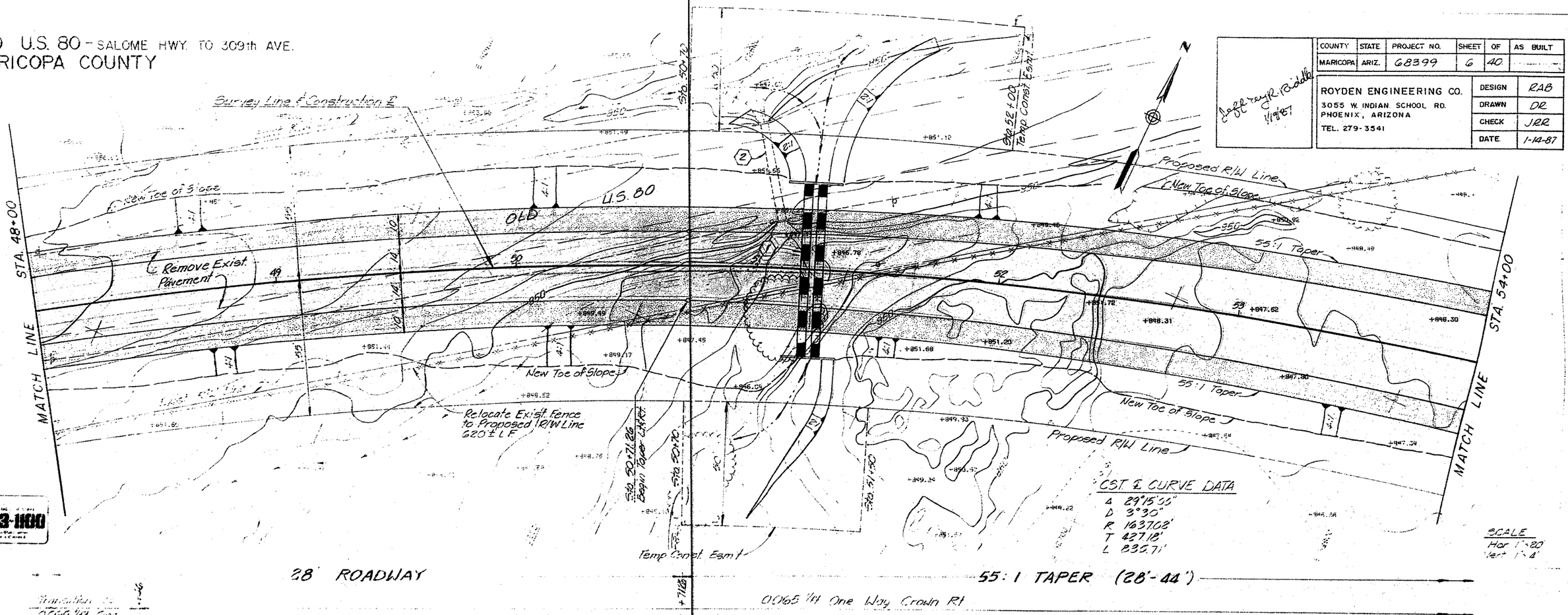
OLD U.S. 80 - SALOME HWY. TO 309th AVE.
MARICOPA COUNTY

COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	6	40	

ROYDEN ENGINEERING CO.
3055 W. INDIAN SCHOOL RD.
PHOENIX, ARIZONA
TEL. 279-3541

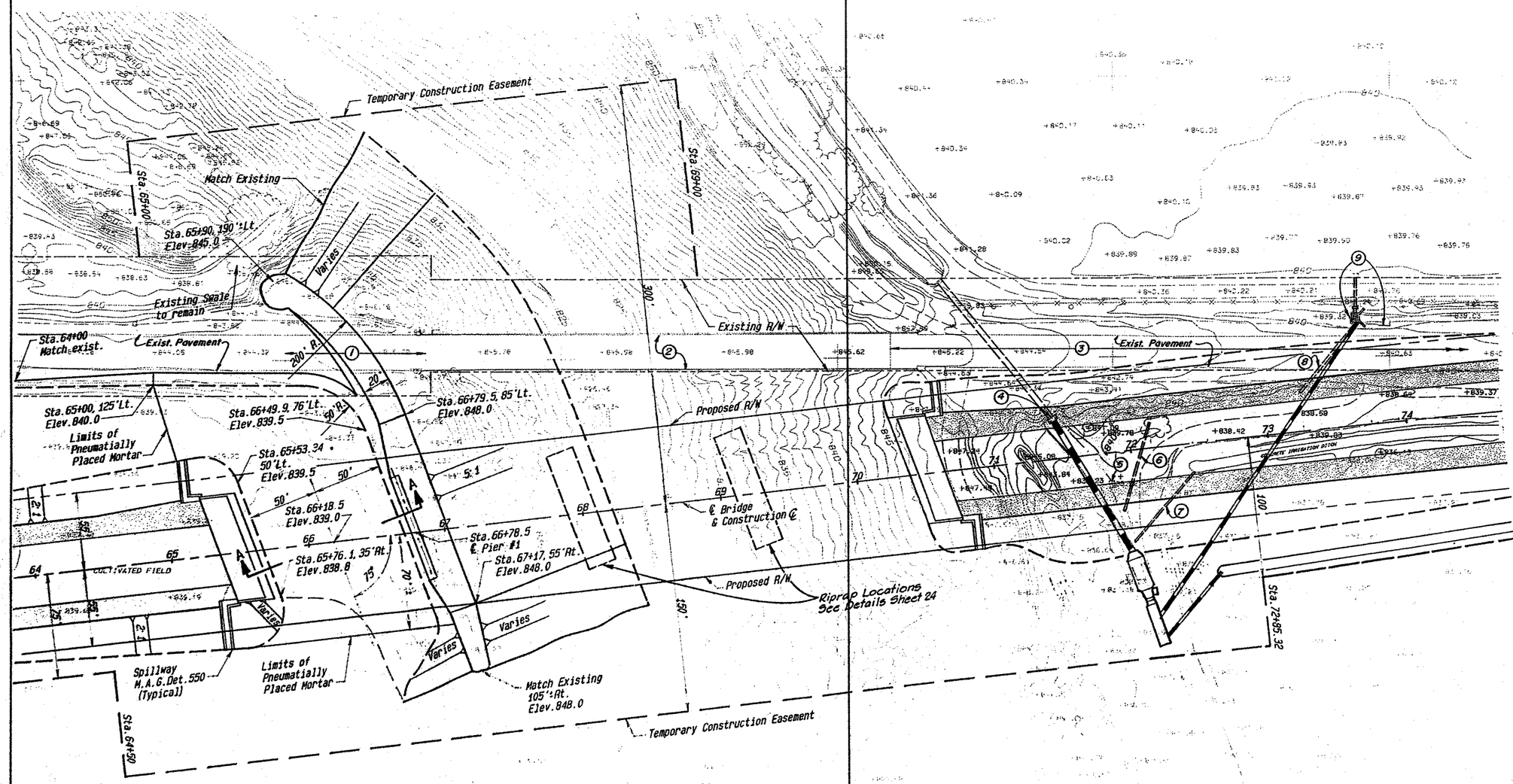
DESIGN	RAB
DRAWN	DR
CHECK	JRR
DATE	1-14-87

Jeff Tay R. Riddle 1/14/87



263-1100

OLD U.S.80 – SALOME HWY. TO 309th AVE.
MARICOPA COUNTY

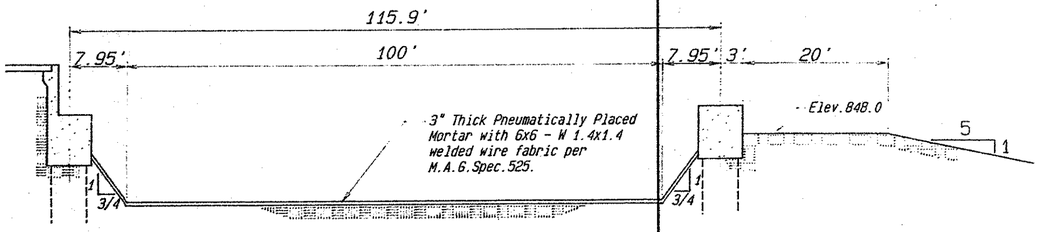


REMOVAL NOTES

1. Remove existing asphalt pavement from Sta. 58+00 to existing bridge.
2. Remove existing concrete bridge to 2 ft. minimum below finished grade. Backfill and compact.
3. Remove existing asphalt pavement from bridge to Sta. 89+33.82.
4. Remove existing concrete headwall, Sta. 71+46, 28' Lt.
5. Remove existing concrete block structure and approx. 180 lin. ft. of existing concrete lined ditch, Sta. 71+46, 28' Lt. to Sta. 72+12, 138' Rt.
6. Remove approx. 65 lin. ft. existing 21"ϕ concrete pipe, Sta. 71+90 Rt. to Sta. 72+1[illegible] Lt.
7. Remove approx. 65 lin. ft. existing 21"ϕ concrete pipe, Sta. 71+95 to Sta. 72+45 Rt.
8. Remove approx. 65 lin. ft. existing 24"ϕ concrete pipe, Sta. 73+26 to Sta. 73+75 Lt.
9. Remove existing concrete headwalls, Sta. 73+75, 75' Lt. and Sta. 73+95, 70' Lt.

Note: All Removals shall be in accordance with M.A.G. Specification 350.

For additional Removals and Details, see Roadway Plans, sheets 5 thru 16.



SECTION A-A
No Scale

QUANTITIES

Channel Exc.	4319	Cu. Yds.
Haul Out	2028	Cu. Yds.
Shr.	344	Cu. Yds.
Borrow	0	Cu. Yds.
Shr.	0	Cu. Yds.
Grnd. Comp.	75	Cu. Yds.
Emb.	1872	Cu. Yds.

263-1100

263-1100
Two working days before you dig
CALL FOR THE BLUE STAKES
Blue Stake Center
CALL COLLECT

GRADING PLAN

COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	23	40	

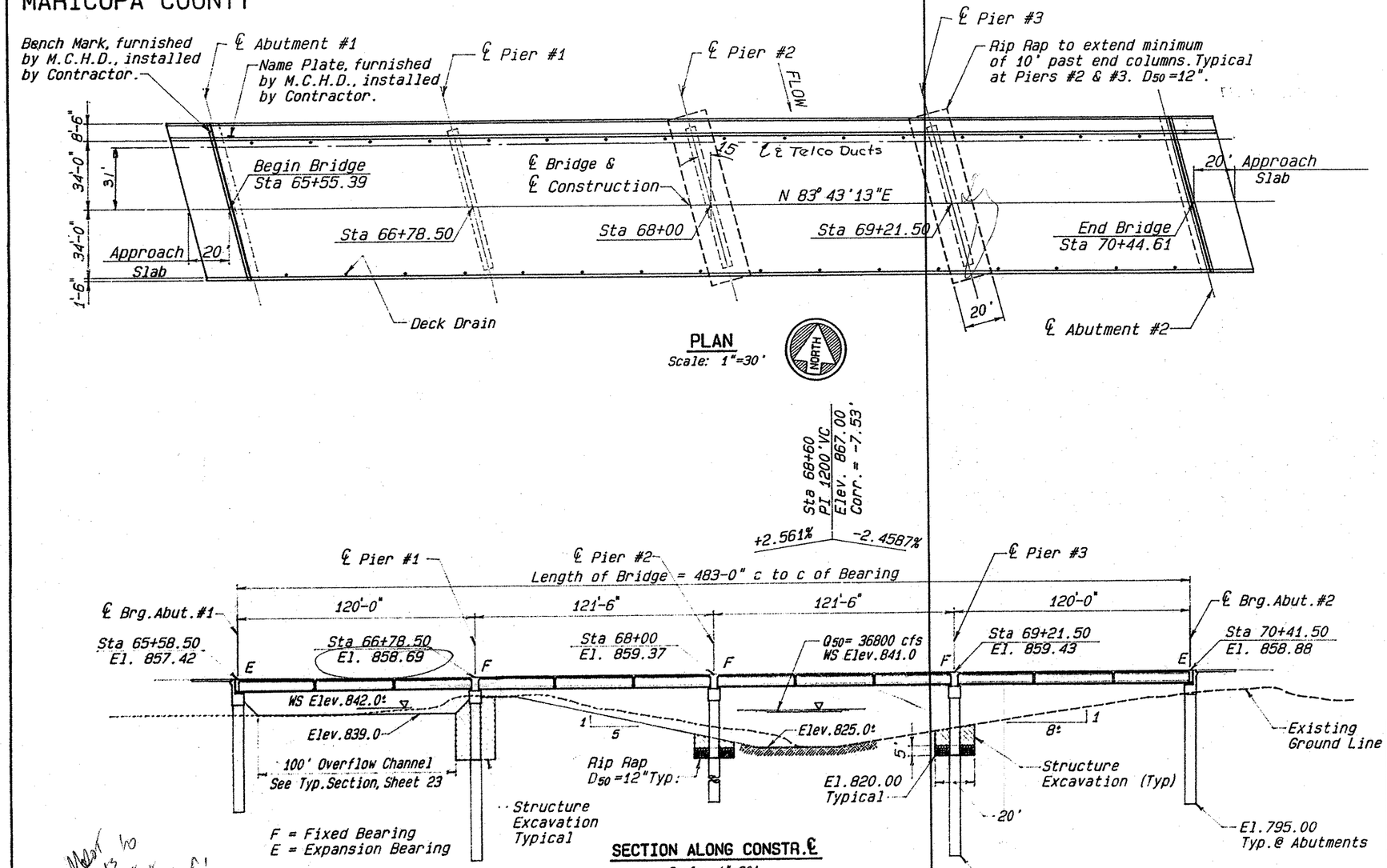
DESIGN	RAB
DRAWN	RAB
CHECK	JRR
DATE	12-14-86
JOB NO.	85039

Jeffrey R. Ridalls 1/19/87

ROYDEN ENGINEERING CO.
3055 W. INDIAN SCHOOL RD.
PHOENIX, ARIZONA 85017
TEL. 602 279-3541

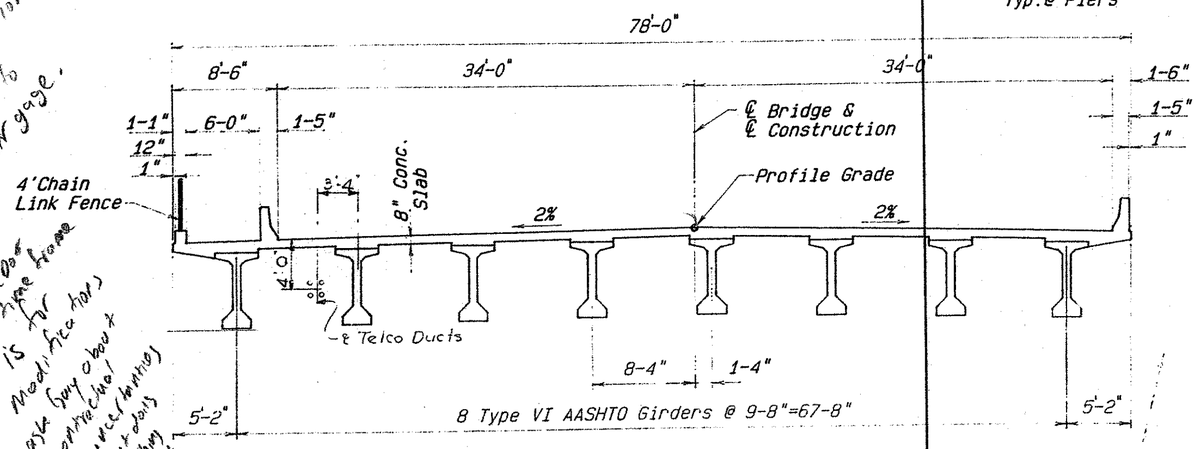
D C B A 1 5 10 A B C

OLD U.S.80 – SALOME HWY. TO 309th AVE.
MARICOPA COUNTY



PLAN
Scale: 1"=30'

SECTION ALONG CONSTR.℄
Scale: 1"=30'



TYPICAL SECTION
Scale: 1"=6'

GENERAL NOTES

1. Construction--Uniform Standard Specification for Public Works Construction by the Maricopa Association of Governments, 1979 Edition, as amended by Maricopa County Highway Department, and revisions to date.
2. Design--"Standard Specification for Highway Bridges" by AASHTO, 1983 Edition, revised to date.
3. Loading Class--HS 20-44. Dead load includes allowance for 25 psf future wearing surface.
4. Composite Design--Dead load carried as simple span; live load carried through continuous spans. Simple beam design for ultimate load.
5. All concrete shall be M.A.G. Class "A" except for prestressed girders and bridge deck. Bridge deck shall be M.A.G. Class "AA". Class "A", f'c = 3000 psi; Class "AA", f'c = 4000 psi.
6. Reinforced concrete design as per Strength Design Method.
7. Reinforcing steel shall conform to ASTM spec. A615, Grade 60, fy = 60,000 psi.
8. All dimensions for reinforcing steel shall be center to center of bars unless noted otherwise. Bending diagram dimensions shall be out to out.
9. All reinforcing bars shall have 2" clear cover unless noted otherwise.
10. Chamfer all exposed edges of concrete 3/4" unless noted otherwise.
11. All structural steel shall conform to ASTM A-36. All exposed structural steel shall have one prime coat of red lead paint and two coats of aluminum paint. Paint shall conform to MAG specification 790, unless noted otherwise.
12. All welding for structural steel shall be in accordance with the American Welding Society, (AWS) Structural Welding Code AWS D1-1-80.
13. Drilled Caisson Loads:
    Pier DL 858 Kips
    TL 1237 Kips
    Abutment DL 482 Kips
    TL 678 Kips

APPROXIMATE QUANTITIES

ITEM	TYPE VI P.S. CONC. GIRDERS	M.A.G. CLASS "AA" CONC.	M.A.G. CLASS "A" CONC.	REINF. STEEL	DRILLED CAISSON 5-6" DIAM.	CHAIN LINK FENCE
	Each	C.Y.	C.Y.	Lbs.	Lin. Ft.	Lin. Ft.
Superstructure	32	1,352		185,726		530
Abutment No.1			* 337	* 43,089	197	
Piers No.1, 2 & 3			* 1,097	* 173,986	600	
Abutment No.2			* 341	* 43,636	204	
Approach Slabs			111	17,870		
Barriers & Curb			116	23,106		
TOTALS	32	1,352	* 2,002	* 487,413	1,001	530

* Includes Drilled Caissons

Most parts to construct approach scour protection, channelization should be field to move fleet gage.
- USGS
- Find out from McDot where there is for modification & ask Gov about contractual specifications somewhere different.

Two working days before you dig CALL FOR THE BLUE STAKES 263-1100 Blue Stake Center CALL COLLECT

GENERAL PLAN & ELEVATION

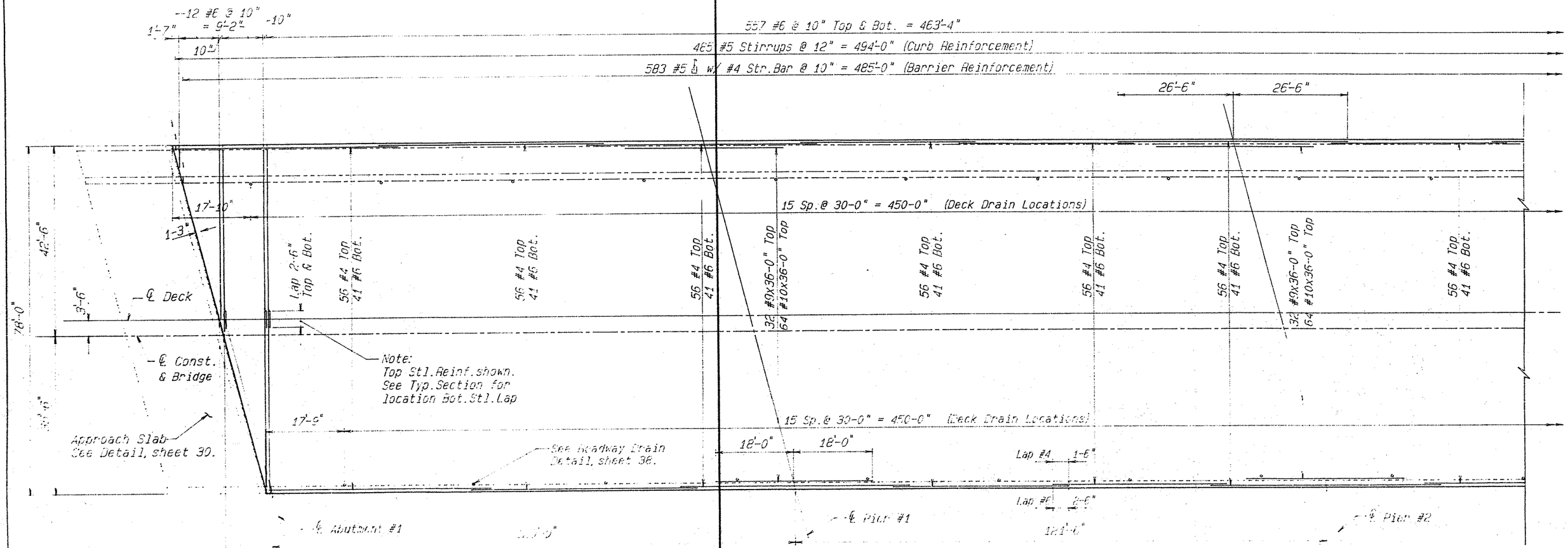
COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	24	40	

ROYDEN ENGINEERING CO.
3055 W. INDIAN SCHOOL RD.
PHOENIX, ARIZONA 85017
TEL. 602 279-3541

DESIGN	AGD
DRAWN	RAB
CHECK	A.S.
DATE	1/14/87
JOB NO.	85039

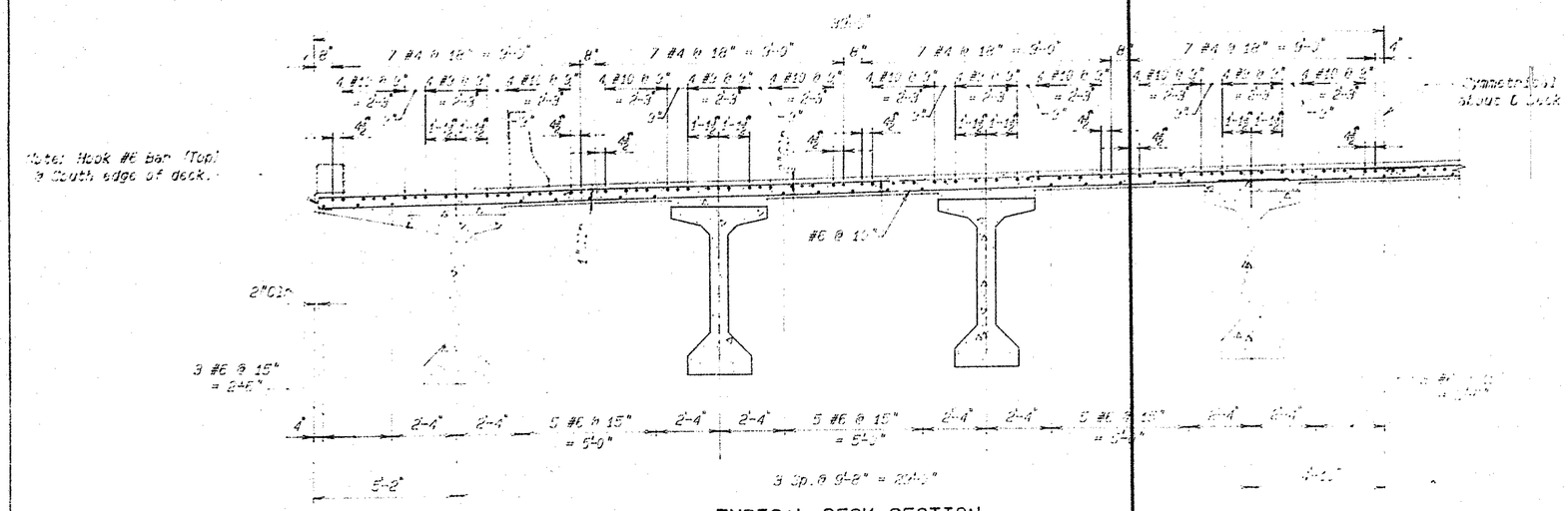
Q.B. Bishop 1/19/87

OLD U.S.80 - SALOME HWY. TO 309th AVE.
MARICOPA COUNTY

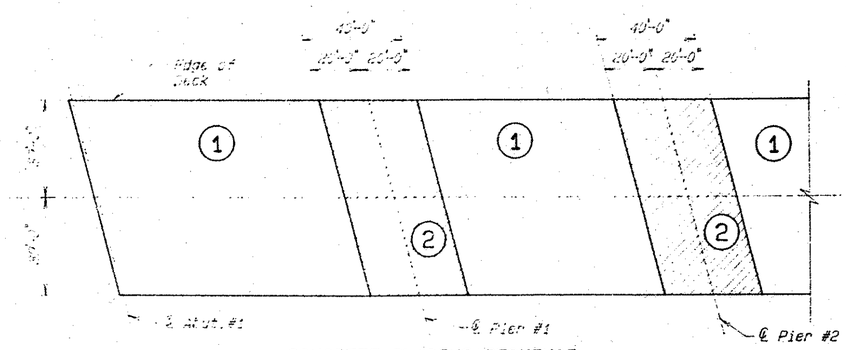


DECK PLAN
Scale: 3/32"=1'-0"

Note: Deck Reinforcement symmetrical about ℄ Pier #2.



TYPICAL DECK SECTION
Scale: 3/8"=1'-0"



CONCRETE PLACING SEQUENCE

Note: Pour four (4) section one (1) areas prior to pouring any section two (2) areas. No continuous pours will be allowed.

DECK DETAILS

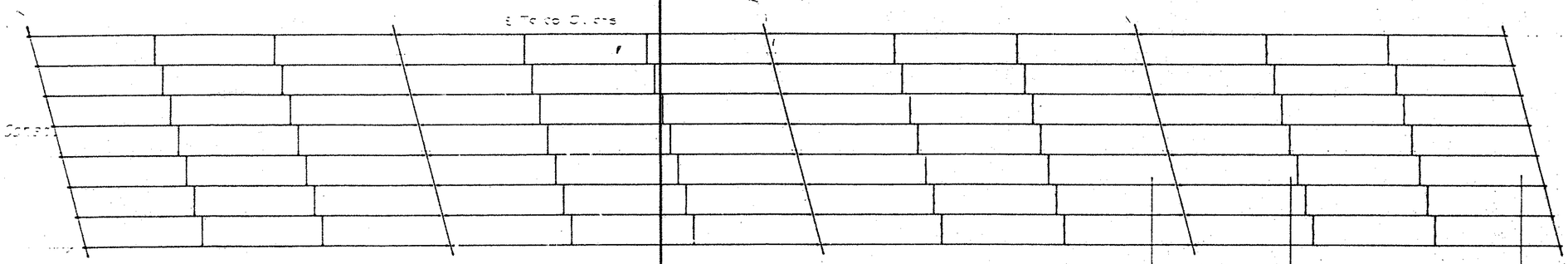
COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	37	40	

ROYDEN ENGINEERING CO.
3055 W.INDIAN SCHOOL RD.
PHOENIX, ARIZONA 85017
TEL. 602 279-8541

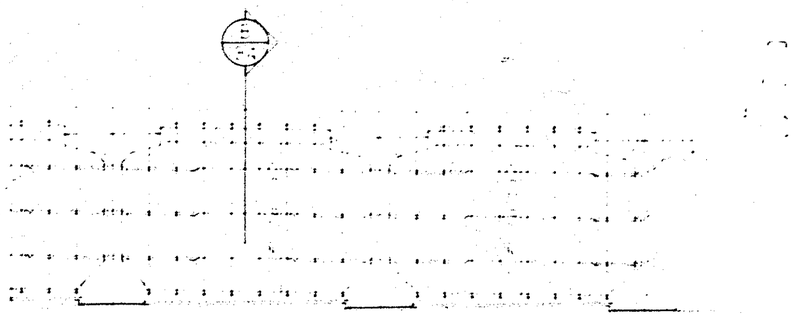
DESIGN	AGD
DRAWN	RAB
CHECK	AGD
DATE	2-10-87
JOB NO.	85039

D C B A A B C D

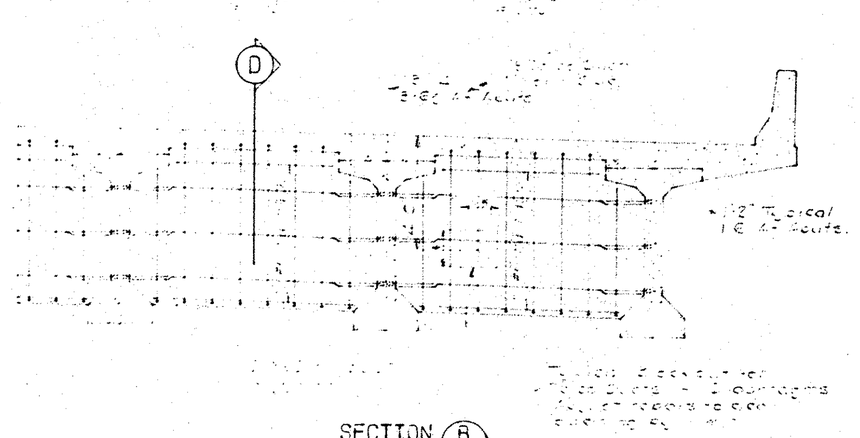
OLD U.S.80 – [illegible]
MARICOPA COUNTY



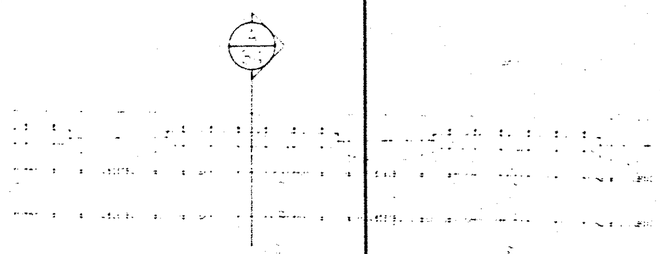
GIRDER FRAMING PLAN



SECTION A
DIAPHRAGM AT PIER



SECTION B
INTERMEDIATE DIAPHRAGM



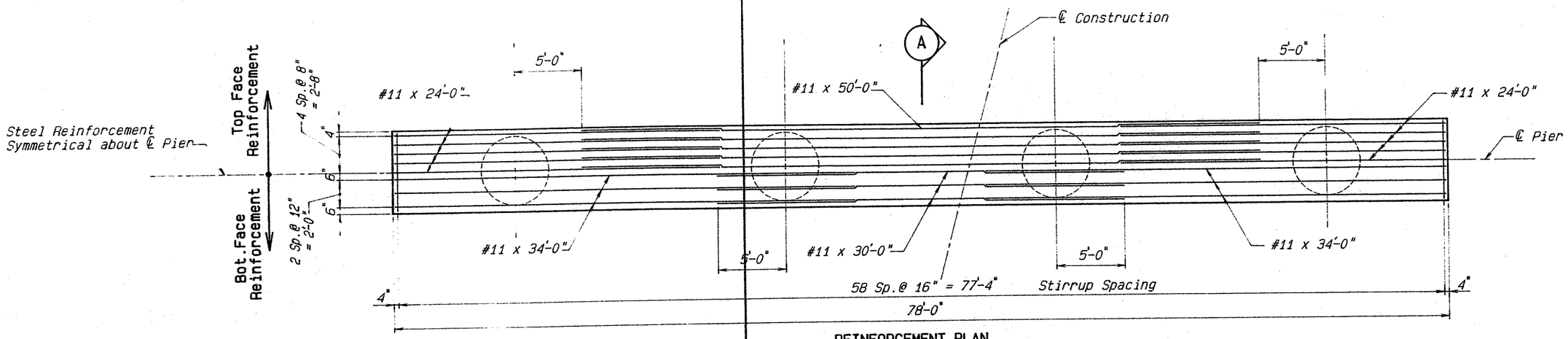
SECTION C
DIAPHRAGM AT ABUTMENT

SECTION D

FRAMING PLAN & DIAPHRAGM DETAILS		
	68399	33 40
	HOYEN ENGINEERING CO.	

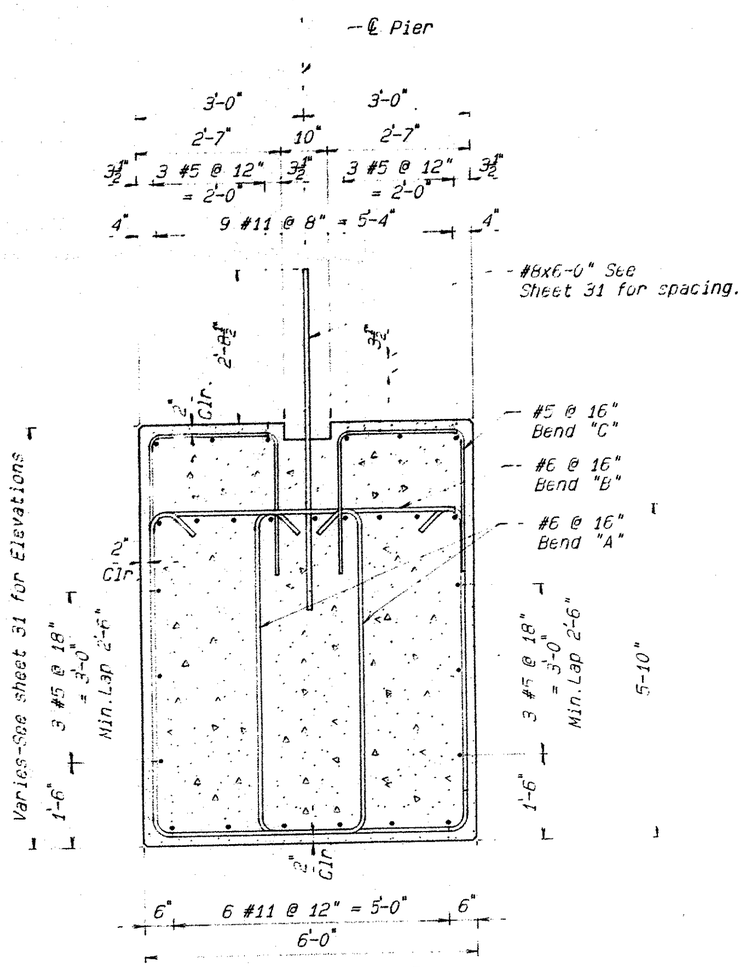
D C B A A B C D

OLD U.S.80 - SALOME HWY. TO 309th AVE.
MARICOPA COUNTY

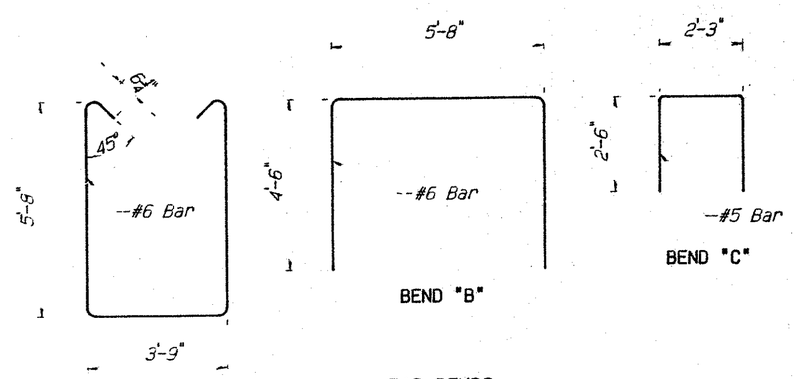


REINFORCEMENT PLAN
Scale: 1/4"=1'-0"

Note: See Typical Section for additional Reinforcement.



TYPICAL SECTION A
Scale: 3/4"=1'-0"



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

PIER DETAILS

COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	32	40	

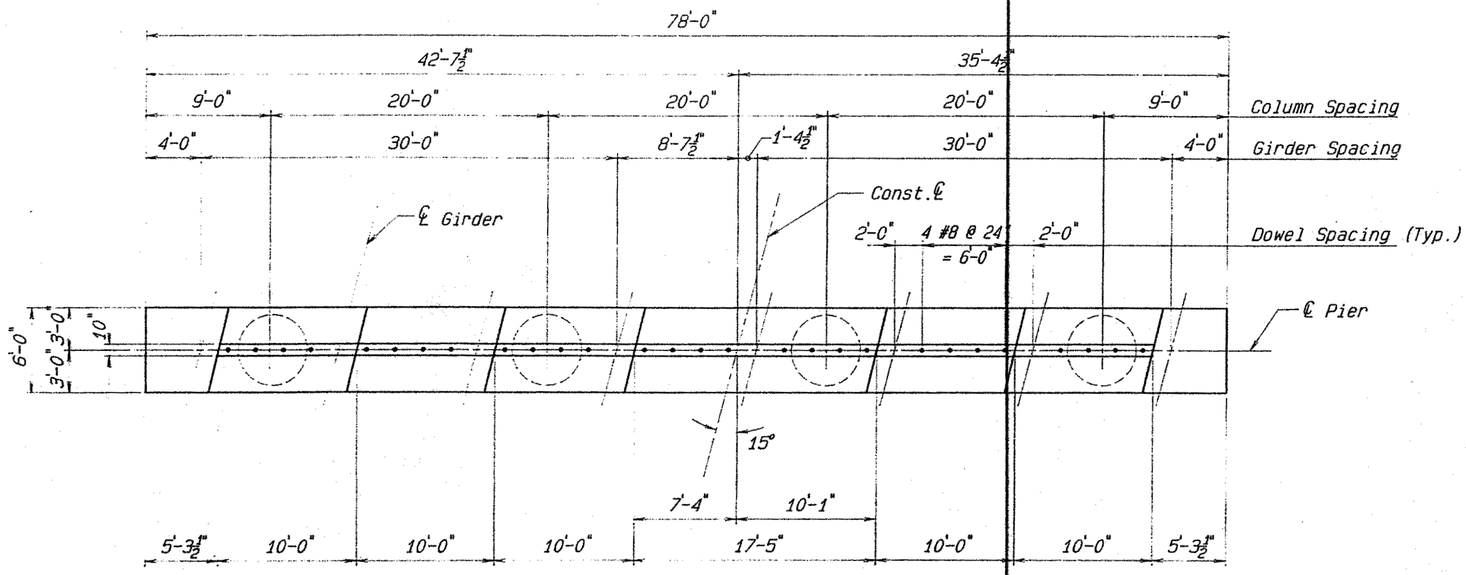
ROYDEN ENGINEERING CO.
3055 W. INDIAN SCHOOL RD.
PHOENIX, ARIZONA 85017
TEL. 602 279-3541

DESIGN	ASD
DRAWN	RAB
CHECK	ASD
DATE	1-14-87
JOB NO.	85039

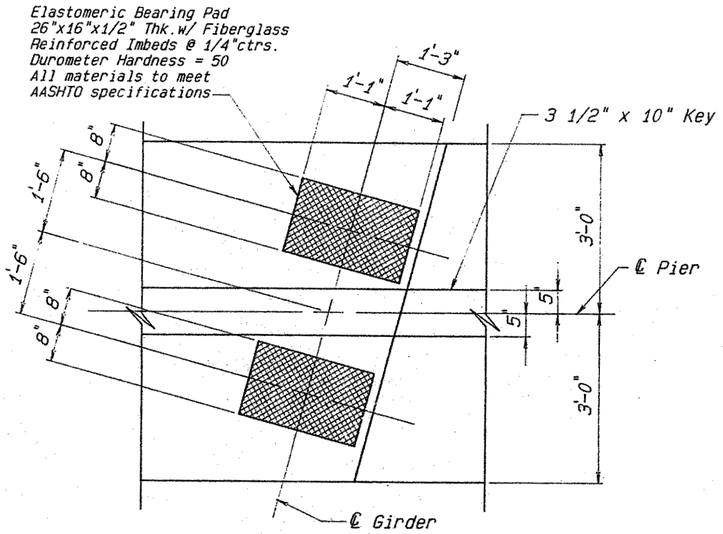
R. B. Baker 1/14/87

D C B A A B C

OLD U.S.80 - SALOME HWY. TO 309th AVE.
MARICOPA COUNTY

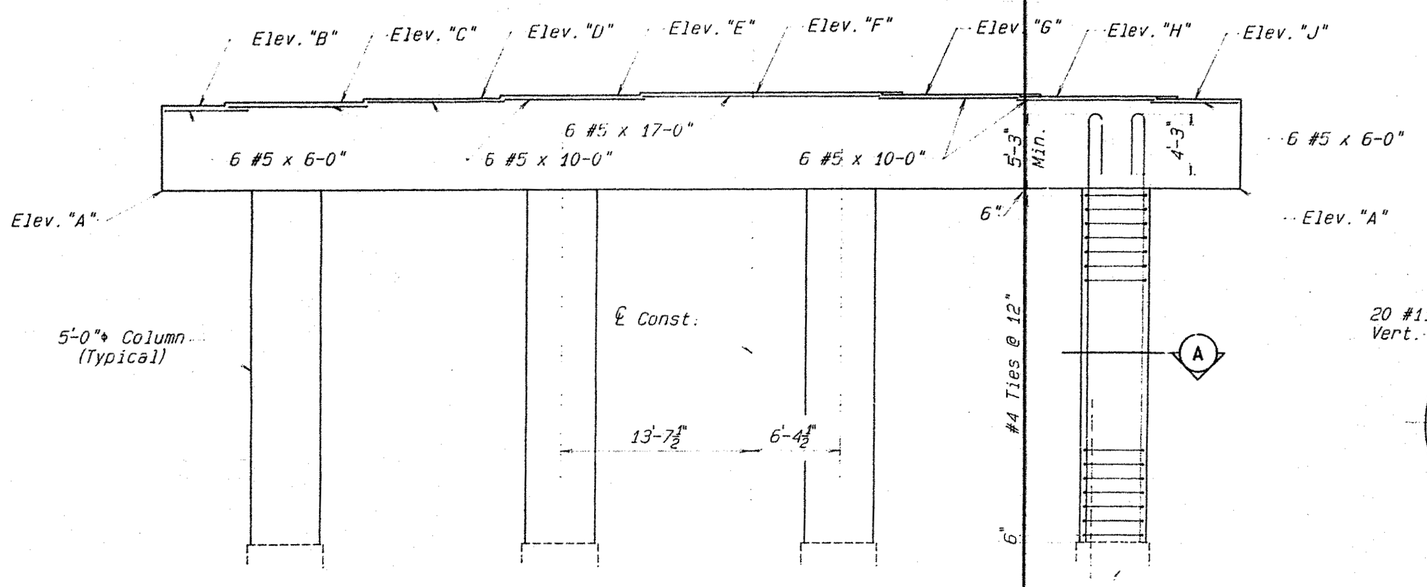


PIER CAP PLAN
Scale: 3/16"=1'-0"



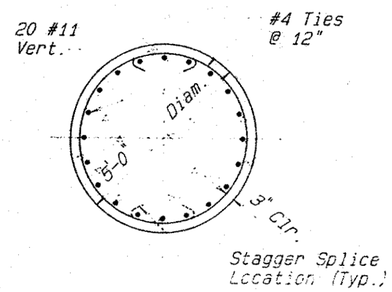
FIXED BEARING DETAIL
Scale: 3/4"=1'-0"

TABLE OF ELEVATIONS			
	PIER #1	PIER #2	PIER #3
ELEV. \ ℄ STA.	66+78.50	68+00.00	69+21.50
A	844.69	845.42	845.52
B	850.98	851.71	851.81
C	851.19	851.91	852.00
D	851.41	852.11	852.19
E	851.62	852.31	852.38
F	851.78	852.46	852.52
G	851.61	852.27	852.32
H	851.44	852.09	852.12
J	851.27	851.90	851.92



PIER ELEVATION
Scale: 3/16"=1'-0"

For details of Drilled Caisson, see Sheet 26.



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

NOTES

1. For additional Steel Reinforcement Details, see Sheet 32.
2. For Typical Section, see Sheet 32.

PIER DETAILS

COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	31	40	

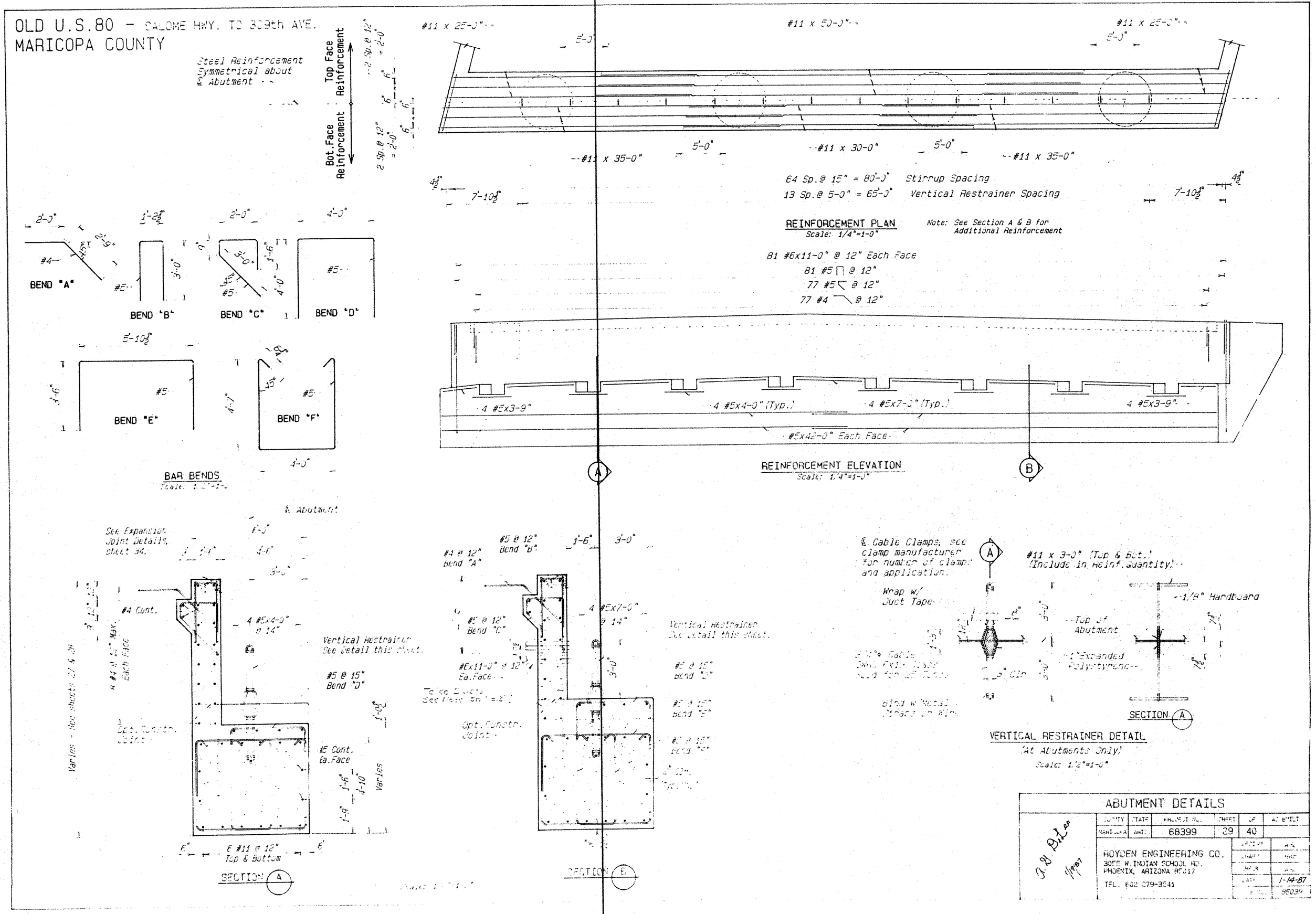
ROYDEN ENGINEERING CO.
3055 W. INDIAN SCHOOL RD.
PHOENIX, ARIZONA 85017
TEL. 602 279-3541

DESIGN	AGD
DRAWN	RAE
CHECK	AGD
DATE	1-14-87
JOB NO.	85039

D. G. Bilt 1/14/87

D C B A A B C D

OLD U.S.80 - GALOME HWY. TO 309th AVE.
MARICOPA COUNTY



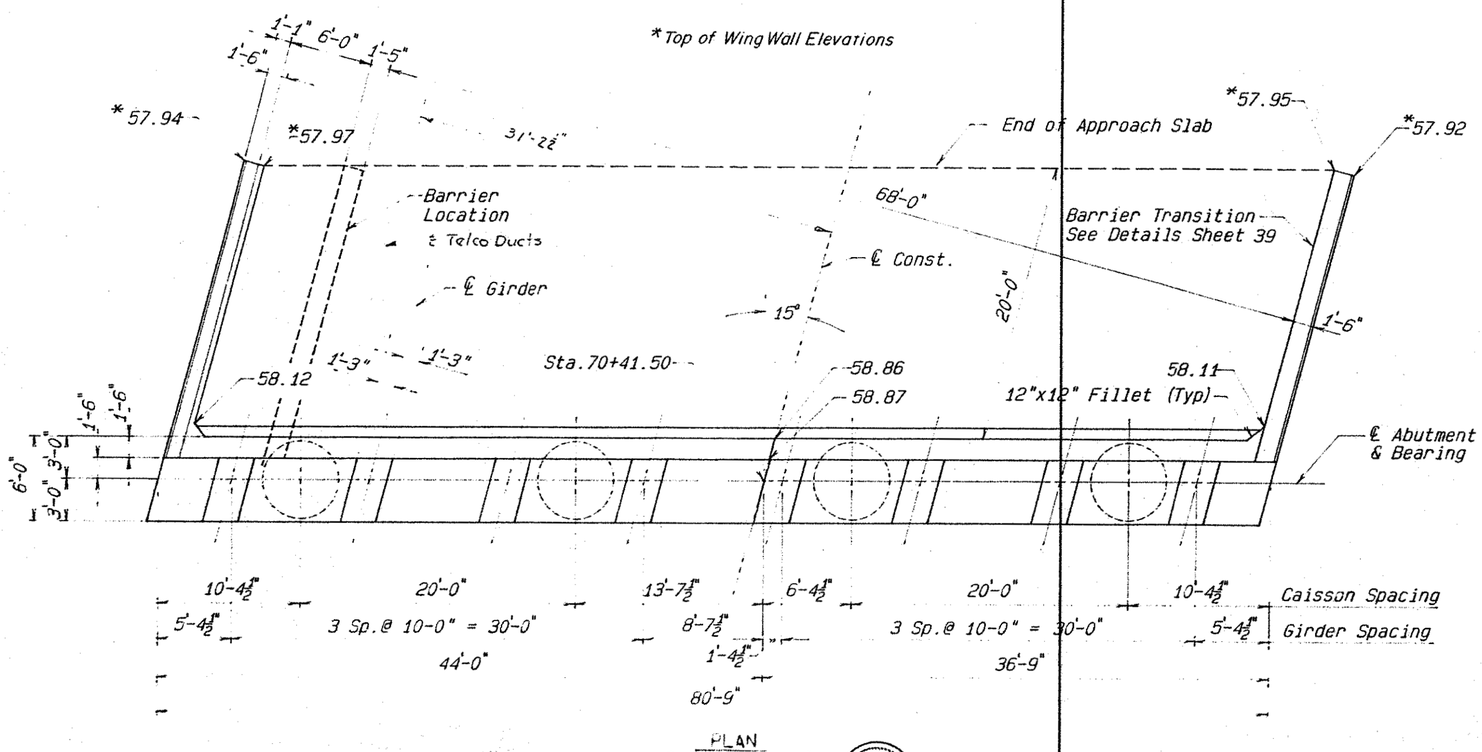
ABUTMENT DETAILS					
COUNTY	STATE	PROJECT NO.	SHEET	OF	ABUTMENT
MARICOPA	ARIZ.	68399	29	40	

HOYDEN ENGINEERING CO.
3055 W. INDIAN SCHOOL RD.
PHOENIX, ARIZONA 85017
TEL. 602 279-3641

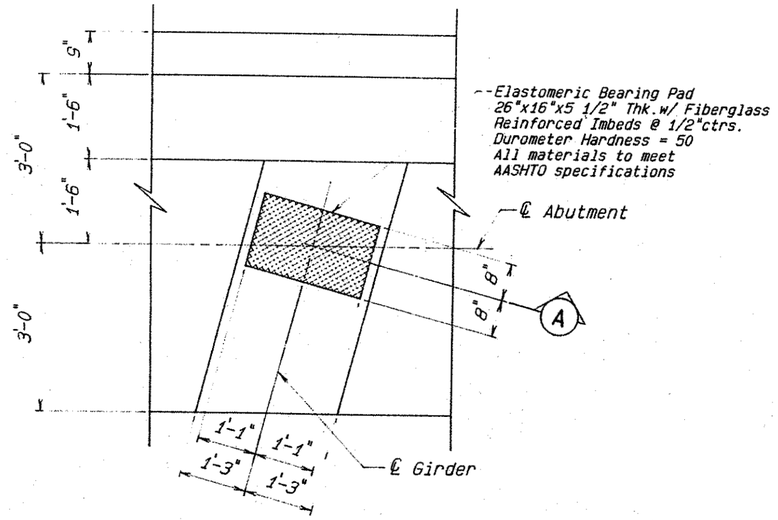
DESIGN: [illegible]
DRAWN: [illegible]
REVIEW: [illegible]
DATE: 1-14-87
SCALE: 85030

J. B. Riley 1/14/87

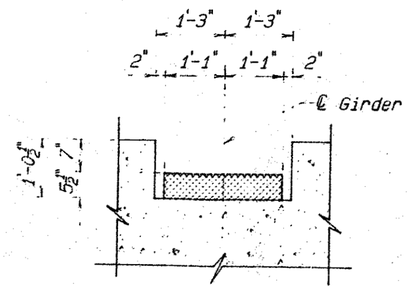
OLD U.S.80 - SALOME HWY. TO 309th AVE.
MARICOPA COUNTY



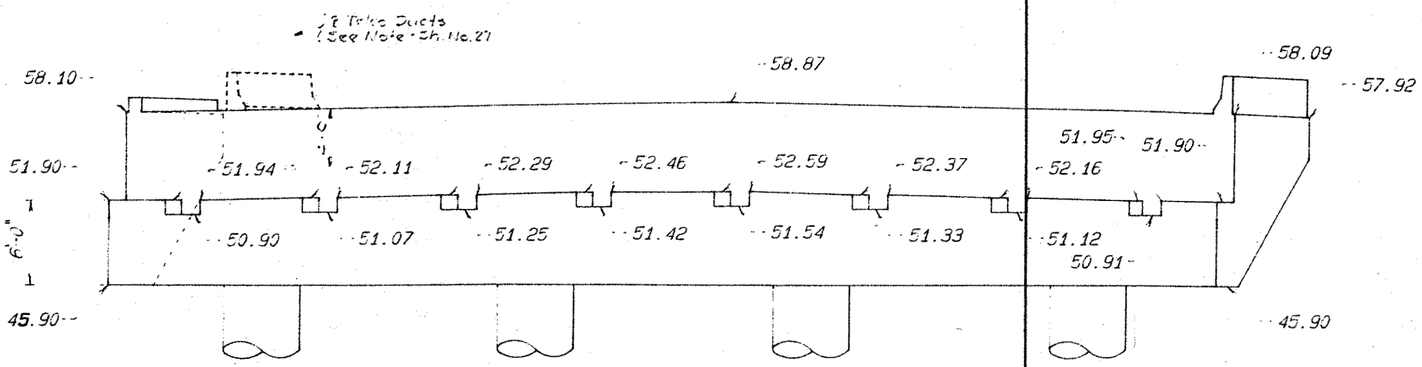
PLAN
Scale: 3/16"=1-0"



EXPANSION BEARING DETAIL
Scale: 3/4"=1-0"



SECTION A
Scale: 3/4"=1-0"



ELEVATION
Scale: 3/16"=1-0"

NOTES

1. For Steel Reinforcement Details, see Sheet 29.
2. For Typical Sections, see Sheet 29.
3. For Wingwall and Approach Slab Details, see Sheet 30.
5. 57.39 = Elevation 857.39

ABUTMENT NO.2 DETAILS

COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	28	40	

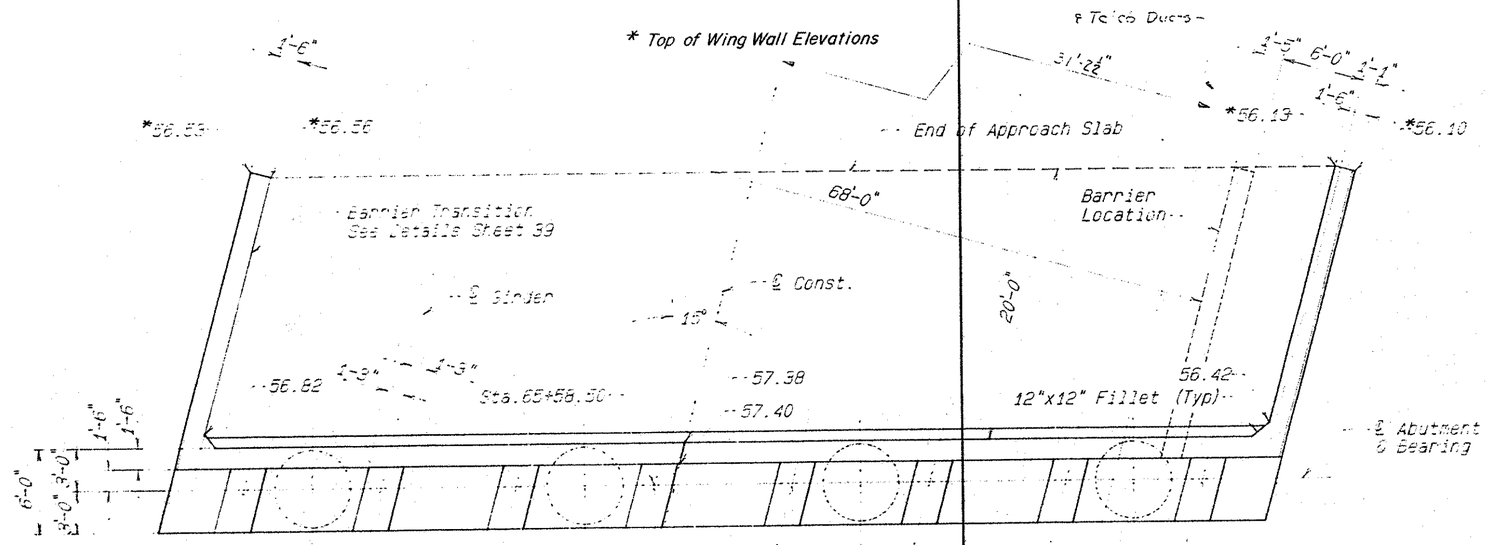
ROYDEN ENGINEERING CO.
3055 W. INDIAN SCHOOL RD.
PHOENIX, ARIZONA 85017
TEL. 602 279-3541

DESIGN	ASD
DRAWN	RAE
CHECK	ASD
DATE	1-14-87
DWG. NO.	85039

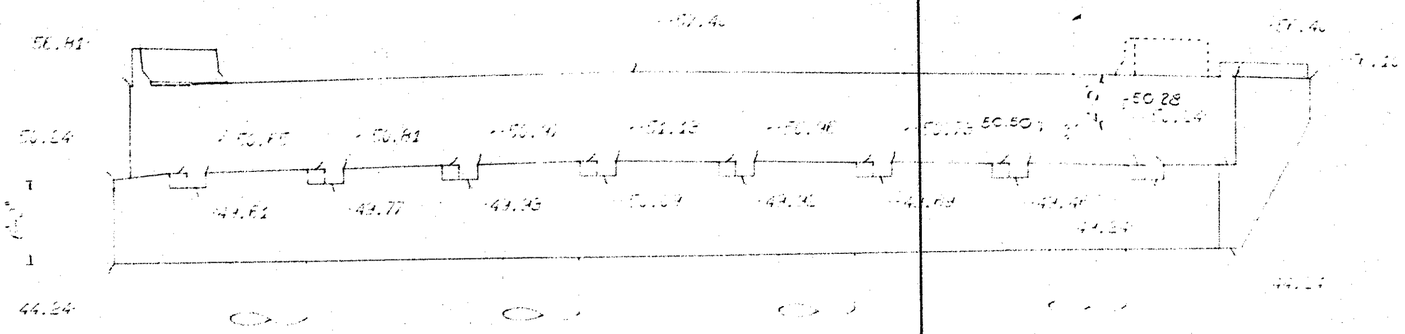
O.E. Bilson 1/14/87

D C B A A B C

OLD U.S.80 - SALOME HWY. TO 309th AVE.
MARICOPA COUNTY

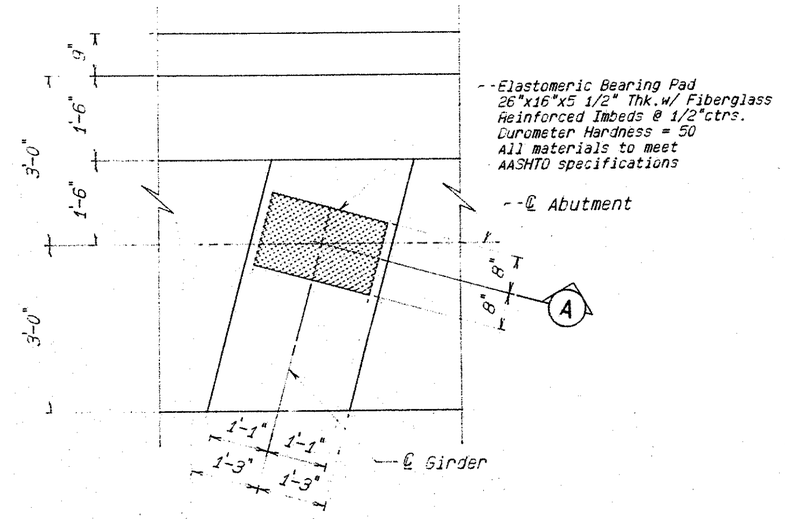


PLAN

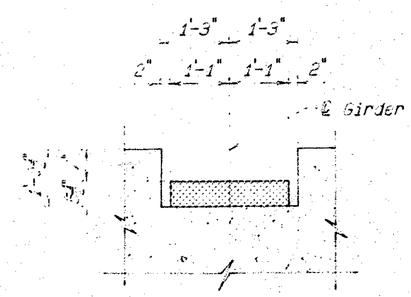


ELEVATION
Scale: 3/16"=1'-0"

Place Telco Ducts:
Conduits furnished by U.S. West and set by Contractor.
Conduits to extend 2' beyond end of approach slab
Plug ends



EXPANSION BEARING DETAIL
Scale: 3/4"=1'-0"



SECTION A
Scale: 3/4"=1'-0"

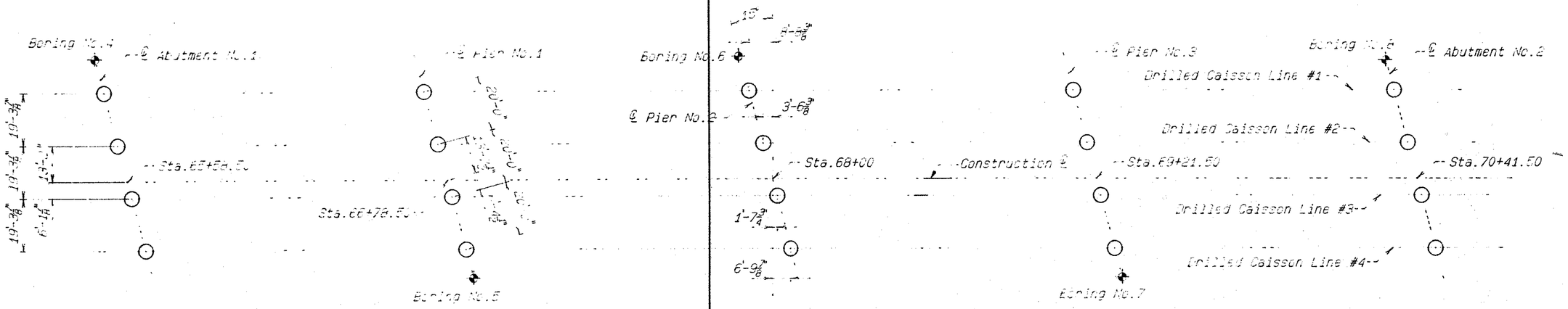
NOTES

1. For Steel Reinforcement Details, See Sheet 24.
2. For Typical Sections, See Sheet 24.
3. For Wingwall and Approach Slab Details, See Sheet 30.
4. 57.34 = Elevation 857.34

ABUTMENT NO.1 DETAILS					
COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	27	40	
ROYDEN ENGINEERING CO. 5225 E. INDIAN SCHOOL RD. PHOENIX, ARIZONA 85018 (Fax No. 274-6761)			DESIGN	A.S.	
			DRAWN	RHD	
			CHECK	A.S.	
			DATE	1-14-87	

D C B A A B C D

OLD U.S.80 - SALOME HWY. TO 309th AVE.
MARICOPA COUNTY

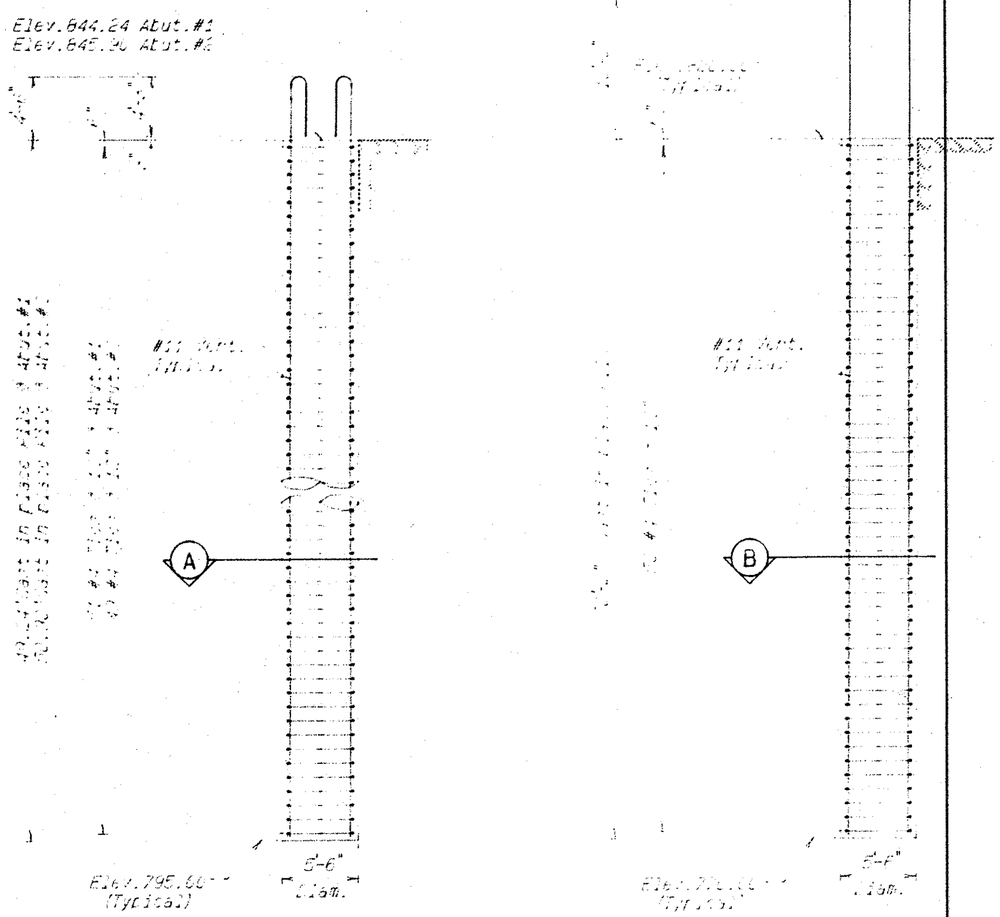


DRILLED CAISSON LAYOUT
Scale: 1"=20'

NORTH

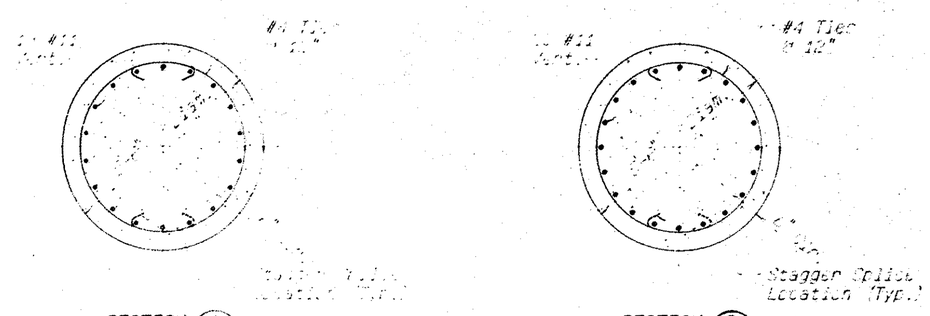
FOUNDATION NOTES

1. Drilled Caissons shall be cast in place concrete, M.A.G. Class A.
2. Tops of Drilled Caissons shall be within 3" of plan locations. Drilled Caisson shall not deviate more than 1" in 10 feet from plumb.
3. Reinforcing Steel shall conform to ASTM A-615, Grade 60. The minimum lap length of #11 bars shall be 10'-0".
4. The contractor shall be responsible for providing support of reinforcing cage during fabrication, erection and placement of concrete. Exact shaving reinforcing cage support and methods of erection shall be submitted to the Engineer for review and approval prior to construction.



ELEVATION @ ABUTMENT

ELEVATION @ PIER



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

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

FOUNDATION DETAILS

COUNTY	STATE	PROJECT NO.	SHEET	OF	AS BUILT
MARICOPA	ARIZ.	68399	26	40	

ROYDEN ENGINEERING CO.
[illegible] WILLIAM [illegible] RD.
PHOENIX, ARIZONA [illegible]
TEL. [illegible]

DESIGN [illegible]
CHECK [illegible]
DRAWN [illegible]
DATE 7-14-87
[illegible]

O.B. Bilder 1/9/87

D C B A A B C

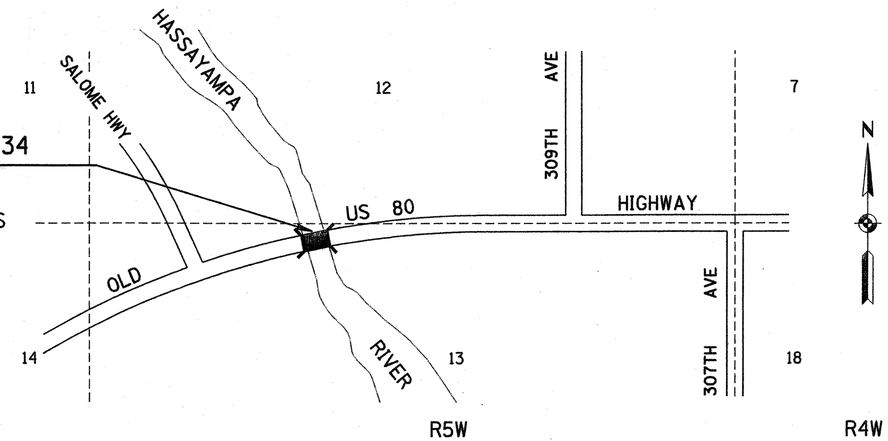
Channel Improvement Plans for Scour Protection at U.S. 80 Highway Bridge

Lower Hassayampa: U.S. 80 Bridge Channel Dev.

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION

PLANS FOR THE CONSTRUCTION OF SCOUR PROTECTION FOR OLD US 80 HIGHWAY BRIDGE - HASSAYAMPA RIVER

PROJECT NO. 68934



INDEX OF SHEETS

1.....FACE SHEET

2..... GENERAL PLAN

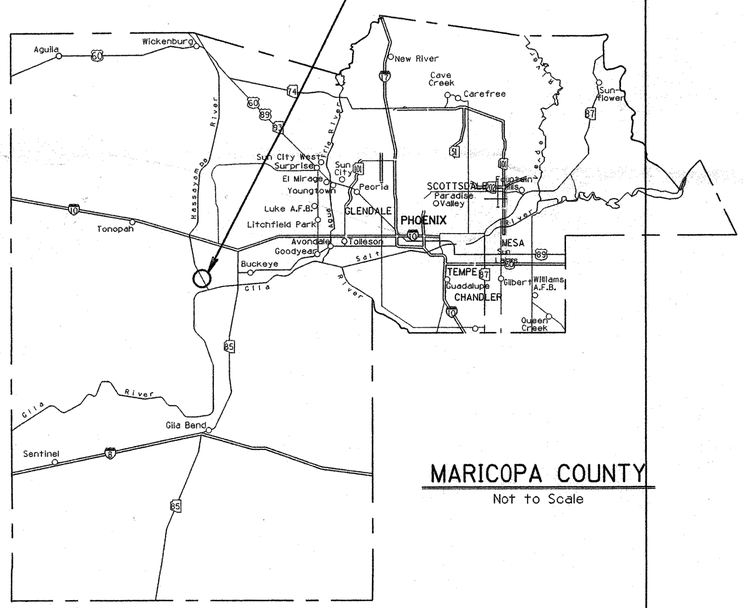
3.....SECTIONS AND DETAILS

4.....LOG OF BORINGS

5.....PIPE PLAN AND PROFILE

6 .....INLET HEADWALL DETAILS

7.....TRASH RACK & PIPE INLET DETAILS



MARICOPA COUNTY
Not to Scale

VICINITY MAP
Not to Scale

MARICOPA COUNTY DEPARTMENT OF TRANSPORTATION

ISSUED FOR PUBLIC BIDDING BY:

ANDRZEJ S. WOJAKIEWICZ, P.E., S.E. 02/02/04
PROJECT MANAGER DATE

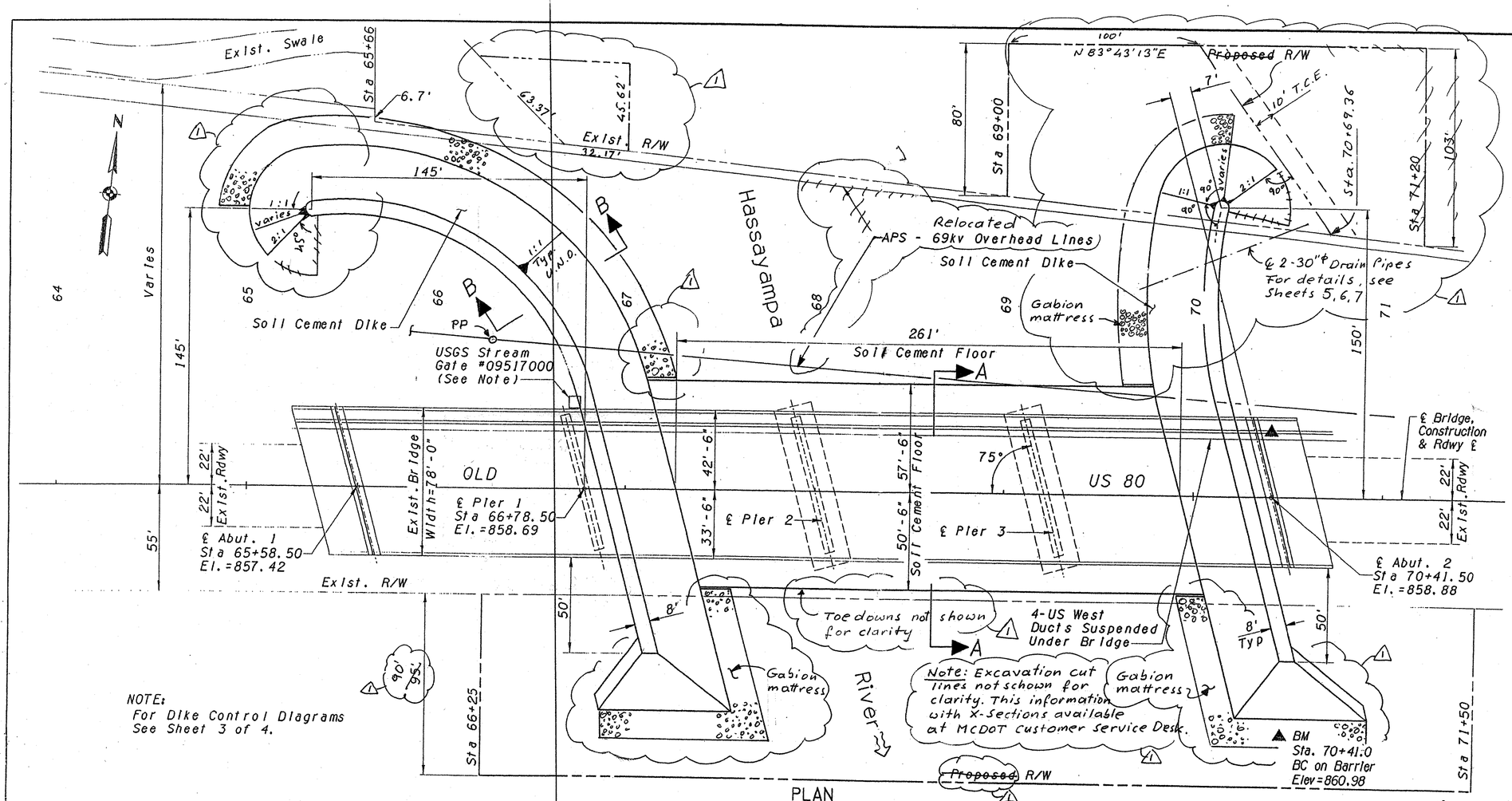
COUNTY BOARD OF SUPERVISORS

ANDREW KUNASEK - CHAIRMAN

DISTRICT 1	FULTON BROCK
DISTRICT 2	DON STAPLEY
DISTRICT 3	ANDREW KUNASEK
DISTRICT 4	MAX W. WILSON
DISTRICT 5	MARY ROSE WILCOX

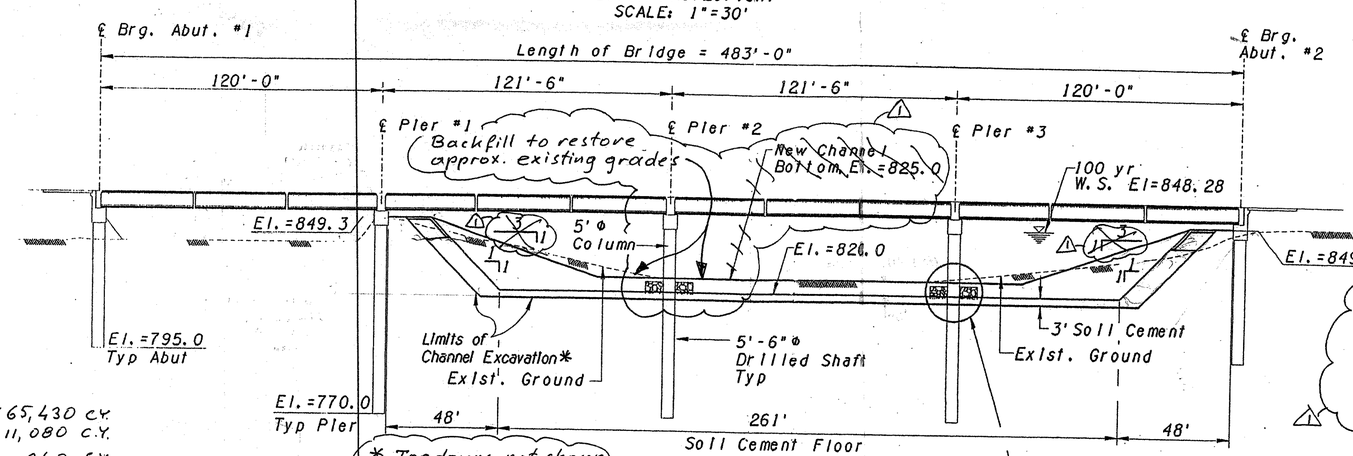
m:/squad5/valenzue/W0*68934/100%plans/face.dgn/01/29/04

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	68934	2	7	✓



NOTE:
For Dike Control Diagrams See Sheet 3 of 4.

PLAN
(SCOUR PROTECTION)
SCALE: 1"=30'



ELEVATION
SCALE: 1"=30'

APPROXIMATE QUANTITIES

CHANNEL EXCAVATION	~~23,560 CY~~ 65,430 C.Y.
SOIL CEMENT	~~13,013 CY~~ 11,080 C.Y.
SHOTCRETE	~~339 SY~~ 340 S.Y.
GABION MATTRESS	440 C.Y.

NOTES

Construction -
Maricopa Association of Governments Uniform Standard Specifications for Public Works Construction, 1998 and Current Supplements.

All Existing Utilities shown on plans are from latest available plats of record. Contractor shall verify actual locations prior to commencing construction operations to avoid conflicts.

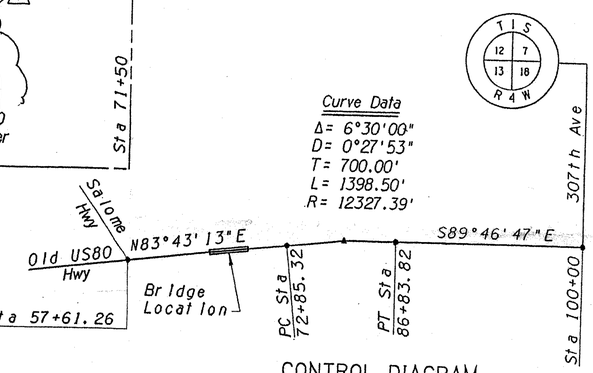
Survey and Structure Information shown taken from existing "As-Builts"

Elevation Datum - USGS

Contact the Water Resources Division of the USGS at (602) 379-3087, (20) working days prior to start of construction, for gage removal or relocation.

Disposal of all waste material, broken concrete, etc. will be the responsibility of the Contractor, subject to the approval of the Engineer.

All trees, bushes and fences inside the existing right-of-way which interfere with construction, will be removed by MCDOT forces unless noted otherwise.



CONTROL DIAGRAM
NTS

For revision 1:

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 16259 ANDRZEJ S. WOJAKIEWICZ 01/22/04 Expires 12/31/04 ARIZONA, U.S.A.

TWO WORKING DAYS BEFORE YOU DIG, CALL 263-1100 BLUE STAKE

NO.	REVISION	BY	DATE
1	R/W change, gabion mattress added, drain pipes etc.	ASW	01/22/04
2			
3			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

OLD U.S. -80 HIGHWAY BRIDGE
@ HASSAYAMPA RIVER
PROJECT NO. 68934

	BY	DATE
DESIGNED	DAVE CHAPIN	4/13/98
DRAWN	RON WIETZEMA	4/13/98
CHECKED	DENNIS TREFREN	4/13/98

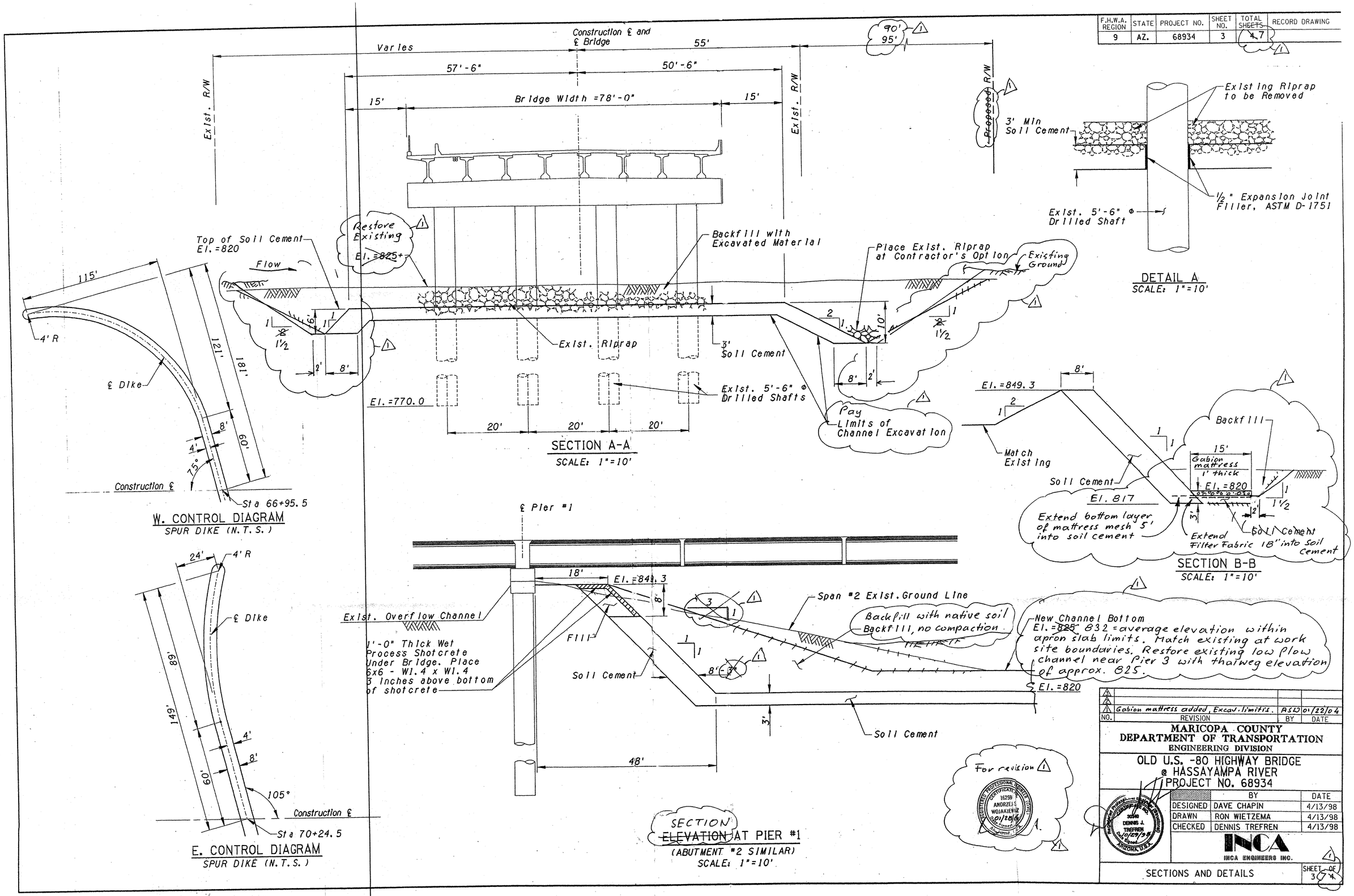
Registered Professional Engineer (Civil) CERTIFICATE NO. 30340 DENNIS J. TREFREN 04/30/99 Expires ARIZONA, U.S.A.

INCA ENGINEERS INC.

GENERAL PLAN

SHEET 2 OF 7

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	68934	3	47	1



NO.	REVISION	BY	DATE
3			
2			
1	Gabion mattress added, Excav. limits.	ASW	01/22/04

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

OLD U.S. -80 HIGHWAY BRIDGE
@ HASSAYAMPA RIVER
PROJECT NO. 68934

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 30540 DENNIS J. TREFREN 04/09/98 Date Signed ARIZONA, U.S.A.

	BY	DATE
DESIGNED	DAVE CHAPIN	4/13/98
DRAWN	RON WIETZEMA	4/13/98
CHECKED	DENNIS TREFREN	4/13/98

INCA
INCA ENGINEERS INC.

SECTIONS AND DETAILS

SHEET 3 OF 47

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	68934	4	7	

TEST PIT LOG

Sheet 1 of 1

Job Number 97-0130
Project: Old U.S. 80 @ Hassayampa River
Date Started: 8/20/97
Date Completed: 8/20/97

Test Pit No.: HA-A
Rig Type: Case 580 K Backhoe
Ground Elevation:
Elev. Datum: None

Legend of Symbols: 2.5" Ring Sample; Standard Split Spoon Sample; Thin Wall Tube; Water Table Encountered; Stabilized Water Table

Elevation (ft)	Depth (ft)	Graphic Log	Sampler Blow Count	Sample Type	Dry Density (pcf)	Water Content (%)	SOIL DESCRIPTION
	1						**POORLY GRADED SAND (SP);** some gravel; trace of cobbles; light greyish brown; loose to medium dense; subangular to subrounded; nonplastic; slightly damp.
	2						
	3						
	4						
	5						
	6						
	7						
	8						Note: some increase in cobbles below 8 feet.
	9						
	10						
	11						Note: becoming damp to moist, light greyish brown and reddish brown below 11 feet.
	12						
	13						
	14						Stopped excavating at 14.0 feet. Groundwater encountered at 14.0 feet.

MAXIM TECHNOLOGIES, INC.

TEST PIT LOG

Sheet 1 of 1

Job Number 97-0130
Project: Old U.S. 80 @ Hassayampa River
Date Started: 8/20/97
Date Completed: 8/20/97

Test Pit No.: HA-B
Rig Type: Case 580 K Backhoe
Ground Elevation:
Elev. Datum: None

Legend of Symbols: 2.5" Ring Sample; Standard Split Spoon Sample; Thin Wall Tube; Water Table Encountered; Stabilized Water Table

Elevation (ft)	Depth (ft)	Graphic Log	Sampler Blow Count	Sample Type	Dry Density (pcf)	Water Content (%)	SOIL DESCRIPTION
	1						**POORLY GRADED SAND (SP);** some gravel; trace of cobbles; light greyish brown; loose to medium dense; subangular to subrounded; nonplastic; slightly damp to damp.
	2						
	3						
	4						Stopped excavating at 4.0 feet. Groundwater encountered at 4.0 feet.

MAXIM TECHNOLOGIES, INC.

TEST PIT LOG

Sheet 1 of 1

Job Number 97-0130
Project: Old U.S. 80 @ Hassayampa River
Date Started: 8/20/97
Date Completed: 8/20/97

Test Pit No.: HA-C
Rig Type: Case 580 K Backhoe
Ground Elevation:
Elev. Datum: None

Legend of Symbols: 2.5" Ring Sample; Standard Split Spoon Sample; Thin Wall Tube; Water Table Encountered; Stabilized Water Table

Elevation (ft)	Depth (ft)	Graphic Log	Sampler Blow Count	Sample Type	Dry Density (pcf)	Water Content (%)	SOIL DESCRIPTION
	1						**SANDY CLAY (CL);** brown; slightly damp; predominantly fine grained sand; medium plasticity; stiff to very stiff consistency.
	2						**POORLY GRADED SAND (SP);** some gravel; trace of cobbles; light greyish brown; loose to medium dense; subangular to subrounded; nonplastic; slightly damp to damp.
	3						
	4						
	5						
	6						Note: increase in cobbles below 6 feet.
	7						
	8						
	9						Stopped excavating at 9.5 feet. Groundwater encountered at 9.5 feet.

MAXIM TECHNOLOGIES, INC.

LEGEND

Soil Classification

COARSE-GRAINED SOIL ← More than 50% larger than 200 sieve size

SYMBOL	LETTER	DESCRIPTION	MAJOR DIVISIONS
	GW	Well-graded gravels or gravel sand mixtures. Less than 5% -#200 fines	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size
	GP	Poorly-graded gravels or gravel sand mixtures. Less than 5% -#200 fines	
	GM	Silty gravels or gravel-sand-silt mixtures. More than 12%	
	GC	Clayey gravels or gravel-sand-clay mixtures. More than 12%-#200 fines	
	SW	Well-graded sands or gravelly sands. Less than 5% -#200 fines	SANDS More than half of coarse fraction is smaller than No. 4 sieve size
	SP	Poorly-graded sands or gravelly sands. Less than 5% -#200 fines-#200 fines	
	SM	Silty sands or sand-silt mixtures. More than 12% -#200 fines	
	SC	Clayey sands or sand-clay mixtures. More than 12% -#200 fines	

FINE-GRAINED SOIL → More than 50% smaller than 200 sieve size

SYMBOL	LETTER	DESCRIPTION	MAJOR DIVISIONS
	ML	Inorganic silts, rock flour, and fine sandy or clayey silts of low to medium plasticity	SILTS AND CLAYS Liquid limit less than 50
	CL	Inorganic clays, gravelly clays, sandy clays, and lean clays of low to medium plasticity	
	MH	Inorganic silts, micaceous or diatomaceous, and fine sandy or clayey silts of high plasticity	SILTS AND CLAYS Liquid limit greater than 50
	CH	Inorganic clays, fat clays, and silty or sandy clays of high plasticity	

GRAIN SIZES

U.S. Standard Series Sieves: 200, 40, 10, 4
Clear Square Sieve Openings: ¾", 3", 12"

	Sand			Gravel		Cobbles	Boulders
Silts and clays distinguished on basis of plasticity	Fine	Medium	Coarse	Fine	Coarse		

MOISTURE CONDITION

Dry — Slightly Damp — Damp — Moist (Plastic Limit) — Very Moist — Wet (Saturated) (Liquid Limit)

Sampler blow counts and 2.0" O.D. bullnose penetration resistance shown on logs are blows per foot using 140 lb. hammer with 30" free-fall unless otherwise noted.

LIMITATIONS

The data presented on the test boring logs represent subsurface conditions only at the specific locations and at the times designated. These data may not represent conditions at other locations and/or times. Contacts between soil strata may be gradual rather than abrupt. These data were compiled primarily for design purposes and should not be construed as part of the plans governing construction or defining construction techniques. Bidders are fully responsible for interpretations or conclusions they draw from the test boring logs.

Project No. 68934
MAXIM TECHNOLOGIES, INC.

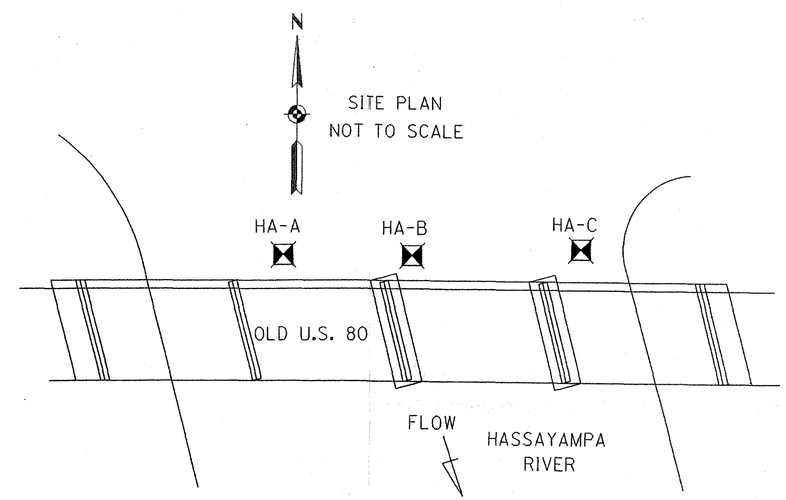
NOTES:

Information contained on Foundation Data Sheets is made available to prospective bidders for information purposes only and is not to be considered a part of the contract documents.

Information is developed as accurately as possible by the methods utilized. However, the county accepts no responsibility for any conditions encountered which may be at variance from information contained herein.

The absence of a ground water indication does not constitute a representation that the ground water will not be present during construction. Ground water is indicated herein only when found during the foundation investigation and represents that condition only on the date of the investigation.

Classification of materials is in accordance with AASHTO "Manual on Foundation Investigations" and is based upon field inspection and is not to be construed to imply mechanical analysis.



NO.	REVISION	BY	DATE
1	total number of sheets changed to 7	ASW	02/02/04

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

OLD U.S. -80 HIGHWAY BRIDGE
@ HASSAYAMPA RIVER
PROJECT NO. 68934

Registered Professional Engineer (Civil) CERTIFICATE NO. 28182 DAVID A. THOMAS Date Signed 10-3-97 ARIZONA U.S.A.

	BY	DATE
DESIGNED	D. THOMAS	4/13/98
DRAWN	J. OLSON	4/13/98
CHECKED	D. THOMAS	4/13/98

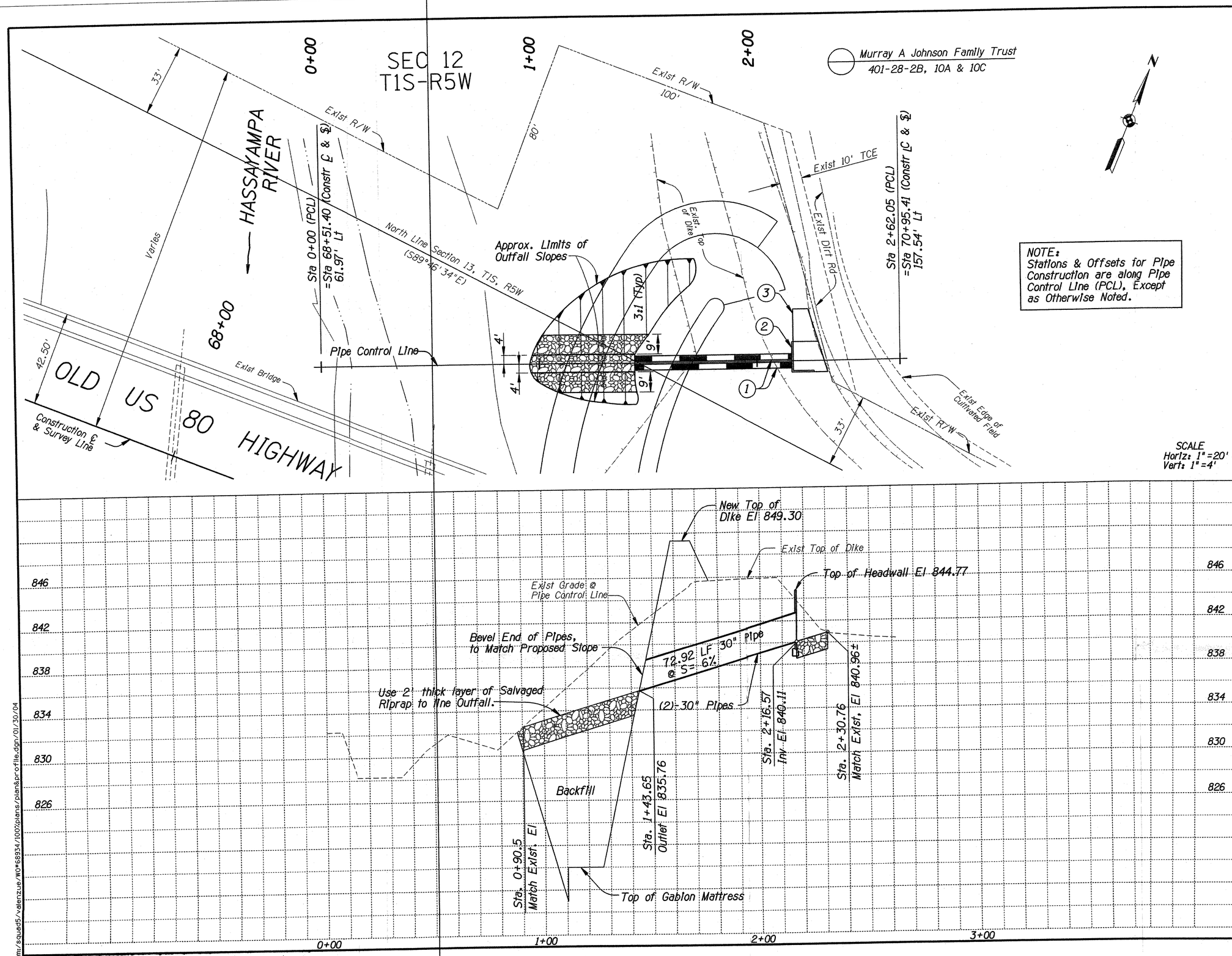
MAXIM Technologies

LOG OF BORINGS

SHEET 4 OF 4 (7)

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	68934	5	7	

☐ REMOVAL/RELOCATE ☐



NOTE:
Stations & Offsets for Pipe Construction are along Pipe Control Line (PCL), Except as Otherwise Noted.

○ CONSTRUCTION ○

1. Sta 1+43.65, 1.88' Lt & Rt to Sta 2+30.76, 1.88' Lt & Rt Construct 146 Lin Ft of 30" Pipe
2. Sta 2+16.57 Construct Inlet Headwall With Trash Rack, For Details See Sht 6 & 7.
3. Sta 2+16.57, 23.65' Lt & 5.12' Rt to Sta 2+23.57, 23.65' Lt to Sta 2+30.76, 5.12' Rt Construct 29 Cu Yds of Dumped Riprap (D_{50} =6") For Details See Sht 7.

NO.	REVISION	BY	DATE
3			
2			
1			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

OLD U.S. 80 HIGHWAY BRIDGE
@ HASSAYAMPA RIVER
PROJECT NO. 68934

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 16259 ANDRZEJ S. WOJAKIEWICZ 02/02/04 Date Signed ARIZONA, U.S.A.

	BY	DATE
DESIGNED	R. VALENZUELA	02/05/03
DRAWN	R. VALENZUELA	02/28/03
CHECKED	A. WOJAKIEWICZ	04/04/03

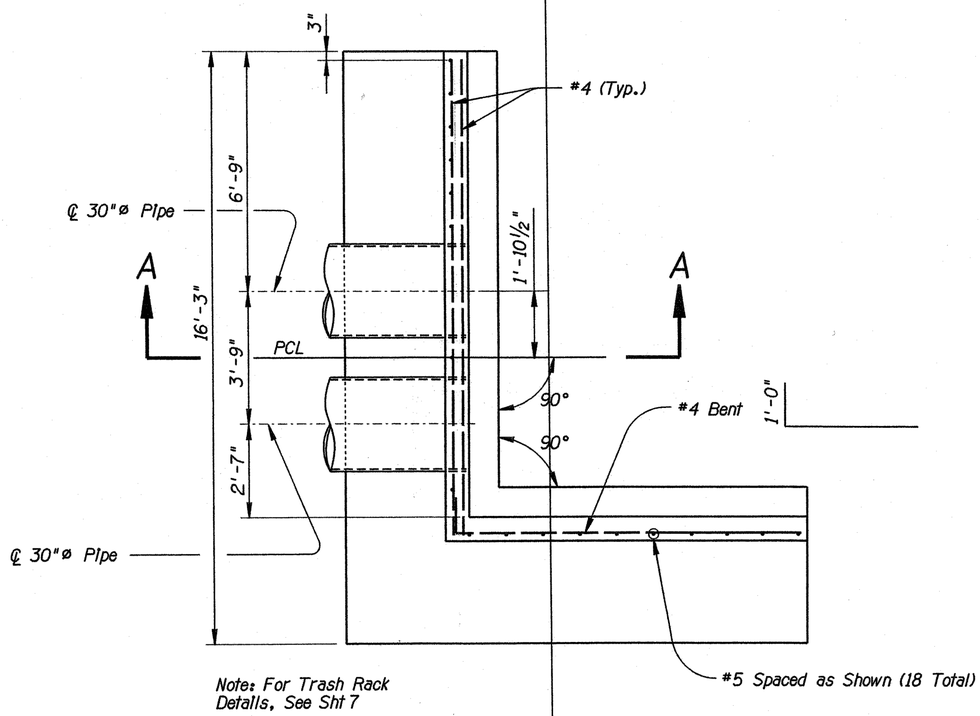
PIPE PLAN & PROFILE
STA 1+10.32 TO STA 2+28.32

SHEET 5 OF 7

TRACS NO.

m:/squed5/valenzue/M0\68934/100\plans/plan&profile.dgn/01/30/04

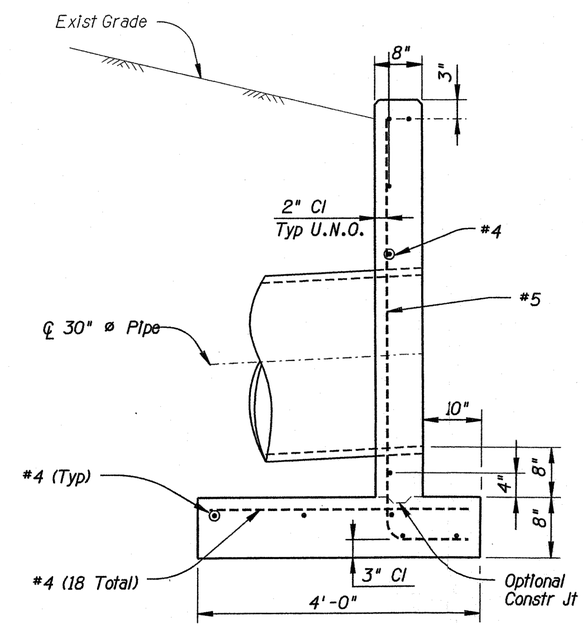
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	68934	6	7	·



Note: For Trash Rack Details, See Sht 7

SECTION B-B

Scale: ½" = 1'-0"

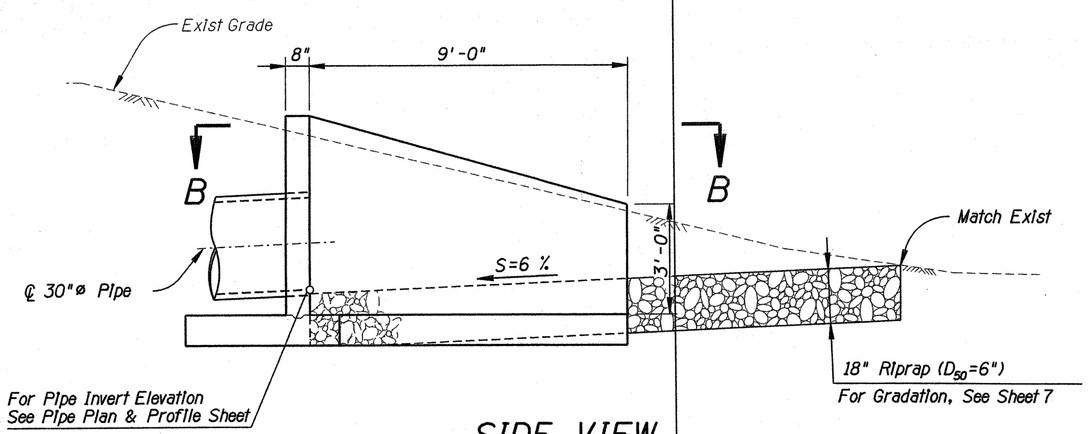


SECTION A-A (TYP.)

Scale: 1" = 1'-0"

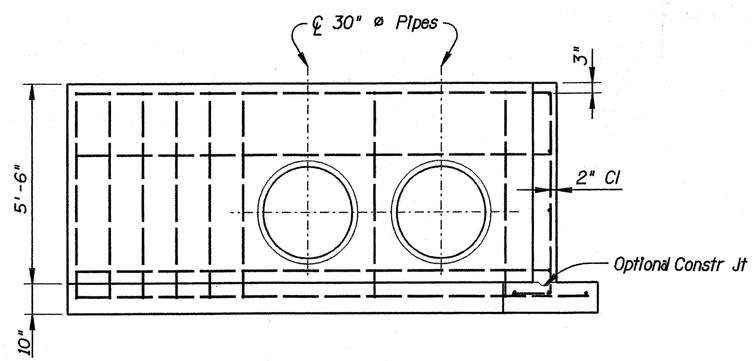
NOTES:

1. Chamfer all exposed corners ¾".
2. All concrete shall be MAG Class "A".



SIDE VIEW

Scale: ½" = 1'-0"



FRONT VIEW

Scale: ½" = 1'-0"

NO.	REVISION	BY	DATE
3	·	·	·
2	·	·	·
1	·	·	·

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

OLD US 80 HIGHWAY BRIDGE
@ HASSAYAMPA RIVER
PROJECT NO. 68934

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 15259 ANDRZEJ S. WOJAKIEWICZ 02/04/04 Date Signed ARIZONA, U.S.A.

	BY	DATE
DESIGNED	R. VALENZUELA	02/14/03
DRAWN	R. VALENZUELA	02/21/03
CHECKED	A. WOJAKIEWICZ	04/03/03
·	·	·

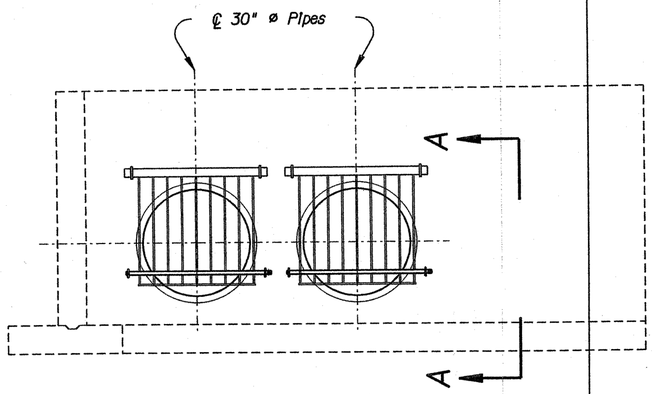
INLET HEADWALL DETAILS

SHEET 6 OF 7

TRACS NO.

msquad5/valenzue/W0#68934/100%plans/det01B.dgn/01/30/04

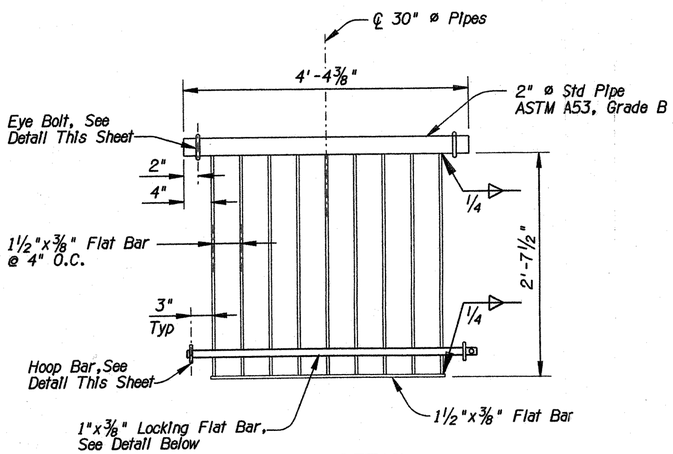
F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	RECORD DRAWING
9	AZ.	68934	7	7	



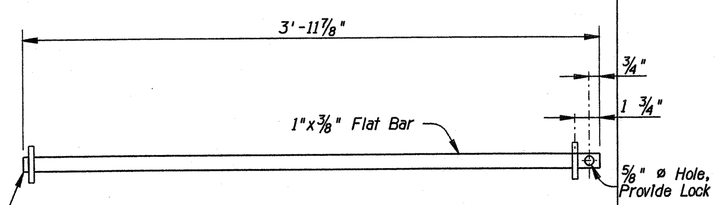
ELEVATION
NTS

NOTES:

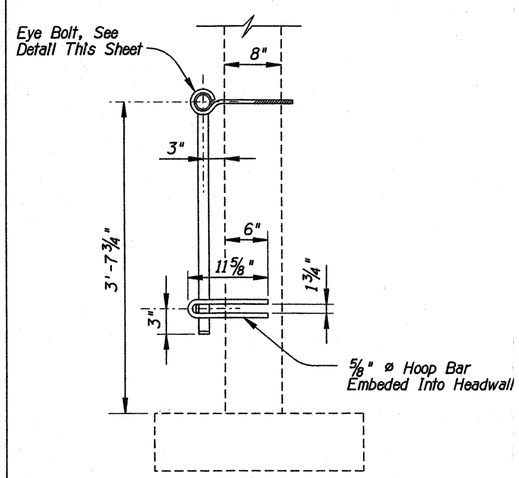
1. Field Verify All Dimensions Before Manufacturing.
2. Hot Dip Galvanize After Manufacturing.



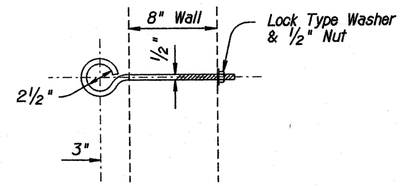
RACK DETAIL
NTS



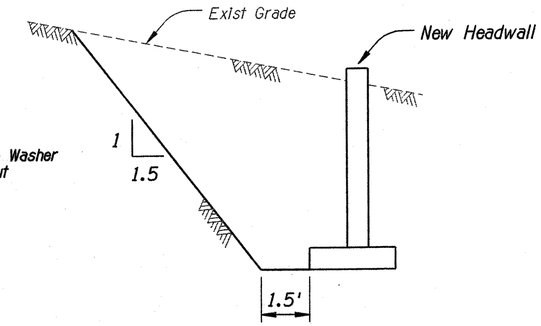
LOCKING BAR DETAIL
NTS



SECTION A-A
NTS



EYE BOLT DETAIL
NTS

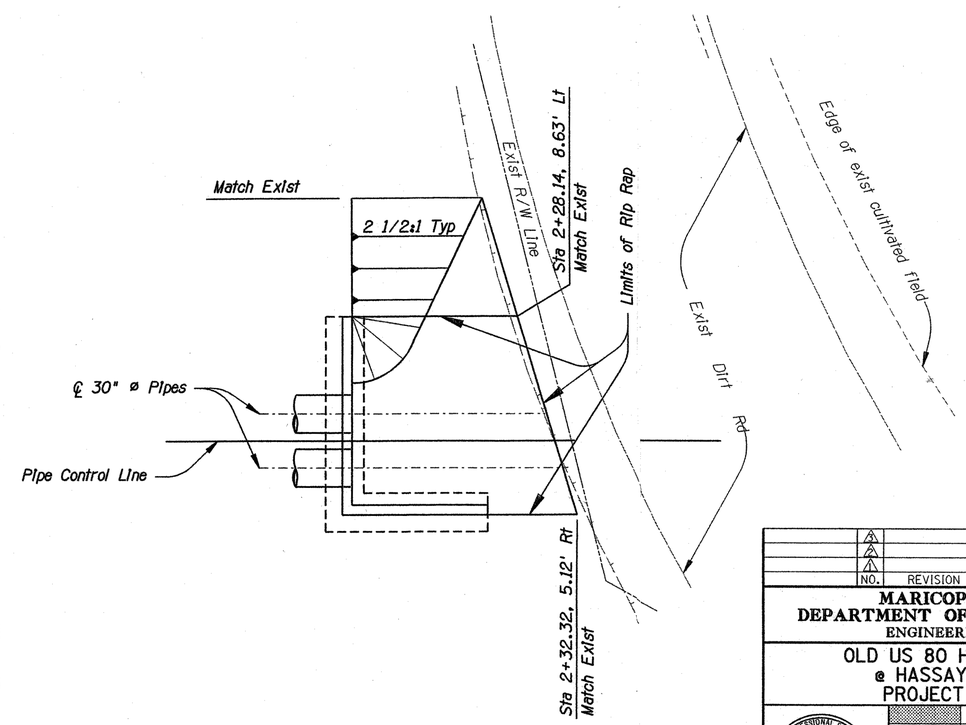


TYPICAL EXCAVATION DETAIL
NTS

TRASH RACK DETAILS
NTS

DESIGN RIPRAP GRADATION TABLE

PERCENT PASSING	SIZE	D50 CLASS, INCHES		
		6	12	
100 to 90	2.0 D50	12	24	
85 to 70	1.5 D50	9	18	
50 to 30	1.0 D50	6	12	
15 to 5	0.67 D50	4	8	
5 to 0	0.33 D50	2	4	



INLET RIPRAP DETAIL
NTS

NO.	REVISION	BY	DATE
3			
2			
1			

MARICOPA COUNTY
DEPARTMENT OF TRANSPORTATION
ENGINEERING DIVISION

OLD US 80 HIGHWAY BRIDGE
@ HASSAYAMPA RIVER
PROJECT NO. 68934

REGISTERED PROFESSIONAL ENGINEER (CIVIL) CERTIFICATE NO. 16259 ANDRZEJ S. WOJAKIEWICZ 02/02/04 Date Signed ARIZONA, U.S.A.

	BY	DATE
DESIGNED	R. VALENZUELA	02/14/03
DRAWN	R. VALENZUELA	03/04/03
CHECKED	A. WOJAKIEWICZ	04/03/03

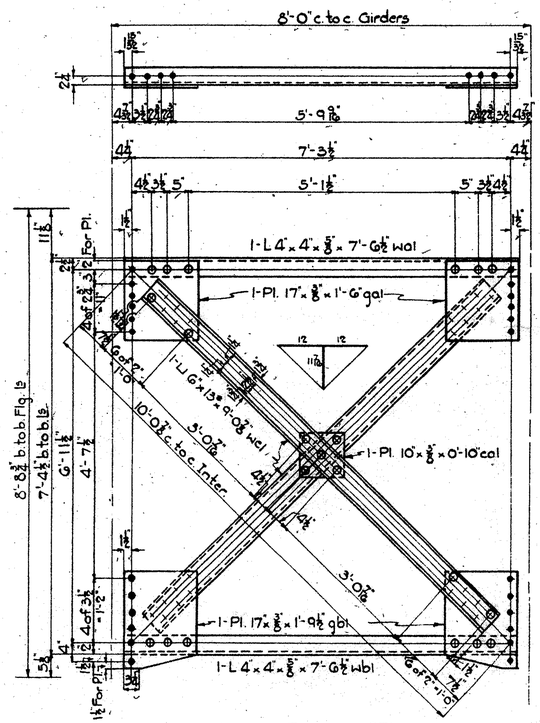
TRASH RACK AND
PIPE INLET DETAILS

SHEET 7 OF 7

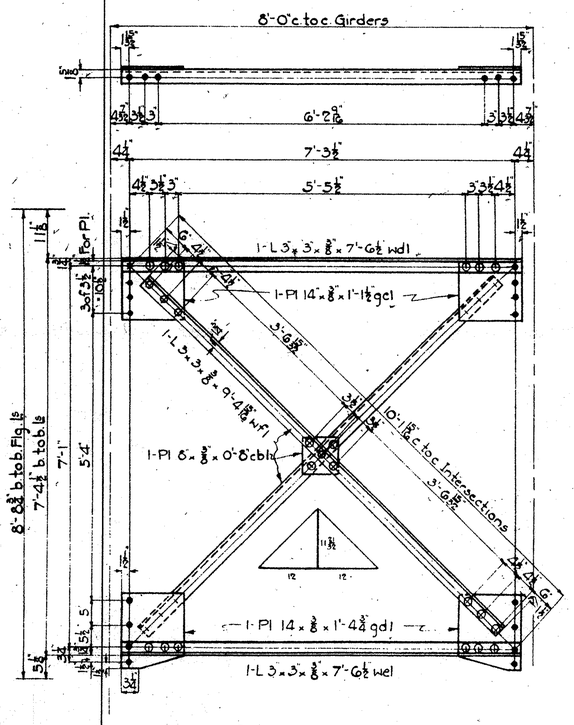
TRACS NO.

m:/squad5/valenzuela/W0*68934/100%plans/apronde101.dgn/01/30/04

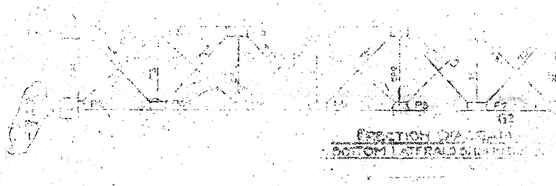
Union Pacific Railroad Bridge As-Builts



CROSS FRAME - CF1



CROSS FRAME - CF2



80'-0" DECK PLATE GIRDER BRIDGES MFD. FROM COMM. ST'D. DRWG'S.

Used with built up Shoes

ORDER	RAILWAY	DIVISION	BRIDGE No	LOCATION	No SPANS	YEAR	FABRICATED BY	REMARKS	FLOOR BOLTS
B5078	So. Pac. Co.			10-Spans Pisatlis Riv. / 13-Spans Elota Riv.	23	1909	Amb. Plant		Furn. by R.R
D6167	So Pac Co.			Mears Cr Bridge	1	1910	" "		"
B6268 / B6269	U.S.S. Pl. Ex Co. For S Pr R Co of Mexico			San Pedro River	7	1910	" "		"
D6321	No. Pac. Co			2-Spans 3" / 4th Crossing 5th "	Outlet Creek	5	1910	" "	Spans for 4th Crossing revised to 9'-0" o.c.	"
D6261	CENTRAL of GEORGIA			Chattahoochee River	7	1910	" "	Modified to 79'-6"	"
"	"			"	1	1910	" "	Trestle support on one end	"
D6263	"		A49	Sandy Creek	1	1910	" "	Lengthened to 82'-6"	"
D6024	H. & T.C. R.R		G7D	Walkers "	1	1910	" "		"
C5812	So. Pac. Co	Coast	3RD Cr.	Los Gatos, Cal. Near Aldercroft	1	1911	" "	Standard	"
C5489	OREGON-WASH R.R. & NAV. Co.		18TH Cr.	Malheur River	2	1913	" "	Lengthened to 80'-7 1/2"	"
D3618	So. Pac. Co	Coast	7TH Cr.	Los Gatos Cr. Alma, Cal	1	1915	" "	Standard	"
E6339	" " "			Hassayampa R.V. Hassayampa, Ariz	11	1925	" "	"	"

INDEX

1	CROSS FRAMES	
2	GIRDERS	
3	LATS & STRUTS	
F1	ANCHOR BOLTS	
F2	PINS	
F3	ROLLER NEST	
F4	SUMMARY	
F5	TURNED BOLTS	
EF1	ERECTORS LIST	

DRAWING WITH BILL

AMERICAN BRIDGE COMPANY

LINE	Total No. of Pieces	No. of Pieces	MATERIAL SHAPE				LENGTH Ft.	LENGTH Inches	ASSEMBLING MARK	REMARKS	CALCULATED WEIGHT FOR ONE SHIP PIECE	ORDERED	ITEM
1			2-CROSS FRAMES - CF1 FOR 1-SPAN										
2	44	4	Ls	6"	13 3/8#		9	0 7/8	wcl			9-1	1
3	22	2	Ls	4	4	5/8	7	6 1/2	wal			30-3	9
4	22	2	Ls	4	4	5/8	7	6 1/2	wbl			30-3	9
5	44	4	Pls		17	3/8	1	6	gal			33-1	27
6	44	4	Pls		17	3/8	1	9 1/2	gbl			19-10	28
7	22	2	Pls		10	3/8	0	10	cal				5
8													
9													
10													
11													
12			4-CROSS FRAMES - CF2 FOR 1-SPAN										
13	88	8	Ls	3	3	3/8	9	4 5/16	wfl			37-9	15
14	44	4	Ls	3	3	3/8	7	6 1/2	wdl			30-3	16
15	44	4	Ls	3	3	3/8	7	6 1/2	wel			30-3	16
16	88	8	Pls		14	3/8	1	1 1/2	gcl				5
17	88	8	Pls		14	3/8	1	4 3/8	gdl				5
18	44	4	Pls		8	3/8	0	8	cbl				5
19													
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NOTE!
Issued March 28 1925 from original
approved by John D Isaacs - Nov 4 1912

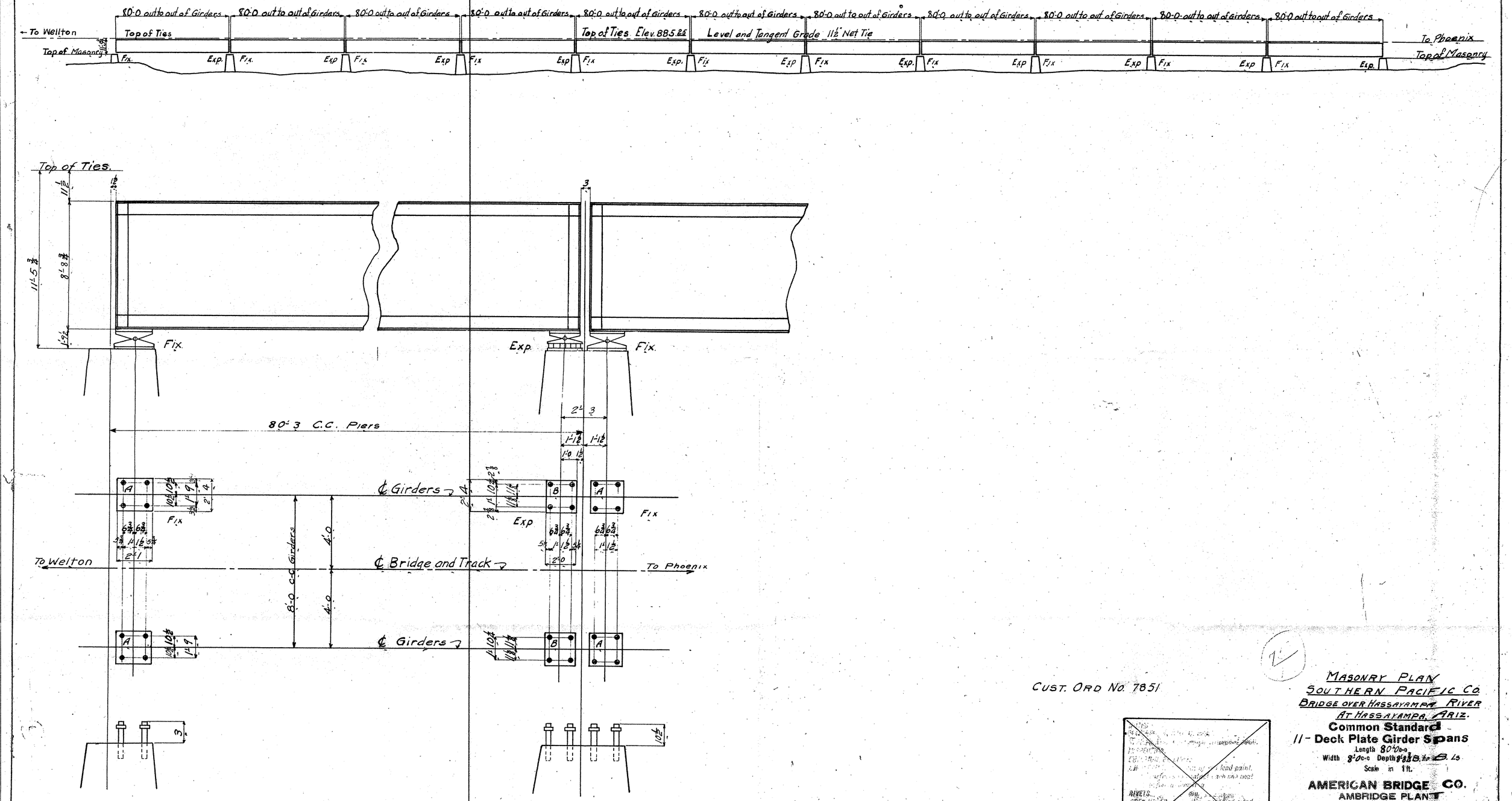
NOTES:-
MATERIAL - Medium O.H. Steel
SPECIFICATIONS - Common Standard 1006
INSPECTION - R.W. Hunt & Co.
ERECTION - By others
SHOP PAINT - One coat red lead paint
Surfaces in contact each one coat before assembling.
RIVETS 3/8" dia.
OPEN HOLES 13/16" dia

SOUTHERN PACIFIC CO.
ARIZONA EASTERN RAILROAD.
WELLTON TO PHOENIX.
FOR HASSAYAMPA RIVER AT HASSAYAMPA
11 - Common Standard
Deck Plate Girder Spans.
Length 80'-0" o-o
Width 8'-0" c-c Depth 8'-8 3/8" b to b ls
Scale 3/8 in = 1 ft.

AMERICAN BRIDGE CO.
AMBRIDGE PLANT
Dwgs made at Ambridge No. 5 In charge of
Detailed by R.B.A. Date 4/10/25 Checked by Date
Fld conn chk. by Date

CUSTOMER'S ORDER No 7851-R-4136 ORDER No. E6339 SHEET No. 1

COPYRIGHT - AMERICAN BRIDGE COMPANY 1925



CUST. ORD NO. 7851

MASONRY PLAN
SOUTHERN PACIFIC CO.
BRIDGE OVER HASSAYAMPA RIVER
AT HASSAYAMPA, ARIZ.

Common Standard
11 - Deck Plate Girder Spans

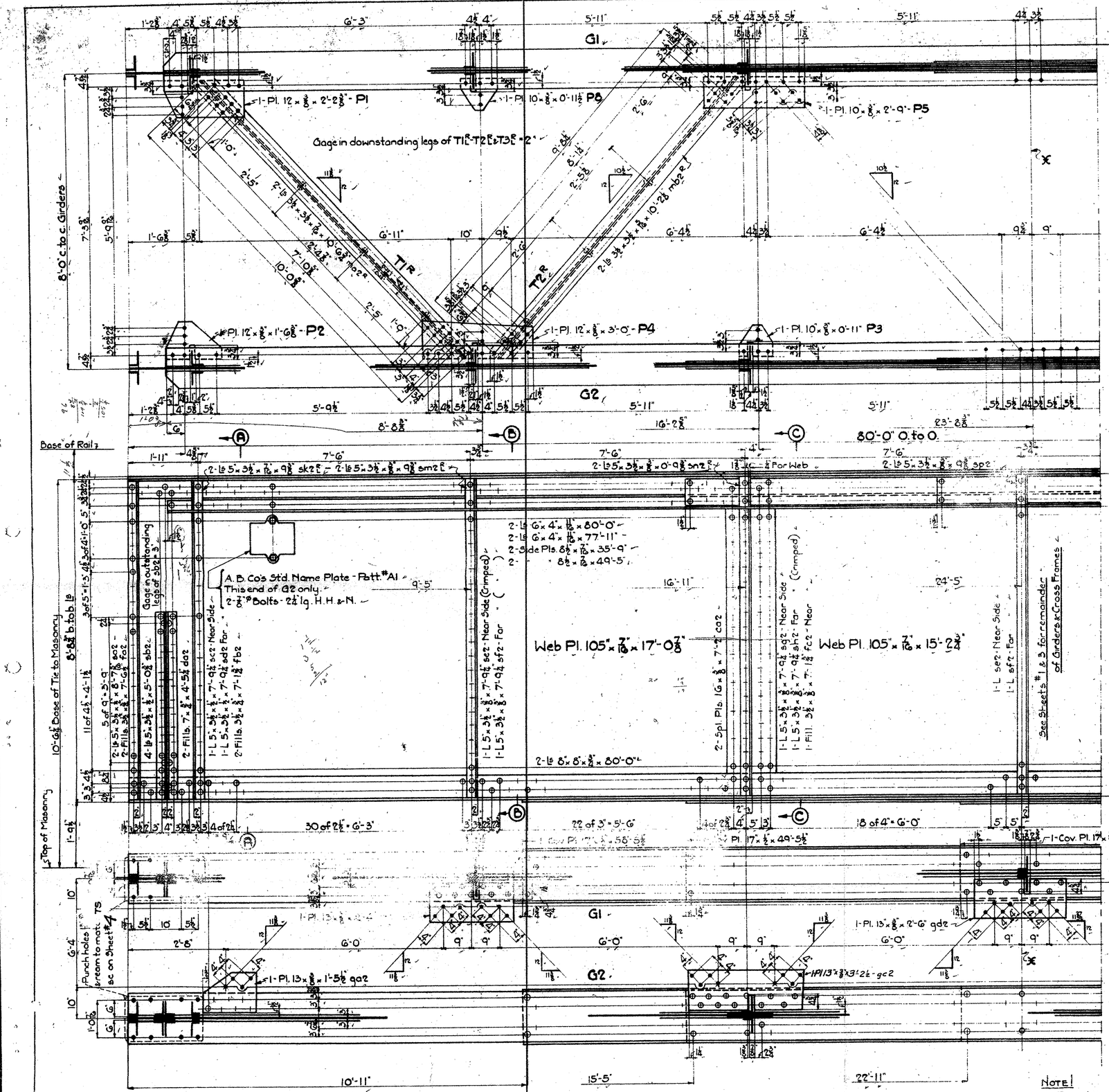
Length 80'-0" c-c
Width 8'-0" c-c Depth 8'-8¾" Lb. Ls
Scale in 1 ft.

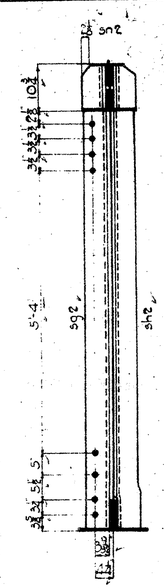
AMERICAN BRIDGE CO.
AMBRIDGE PLANT

Dwgs. made at Ambridge No. 5 In charge of Tech
Detailed by EHM Date 4-24-25 Checked by EHM Date 4-30
Fld cons chk by Date

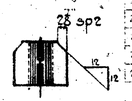
ORDER No. E6339 SHEET No. E1

COPYRIGHT, AMERICAN BRIDGE COMPANY 1925

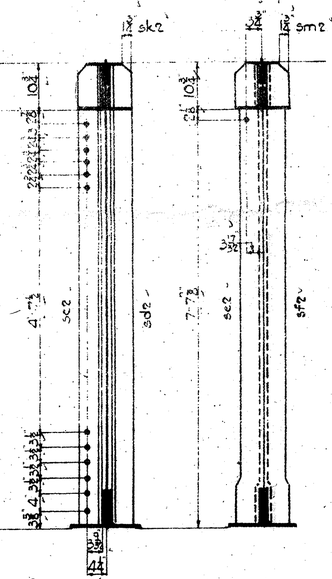




SECTION "C-C"



Bevel for sk2-sm2 sn2 & sp2



SECTION "A-A" SECTION "B-B"

DRAWING WITH BILL
AMERICAN BRIDGE COMPANY

Piece No.	Number of Pieces	Material	Shape	Length	Width	Thickness	Weight	Assembly Mark	Remarks	Calculated Weight for one ship piece	Ordered
									2-GIRDERS-G1 & G2 FOR ONE SPAN		
1	44	4	Pls	6	4	80	0		Flg.	80'-0 3/8"	3
3	44	4	Pls	6	4	77	11		"	77'-11	4
4	44	4	Pls	8	8	80	0		"	80-0 3/8	2
5	44	4	Pls	8 1/2	9/16	35	9		Side	35'-9 1/2	19
6	44	4	Pls	8 1/2	9/16	49	5		"	49-5 1/2	18
7	44	4	Pls	105	7/16	17	0 7/8		Web	17'-2	22
8	44	4	Pls	105	7/16	15	2 3/4		"	15-4 3/4	23
9	22	2	Pls	105	7/16	15	3 1/2		"	15-4 3/4	23
10	22	2	Pls	17	1/2	58	5 1/2		Cov.	58-6 1/2	24
11	22	2	Pls	17	1/2	49	5 1/2		"	49-6 1/2	25
12	22	2	Pls	17	1/2	34	5 1/2		"	34-6 1/2	26
13	88	8	Ls	5 3/2	1/2	8	7 1/2	sa2	Stiff.	34'-8	6
14	176	16	Ls	5 3/2	1/2	5	0 1/2	sb2	"	20'-5	7
15	44	4	Ls	5 3/2	1/2	7	9 1/2	sc2	"		9
16	44	4	Ls	5 3/2	1/2	7	9 1/2	sd2	"		9
17	110	10	Ls	5 3/2	1/2	7	9 1/2	se2	" Crimped	7'-10 1/2	8
18	110	10	Ls	5 3/2	1/2	7	9 1/2	sf2	" "	7-10 1/2	8
19	88	8	Ls	5 3/2	1/2	7	9 1/2	sg2	" "		9
20	88	8	Ls	5 3/2	1/2	7	9 1/2	sh2	" "		9
21	88	8	Ls	5 3/2	7/16	0	9 1/2	sk2	" "		9
22	88	8	Ls	5 3/2	1/2	0	9 1/2	sm2	" "		9
23	88	8	Ls	5 3/2	1/2	0	9 1/2	sn2	" "		9
24	220	20	Ls	5 3/2	1/2	0	9 1/2	sp2	" "		9
25	88	8	Fill.	3 1/2	1/2	7	6 1/2	fa2		30'-3	17
26	88	8	Fill.	7	1/2	4	5 1/2	da2		35-7	21
27	88	8	Fill.	3 1/2	1/2	7	1 1/2	fb2			9
28	88	8	Fill.	3 1/2	1/2	7	1 1/2	fc2			9
29	176	16	Pls.	16	1/2	7	2	ca2	Splice	28'-9	29
30	88	8	Pls.	8 1/2	1/2	2	7 1/2	cb2	"	29-3	20
31	22	2	Pls.	13	1/2	1	5 1/2	ga2	Lat. G1 G2		9
32	22	2	Pls.	13	1/2	2	4	gb2	" G1 G2		9
33	22	2	Pls.	13	1/2	3	2 1/2	gc2	" G1 G2		9
34	22	2	Pls.	13	1/2	2	6	gd2	" G1 G2		9
35	22	2	Pls.	13	1/2	3	2 1/2	ge2	" G1 G2		9
36	11	1	Pl.	13	1/2	2	5 1/2	gf2	" G1 G2		9
37											
38	11	1	A. B. Co's Std. Name Pl. Patt. #A1								9
39	11	1	" " Year Pl. " A10								9
40	44	4	7/8" ϕ Bolts 2 1/2" Lg. H.H. & N.								9
41											
42									**2-LATERALS T1R & T1L - FOR ONE SPAN**		
43	44	4	Ls	3 1/2	3 1/2	7/16	10	6 3/4	ma2 (C.S.)	10'-6 3/4	13
44											
45											
46									**2-LATERALS 3T2R - 3T2L - FOR ONE SPAN**		
47	132	12	Ls	3 1/2	3 1/2	5/16	10	2 1/8	mb2 (C.S.)	10-2 1/8	14
48											
49											
50									**2-LATERALS - T3R & T3L - FOR ONE SPAN**		
51	44	4	Ls	3 1/2	3 1/2	7/16	10	0 5/8	mc2 (C.S.)	10-2 1/8	14
52											
53											
54									**LATERAL PLATES - FOR ONE SPAN**		
55	22	2	Pls	12	1/2	2	2 3/8	P1			5
56	22	2	Pls	12	1/2	1	6 3/8	P2			5
57	77	7	Pls	10	1/2	0	11	P3			5
58	22	2	Pls	12	1/2	3	0	P4			5
59	44	4	Pls	10	1/2	2	9	P5			5
60	22	2	Pls	10	1/2	3	0 1/2	P6			5
61	11	1	Pl	10	1/2	3	3 1/2	P7			5
62	22	2	Pls	10	1/2	0	11 1/2	P8			5
63											
64											
65											
66											
67											

NOTES:-
MATERIAL - Medium O.H. Steel
SPECIFICATIONS - Common Standard 100G
INSPECTION - R.W. Hunt & Co
ERECTION - By others
SHOP PAINT - One coat red lead paint. Surfaces in contact each one coat before assembling
RIVETS 3/4" dia
OPEN HOLES 13/16" dia:
REAMING - All flanges of girders to be punched 11/16" dia and reamed to 13/16" dia

Note!
Traced March 26, 1925 from original approved by John D Isaacs - Nov. 4, 1912.

SOUTHERN PACIFIC CO.
ARIZONA EASTERN RAILROAD
WELLTON TO PHOENIX.
FOR HASSAYAMPA RIVER AT HASSAYAMPA
11 - Common Standard Deck Plate Girder Spans
Length 80'-0" o-o
Width 8'-0" c-c Depth 8'-8 3/8" b. to b. lb
Scale 3/8 in. = 1 ft.

AMERICAN BRIDGE CO.
AMBRIDGE PLANT
Dwgs. made at Ambridge No. In charge of
Detailed by R.B.H. Date 4/10/25 Checked by Date 4/16
Fld conn. chk by Date

CUSTOMERS ORDER No. 7851-R-4136 ORDER No. E6339 SHEET No. 12

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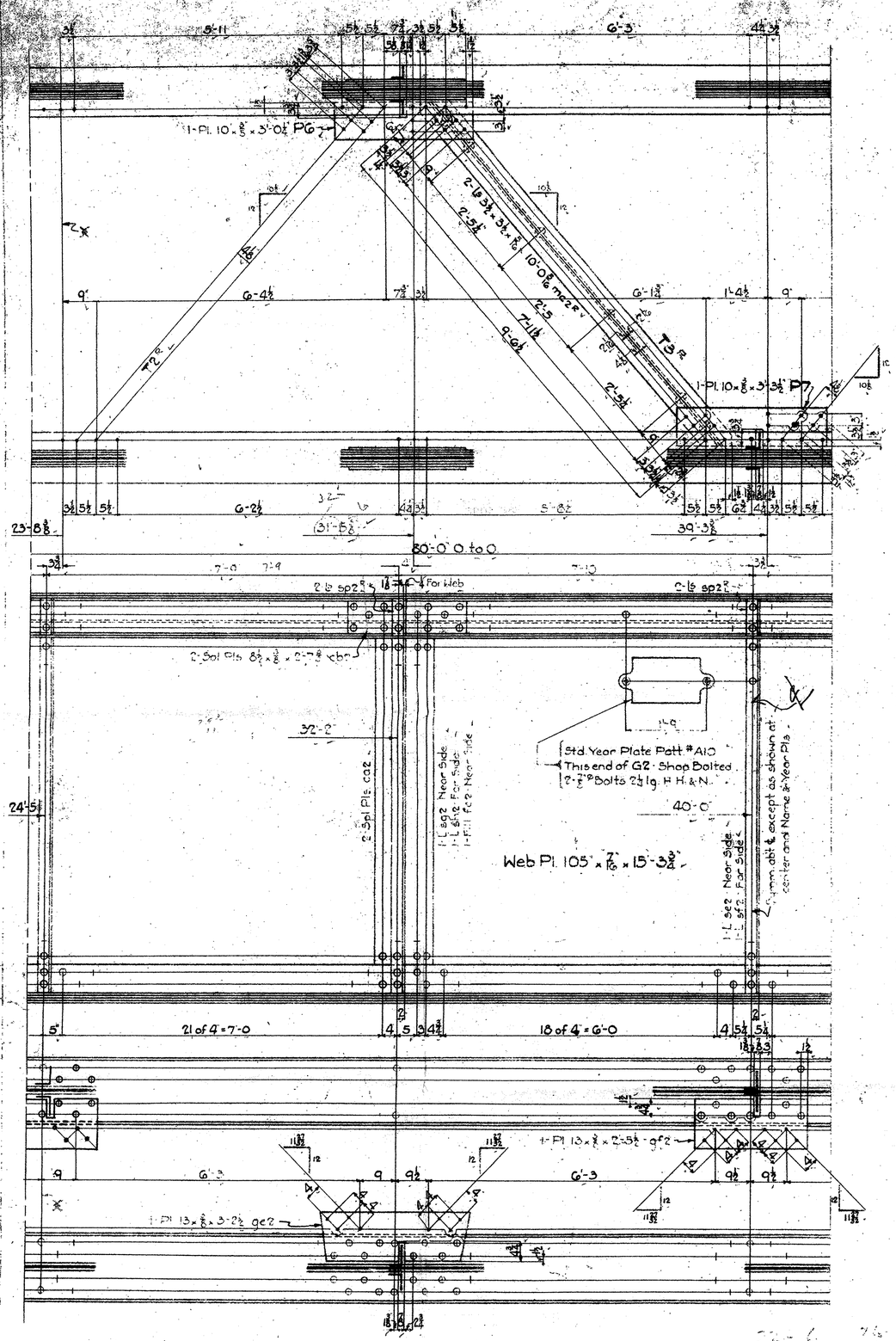
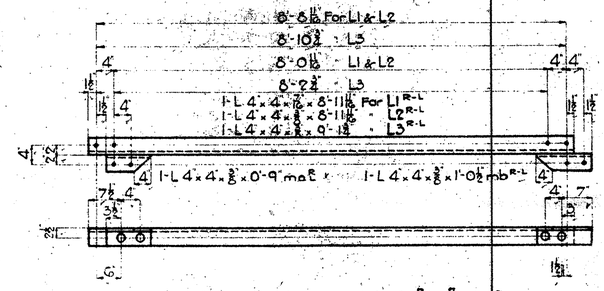
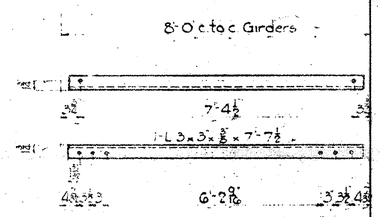
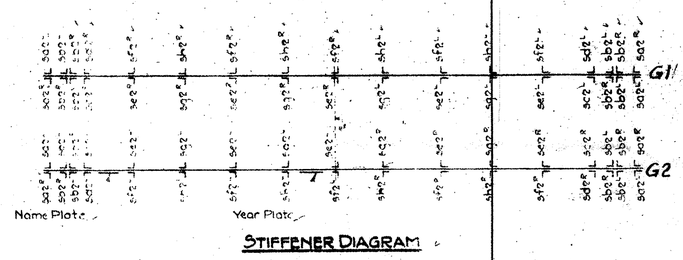




BOTTOM LATERALS - L1R, L2R & L3R



TOP STRUT - TS



STIFFENER DIAGRAM

NOTE 1
Traced March 28, 1925 from original approved by John D. Isaacs - Nov. 4, 1912

AMERICAN BRIDGE COMPANY

Mark	Pieces	Length	Width	Thickness	Material	Rivets	Holes	Reams	Weight	Remarks
					4 Top Laterals - 2L1R-2L2R For 1 Span					
5	44	4	6	4	4	8	11 1/16			56'-0" 16
4	110	4	6	4	2	1	0 9	mat		3
4	110	4	6	4	4	1	0 9	mb		3
5										
6		2			2 Bott. Laterals - L2R-L2L For 1 Span					
7	22	2	6	4	4	1	8 11 1/16			18'-0" 12
8	—	2	6	4	4	1	0 9	mat		
9	—	2	6	4	4	1	1 0½	mb		
10										
11					4 Bott. Laterals - 2L3R-2L3L For 1 Span					
12	44	4	6	4	4	1	9 1 3/8			56'-3" 16
13	—	4	6	4	4	1	0 9	mat		
14	—	4	6	4	4	1	1 0½	mb		
15										
16	—				5 Top Struts - T5 For 1 Span					
17	5	5	6	3	3	1	7 7½			5
18										
19										
20										
21										
22										
23										
24										
25										
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67										

NOTES:-
MATERIAL - Medium O. H. Steel
SPECIFICATIONS - Common Standard 1006
INSPECTION - R.W. Hunt & Co.
ERECTION - By others
SHOP PAINT - One coat red lead paint
Surfaces in contact each one coat before assembling
RIVETS ¾" dia.
OPEN HOLES 15/16" dia.
REAMING - All flanges of girders to be punched 11/16" dia. and reamed to 15/16" dia.

SOUTHERN PACIFIC CO.
ARIZONA EASTERN RAILROAD
WELLTON TO PHOENIX
FOR HASSAYAMPA RIVER AT HASSAYAMPA
11 - Common Standard
Deck Plate Girder Spans
Length 80'-0" c.c.
Width 8'-0" c.c. Depth 8'-8⅜" to 6'-10½"
Scale ⅜" = 1'-0"

AMERICAN BRIDGE CO.
AMBRIDGE PLANT
Dwgs. made at Ambridge No. 3 In charge of R.E.C.
Detailed by R.B.R. Date 4/16/25 Checked by [illegible] 4-16
Fld. conn. chk. by Date

CUSTOMER'S ORDER No. 7851 ORDER No. E6339 SHEET No. 3

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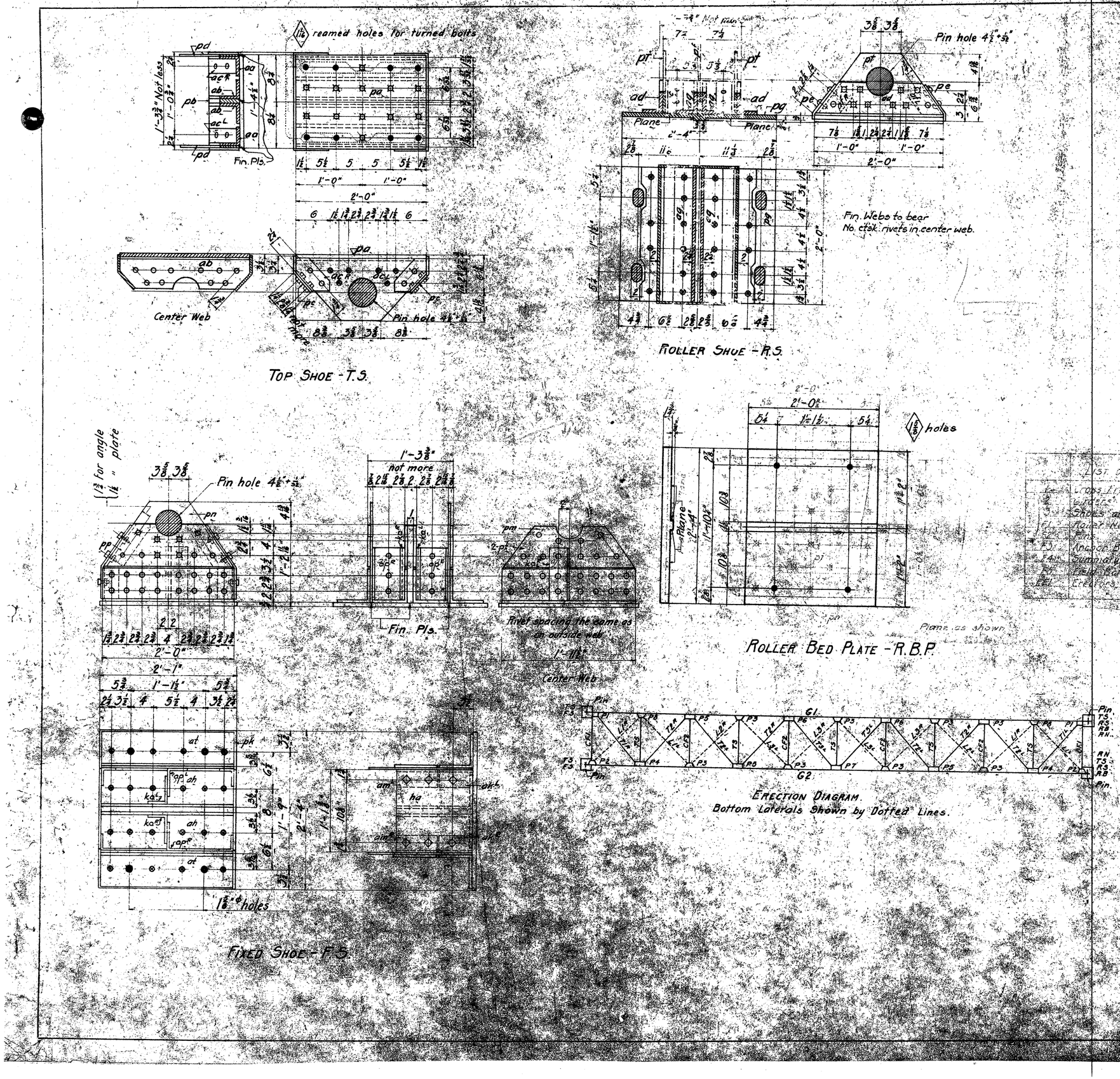

List of Drawings

Cross Frames & Laterals
Girders
Shoes and Bed Plates
Floor Beams
Anchor Bolts
Summary of Field Rivets
Field Bolts
Erection List Field Rivets

DRAWING WITH BILL
AMERICAN BRIDGE COMPANY

Piece Mark	No. Pieces Each Piece	No. Pieces Each Sub-Piece	Material Shape	Length Feet	Length Inches	Thickness	Width	Assembling Sub-Piece	Remarks	Calculated Weight for One Sub-Piece	Ordered Pcs.	Wgt.
1												
2		4	Top Shoes - T.S. - For One Span									
3	44		" " " " T.S. " 11 " "									
4	44	4	Pls	24	½	1	4½	pa				5
5	88	8	Ls 5½ 3½	7/16		2	0	aa	Cut 5½ on Gx 3½ × 7/16			5
6	88	8	Ls 5½ 3½	½		2	0	ab	Gx 3½ × ½			5
7	176	16	Ls 3½ 3½	½		0	8½	ac				5
8	44	4	Pls	½		2	0	pb	Fin. G4 × ½		22'-1	32
9	88	8	Pls	8½	½	1	5½	pc	Bent. Shop Bolt		31'-9	39
10	88	8	Pls	11 1/16	½	2	0	pd	11 1/16 × ½		22'-1	30
11	352	32	Bolts ⅞ ϕ × 1¾ O.H. Hex. Hd & Nut									
12												
13												
14		2	Roller Shoes - R.S. - For One Span									
15	22		" " " " R.S. " 11 " "									
16	88	8	Ls 3 3	½		0	9½	ab	Cut 1"			5
17	44	4	Pls	7½	½	1	3½	pe	Bent		28'-4	31
18	44	4	Pls	11 1/16		2	0	pf	Fin. 11 1/16 × ½			30
19	44	4	Ls 6 3½	7/16		2	0	ad				5
20	44	4	Ls 6 4	½		2	0	ag				5
21	22	2	Pls	6 1/16		2	0	pf	G4 × ½			32
22	22	2	Pls	24	1⅛	2	4	pg	Plane		25'-9	35
23												
24												
25		2	Roller Bed Plates - R.B.P. - For One Span									
26	22		" " " " R.B.P. " 11 " "									
27	22	2	Pls	24	7⅛	2	4	ph			25'-9	34
28				24	7⅛	2	4	ha				
29												
30												
31		2	Fixed Shoes - F.S. - For One Span									
32	22		" " " " F.S. " " 11 " "									
33	22	2	Pl	25	½	2	4	ph			25'-9	33
34	44	4	Ls 6 6	½		2	0	ah				5
35	22	2	Pl	24	1	1	½	pm	Fin. Ledge		25'-9	26
36	44	4	Pls	24	½	1	6½	pn	" "			8
37	44	4	Pls	7½	½	2	0	pp				5
38	44	4	Ls 5 3½	½		0	9½	apF				5
39	44	4	Pls	13½	½	1	2½	ha	Bent		26'-8	37
40	88	8	Ls 3 3	½		0	5½	akF				5
41	88	8	Ls 3 3	½		0	11	amF				5
42	44	4	Pls	7½	½	2	0	pt				10
43	44	4	Ls 5 3½	½		0	9½	kaF				5
44	44	4	Ls 6 6	½		2	0	at				5
45	264	24	Bolts ⅞ ϕ × 1¾ O.H. Hex. Hd & Nut									
46												
47												
48												
49												
50												
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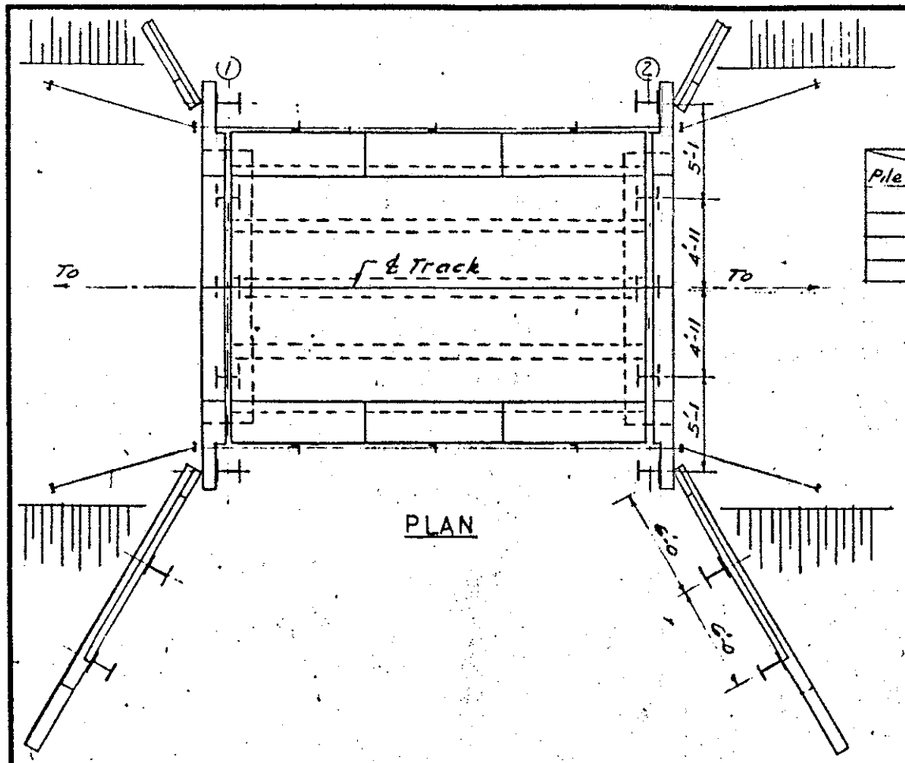
Material ordered & charged under Cont. No. 20539

NOTES
MATERIAL. Med. O.H. Steel
SPECIFICATIONS. Common Standard 1906
INSPECTION. R.W. Hunt & Co.
ERECTION. By others.
SHOP PAINT. One coat of red lead paint, surfaces in contact each one coat before assembling.
RIVETS. ⅞" dia.
OPEN HOLES 1⅛" dia.
All holes punched 15/16" dia.

SOUTHERN PACIFIC CO.
ARIZONA EASTERN R.R.
NELLTON TO PHOENIX
FOR HASSAYAMPA RIVER AT HASSAYAMPA
11' Common Standard Deck Plate Girder Span
Length Sub-Span
Width 8'-0" Ht. Deck to Base of Rail
Scale 1" = 1'

AMERICAN BRIDGE CO.
AMBRIDGE PLANT
Shop work at Ambridge Plant in charge of
Detailed by
Traced by
Checked by
Drawn by
Sheet No. 4



PLAN

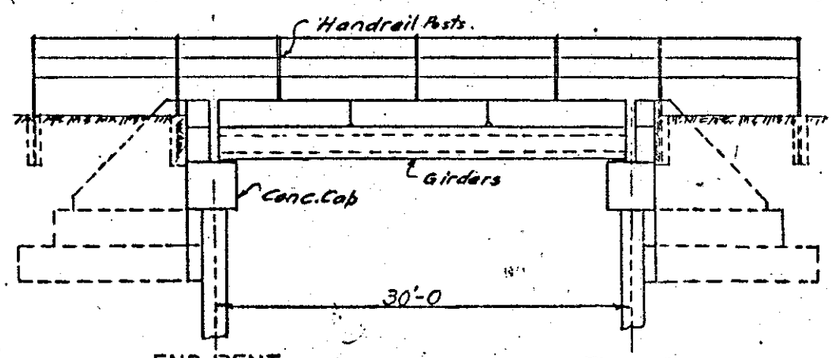
DRIVING RECORD FOR PILES UNDER CAPS

Pile No. \ Bent No.	1		2	
	L	S	L	S
1				
2				
3				

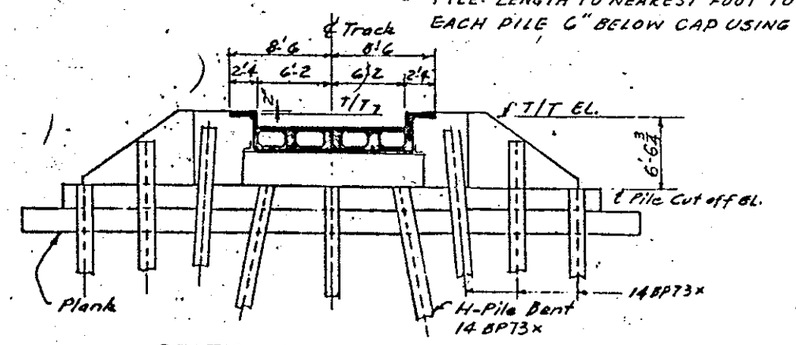
L = Pile length from cut off to tip
S = Set in inches per blow.

GENERAL NOTES

1. Specification: Current A.R.E.A. Specifications for Design, Material and Construction.
2. Live Load: E ___ Impact ___ % ___ Degree Curve.
3. Pile Length: Piles shall be driven a minimum to indicated tip elevation or depth under bottom of cap. They shall also be driven beyond this point if necessary to obtain a set of 8 blows per inch for the last 6" in. driven. Using hammer with a rated energy of 29,700 ft.lbs. The first ___ ___ ft. shall be preborad holes.
4. Pile Specifs: (a) Steel pipe piles to be A.S.T.M A-252
   (b) Steel H bearing piles to be A.S.T.M A-36
   (c) Steel H bearing piles to be A.S.T.M. A-242
   Corrosion resistant grade with chemical composition corresponding to COR-TEN or MAYARI-R.
5. Concrete: (a) Cast in place concrete to have minimum compressive strength at 28 days 3000 psi Cement Type II Portland C sacks per cu.yd. Slump 3" Fine and coarse aggregates per A.S.T.M C-33, Max. size 1" ADDITIVES: ENTRAINED AIR 5% ± 1% ADDITIVES CONTAINING CALCIUM CHLORIDE NOT PERMITTED.
   (b) Concrete which is to be pumped in place may vary from (a) in that slump may be 4" and the ratio sand to coarse aggregate may be increased up to 50/50.
6. Handling: In handling of Girders, End Blocks, Bulkhead Planks and caps, they must be maintained in horizontal position with lifting hooks upright at all times and must be picked up using the lifting hooks.
7. Lifting hooks on concrete caps shall be left in place, on other items will be cut off with a torch after placing and seal with epoxy grout.
8. PILE LENGTH TO NEAREST FOOT TO BE PAINTED ON EACH PILE 6" BELOW CAP USING 3" HIGH LETTERS.



END BENT — ELEVATION — END BENT



SECTION AT END BENT (TYP)

BILL OF MATERIAL

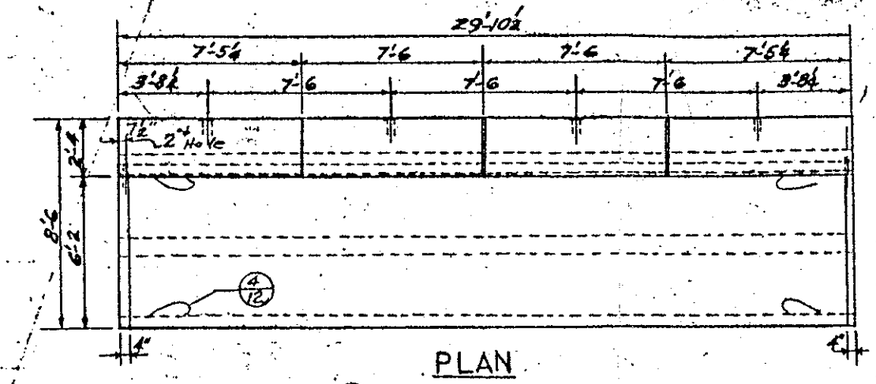
No Req'd	ITEMS	Mark	No Req'd	ITEMS	Mark
	Prest. Conc. Girders			Gals. SPI Type K Resin	
	Concrete Caps	C3		" SPI Converter	
	Bulkhead End Blocks	30EB2		" SPL Resin	
	" Planks	D11		" SPL Converter	
	" Planks (See Sh. 3)			8 to 12 Mesh Sand	
	" Panels	30P2		Flexible Sealing Strips	
	H-Piles			Cello Solve Acetate or Methyl Ethyl Ketone	
	Handrail Posts			Roofing Mastic	
	1" HR Posts S.H. Rails			3M Spray Adhesive #77	
	3/4" Messenger Cable			1" Conc. Aggregate	
	Cable Grip Anchors			CY Concrete AHR	
	Asphalt Planks (See Sh. 14 & 17)				

LIST OF DRAWINGS

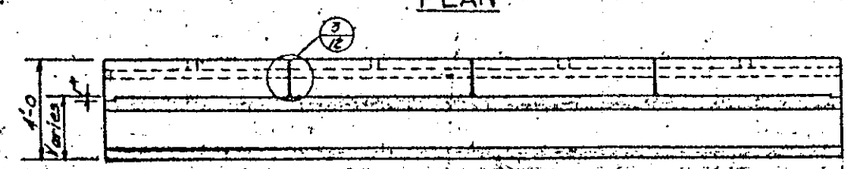
CE. No.	Sh. No.	Description
	1	General Plan
35662	1	Precast Conc. Caps.
"	2	" End Blocks
"	3	" Planks & Panels.
"		Prest. Conc. Girders
"	12	Girder Details
"	13	Conc. Collar
"	16	General Details
"	17	Typical Assembly
"	18	Typ. Pile Bents.
"	19A	Misc. Details
"	P.P.	Handrail Posts.

SOUTHERN PACIFIC COMPANY
PACIFIC LINES
GENERAL PLAN

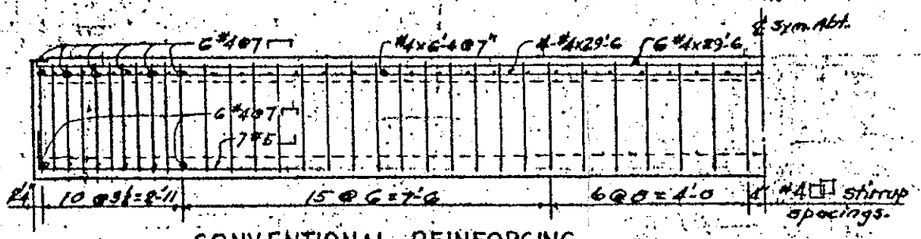
DRAWING
SHEET NO. 1



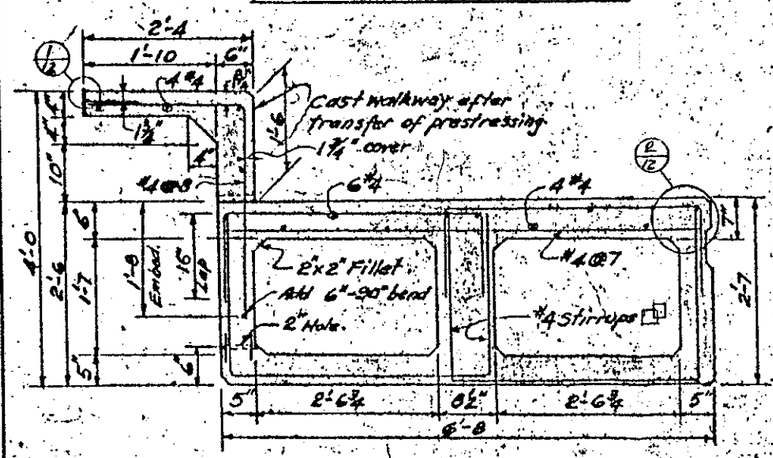
PLAN



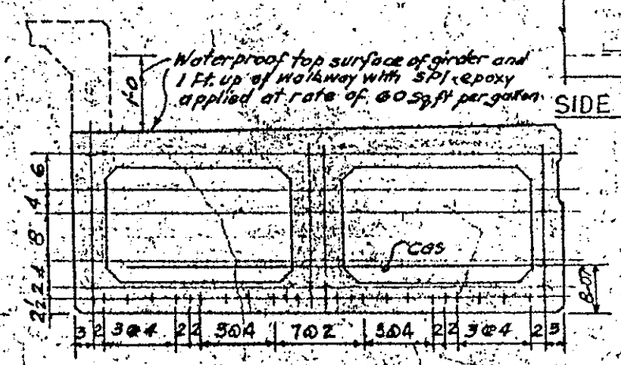
LONGITUDINAL SECT.
¼" = 1'-0



CONVENTIONAL REINFORCING



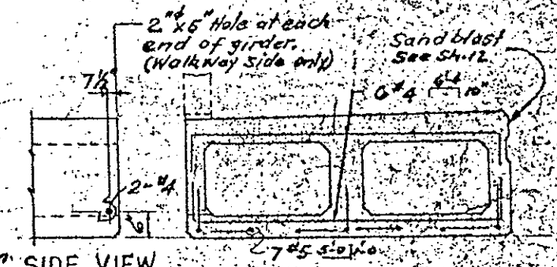
CONVENTIONAL REINFORCING
(STRANDS NOT SHOWN)
¾" = 1'-0



STRAND PATTERN
46-½" 270K STRANDS
F_i = 133.1K F_f = 101.4K

GENERAL NOTES

1. Specifications: Current A.R.E.A. Specifications for Design, Material and Construction of Prestressed Concrete Structural Manual Chapter 8.
2. Live Load: E80 Impact = 33⅓%.
3. Prestressed Concrete: shall have at 28 days compressive strength of f'c = 5500 psi. Strength at transfer f'ci = 3750 psi (Min) Entrained air = 5% ± 1%. Additives containing Calcium chloride not permitted. Fine and coarse aggregates per A.S.T.M. C-33 Max size ¾"
4. Walkway Concrete: Minimum compressive strength at 28 days f'c = 3000 psi. Cement type II cement Portland. 6 sacks per cu.yd. slump = 3". Fine and coarse aggregates and entrained air, same as Note 3.
5. Prest. Reinf.: ½" ϕ strands, area = 0.153 sq.in. Stress relieved strands, f's = 270K per A.S.T.M. A-416. All strands shall be cut off at least 1" into concrete member and shall be protected by filling voids with mortar.
6. Conventional Reinf.: shall be per A.S.T.M. A-615, Grade 60.
7. Steel Anchor Plates: shall be per A.S.T.M. A-36B.
8. Workmanship: Chamfer all concrete edges ¾". Top of girder to have trowel finish and top of walkway float finish. Bearing area variation from plane surface Max. 1/16. See Sh. 12 for location of sand blasted areas.
9. Shop Drawings: shall be submitted to the Asst. N.P. Hoff and Eng. Southern Pacific Transp. Company Room 1007, One Market Plaza, San Francisco, 94105 in Triplicate for approval within 7 days after order is placed.



SIDE VIEW

CONV. REINF. AT ENDS
½" = 1'-0

Approx. Wt = 23 tons

REVISIONS	DATE	DESCRIPTION

SOUTHERN PACIFIC TRANSPORTATION CO.
OFFICE OF CHIEF ENGINEER-SYSTEM
SAN FRANCISCO, CALIFORNIA

30 FT. SPAN T30
PREST. CONC. BOX GIRDER

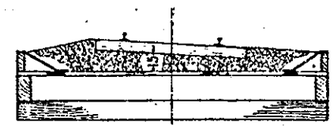
DRAWN BY N.G.P.	CE DRAWING	SHEET
CHECKED BY O.F.W.	35662	8
DATE 4-9-85		

STD

NOT FOR CURRENT USE

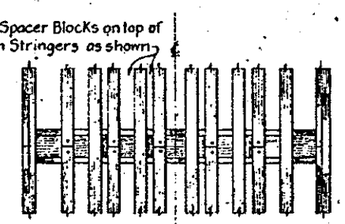
RETAINED FOR INFORMATION ONLY

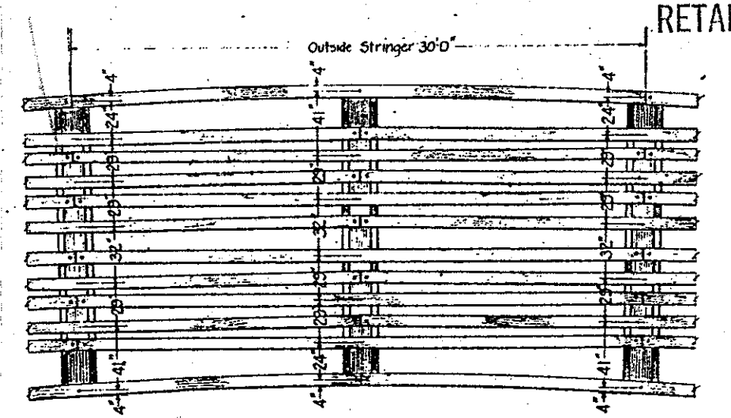
C.S. 39



TRESTLE ON CURVE

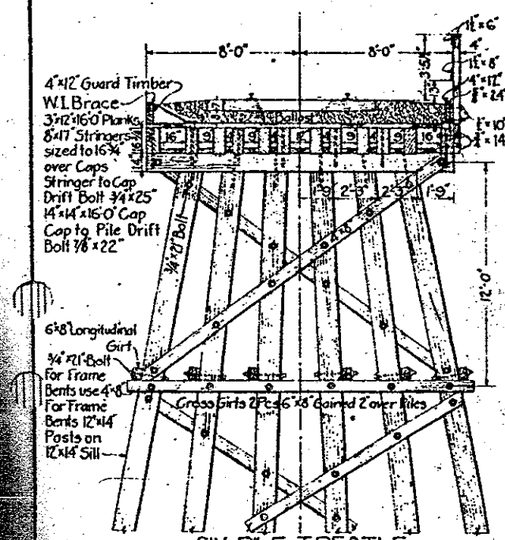
Stringers spaced as per plan of arrangement for curved track.





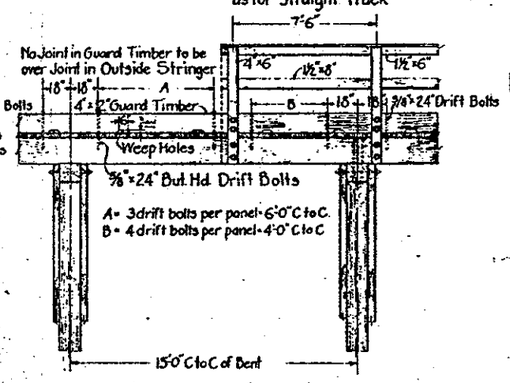
ARRANGEMENT OF STRINGERS FOR CURVED TRACK

Note:
Fit Spacer Blocks between Stringers similarly as for Straight Track

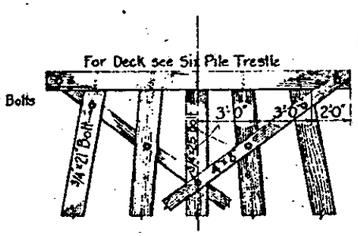


SIX PILE TRESTLE

ORDINARY TRESTLE | TRESTLE WITH SIDEWALK



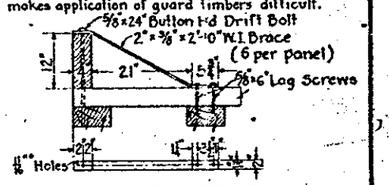
ORDINARY TRESTLE TRESTLE WITH SIDEWALK



FIVE PILE TRESTLE

GENERAL NOTES

1. For longitudinal bracing see drawing C.S. 322.
2. No longitudinal bracing to be used for heights less than 16 ft from ground surface to top of cap.
3. Sway bracing to be omitted for heights less than 7 ft from ground surface to top of cap.
4. Coarse ballast (no dimension less than 1 inch) to be used next to guard timbers.
5. Floor planking to be spiked with 6 inch spikes, two at each end and one at each intermediate stringer.
6. Bents to be spaced radially on curves and spaced so that outside stringer will be 30 ft long.
7. Superelevation to be effected by increasing depth of ballast under outer rail, the depth of ballast under inner rail remaining constant
8. Outside stringers to be drift bolted to caps at every bent. Inside stringers to be drift bolted to caps at ends only except for trestles two bays long, for which they are to be drift bolted to caps at all bents
9. Creosoted timber to be used for piles, caps, stringers, guard timbers and deck planking; also for sway bracing when authorized by General Manager. Untreated timber to be used for hand railing and spacer blocks; also for sway bracing when creosoted bracing not specially authorized
10. The center line of piles prolonged should meet at a common point about 26 ft above base of rail.
11. The six pile ballasted deck trestle is to be used on all main and branch lines where power heavier than Cooper's E50 is operated or is expected to be operated within the life of the trestle.
12. The five pile ballasted deck trestle is to be used where no power heavier than Cooper's E50 is or will be operated.
13. Dressed floor planks may be used if variation in thickness makes application of guard timbers difficult.

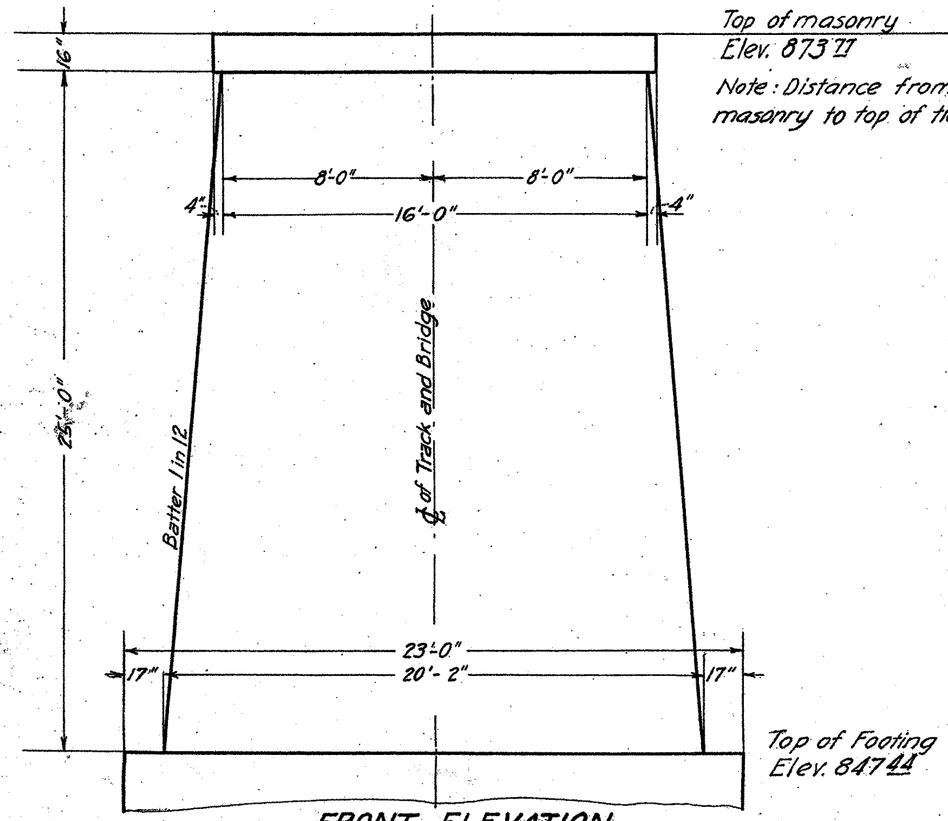


WROUGHT IRON BRACE

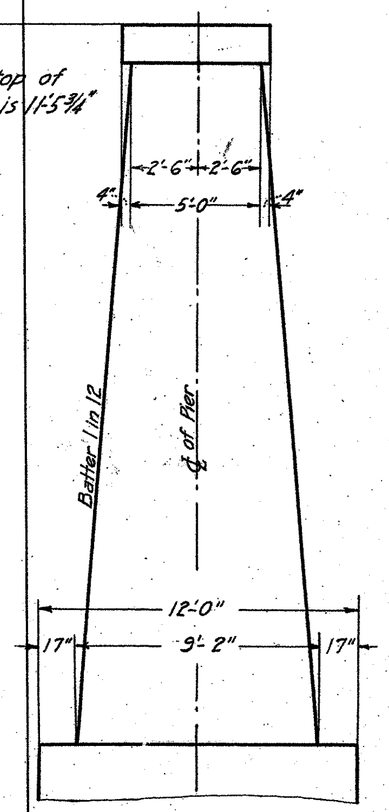
SOUTHERN PACIFIC LINES
COMMON STANDARD
SINGLE TRACK
BALLASTED DECK TRESTLE

NO SCALE

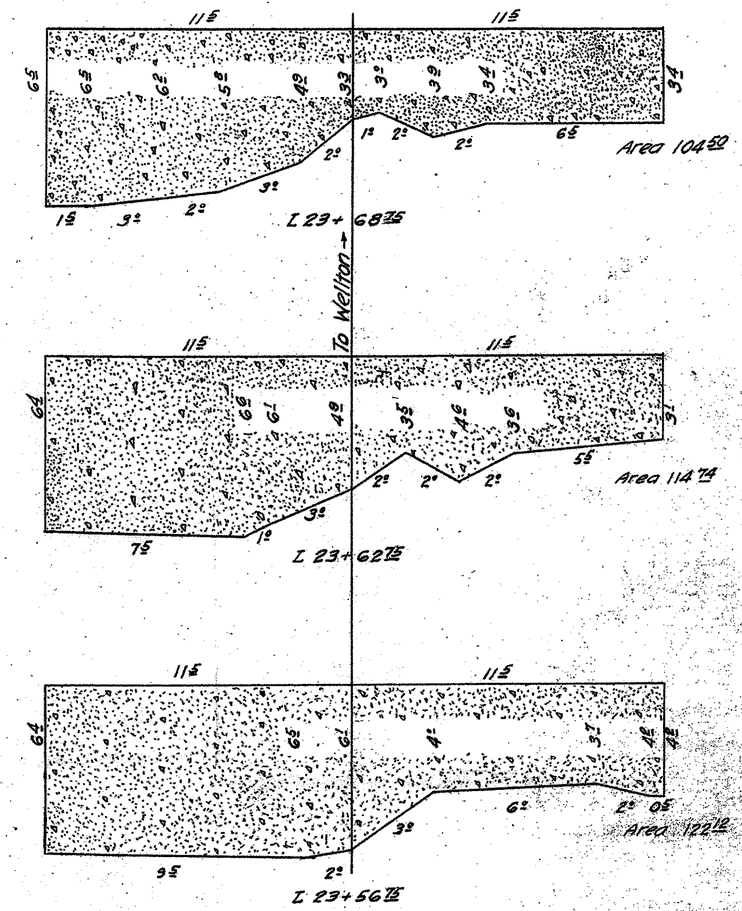
ADOPTED MAY 1905
REVISED JAN. 8, 1928



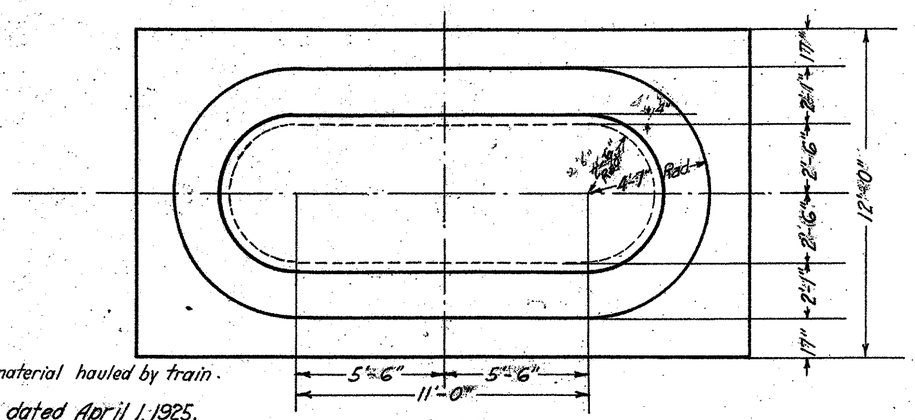
FRONT ELEVATION



SIDE ELEVATION



CROSS SECTIONS OF FOOTING



PLAN

Concrete material hauled by train.

Contract dated April 1, 1925.
Contractor Utah Construction Co.
Sub-Contractor Wattis Samuels & Co.
Structure built of concrete
Concrete Proportion 1:2½:5
Source of Material:
Crushed Rock - Phoenix Tempe Stone Co.
Sand - Twohy's Pits at Tempe

Pier	Station	Placing Concrete				Founded Upon	Cement Used (Sacks)							Cubic Yards Concrete		
		Footing		Pier			Footing			Pier			Total			
							Brand		Total	Brand		Total				
		Commcd	Compltd	Commcd	Compltd		El Toro	Colton		El Toro	Colton			Footing	Pier	Total
12	℄ 23+62 75	6/7/25	6/7/25	6/9/25	6/10/25	Malpais & Caliche	254	0	254	396	91	487	741	50 678	114 006	164 68 ✓

18525

Assistant Engineer

40101 867

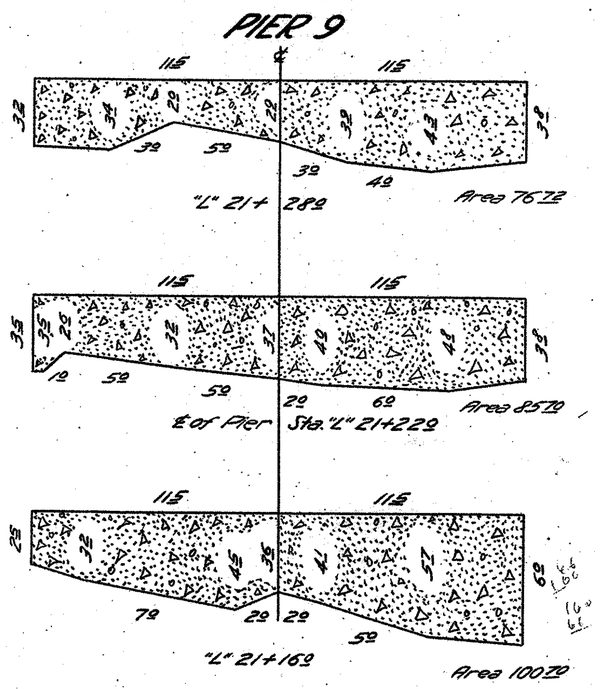
R-866-93

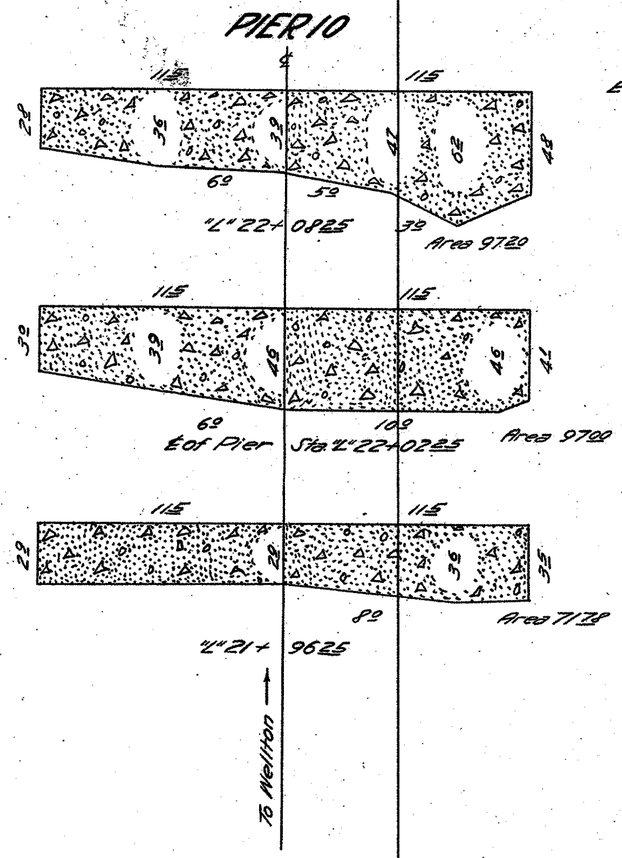
SHEET No 4
CONSTRUCTION ARIZONA EASTERN R.R.
HASSAYAMPA TO WELLTON

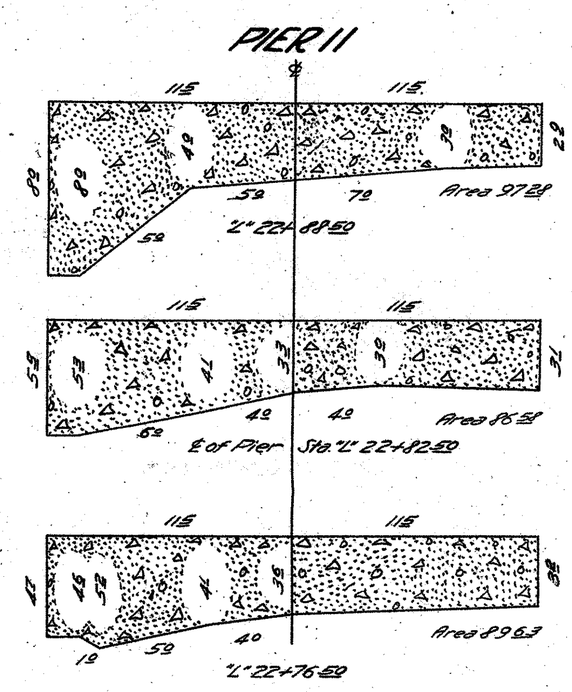
FINAL MASONRY ESTIMATE AND RECORD OF STRUCTURE AS BUILT
HASSAYAMPA BRIDGE - CONCRETE PIERS
PIER No 12 STATION ℄ 23+62 75
BUILT ACCORDING TO PLAN NO. 19018.

SCALE 1" = 4'

DRAWING		FIELD ESTIMATE		OFFICE ESTIMATE	
MADE	CHECKED	MADE	CHECKED	MADE	CHECKED
L.J.B	R.C.H.	L.J.B.	G.B.A.	✓E.F.G. 7-20-25	







Note:-

Pier Footings actually constructed of irregular size in excess of plan dimensions. Volume allowed of all Footings based on dimensions 12'x23'-depth per cross-sections. See Sheet #3 for Footing Plan.

Concrete material hauled by train.

Contract dated April 1, 1925.
Contractor Utah Construction Co.
Sub Contractor Watkis Samuels & Co.
Structure built of Concrete
Concrete Proportion 1-2½-5
Source of Material:-
Crushed Rock - Phoenix Tempe Stone Co.
Sand - Twoheys Pit at Tempe

Footing	Station	Placing Concrete Commed	Placing Concrete Complt'd	Founded Upon	Cement Used (Sacks) Brand El Toro	Cement Used (Sacks) Brand Colton	Cement Used (Sacks) Total	Cubic yds of Concrete
9	"L" 21+22.9	5/28/25	5/28/25	Caliche	204	0	204	38.758 ✓
10	"L" 22+02.25	5/31/25	5/31/25	Malpais	194	0	194	40.331 ✓
11	"L" 22+82.50	6/2/25	6/2/25	Malpais	183	0	183	40.008 ✓

A. C. Barclay
Assistant Engineer

40100 861

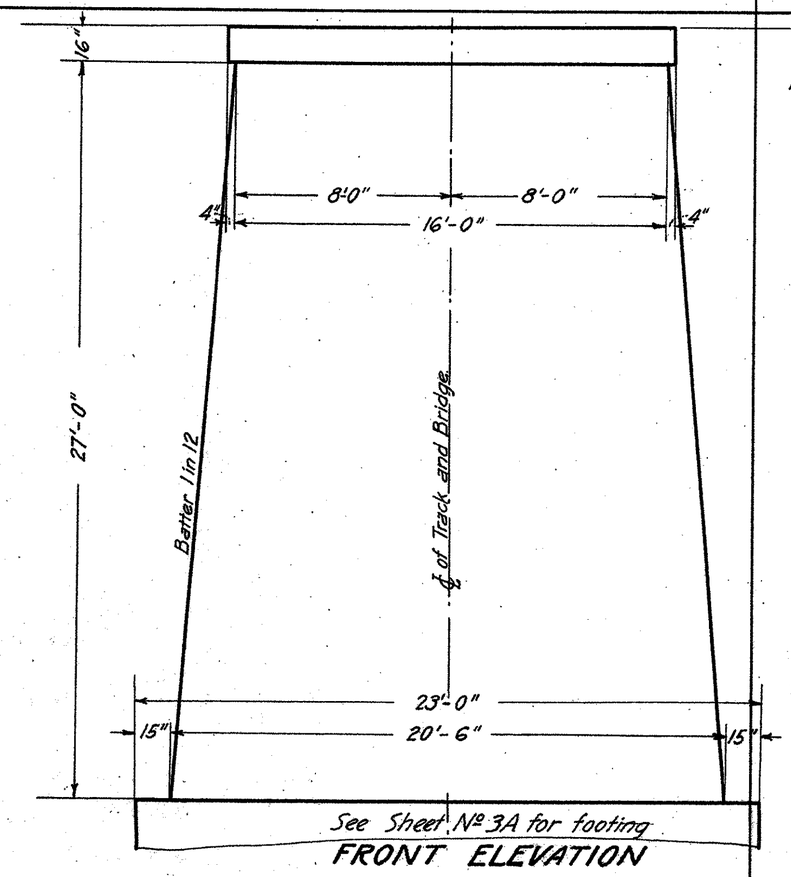
R-866.93

SHEET No 3A

CONSTRUCTION ARIZONA EASTERN R.R.
HASSAYAMPA TO WELLTON
FINAL MASONRY ESTIMATE and RECORD of STRUCTURE as BUILT
HASSAYAMPA BRIDGE - FOOTINGS FOR CONCRETE PIERS
PIERS #9 #10 #11
STATION L 21+22.9 L 22+02.25 L 22+82.50
BUILT ACCORDING TO PLAN No 19018
Scale 1"=5'
See Sheet #3 For Piers Above Footings

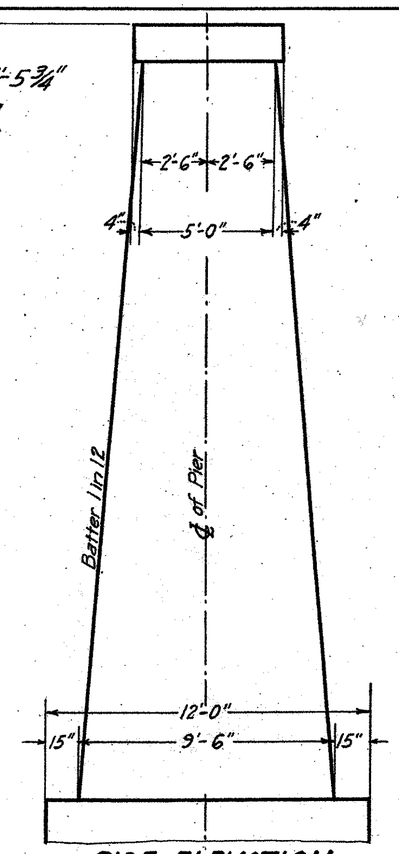
DRAWING MADE	DRAWING CHECKED	FIELD ESTIMATE MADE	FIELD ESTIMATE CHECKED	OFFICE ESTIMATE MADE	OFFICE ESTIMATE CHECKED
R.C.H.	L.J.B.	L.J.B.	G.B.A.	✓E.F.G. 7-30-25	

Top of masonry Elev. 873.11
Note: Distance from top of masonry to top of ties 11'-5 3/4"
Piers #9, #10 and #11 are identical above footing

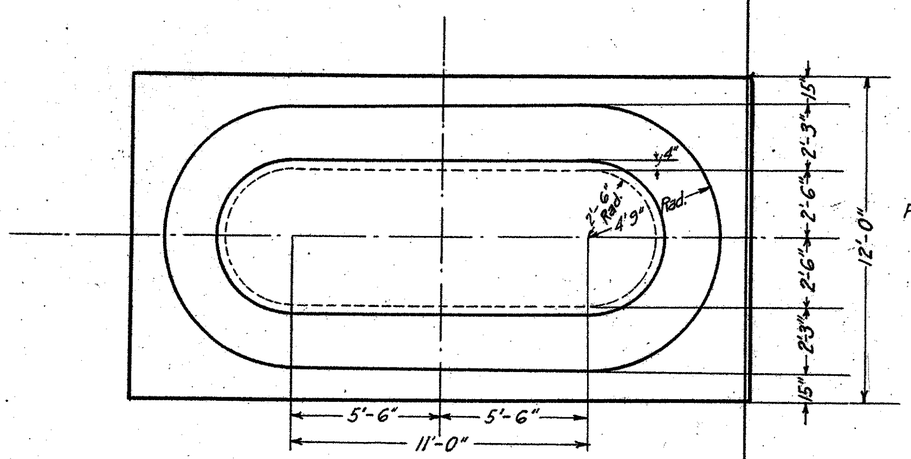


FRONT ELEVATION

Top of Footing. Elev. 845.44



SIDE ELEVATION



PLAN

Pier #11 - Bench Mark Elev. 873.780, Boat Spike Top of Pier 6' Lt.

40099

R-866.93

Concrete material hauled by train.

Contract dated April 1, 1925.
Contractor Utah Construction Co.
Sub-Contractor Wattis Samuels & Co.
Structure built of concrete
Concrete Proportion 1:2½:5
Source of Material:-
Crushed Rock - Phoenix Tempe Stone Co.
Sand - Twohy's Pits at Tempe

H. G. Barclay
Assistant Engineer

SHEET No. 3
CONSTRUCTION ARIZONA EASTERN R.R.
HASSAYAMPA TO WELLTON

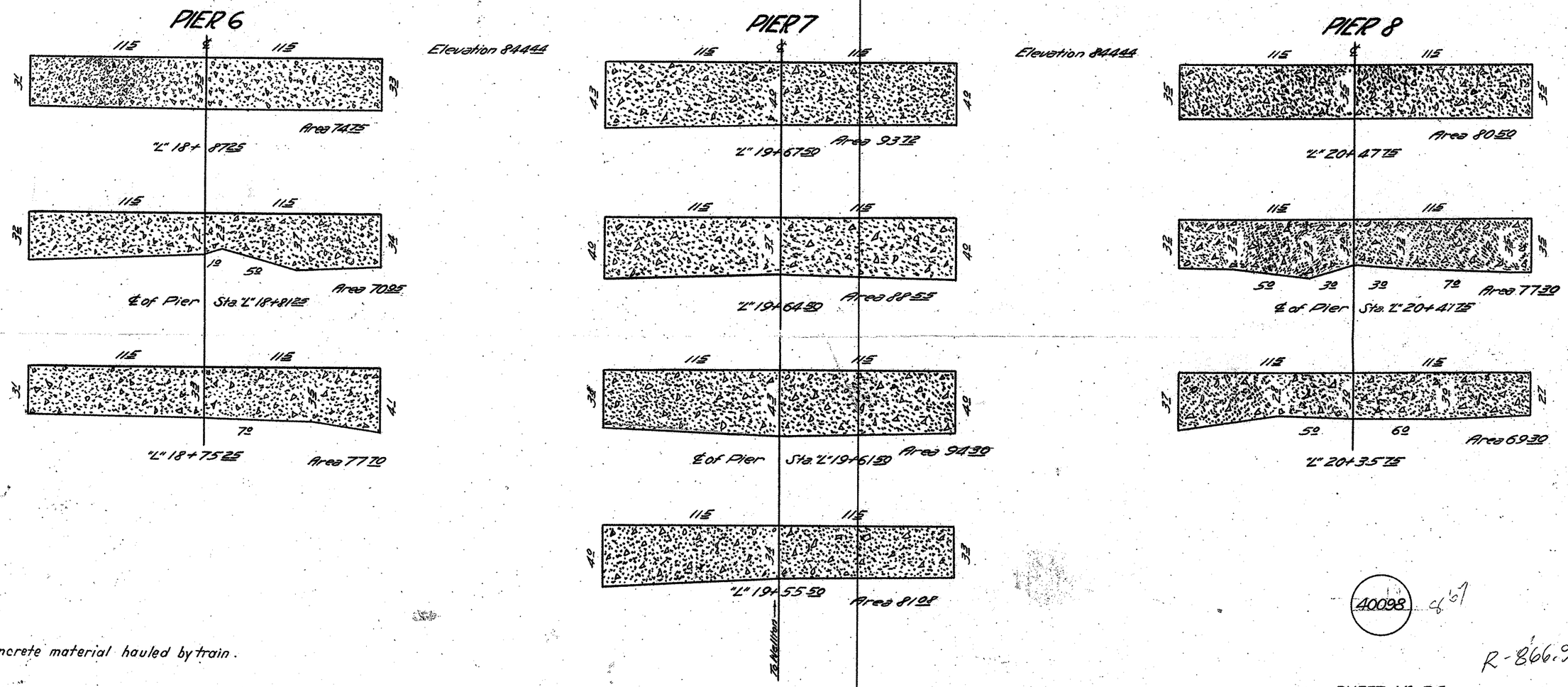
FINAL MASONRY ESTIMATE AND RECORD
OF STRUCTURE AS BUILT
HASSAYAMPA BRIDGE - CONCRETE PIERS

PIERS: No. 9 No. 10 No. 11
STATIONS: L 21+22 L 22+02.25 L 22+82.50
BUILT ACCORDING TO PLAN NO. 19018
SCALE 1" = 4'
See Sheet No. 3A for footings to above piers

Pier	Station	Placing Concrete: Footing Commcd.	Footing Complt'd	Pier Commcd	Pier Complt'd	Founded Upon	Cement Used Sacks: Footing Brand El Toro	Footing Brand Colton	Footing Total	Pier Brand El Toro	Pier Brand Colton	Pier Total	Total	Cubic Yards Concrete: Footing	Pier	Total
9	L 21+22	5/28/25	5/28/25	6/1/25	6/3/25	Caliche	204	0	204	576	0	576	780	38.758	126.681	165.44 ✓
10	L 22+02.25	5/31/25	5/31/25	6/3/25	6/5/25	Malpais	194	0	194	572	8	580	774	40.331	126.681	167.01 ✓
11	L 22+82.50	6/2/25	6/2/25	6/5/25	6/8/25	Malpais	183	0	183	119	469	588	771	40.008	126.681	166.69 ✓

DRAWING MADE	DRAWING CHECKED	FIELD ESTIMATE MADE	FIELD ESTIMATE CHECKED	OFFICE ESTIMATE MADE	OFFICE ESTIMATE CHECKED
L.J.B.	E.C.H.	L.J.B.	G.B.A.	✓ E.F.G. 7-30-28	

2325
58125



Concrete material hauled by train.

Note:-

Pier Footings actually constructed of irregular size in excess of plan dimensions. Volume allowed of all Footings based on dimensions 12'x23'-depth per cross-sections. See Sheet #2 for Footing Plan.

Contract dated April 1, 1925.
Contractor Utah Construction Co.
Sub Contractor Wattis Samuels & Co.
Structure built of Concrete
Concrete Proportion 1-2½-5
Source of Material:-
Crushed Rock - Phoenix Tempe Stone Co.
Sand - Twohys Pits at Tempe

Footing	Station	Placing Concrete Commenced	Placing Concrete Completed	Founded Upon	Cement Used (Sacks) Blend Ft Thomas	Cement Used (Sacks) Blend Colton	Cement Used (Sacks) Total	Cubic yds. of Concrete
6	"L" 18+81.25	5/20/25	5/20/25	Caliche	0	163	163	327.06
7	"L" 19+61.50	5/23/25	5/24/25	Caliche	0	189	189	397.71
8	"L" 20+41.75	5/26/25	5/26/25	Caliche	0	179	179	338.22

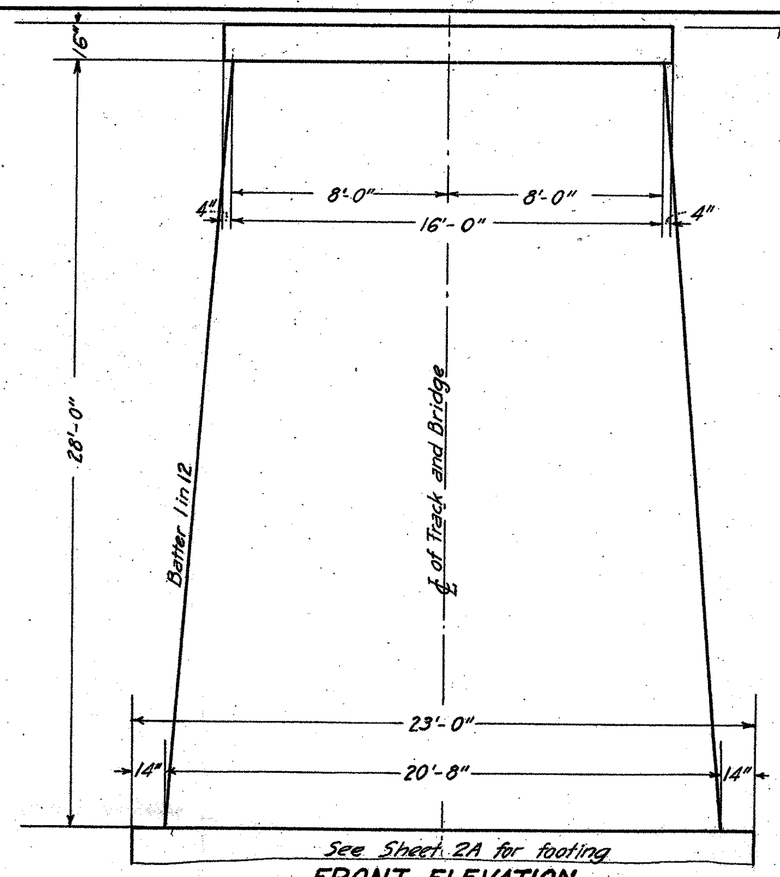
A. J. Lawley
Assistant Engineer

40098

R-866.93

SHEET No 2A
CONSTRUCTION ARIZONA EASTERN R.R.
HASSAYAMPA TO WELLTON
FINAL MASONRY ESTIMATE and RECORD of STRUCTURE as BUILT
HASSAYAMPA BRIDGE - FOOTINGS FOR CONCRETE PIERS
PIERS #6 #7 #8
STATION L 18+81.25 L 19+61.50 L 20+41.75
BUILT ACCORDING TO PLAN No 19018
Scale 1" = 5'
See Sheet #2 For Piers Above Footings

DRAWING MADE	DRAWING CHECKED	FIELD ESTIMATE MADE	FIELD ESTIMATE CHECKED	OFFICE ESTIMATE MADE	OFFICE ESTIMATE CHECKED
R.C.H.	L.J.B.	L.J.B.	G.B.A.	E.F.G. 10-25	

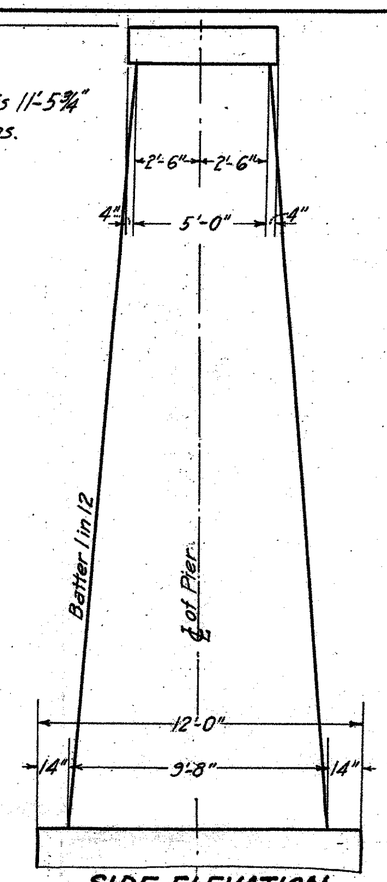


FRONT ELEVATION

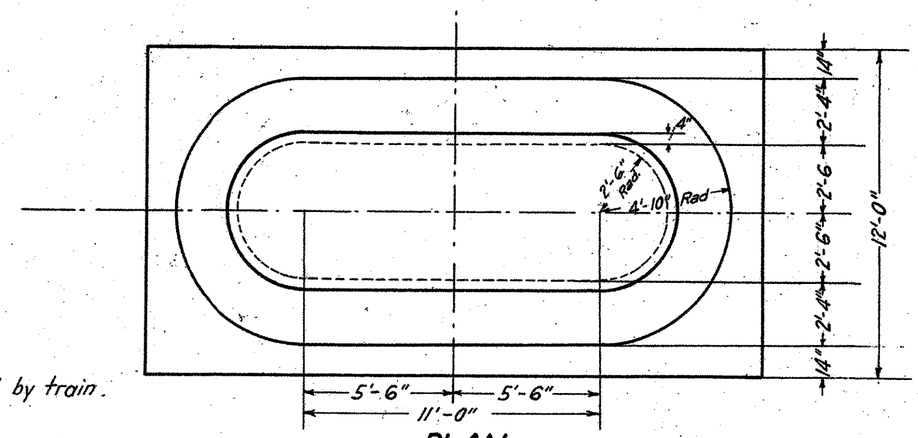
Top of Masonry Elev. 87377

Note. Distance from top of masonry to top of ties is 11'-5¾"
Piers #6, #7, and #8 are identical above footings.

Top of Footing. Elev. 84444



SIDE ELEVATION



PLAN

Concrete material hauled by train.

Contract dated April 1, 1925.
Contractor Utah Construction Co.
Sub-Contractor Wattis Samuels & Co.
Structure built of concrete
Concrete Proportion 1:2½:5
Source of Material:
Crushed Rock - Phoenix Tempe Stone Co.
Sand - Twohy's Pits at Tempe

Pier	Station	Placing Concrete: Footing Commcd.	Footing Complted	Pier Commcd.	Pier Complted	Founded Upon	Cement Used (Sacks): Footing Brand El Toro	Footing Brand Colton	Footing Total	Pier Brand El Toro	Pier Brand Colton	Pier Total	Total	Cubic Yards Concrete: Footing	Pier	Total
6	L 18+81.25	5/20/25	5/20/25	5/25/25	5/27/25	Caliche	0	163	163	0	582	582	745	32.706	133.256	165.96 ✓
7	L 19+61.50	5/23/25	5/24/25	5/28/25	5/30/25	Caliche	0	189	189	356	259	615	804	39.771	133.256	173.03 ✓
8	L 20+41.75	5/26/25	5/26/25	5/30/25	6/1/25	Caliche	0	179	179	570	48	618	797	33.822	133.256	167.08 ✓

2346
586 50

186 25
20100
19925
586 50

Assistant Engineer

40097 867

R-866.93

SHEET No. 2.

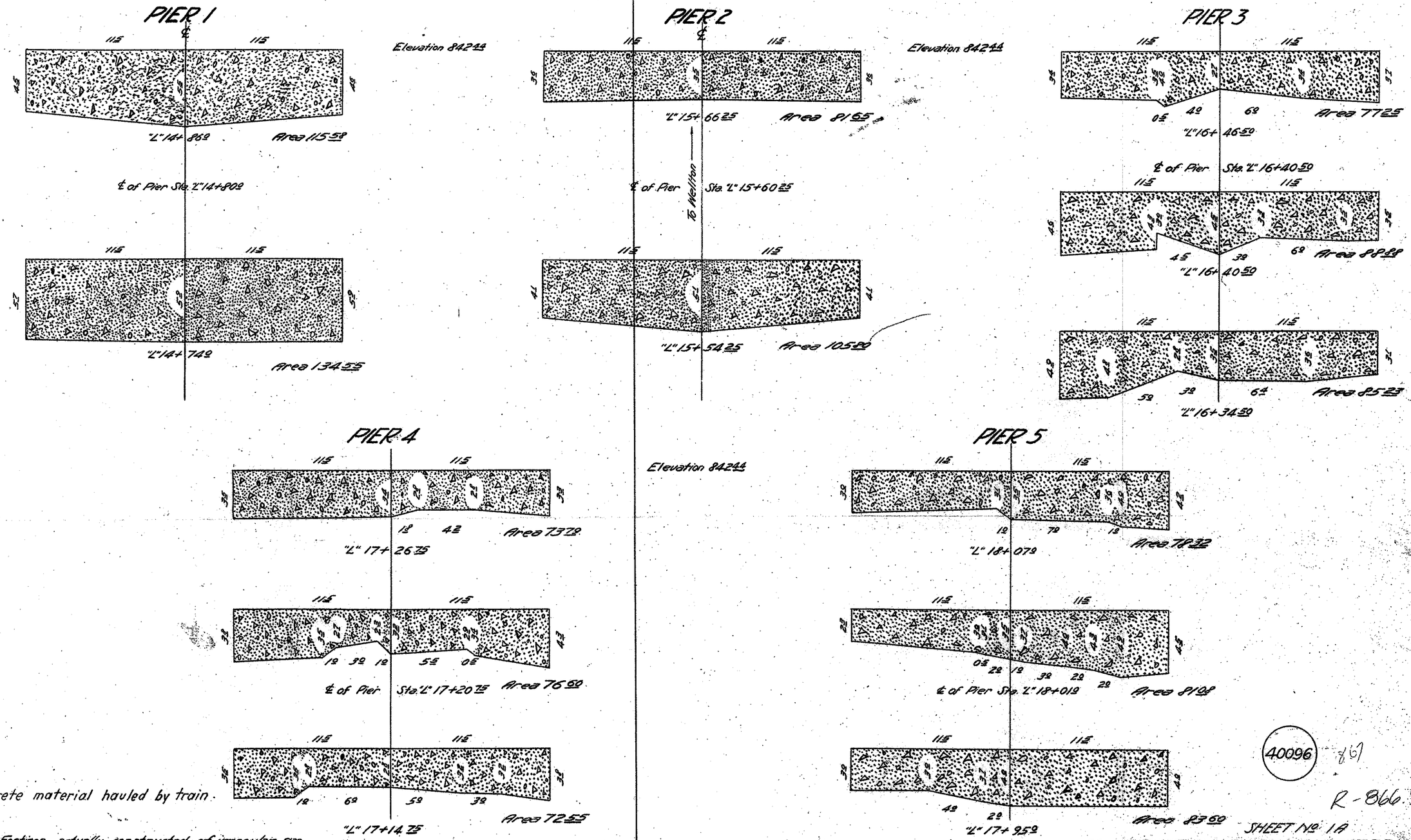
CONSTRUCTION ARIZONA EASTERN R.R.
HASSAYAMPA TO WELLTON

FINAL MASONRY ESTIMATE AND RECORD
OF STRUCTURE AS BUILT
HASSAYAMPA BRIDGE CONCRETE PIERS

PIERS	No 6	No 7	No 8
STATIONS	L 18+81.25	L 19+61.50	L 20+41.75

BUILT ACCORDING TO PLAN NO. 19018
SCALE 1" = 4'
See Sheet No. 2A for footings to above piers

DRAWING MADE	DRAWING CHECKED	FIELD ESTIMATE MADE	FIELD ESTIMATE CHECKED	OFFICE ESTIMATE MADE	OFFICE ESTIMATE CHECKED
L.J.B.	R.C.H.	L.J.B.	G.B.A.	✓ E.F.G. 7-20-25	



40096 867

R-866.93

Concrete material hauled by train.

Note:-
Pier Footings actually constructed of irregular size, in excess of plan dimensions. Volume allowed of all Footings based on dimensions 12'x23'-depth per cross-sections. See Sheet #1 for Footing Plan.

Contract dated April 1, 1925.
Contractor Utah Construction Co.
Sub Contractor Watts Samuels & Co.
Structure built of Concrete
Concrete Proportion 1-2½-5
Source of Material-
Crushed Rock - Phoenix Tempe Stone Co.
Sand - Twohy's Pits at Tempe

Footing	Station	Placing Concrete Commenced	Placing Concrete Completed	Founded Upon	Cement Used (Sacks) Brand El Toro	Brand Colton	Total	Cubic yds. of Concrete
1	"L" 14+80.9	5/8/25	5/8/25	Caliche	0	296	296	55.524
2	"L" 15+60.25	5/10/25	5/10/25	"	0	230	230	41.656
3	"L" 16+40.50	5/12/25	5/12/25	"	0	199	199	37.804
4	"L" 17+20.75	5/15/25	5/15/25	"	180	0	180	33.282
5	"L" 18+01.9	5/18/25	5/18/25	"	0	185	185	36.009
							1090	

A. L. Barkley
Assistant Engineer

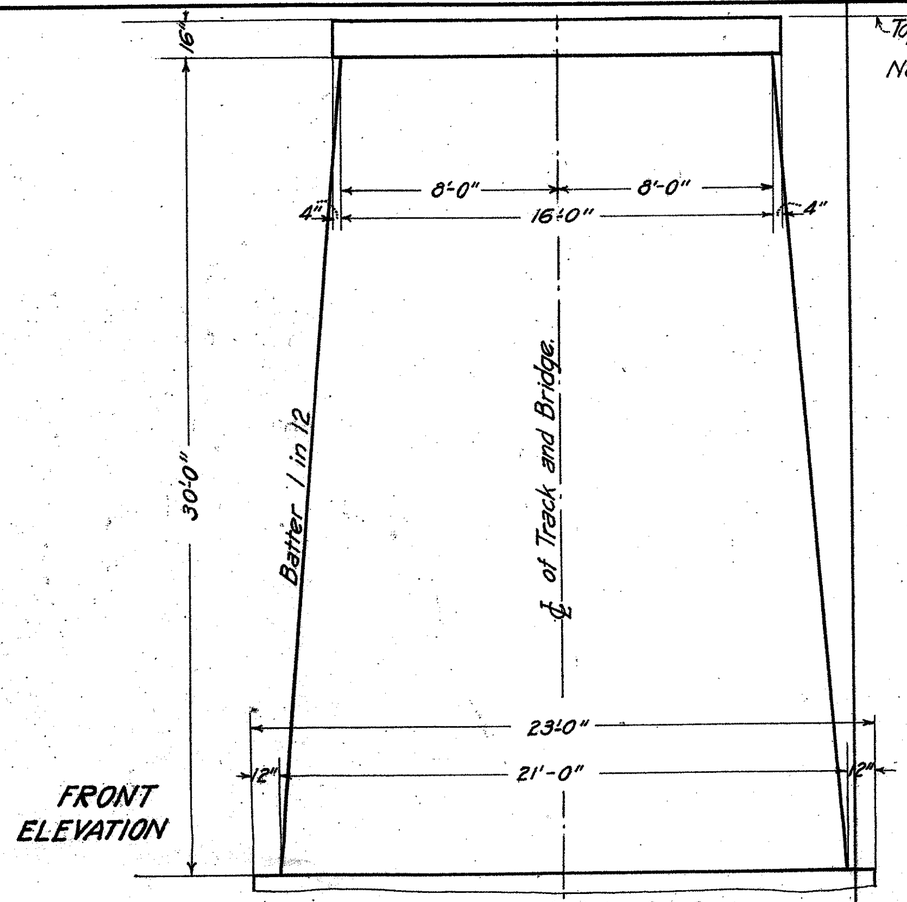
SHEET No. 1A

CONSTRUCTION ARIZONA EASTERN R.R.
HASSAYAMPA TO WELLTON
FINAL MASONRY ESTIMATE and RECORD of STRUCTURE as BUILT
HASSAYAMPA BRIDGE - FOOTINGS FOR CONCRETE PIERS
PIERS #1 #2 #3 #4 #5
STATION L 14+80.9 L 15+60.25 L 16+40.50 L 17+20.75 L 18+01.9
BUILT ACCORDING TO PLAN No. 19018
Scale 1" = 5'
See Sheet #1 for Piers Above Footings.

Drawing Made	Drawing Checked	Field Estimate Made	Field Estimate Checked	Office Estimate Made	Office Estimate Checked
R.C.H.	L.J.B.	L.J.B.	G.B.A.	E.F.G. 7-20-28	

Top of Masonry. Elev. 873 77

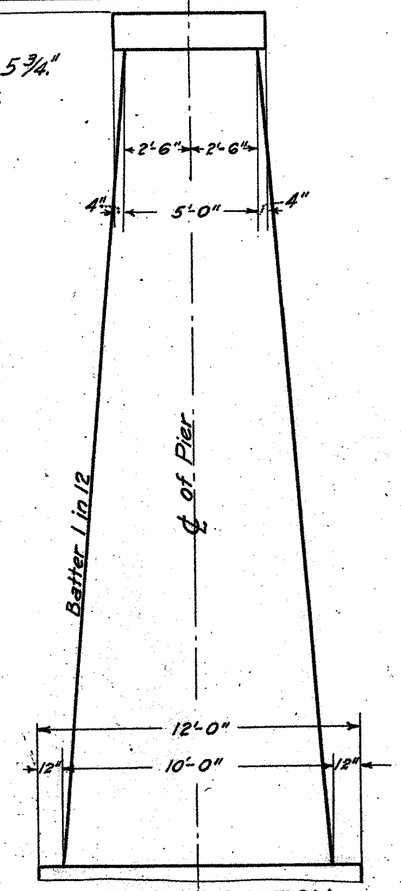
Note: Distance from top of masonry to top of ties is 11'-5 3/4".
Piers #1, #2, #3, #4, and #5 are identical above footing.



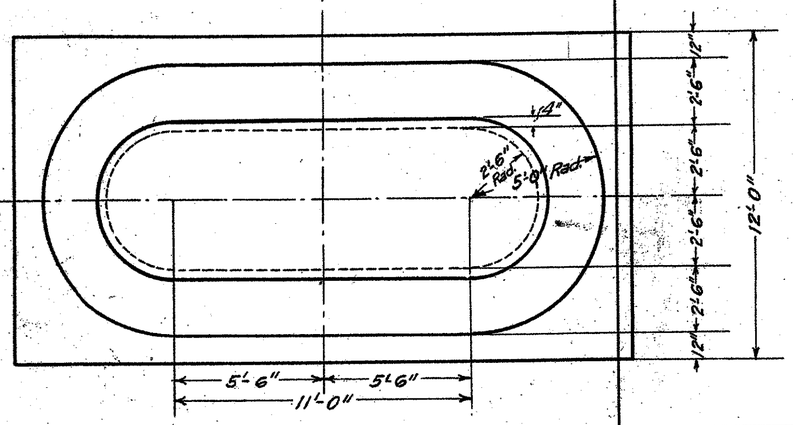
FRONT ELEVATION

See Sheet No. 1A for footings.

Top of Footing Elev. 842 44



SIDE ELEVATION



PLAN

Pier #1 - Bench Mark Elev. 873 790, Rivet Top of Pier 6 Lt.

Note - In addition to 10048 Sac Cement 4 sacks were used grouting anchor bolts (see Cement report #25 month of April 1927) JJB.

Concrete material hauled by train.

Contract dated April 1, 1925.
Contractor Utah Construction Co.
Sub-Contractor Wattis Samuels & Co.
Structure built of concrete.
Concrete Proportion 1:2 1/2:5
Source of Material:
Crushed Rock Phoenix Tempe Stone Co.
Sand - Twohy's Pits at Tempe.

Pier	Station	Placing Concrete: Footing Commcd	Footing Complted	Pier Commcd	Pier Complted	Founded Upon	Cement Used Sacks: Footing Brand El Toro	Footing Brand Colton	Footing Total	Pier Brand El Toro	Pier Brand Colton	Pier Total	Total	Cubic Yards Concrete: Footing	Pier	Total
1	L 14+80	5/8/25	5/8/25	5/11/25	5/13/25	Caliche	0	296	296	0	710	710	1006	55 584	146 896	202 48 ✓
2	L 15+60 25	5/10/25	5/10/25	5/14/25	5/16/25	Caliche	0	230	230	0	694	694	924	41 656	146 896	188 55 ✓
3	L 16+40 50	5/12/25	5/12/25	5/17/25	5/19/25	Caliche	0	199	199	339	346	685	884	37 804	146 896	184 70 ✓
4	L 17+20 75	5/15/25	5/15/25	5/19/25	5/21/25	Caliche	180	0	180	685	0	685	865	33 282	146 896	180 18 ✓
5	L 18+01 0	5/18/25	5/18/25	5/22/25	5/25/25	Caliche	0	185	185	172	600	772	957	36 009	146 896	182 90 ✓

H. L. Barclay
Assistant Engineer

40095

R-866.93

SHEET No. 1
CONSTRUCTION ARIZONA EASTERN R.R.
HASSAYAMPA TO WELLTON

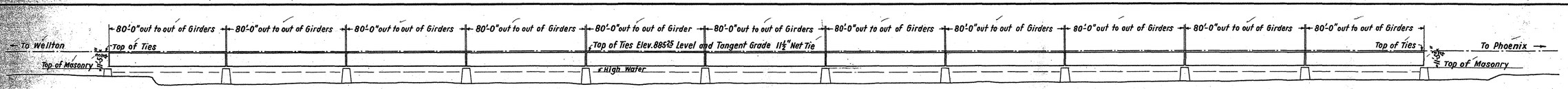
FINAL MASONRY ESTIMATE AND RECORD OF STRUCTURE AS BUILT
HASSAYAMPA BRIDGE - CONCRETE PIERS

PIERS	No. 1	No. 2	No. 3	No. 4	No. 5
STATIONS	L 14+80	L 15+60 25	L 16+40 50	L 17+20 75	L 18+01

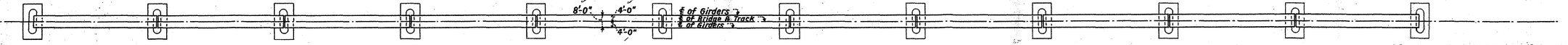
BUILT ACCORDING TO PLAN NO. 19018.
SCALE: 1" = 4'
See Sheet No. 1A for footings to above piers.

DRAWING MADE	DRAWING CHECKED	FIELD ESTIMATE MADE	FIELD ESTIMATE CHECKED	OFFICE ESTIMATE MADE	OFFICE ESTIMATE CHECKED
L.J.B.	R.C.H.	L.J.B.	G.B.A.	✓ E.F.G. 7-20-25	

19002



ELEVATION



PLAN

Notes:
Bridge Co. to furnish Masonry Layout as soon as possible, so that Railroad Co. may proceed with design of Piers.
Spans to be furnished in accordance with S.P. Co. C.S. Specifications #1006 and C.S. drawing C.S. 116.

ARIZONA EASTERN RAILROAD
WELLTON TO PHOENIX

ORDER DIAGRAM

FOR 11-80 FT. DECK PLATE GIRDER SPANS
FOR HASSAYAMPA RIVER AT HASSAYAMPA

SCALE: 1" = 30' M.J.M. FEB. 28, 1925
Office of Chief Engineer, S.P.Co. San Francisco.

M.J.M.

I-10 Bridges (Eastbound & Westbound) As-Builts

9		I-10-2 (16)	58	87	2-11-70

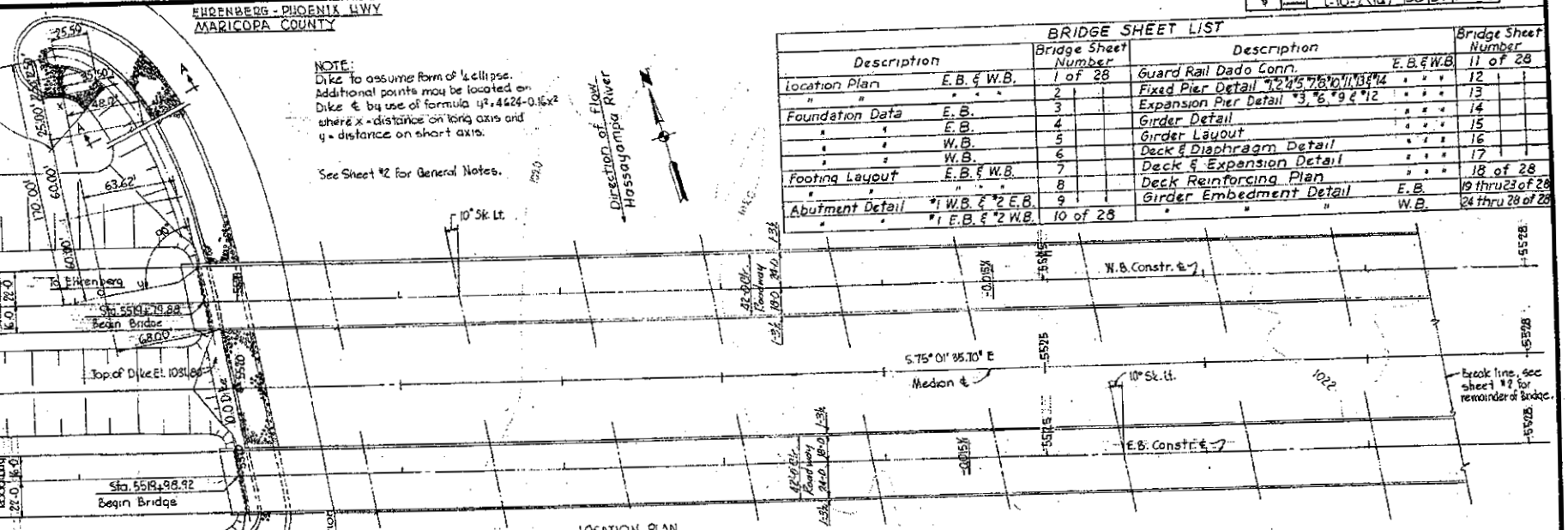
EHRENBERG - PHOENIX HWY
MARICOPA COUNTY

NOTE:
Dike to assume form of ¼ ellipse. Additional points may be located on Dike ℄ by use of formula $y^2 = 4624 - 0.16x^2$ where x = distance on long axis and y = distance on short axis.

See Sheet #2 for General Notes.

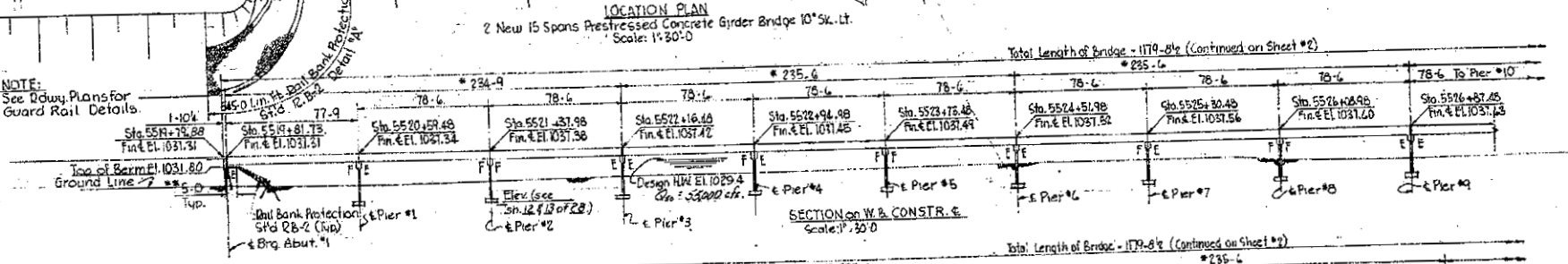
BRIDGE SHEET LIST

Description		Bridge Sheet Number	Description		Bridge Sheet Number
Location Plan	E.B. & W.B.	1 of 28	Guard Rail Dado Conn.	E.B. & W.B.	11 of 28
" "	" " " "	2	Fixed Pier Detail #1,2,4,5,7,8,10,11,13 & #14	" " "	12
Foundation Data	E.B.	3	Expansion Pier Detail #3, #6, #9 & #12	" " "	13
" "	E.B.	4	Girder Detail	" " "	14
" "	W.B.	5	Girder Layout	" " "	15
" "	W.B.	6	Deck & Diaphragm Detail	" " "	16
Footing Layout	E.B. & W.B.	7	Deck & Expansion Detail	" " "	17
" "	" " " "	8	Deck Reinforcing Plan	" " "	18 of 28
Abutment Detail	#1 W.B. & #2 E.B.	9	Girder Embedment Detail	E.B.	19 thru 23 of 28
" "	#1 E.B. & #2 W.B.	10 of 28	" " "	W.B.	24 thru 28 of 28

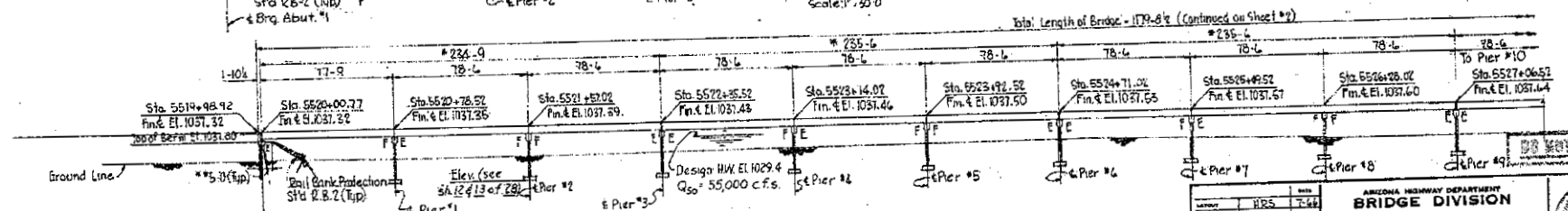


LOCATION PLAN
2 New 15 Spans Prestressed Concrete Girder Bridge 10° Sk. Lt.
Scale: 1" = 30'-0"

NOTE:
See Rdwy. Plans for Guard Rail Details.



SECTION on W.B. CONSTR. ℄
Scale: 1" = 30'-0"



Note:
For Approximate Quantities see sh. 7 of 28.

*Length of Structure continuous for Live Load
**Dimension normal to ℄ Brg.

SECTION on E.B. CONSTR. ℄
Scale: 1" = 30'-0"

DO NOT DESTROY

LAYOUT	HRS	7-66
DESIGN		
CROSS SECTIONS		
DRAWN	RWB	7-66
TRACED		
CHECKED	J.P.S.	2-70
SHEET NO. 1 OF 28		

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
STA. 5527+
HASSAYAMPA RIVER BRIDGE
LOCATION PLAN
16 45 1066 I-10 104.69

I-10-2 (16)

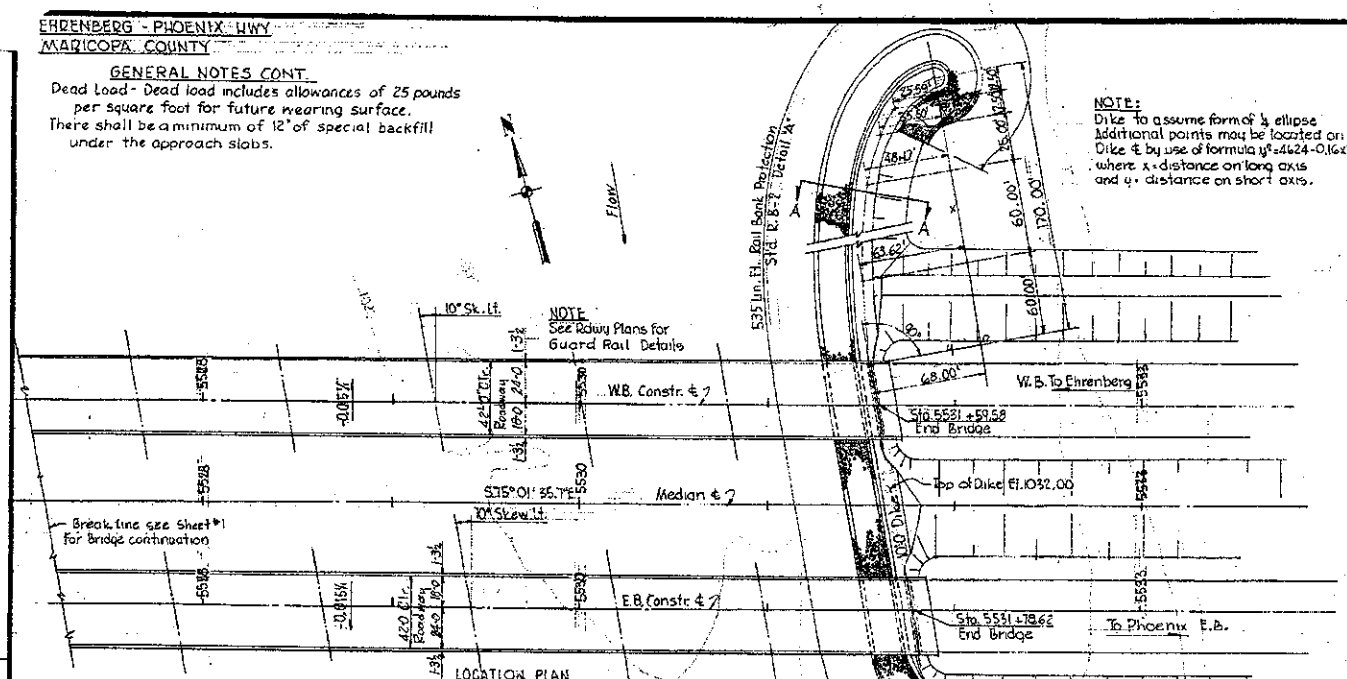
PE 14

EHRENBERG - PHOENIX HWY
MARICOPA COUNTY

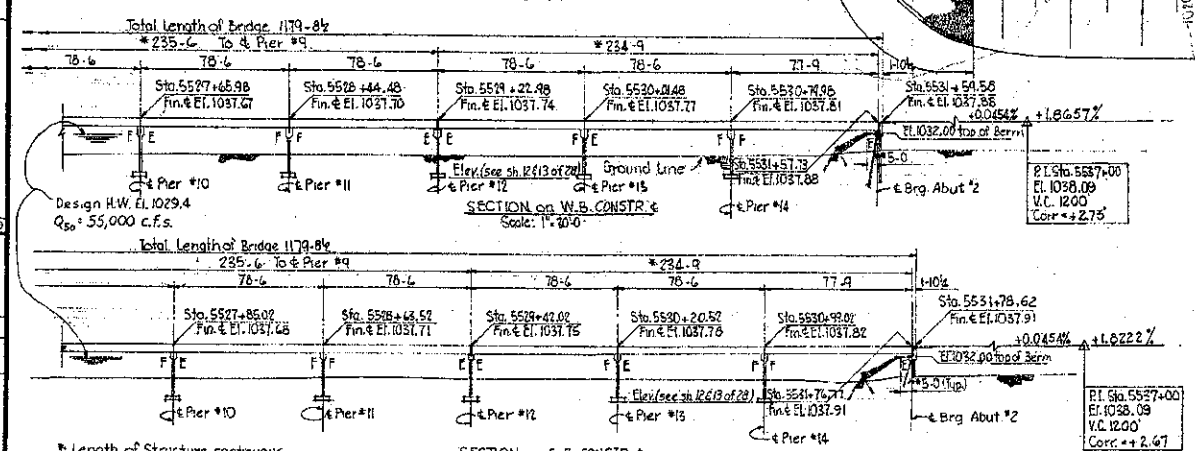
FEDERAL AID PROJECT NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	DATE
9	ARIZONA	I-10-2 (16)	59	87	8-11-70

GENERAL NOTES CONT.

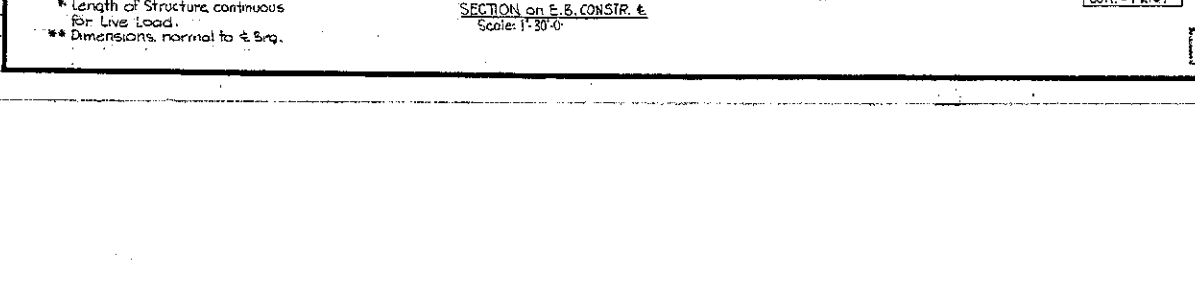
Dead Load - Dead load includes allowances of 25 pounds per square foot for future wearing surface.
There shall be a minimum of 12" of special backfill under the approach slabs.



LOCATION PLAN
2 New 15 Spans Prestressed Concrete Girder Bridge 10" Sk. Lt.
Scale: 1" = 30'-0"



SECTION on W.B. CONSTR. ℄
Scale: 1" = 20'-0"



* Length of Structure continuous for Live Load.
** Dimensions normal to ℄ Brg.

SECTION on E.B. CONSTR. ℄
Scale: 1" = 30'-0"

DO NOT DESTROY

GENERAL NOTES

Construction - Standard Specs Arizona Highway Department Edition of 1969. Revised to date.
Design AASHO Std. Specs for Highway Bridges 1969 revised to date.
Loading Class - H20-44 and/or Interstate Alternate Loading.
Composite Design - Dead Load by girders only.

Stresses -
Class "A" concrete f_c = 1,000 psi; n = 12
Class "D" concrete f_c = 1,200 psi; n = 10
Class "S" concrete f'_c = See Plans; n = 6
Reinforcing Steel f_s = 20,000 psi
Structural Steel f_s = 20,000 psi
Prestressing Steel - ½" ϕ 7 wire strand (A = .153 sq. in.)
Minimum f's = 270,000 p.s.i.
P = 41,300 lbs.

All concrete shall be Class "A" except deck slab shall be Class "D" and Prestressed Girders shall be Class "S".
Reinforcing steel shall conform to ASTM Specs. A615 Grade 40.
Structural Steel shall conform to ASTM Spec. A36.

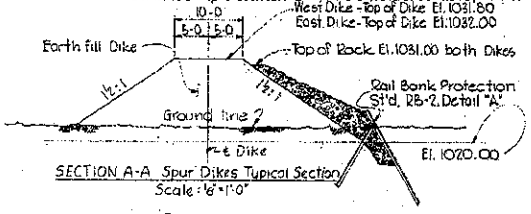
Paint and painting shall conform to Std Specs
Contact surfaces shall not be painted.
Structural Steel - Shop 1 coat paint #1A or #1B, #3 and #10
No field paint required.
All dimensions for reinforcing steel shall be to center of bars unless noted otherwise. All reinforcing steel shall have 2" clear cover unless noted otherwise.
Dimensions shall not be scaled from drawings.

PILE NOTES

All Piles shall be 14" ϕ C.I.P. Concrete Pile as per Std. CP6
Min bearing 37 Tons.

E.B. Abut. #1	estimated	length 25 Ft.	Estimated tip	El. 1006.00
E.B. Abut. #2	estimated	length 26 Ft.	Estimated tip	El. 1006.00
W.B. Abut. #1	estimated	length 25 Ft.	Estimated tip	El. 1006.00
W.B. Abut. #2	estimated	length 26 Ft.	Estimated tip	El. 1006.00

Fills shall be built to top of Berm elevation and compacted before piles are driven. Excavation for abutment concrete shall be made after piles are in place.
Any pile which is driven to a bearing of 1¾ times the bearing given on the plans and which reaches a tip elevation within 2 ft. of the estimated tip elevation shall be considered acceptable.



SECTION A-A Spur Dikes Typical Section
Scale: ⅛" = 1'-0"

PILE NOTES CONT.

Piles shall be driven in predrilled holes through the roadway embankment to elev. 1009.0 and then driven to the minimum estimated tip elevation. The predrilled holes shall have a diameter of not less than the pile butt diameter plus six inches. Backfill around piling to top of embankment with dry sand or pea gravel. The bid item "Driving Piling" shall include the cost for predrilled holes and the backfilling around driven piles.

		DATE
LAYOUT	H.P.S.	7-66
DESIGN		
ARCHITECTURAL		
CHECKED	R.W.B.	7-66
TRACED		
REVIEWED	J.D.S.	7-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
STA. 5527 +
HASSAYAMPA RIVER BRIDGE
LOCATION PLAN

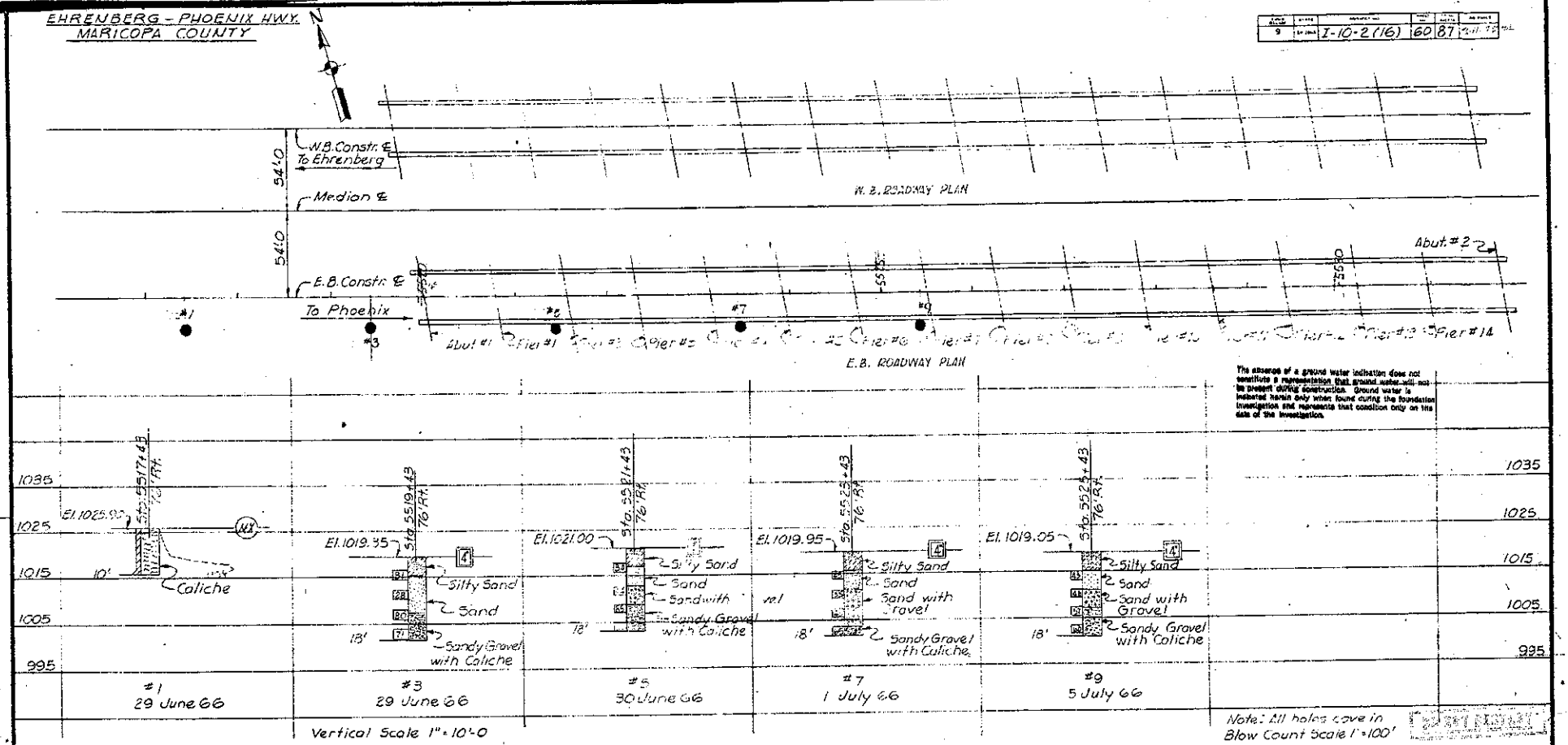
SHEET NO. 2 OF 28 | 1645 1646 | I-10 104.69

MARTIN WINEK — REGISTERED PROFESSIONAL ENGINEER — CERTIFICATE EXPIRES DEC. 31, 19 — ARIZONA, U.S.A.

I-10-2 (16)

EHRENBERG - PHOENIX HWY.
MARICOPA COUNTY

9		I-10-2(16)	60	87	



The absence of a ground water indication does not constitute a representation that ground water will not be present during construction. Ground water is indicated herein only when found during the foundation investigation and represents that condition only on the date of the investigation.

CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

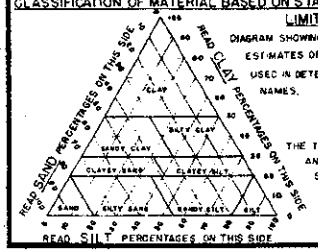


DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES.

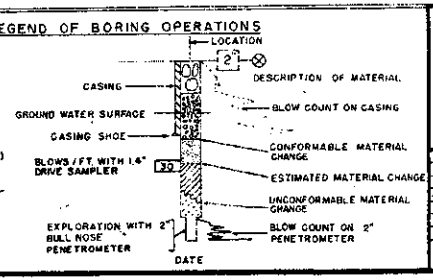
THE TERMS "COARSE, MEDIUM, AND FINE" REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- COBBLES OR BOULDERS
- GRAVEL
- SAND
- SILT
- CLAY
- CALICHE
- FILLED MATERIAL
- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PLAN OF ANY BORING
- 2" PENETROMETER
- CASING
- ROTARY BORING (WET)
- AUGER BORING (DRY)
- CORE BORING
- TEST PIT



NOTES

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NX CASING IS DRIVEN WITH 342 POUND HAMMER, 30" FREE FALL, NO CUSHION.
BX CASING AND 2" PENETROMETER ARE DRIVEN WITH 140 POUND HAMMER, 30" FREE FALL, NO CUSHION.

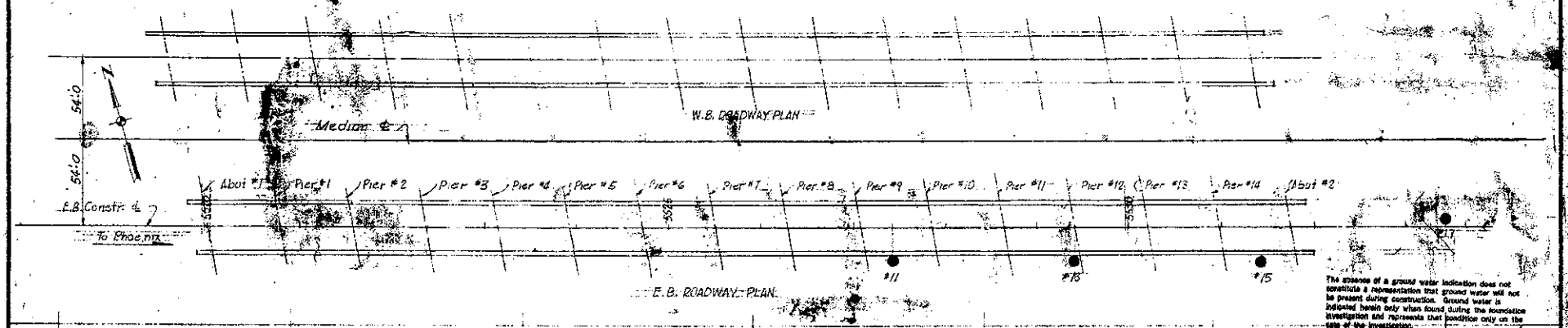
LAYOUT			
DESIGN			
ARCHITECTURAL			
DRAWN	APJ	8-66	
CHECKED	HRC	8-66	
SHEET NO. 3 OF 28			

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
STA. 5527 ±
FOUNDATION DATA SHEET
E.B. HASSAYAMPA RIVER BRIDGE
1645 | I-10 | 104.69
BRIDGE ENGINEER

I-10-2(16)

EHRENBERG - PHOENIX HWY.
MARICOPA COUNTY

FEDERAL REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZONA	I-10-2(16)	61	87	2-11-75



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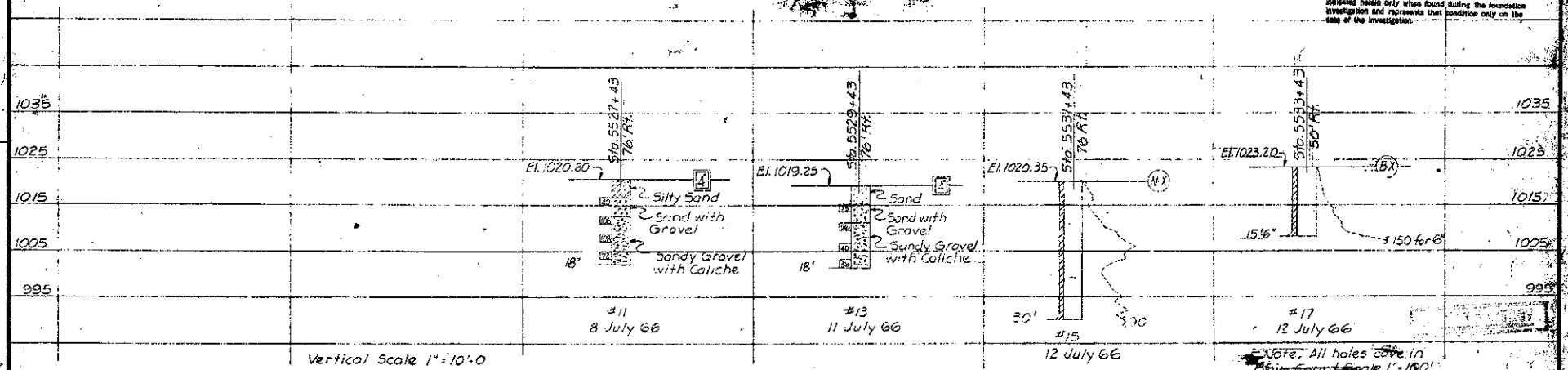


CLASSIFICATION OF MATERIAL, BASED ON STANDARD GRADE SIZE LIMITS

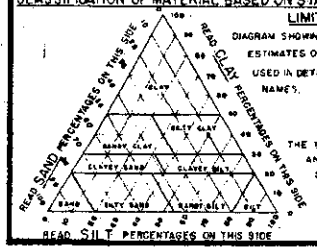


DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF CLASS NAMES.

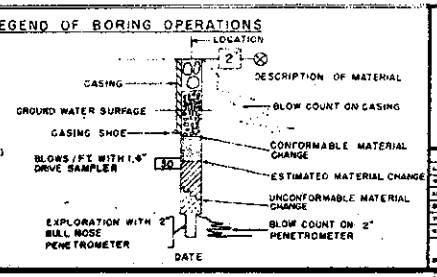
THE TERMS "COARSE, MEDIUM, AND FINE" REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- COBBLES OR BOULDERS
- CALICHE
- GRAVEL
- FILLED MATERIAL
- SAND
- IGNEOUS ROCK
- SILT
- SEDIMENTARY ROCK
- CLAY
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PLAN OF ANY BORING
- 2" PENETROMETER
- CASING
- ROTARY BORING (WET)
- AUGER BORING (DRY)
- CORE BORING
- TEST PIT



NOTES

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HX CASING IS DRIVEN WITH 342 POUND HAMMER, 36" FREE FALL, NO CUSHION.
BX CASING AND 2" PENETROMETER ARE DRIVEN WITH 140 POUND HAMMER, 30" FREE FALL, NO CUSHION.

		DATE
LAYOUT		
DRAWN		
ARRANGEMENT		
DRAWN	APJ	8-66
TRACED		
TORSIONS	HAE	8-66

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+
FOUNDATION DATA SHEET
E.B. HASSAYAMPA RIVER BRIDGE

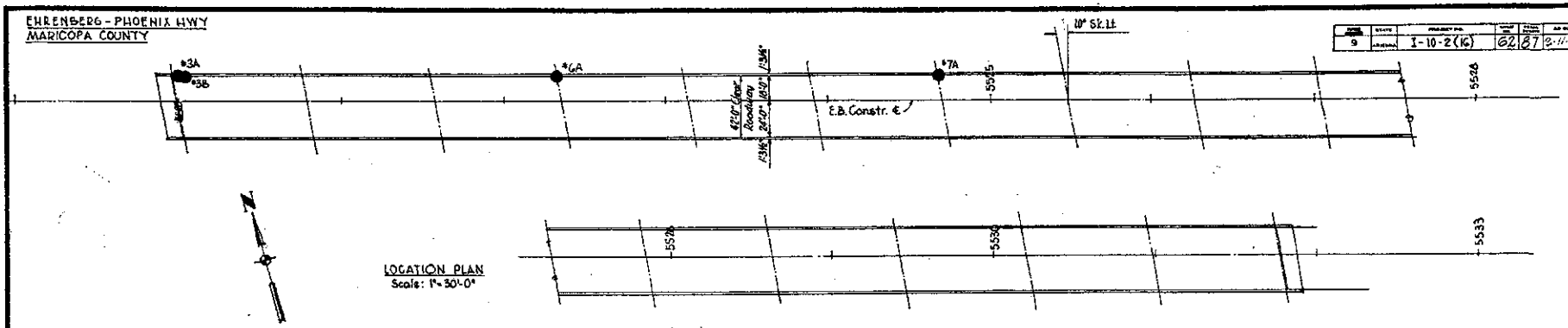
DRAWING NO. 4 - 28 | 1645 | I-10 | 104.69

MARTIN TONEY
ARIZONA

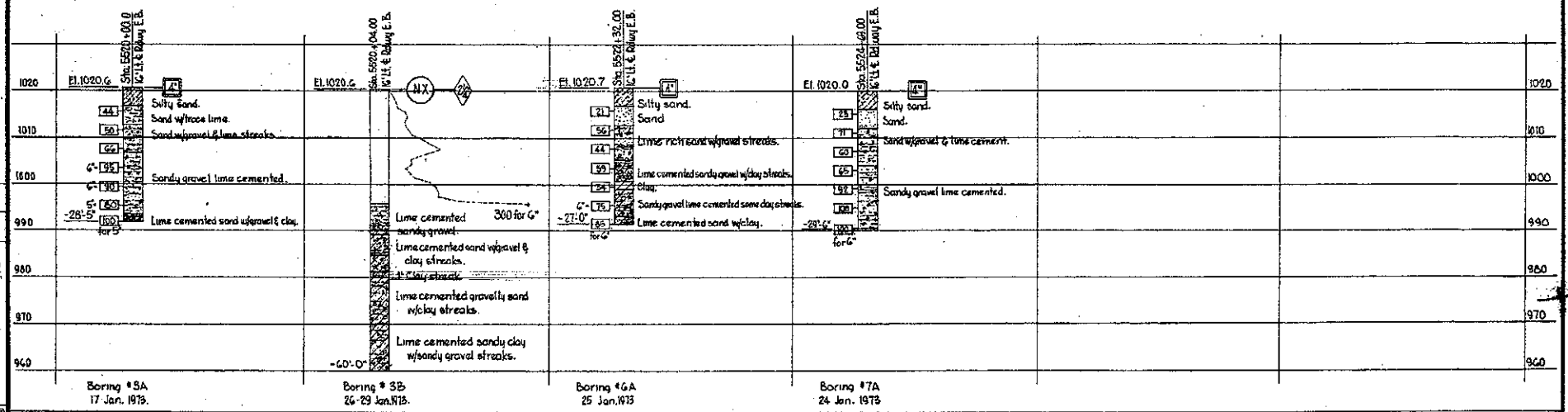
I-10-2(16)

EHRENBERG - PHOENIX HWY
MARICOPA COUNTY

FED. AID PROJ. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZONA	I-10-2(16)	62	87	8-11-75



LOCATION PLAN
Scale: 1" = 30'-0"

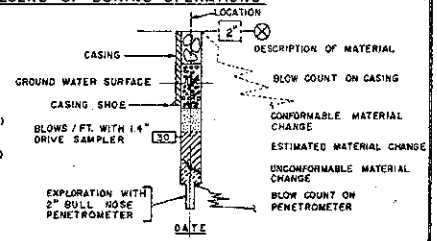


LEGEND OF EARTH MATERIALS

- COBBLES OR BOULDERS
- GRAVEL
- SAND
- SILT
- CLAY
- VOLCANIC CINDERS OR ASH (TUFF)
- LIME
- FILLED MATERIAL
- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PLAN OF ANY BORING
- 2" PENETROMETER
- CASING
- ROTARY BORING (WET)
- AUGER BORING (DRY)
- CORE BORING
- TEST PIT



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CLASSIFICATION OF MATERIALS IS IN ACCORDANCE WITH AASHO "MANUAL ON FOUNDATION INVESTIGATIONS."
CLASSIFICATION OF EARTH MATERIALS IS BASED UPON FIELD INSPECTION AND IS NOT TO BE CONSTRUED TO IMPLY MECHANICAL ANALYSIS.
THE ABSENCE OF A GROUND WATER INDICATION DOES NOT CONSTITUTE A REPRESENTATION THAT GROUND WATER WILL NOT BE PRESENT DURING CONSTRUCTION. GROUND WATER IS INDICATED HEREIN ONLY WHEN FOUND DURING THE FOUNDATION INVESTIGATION AND REPRESENTS THAT CONDITION ONLY ON THE DATE OF THE INVESTIGATION.
INFORMATION IS DEVELOPED AS ACCURATELY AS POSSIBLE BY THE METHODS UTILIZED, HOWEVER, THE STATE ACCEPTS NO RESPONSIBILITY FOR ANY CONDITIONS ENCOUNTERED WHICH MAY BE AT VARIANCE FROM INFORMATION CONTAINED HEREIN.
NX CASING IS DRIVEN WITH 342 POUND HAMMER, 30" FREE FALL, NO CUSHION.
BX CASING AND 2" PENETROMETER ARE DRIVEN WITH 140 POUND HAMMER, 30" FREE FALL, NO CUSHION.

0 50 100 200 300
Blow Count Scale

LAYOUT	H.S.B.	8-73
REVIEW		
ARCHITECTURE		
DRAWN	B.A.BRIGHT	2-73
TRACED		
CHECKED	W.T.H.	3-73

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
STA. 5527+
HASSAYAMPA RIVER BRIDGE E.B.
FOUNDATION DATA SHEET

SHEET NO. 4A OF 28 | 1645 | I-10 104.69

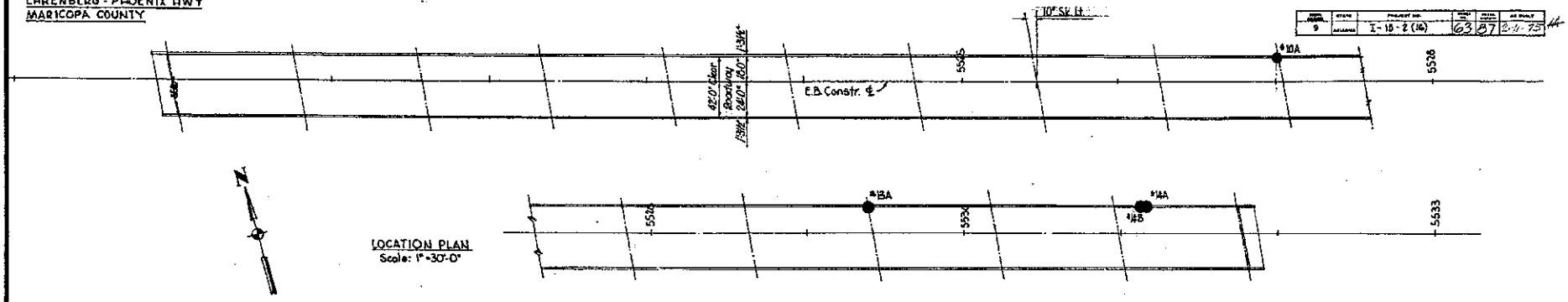
BRIDGE ENGINEER

I-10-2(16)

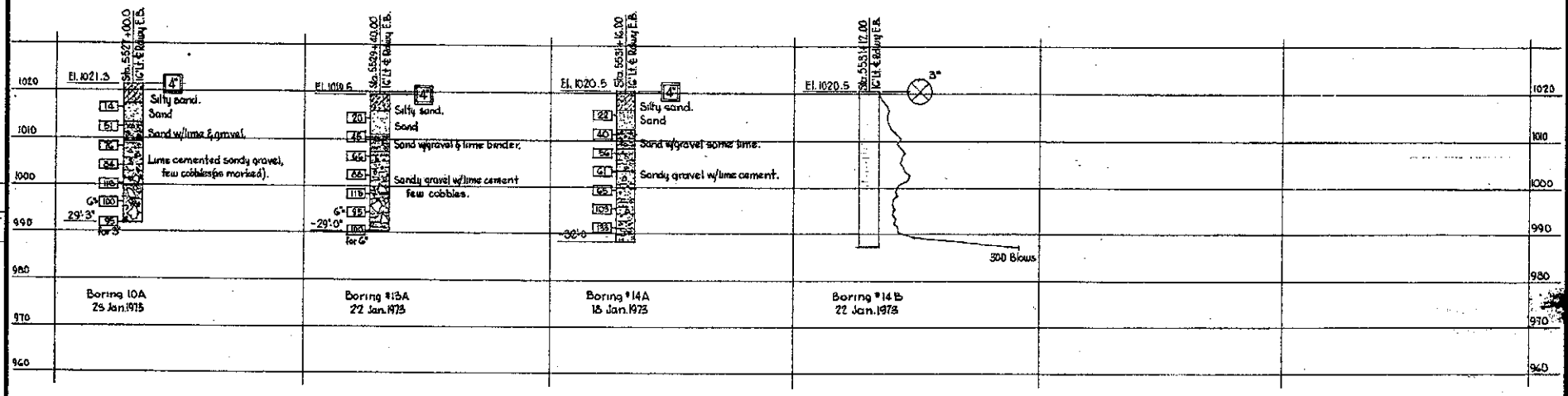
PA 14

EHRENBERG - PHOENIX HWY
MARICOPA COUNTY

9	ARIZONA	I-10-2(16)	63	87	2-1-73



LOCATION PLAN
Scale: 1" = 30'-0"

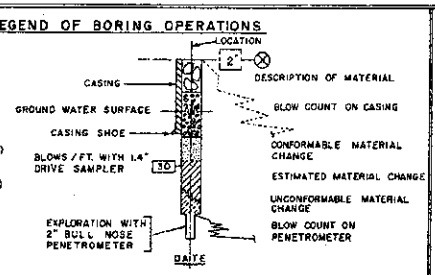


LEGEND OF EARTH MATERIALS

- COBBLES OR BOULDERS
- GRAVEL
- SAND
- SILT
- CLAY
- VOLCANIC CINDERS OR ASH (TUFF)
- LIME
- FILLED MATERIAL
- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PLAN OF ANY BORING
- 3" PENETROMETER
- CASING
- ROTARY BORING (WET)
- AUGER BORING (DRY)
- CORE BORING
- TEST PIT



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BX CASING AND 2" PENETROMETER ARE DRIVEN WITH 140 POUND HAMMER, 30" FREE FALL, NO CUSHION.
3" PENETROMETER, DRIVEN WITH 3-42 lb HAMMER, 30" FREE FALL.

0 50 100 200 300
Blow Count Scale

LAYOUT	HBS	2-73
DESIGN		
ARCHITECTURE		
DRAWN	BALDWIN	2-73
TRACED		
CHECKED	W.T.H.	2-73

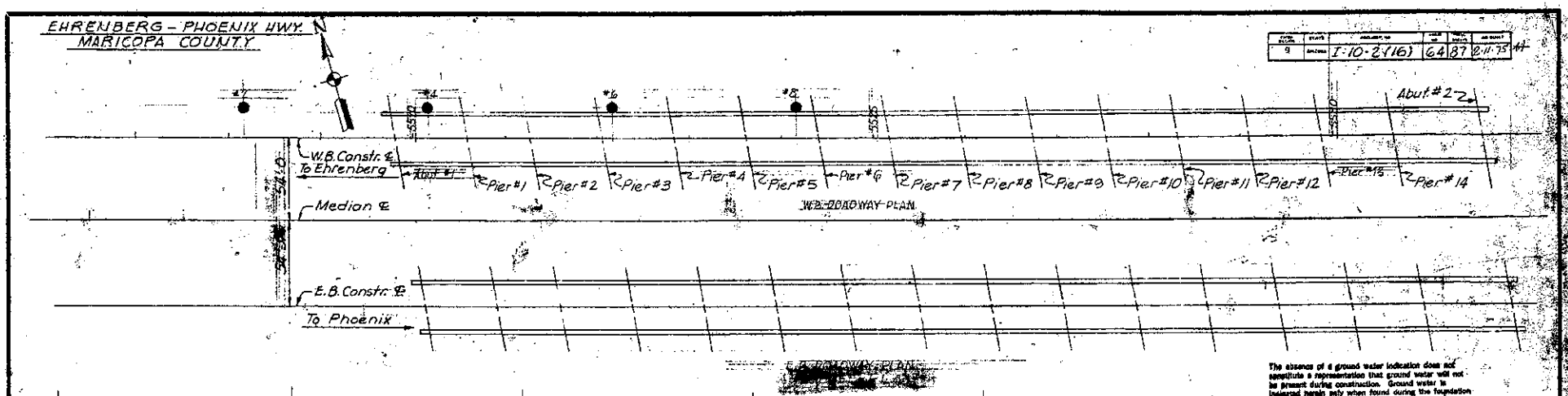
ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
STA. 5527+
HASSAYAMPA RIVER BRIDGE E.B.
FOUNDATION DATA SHEET

SHEET NO. 48 OF 28 | BRIDGE NUMBER 1625 | ROUTE NUMBER I-10 104.69 | BRIDGE ENGINEER

I-10-2(16)

EHRENBERG – PHOENIX HWY.
MARICOPA COUNTY

FEDERAL REGION	STATE	PROJECT NO	SHEET NO	TOTAL SHEETS	AS BUILT
9	ARIZONA	I-10-2(161)	64	87	2-11-75



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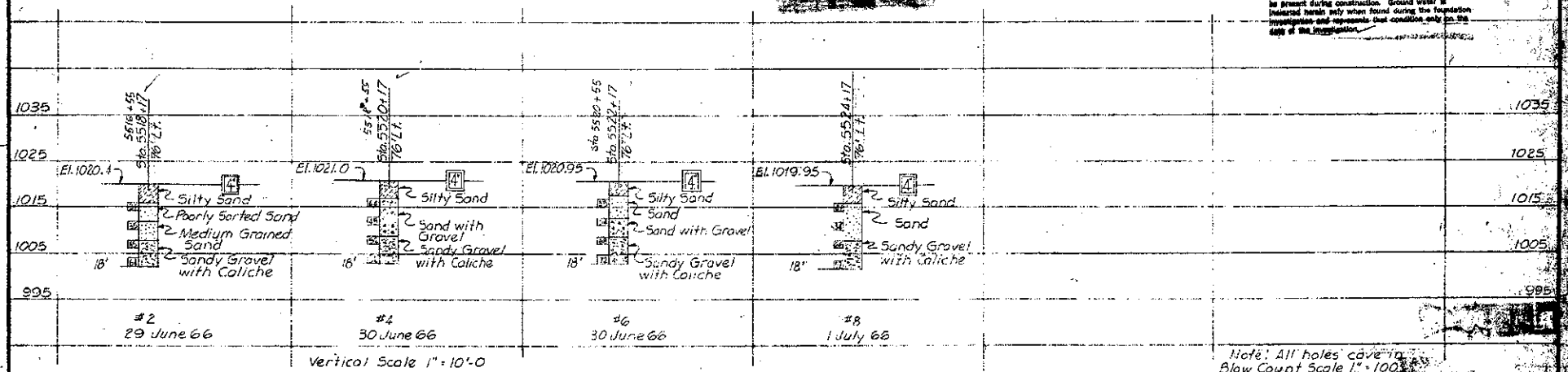


GLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

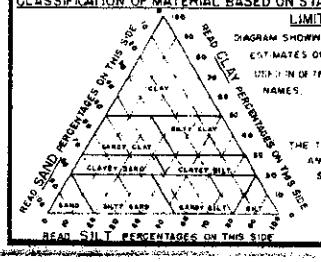


DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USE IN DETERMINATION OF CLASS NAMES.

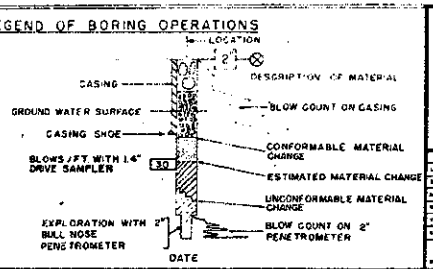
THE TERMS "COARSE, MEDIUM, AND FINE" REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- COBBLES OR BOULDERS
- GRAVEL
- SAND
- SILT
- CLAY
- CALICHE
- FILLED MATERIAL
- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PLAN OF ANY BORING
- 2" PENETROMETER
- CASING
- ROTARY BORING (WET)
- AUGER BORING (DRY)
- CORE BORING
- TEST PIT



NOTES

INFORMATION CONTAINED ON THIS SHEET IS MADE AVAILABLE TO PROSPECTIVE BIDDERS FOR INFORMATION PURPOSES ONLY AND IS NOT TO BE CONSIDERED A PART OF THE CONTRACT PAPERS. THE INFORMATION IS DEVELOPED AS ACCURATELY AS POSSIBLE BY THE METHODS UTILIZED, HOWEVER, THE STATE ACCEPTS NO RESPONSIBILITY FOR ANY CONDITIONS ENCOUNTERED WHICH MAY BE AT VARIANCE FROM INFORMATION CONTAINED HEREIN. CLASSIFICATION OF EARTH MATERIALS IS BASED UPON FIELD INSPECTION AND IS NOT TO BE CONSTRUED TO IMPLY MECHANICAL ANALYSIS.
NX CASING IS DRIVEN WITH 342 POUND HAMMER, 30" FREE FALL, NO CUSHION.
BX CASING AND 2" PENETROMETER ARE DRIVEN WITH 140 POUND HAMMER, 30" FREE FALL, NO CUSHION.

		DATE
LAYOUT		
DESIGN		
CONSTRUCTION		
DRAWN	APJ	8-66
TRACED		
CHECKED	HRC	2-76

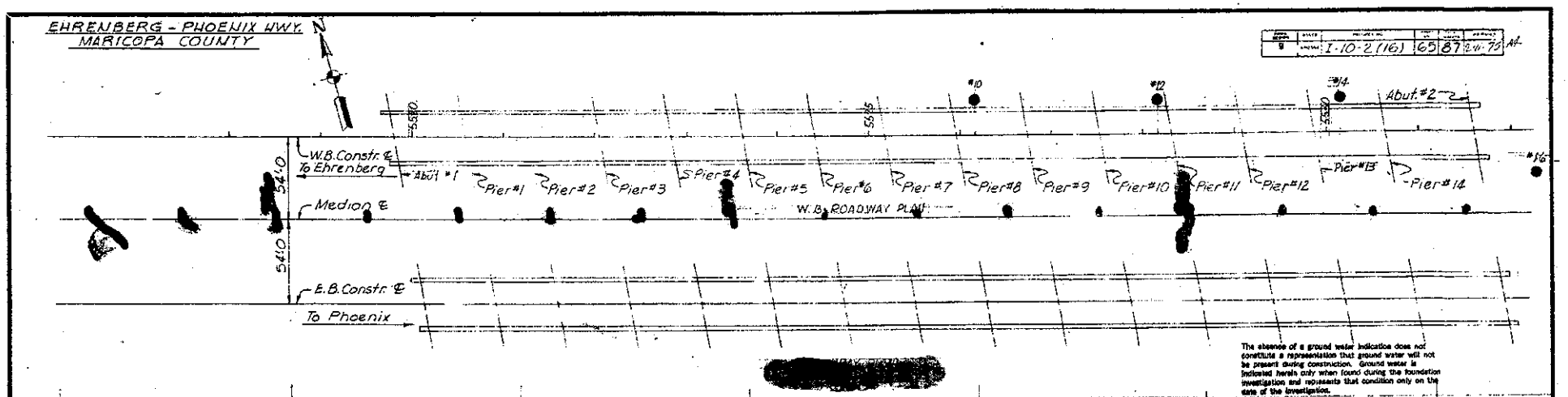
ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+
FOUNDATION DATA SHEET
W.B. HASSAYAMPA RIVER BRIDGE

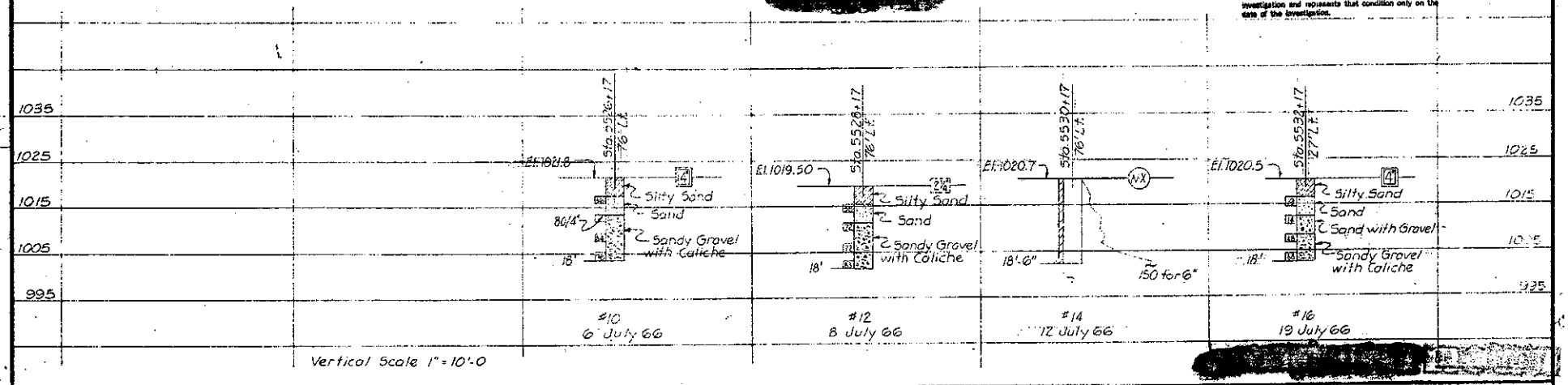
SHEET NO. 5 OF 28 | 1646 | I-10 | 1069

EHRENBERG - PHOENIX HWY.
MARICOPA COUNTY

9		I-10-2(16)	65	87	2-11-73



The absence of a ground water indication does not constitute a representation that ground water will not be present during construction. Ground water is indicated herein only when found during the foundation investigation and represents that condition only on the date of the investigation.



CLASSIFICATION OF MATERIAL BASED ON STANDARD GRADE SIZE LIMITS

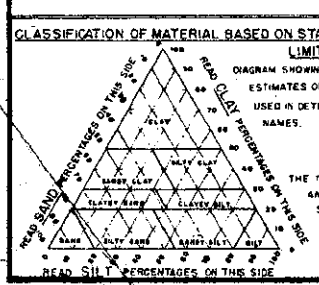


DIAGRAM SHOWING THE BASIS FOR ESTIMATES OF GRADE SIZE DISTRIBUTION USED IN DETERMINATION OF GLASS NAMES.

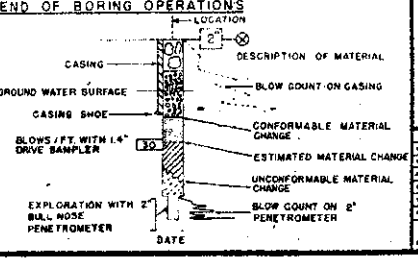
THE TERMS "COARSE, MEDIUM, AND FINE" REFER TO STANDARD GRADE SIZE LIMITS.

LEGEND OF EARTH MATERIALS

- COBBLES OR BOULDERS
- GRAVEL
- SAND
- SILT
- CLAY
- CALICHE
- FILLED MATERIAL
- IGNEOUS ROCK
- SEDIMENTARY ROCK
- METAMORPHIC ROCK

LEGEND OF BORING OPERATIONS

- PLAN OF ANY BORING
- 2" PENETROMETER
- CASING
- ROTARY BORING (WET)
- AUGER BORING (DRY)
- CORE BORING
- TEST PIT



NOTES

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8X CASING IS DRIVEN WITH 340 POUND HAMMER, 30" FREE FALL, NO CUSHION.
8X CASING AND 2" PENETROMETER ARE DRIVEN WITH 140 POUND HAMMER, 30" FREE FALL, NO CUSHION.

LAYOUT		
DESIGN		
ADMINISTRATOR		
DRAWN	LPJ	8-66
TRACED		
CHECKED	HAC	8-66

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+
FOUNDATION DATA SHEET
W. B. HASSAYAMPA RIVER BRIDGE

SHEET NO. 6 - 28 | 1646 | I-10 104.69

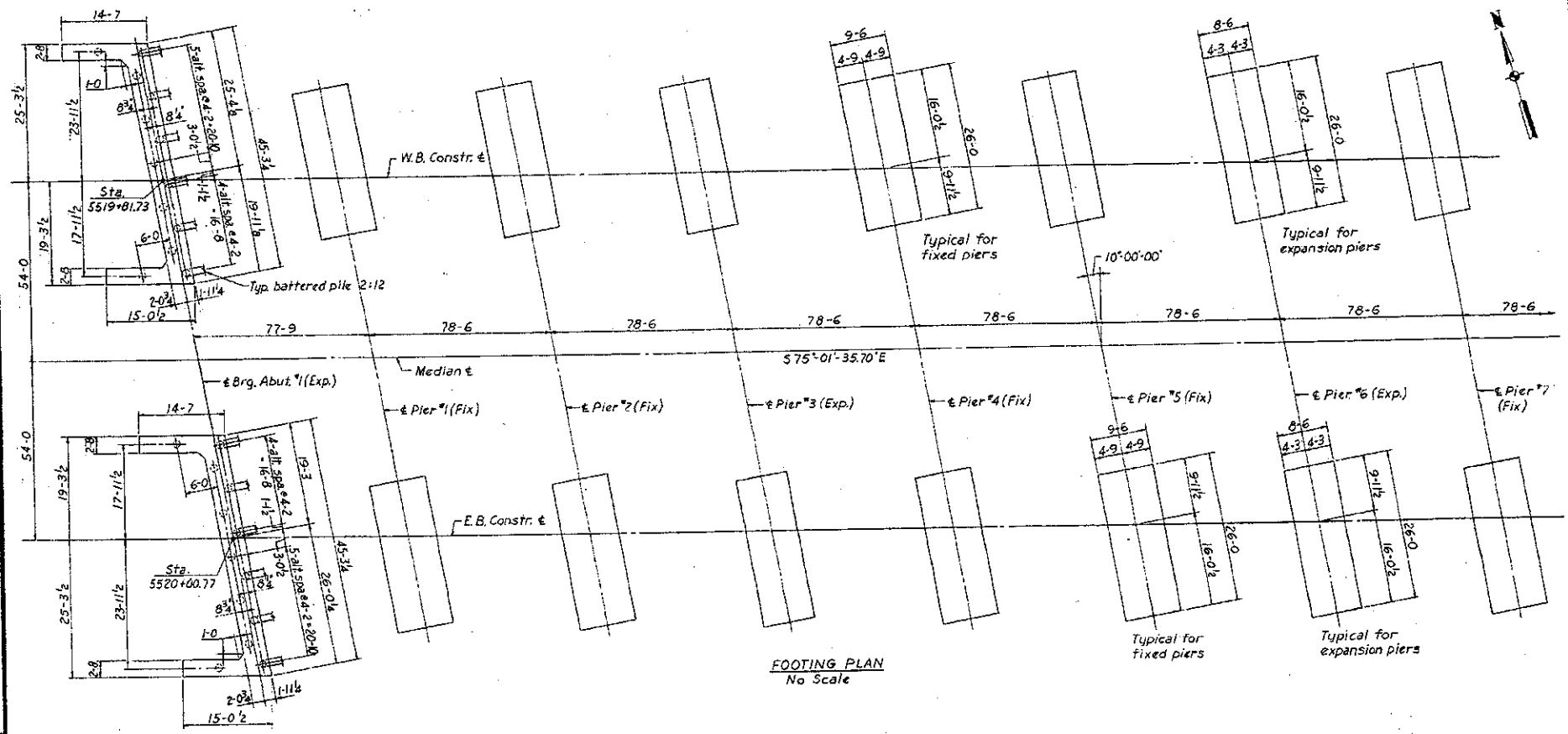
MARVIN FONEY
DEC. 31, 19__

7-10-2-2261

MASTER

EHRENBERG - PHOENIX HWY.
MARICOPA COUNTY

FEDERAL AID NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZONA	I-10-2(16)	66	87	8-11-75



FOOTING PLAN
No Scale

APPROXIMATE QUANTITIES									
Item	Spec. Backfill	Struct. Excav.	Concrete Class A	Concrete Class D	Reinf. Steel	Precast Girders	C.I.P. Conc Piling		Metal Hdrl. H-2-1
Unit	C.Y.	C.Y.	C.Y.	C.Y.	Lbs.	No.	No.	L.F.	L.F.
Abutment #1	120	40	42.20		3860		13	325	
Piers		2760	1087.73		108590				
Abutment #2	135	40	42.28		3860	34 510	13	338	
Superstructure			73.55	1413.02	~~350650~~	90			2355.33
Approach Slabs			31.59		3485	4-87,545			
Total one structure	255	2840	1277.35	1413.02	~~470645~~	90	26	663	2355.33
Total two structures	510	5680	2554.70	2826.04	~~941290~~	180	52	1326	4710.66

1080 Lin. ft. Std. RB-2, Detail A Rail Bank Protection
978.60

Notes:
For footing sections & elevations see sh. 9, 10, 12 & 13 of 28.
All piles are 14" ϕ C.I.P. conc pile.

Allowable Footing Pressures
E.B. & W.B. Bridges: Pier 1 thru 14 = 4 tons per s.f.

DO NOT DESTROY

		DATE
LAYOUT		
DESIGN	ES	4-70
ALIGNMENT CHECK		
AS-BUILT	ES	6-70
TRACED		
CHECKED	J.O.S.	7-70
SHEET NO.	7 of 28	

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+
HASSAYAMPA RIVER BRIDGE
E.B. & W.B. FOOTING LAYOUT

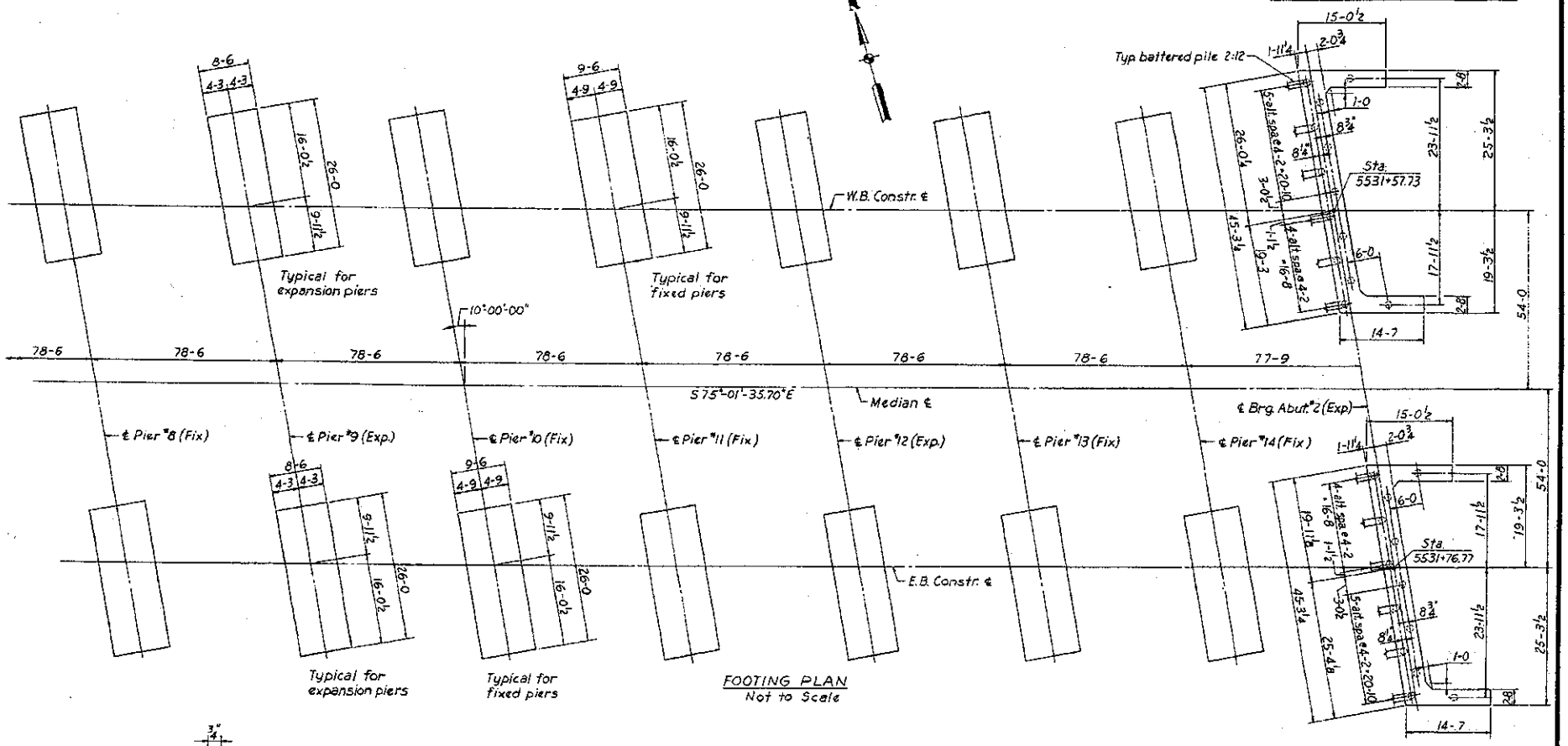
1645 1646 | I-10 104.67

BRIDGE ENGINEER

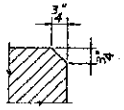
I-10-2(16)

EHRENBERG - PHOENIX HWY
MARICOPA COUNTY

9		I-10-2(16)	67	87	2-11-75



FOOTING PLAN
Not to Scale



Chamfer all exposed corners thus unless otherwise noted

CHAMFER DETAIL
(Applicable to all sheets pertaining to this structure)

Notes:
For footing elevations & sections see sh. 9, 10, 12 & 13 of 28.
All piles are 14"ϕ C.I.P. conc.

DO NOT DESTROY

LAYOUT		
DESIGN	CES	4-70
ARCHITECTURE		
DRAWN	CES	5-70
TRACED		
CHECKED	J.D.S.	7-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+
HASSAYAMPA RIVER BRIDGE
E.B. & W.B. FOOTING LAYOUT

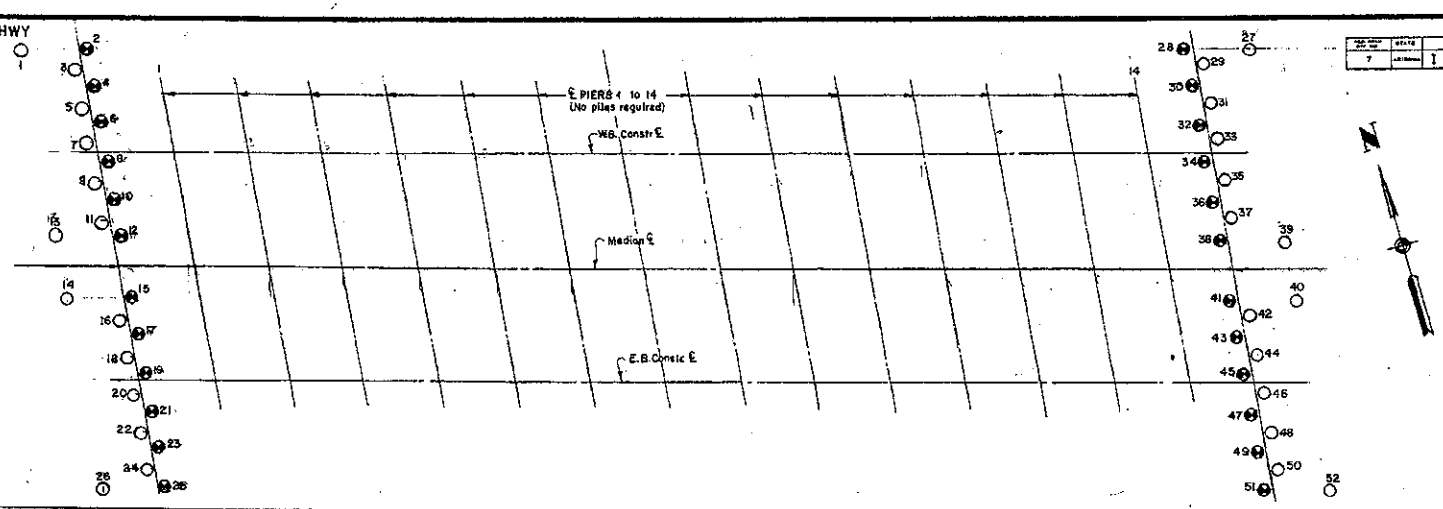
SHEET NO. 8 of 28
1645 1646 7-70 10d.69

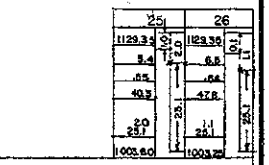
MARTIN TONEY
ARIZONA, U.S.A.
BRIDGE ENGINEER

I-10-2(16)

EHRENBERG – PHOENIX HWY
MARICOPA COUNTY

FED. AID PROJ. NO.	STATE	PROJECT NO	SHEET NO	TOTAL SHEETS	AS BUILT
7	ARIZONA	I-10-2 (16)	67A	87	2-11-75 A.A.





ABUTMENT NO. 1 - W.B.

Pile Number	1	2	3	4	5	6	7	8	9	10	11	12	13
Elevation top of pile	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35
Length of stroke in feet (Diesel)	6.20	5.40	5.60	6.20	6.10	6.10	6.20	6.50	6.10	5.20	5.80	5.80	6.10
Average Penetration - s inches	0.460	.330	.620	.550	.550	.520	.640	.460	.320	.400	.400	.440	.460
Safe Bearing - Tons	84.70	80.90	37.70	46.30	45.50	47.70	40.00	56.30	70.40	60.10	56.30	52.10	52.80
Lin. feet of each piece furnished	25.30	25.90	0.40 / 25.20	25.60	25.90	25.80	27.30	2.40 / 25.20	25.50	25.10	25.10	25.20	30.10
Elevation tip of pile	1004.45	1004.69	1003.78	1004.30	1004.15	1003.80	1003.25	1002.91	1004.45	1004.59	1004.45	1004.49	1003.85

ABUTMENT NO. 1 - E.B.

Pile Number	14	15	16	17	18	19	20	21	22	23	24
Elevation top of pile	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35	1029.35
Length of stroke in feet (Diesel)	6.10	5.80	6.10	6.10	6.80	5.40	5.80	6.10	5.80	5.60	5.40
Average Penetration - s inches	.520	.500	.480	.560	.500	.520	.520	.420	.560	.400	.600
Safe Bearing - Tons	70.40	45.90	51.00	44.80	46.90	41.60	48.40	56.90	42.60	66.30	37.40
Lin. feet of each piece furnished	25.10	3.10 / 25.20	— / 25.90	2.00 / 25.20	2.90 / 25.20	2.10 / 25.10	2.20 / 25.10	2.20 / 25.20	2.90 / 25.20	2.00 / 25.10	2.00 / 25.70
Elevation tip of pile	1003.79	1002.22	1004.15	1003.60	1001.95	1002.72	1002.95	1003.01	1003.15	1003.70	1002.58

ABUTMENT NO. 2 - W.B.

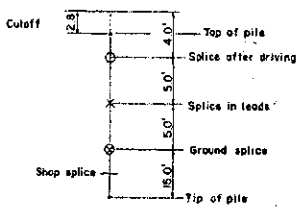
Pile number	27	28	29	30	31	32	33	34	35	36	37	38	39
Elevation top of pile	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85
Length of stroke in ft. (diesel)	5.40	5.40	5.40	5.00	5.40	6.10	6.40	5.80	5.80	5.80	5.80	6.10	6.10
Average penetration - s in.	.300	.480	.500	.430	.640	.470	.430	.400	.620	.460	.370	.460	.530
Safe bearing - tons	65.50	45.20	43.70	45.80	40.90	51.90	49.40	56.30	45.40	50.20	42.00	51.00	47.00
Lin. ft. of each piece furnished.	5.50 / 21.10	30 / 26.30	26.10	26.20	26.10	26.20	26.20	26.20	26.20	26.10	26.10	26.10	26.10
Elevation tip of pile	1004.45	1003.71	1003.73	1004.01	1003.75	1004.01	1003.85	1004.30	1003.75	1004.40	1003.86	1004.50	1003.85

ABUTMENT NO. 2 - E.B.

Pile number	40	41	42	43	44	45	46	47	48	49	50
Elevation top of pile	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85	1029.85
Length of stroke in ft. (diesel)	5.40	5.80	5.80	6.40	6.10	5.80	6.10	6.40	5.40	5.40	6.00
Average penetration - s in.	.430	.430	.420	.330	.430	.370	.560	.520	.330	.500	.550
Safe bearing - tons	48.4	51.10	54.10	50.90	53.80	53.90	55.50	42.70	50.90	43.70	37.30
Lin. ft. of each piece furnished.	26.60	31.70	76.10 / 26.10	26.10	27.00	26.10	26.10	25.00	26.10	25.60	26.10
Elevation tip of pile	1003.75	1004.01	1003.75	1004.10	1003.85	1004.20	1003.75	1004.20	1004.05	1004.10	1003.75

Pile number	51	52
Elevation top of pile	1029.85	1029.85
Length of stroke in ft. (diesel)	5.80	5.80
Average penetration - s in.	.500	.550
Safe bearing - tons	43.40	43.30
Lin. ft. of each piece furnished.	26.10	26.20
Elevation tip of pile	1004.10	1003.85

PILE LEGEND
○ Vertical Pile
● Batter Pile
All piles 14" ⌀ C.I.P. Concrete
Batter = 2:12 Cos. ∠ = .9664



PILE LEGEND

CUTOFF LEGEND

12"	Cutoff to stock pile.
10"	Cutoff used in pile indicated (Cutoff pile "10 used in pile "8)

HAMMER DATA

Type	K-22
Make	Kobe
Weight of ram	4,850 Lbs.
Stroke	2.84 to 8.75
Area of piston	
Effective cylinder pressure	

For single acting hammer
$$P = \frac{2WH}{s+0.1}$$
For double acting hammer
$$P = \frac{(W+ap)2H}{s+0.1}$$

P = Bearing capacity in pounds
W = Weight of ram in pounds
H = Length of stroke in feet
s = Average penetration per blow, in inches, of last 5 blows
a = Area of piston in square inches
p = Mean effective pressure in pounds per square inch in working cylinder

PAY QUANTITIES

ITEM	DESCRIPTION	UNIT	As Perplan	As Built
5120031	Furnishing Concrete Piles	Lin. Ft.	1326	1353
5120231	Driving Concrete Piles	Lin. Ft.	1326	1353
5120331	Splicing " "	each	21	15
* 5120031	Furnishing " "	Lin. Ft.	–	2

* NON F.A.

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
STA. 5527+
HASSAYAMPA RIVER BRIDGE
BEARING PILE RECORD

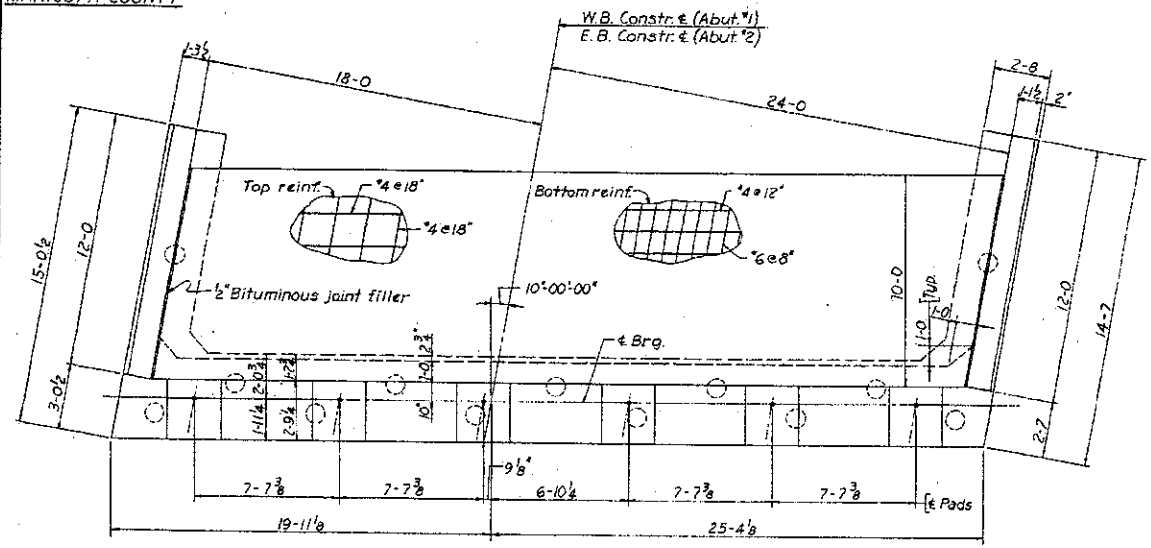
DRAWN: A.A. 5-70
CHECKED: 8A 28
1645 1646 T.10 104.69

I-10-2 (16)

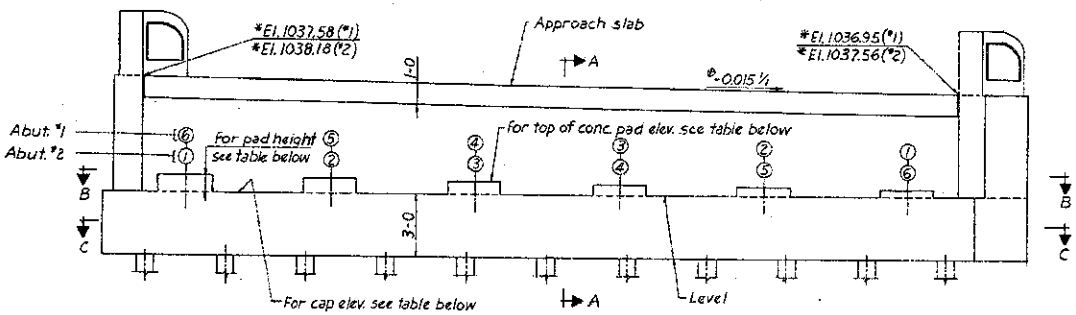
MASTER

EHRENBERG-PHOENIX HWY.
MARICOPA COUNTY

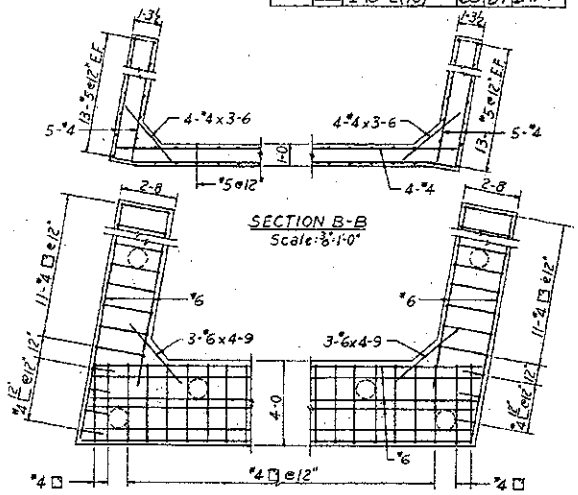
FEDERAL AID PROJECT	SHEET	PROJECT NO.	FISCAL YEAR	TOTAL SHEETS	AS BUILT
9		I-10-2(16)	68	87	2-11-72



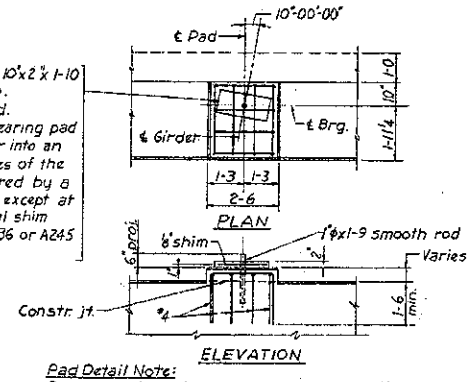
PLAN
No Scale



ELEVATION
No Scale



Elastomeric bearing pad 10"x2½"x1-10
Durometer hardness 60.
Provide 1⅛" ϕ hole at ℄ pad.
All components of the bearing pad shall be molded together into an integral unit and all edges of the metal shim shall be covered by a minimum of ⅛" elastomer except at center hole. The ⅛" metal shim shall conform to ASTM A36 or A245 Grade C or D.



Notes:
Approach slab to be poured after deck slab forms have been removed.
For addt'l. sections and details see sh. 10 of 28.
* Designates elevations are taken along front face of backwall.
# Designates slope normal to constr. ℄.

Pad Detail Note:
Bearing pads shall be built to exact elevation shown after cap beam concrete has been in place a minimum of 12 hrs. Pad elevations shall be set directly from controlling bench mark.

PAD DETAIL
Scale: ½"=1'-0"

	STATION	FIN. GRADE	PADS	HEIGHT	ELEVATION	CAPS ELEVATION
ABUT #2 E.B.	BIND-# 1	5531+73.99	1038.140	+11	3/4	1033.878	1038.800
	BIND-# 2	5531+75.32	1038.030	+10	3/8	1033.868	
	BIND-# 3	5531+76.64	1037.920	+ 9	1/16	1033.859	
	BIND-# 4	5531+77.96	1037.810	+ 7	5/8	1033.249	
	BIND-# 5	5531+79.28	1037.700	+ 6	7/16	1033.139	
	BIND-# 6	5531+80.61	1037.590	+ 5	1/8	1032.029	

	STATION	FIN. GRADE	PADS	HEIGHT	ELEVATION	CAPS ELEVATION
ABUT #1 W.B.	BIND-# 1	5519+77.89	1036.981	+ 4	0/0	1032.434	1038.300
	BIND-# 2	5519+79.22	1037.094	+ 5	3/8	1032.547	
	BIND-# 3	5519+80.54	1037.207	+ 6	11/16	1032.660	
	BIND-# 4	5519+81.86	1037.320	+ 8	1/16	1032.773	
	BIND-# 5	5519+83.18	1037.434	+ 9	7/16	1032.887	
	BIND-# 6	5519+84.51	1037.547	+10	13/16	1033.000	

DO NOT DESTROY

		DATE
LAYOUT		
DESIGN	CS	4-70
ARCHITECTURE		
DRAFTING	CS	5-70
TRACED		
CHECKED	J.D.S.	7-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+
HASSAYAMPA RIVER BRIDGE
ABUT. #1 W.B. & #2 E.B. DETAILS

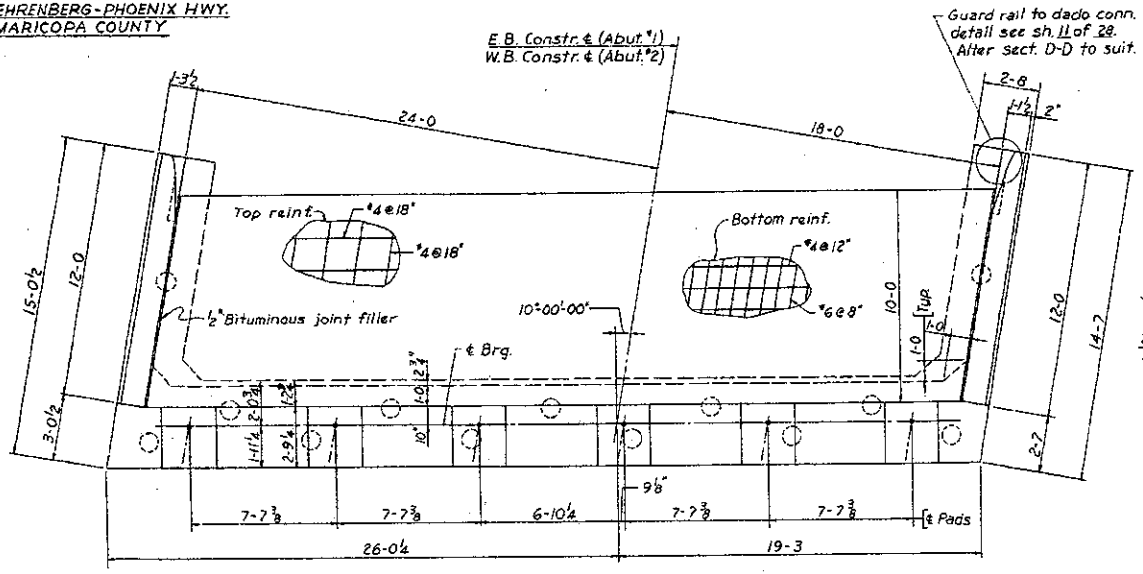
SHEET NO. 9 of 28 | 1695 446 | I-10 104.69

MARTIN TOMEK
ARIZONA, U.S.A.

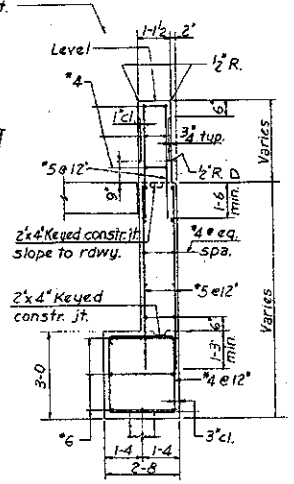
I-10-2(16)

EHRENBERG-PHOENIX HWY.
MARICOPA COUNTY

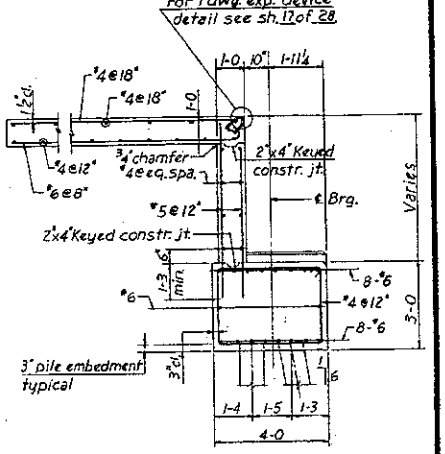
REVISION	DATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9		I-10-2(16)	69	87	2-11-75



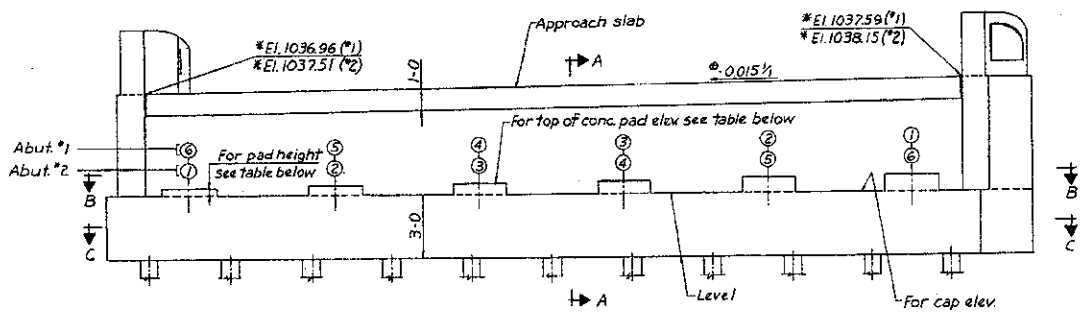
PLAN
No Scale



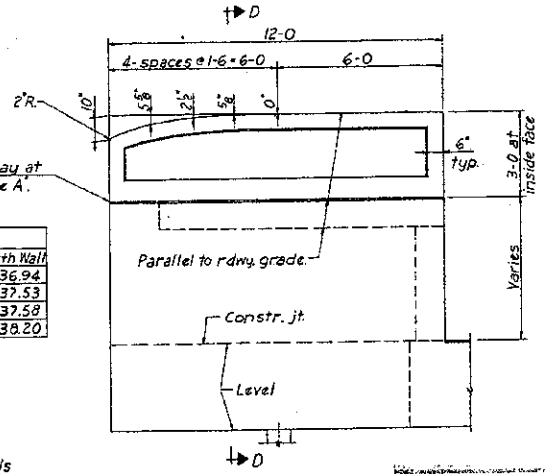
SECTION D-D
Scale: ½"=1'-0"



SECTION A-A
Scale: ½"=1'-0"



ELEVATION
No Scale



FRONT VIEW OF WINGWALL
Scale: ½"=1'-0"

TABLE A			
Location		South Wall	North Wall
W.B.	Abut. #1	1037.57	1036.94
	Abut. #2	1038.17	1037.53
E.B.	Abut. #1	1036.95	1037.58
	Abut. #2	1037.58	1038.20

Notes:
Approach slab to be poured after deck slab forms have been removed.
For addt'l. sections and details see sh. 9 of 28.
* Designates elevations are taken along front face of backwall.
⊕ Designates slope normal to constr. ℄.

	STATION	FIN. GRADE	PADS	HEIGHT	ELEVATION	CAPS ELEVATION
ABUT. 1 E.B.	GIRD.# 1	5519+97.99	1037.553	+10	13/16	1033.006
	GIRD.# 2	5519+99.32	1037.441	+ 8	1/8	1032.894
	GIRD.# 3	5520+00.44	1037.329	+ 8	1/8	1032.782
	GIRD.# 4	5520+01.96	1037.217	+ 8	13/16	1032.470
	GIRD.# 5	5520+03.28	1037.105	+ 8	7/16	1032.598
	GIRD.# 6	5520+04.61	1036.993	+ 4	1/8	1032.496

1038.100

	STATION	FIN. GRADE	PADS	HEIGHT	ELEVATION	CAPS ELEVATION
ABUT. 2 W.B.	GIRD.# 1	5531+53.60	1037.549	+ 4	1/8	1032.996
	GIRD.# 2	5531+55.22	1037.659	+ 6	0/0	1033.100
	GIRD.# 3	5531+56.54	1037.774	+ 7	3/8	1033.216
	GIRD.# 4	5531+57.86	1037.888	+ 8	3/4	1033.328
	GIRD.# 5	5531+59.18	1038.003	+10	1/8	1033.442
	GIRD.# 6	5531+60.51	1038.118	+11	1/8	1033.557

1038.600

		DATE
LAYOUT		
DESIGN	ES	4-70
ARCHITECTURE		
DRAWN	ES	5-70
TRACED		
CHECKED	J.D.S.	7-70
SHEET NO.	10 of 28	

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
STA. 5527+
HASSAYAMPA RIVER BRIDGE
ABUT. #1 E.B. & #2 W.B. DETAILS

1645 1646 I-10 104.69

MARTIN TONEY
BRIDGE ENGINEER

I-10-2(16)

EHRENBERG-PHOENIX HWY.
MARICOPA COUNTY

9		I-10-2(16)	70	87	2-11-73

GENERAL NOTES.

All dadoes shall be provided with Guard Rail connections for structures carrying two way traffic.

Only dadoes at the approach end are to be provided with Guard Rail connections for structures carrying one way traffic.

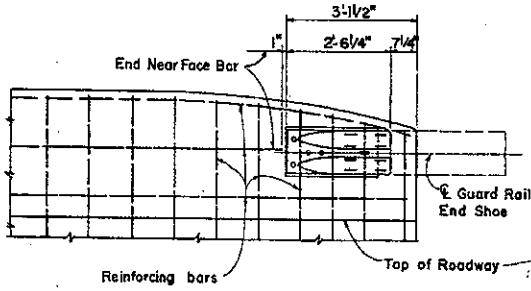
For dadoes without Guard Rail connections the inside face of dado shall be similar to the outside face.

Connect End Shoe to dado with 7/8" ϕ high strength bolts set in internally threaded tubular expansion anchors having an externally slit expansion element and a single cone expander. Tensile proof test load in 2500 psi concrete shall be 6500 lbs.

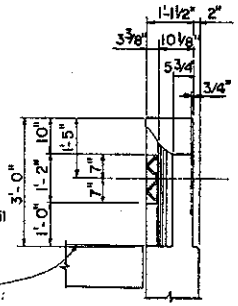
The Guard Rail End Shoe shall be 10 gage steel and galvanized after fabrication in accordance with A.S.T.M. Spec's A123.

For all other dado details, see Abutment Sheets.

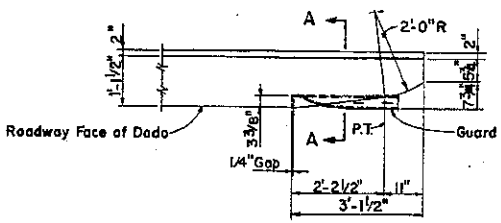
Guard Rail End Shoe shall be furnished and installed with roadway approach guardrail.



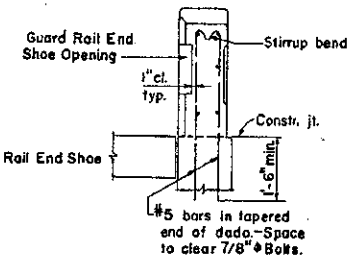
ROADWAY ELEVATION
Showing Guard Rail Shoe Connection
Scale: 3/4" = 1'-0"



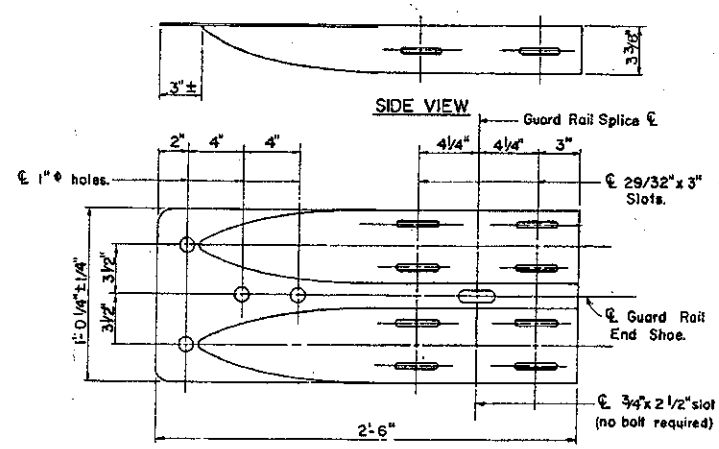
END ELEVATION OF DADO
Scale: 3/4" = 1'-0"



PLAN OF DADO
Showing Guard Rail Shoe Connection
Scale: 3/4" = 1'-0"



SECTION A-A
Scale: 3/4" = 1'-0"



PLAN
GUARD RAIL END SHOE DETAIL
Scale: 3" = 1'-0"

DESIGNED	MAH	11/69
CHECKED	J.D.S.	3-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
DADOES WITHOUT CURB
STA. 5527+
HASSAYAMPA RIVER BRIDGE
GUARD RAIL END SHOE-DADO CONN.

SHEET NO. 11 of 28 | SURVEY NUMBER 1645 1646 | DRAWING NUMBER I-10 194.69

MARVIN TONEY
BRIDGE ENGINEER

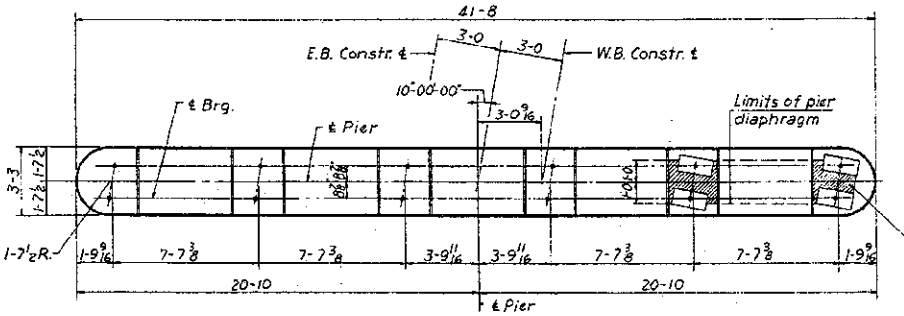
I-10-2(16)

MASTER

139

EHRENBERG - PHOENIX HWY.
MARICOPA COUNTY

FEDERAL AID PROJECT NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9		I-10-2(16)	71	87	2-11-75



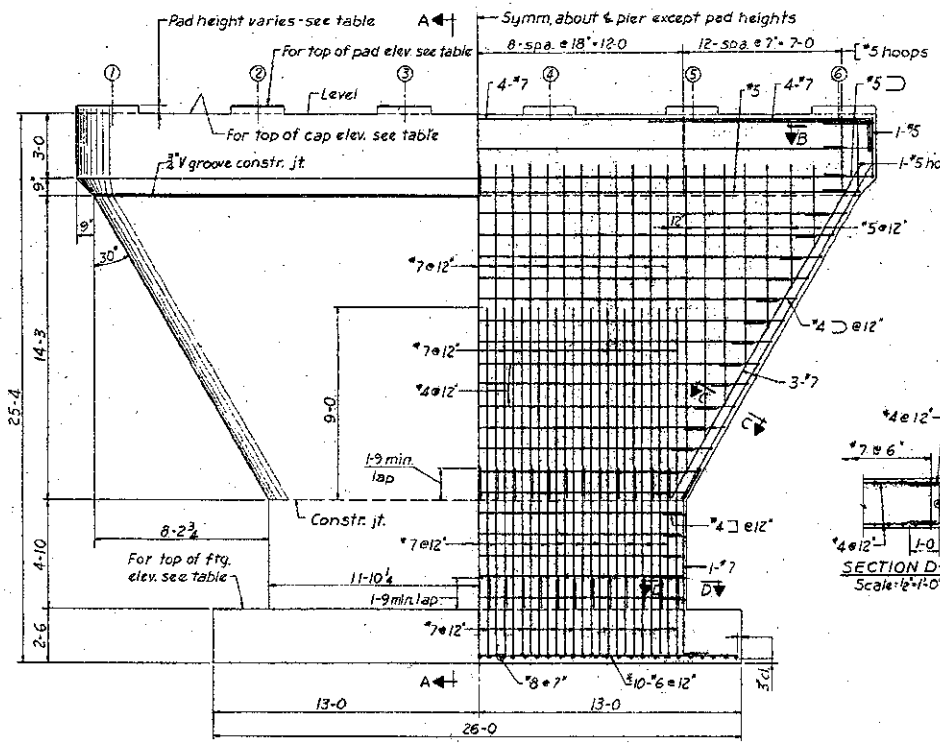
PLAN OF CAP
No Scale

Place expanded polystyrene under pier diaphragm, and around elastomeric pads. ⅛" tempered hardboard to be placed on top of expanded polystyrene.

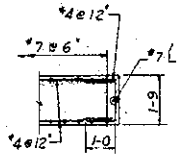
TOP OF FOOTING ELEVATIONS		
Loc.	W.B.	E.B.
Pier #1	1009.30	1009.31
Pier #2	1009.34	1009.35
Pier #4	1009.41	1009.42
Pier #5	1009.45	1009.46
Pier #7	1009.52	1009.53
Pier #8	1009.55	1009.55
Pier #10	1009.62	1009.64
Pier #11	1009.66	1009.67
Pier #13	1009.73	1009.74
Pier #14	1009.76	1009.77

TABLE OF ELEVATIONS AND PAD HEIGHTS

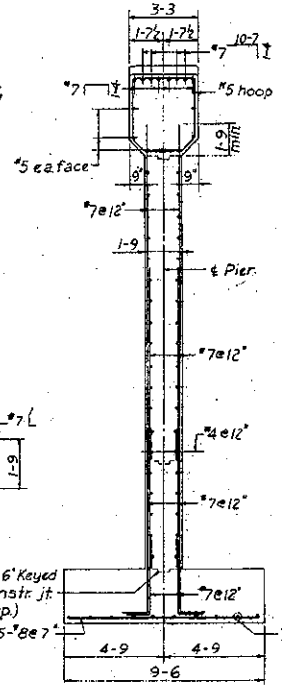
Location		W.B. PADS	W.B. HEIGHT	W.B. ELEVATION	W.B. CAP ELEVATION	E.B. PADS	E.B. HEIGHT	E.B. ELEVATION	E.B. CAP ELEVATION
PIER 1	GIRDER 1	+4	0/0	1032.409	1032.136	+10	11/16	1032.661	1032.148
	GIRDER 2	+5	3/8	1032.592		+9	3/8	1032.929	
	GIRDER 3	+6	11/16	1032.695		+8	0/0	1032.817	
	GIRDER 4	+8	1/16	1032.809		+6	11/16	1032.705	
	GIRDER 5	+8	7/16	1032.923		+5	5/16	1032.593	
	GIRDER 6	+10	13/16	1033.035		+4	0/0	1032.481	
PIER 2	GIRDER 1	+4	0/0	1032.505	1032.172	+10	11/16	1033.077	1032.184
	GIRDER 2	+5	3/8	1032.618		+9	3/8	1032.965	
	GIRDER 3	+6	11/16	1032.731		+8	0/0	1032.853	
	GIRDER 4	+8	1/16	1032.844		+6	11/16	1032.741	
	GIRDER 5	+8	7/16	1032.957		+5	5/16	1032.629	
	GIRDER 6	+10	13/16	1033.070		+4	0/0	1032.517	
PIER 3	GIRDER 1	+4	0/0	1032.576	1032.243	+10	11/16	1033.148	1032.253
	GIRDER 2	+5	3/8	1032.689		+9	3/8	1033.036	
	GIRDER 3	+6	11/16	1032.803		+8	0/0	1032.924	
	GIRDER 4	+8	1/16	1032.916		+6	11/16	1032.812	
	GIRDER 5	+9	7/16	1033.029		+5	5/16	1032.700	
	GIRDER 6	+10	13/16	1033.[illegible]		+4	0/0	1032.589	
PIER 5	GIRDER 1	+4	0/0	1032.612	1032.279	+10	11/16	1033.184	1032.291
	GIRDER 2	+5	3/8	1032.728		+9	3/8	1033.072	
	GIRDER 3	+6	11/16	1032.834		+8	0/0	1032.960	
	GIRDER 4	+8	1/16	1032.951		+6	11/16	1032.848	
	GIRDER 5	+9	7/16	1033.066		+5	5/16	1032.736	
	GIRDER 6	+10	13/16	1033.178		+4	0/0	1032.624	
PIER 7	GIRDER 1	+4	0/0	1032.686	1032.390	+10	11/16	1033.220	1032.362
	GIRDER 2	+5	3/8	1032.799		+9	3/8	1033.145	
	GIRDER 3	+6	11/16	1032.910		+8	0/0	1033.031	
	GIRDER 4	+8	1/16	1033.023		+6	11/16	1032.918	
	GIRDER 5	+9	7/16	1033.136		+5	5/16	1032.806	
	GIRDER 6	+10	13/16	1033.249		+4	0/0	1032.694	
PIER 8	GIRDER 1	+4	0/0	1032.759	1032.366	+10	11/16	1033.291	1032.398
	GIRDER 2	+5	3/8	1032.872		+9	3/8	1033.179	
	GIRDER 3	+6	11/16	1032.985		+8	0/0	1033.067	
	GIRDER 4	+8	1/16	1033.098		+6	11/16	1032.955	
	GIRDER 5	+9	7/16	1033.172		+5	5/16	1032.843	
	GIRDER 6	+10	13/16	1033.285		+4	0/0	1032.731	
PIER 10	GIRDER 1	+4	0/0	1032.771	1032.437	+10	11/16	1033.362	1032.470
	GIRDER 2	+5	3/8	1032.904		+9	3/8	1033.250	
	GIRDER 3	+6	11/16	1033.017		+8	0/0	1033.139	
	GIRDER 4	+8	1/16	1033.130		+6	11/16	1033.027	
	GIRDER 5	+9	7/16	1033.243		+5	5/16	1032.915	
	GIRDER 6	+10	13/16	1033.356		+4	0/0	1032.803	
PIER 11	GIRDER 1	+4	0/0	1032.826	1032.493	+10	11/16	1033.378	1032.505
	GIRDER 2	+5	3/8	1032.939		+9	3/8	1033.266	
	GIRDER 3	+6	11/16	1033.053		+8	0/0	1033.174	
	GIRDER 4	+8	1/16	1033.166		+6	11/16	1033.062	
	GIRDER 5	+9	7/16	1033.279		+5	5/16	1032.950	
	GIRDER 6	+10	13/16	1033.392		+4	0/0	1032.839	
PIER 13	GIRDER 1	+4	0/0	1032.898	1032.565	+10	11/16	1033.469	1032.577
	GIRDER 2	+5	3/8	1033.011		+9	3/8	1033.358	
	GIRDER 3	+6	11/16	1033.126		+8	0/0	1033.246	
	GIRDER 4	+8	1/16	1033.237		+6	11/16	1033.134	
	GIRDER 5	+9	7/16	1033.350		+5	5/16	1033.022	
	GIRDER 6	+10	13/16	1033.463		+4	0/0	1032.910	
PIER 14	GIRDER 1	+4	0/0	1032.922	1032.589	+10	11/16	1033.492	1032.599
	GIRDER 2	+5	3/8	1033.035		+9	3/8	1033.380	
	GIRDER 3	+6	11/16	1033.148		+8	0/0	1033.268	
	GIRDER 4	+8	1/16	1033.261		+6	11/16	1033.156	
	GIRDER 5	+9	7/16	1033.374		+5	5/16	1033.044	
	GIRDER 6	+10	3/4	1033.487		+4	0/0	1032.933	



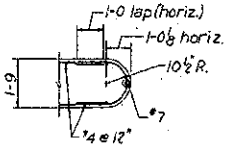
FIXED PIER ELEVATION
Looking Ahead
No Scale



SECTION D-D
Scale: ½"=1'-0"



SECTION A-A
Scale: ⅜"=1'-0"



SECTION C-C
Scale: ½"=1'-0"

Notes:
For section B-B and pad detail see sh. 13 of 28.
* Designates total number of bars req'd. for one pier.

		DATE
LAYOUT		
DESIGN	E.S.	4-70
ARCHITECTURE		
DRAFT	E.S.	5-70
TRACED		
CHECKED	J.D.S.	7-70
SHEET NO.	12 - 28	

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+
HASSAYAMPA RIVER BRIDGE
DET. OF PIERS 1, 2, 4, 5, 7, 8, 11, 13, 14 - WHEEL

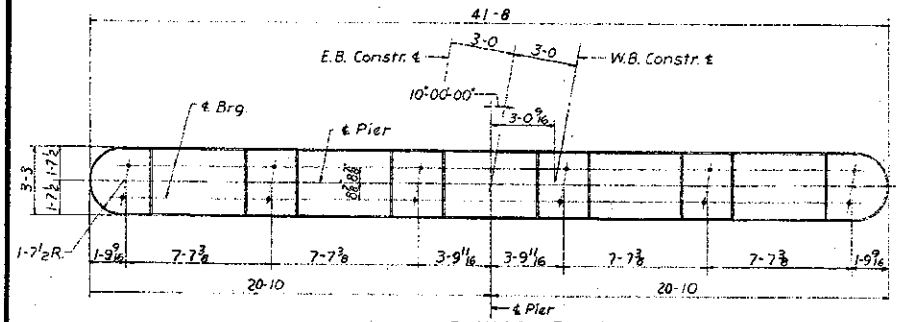
1645 1646 | I-10 10469

BRIDGE DESIGNER

I-10-2(16)

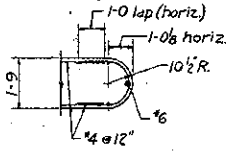
EHRENBERG - PHOENIX HWY.
MARICOPA COUNTY

FEDERAL AID PROJECT NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	DATE
9	ARIZONA	1-10-2(16)	72	87	2-11-75



PLAN OF CAP
No Scale

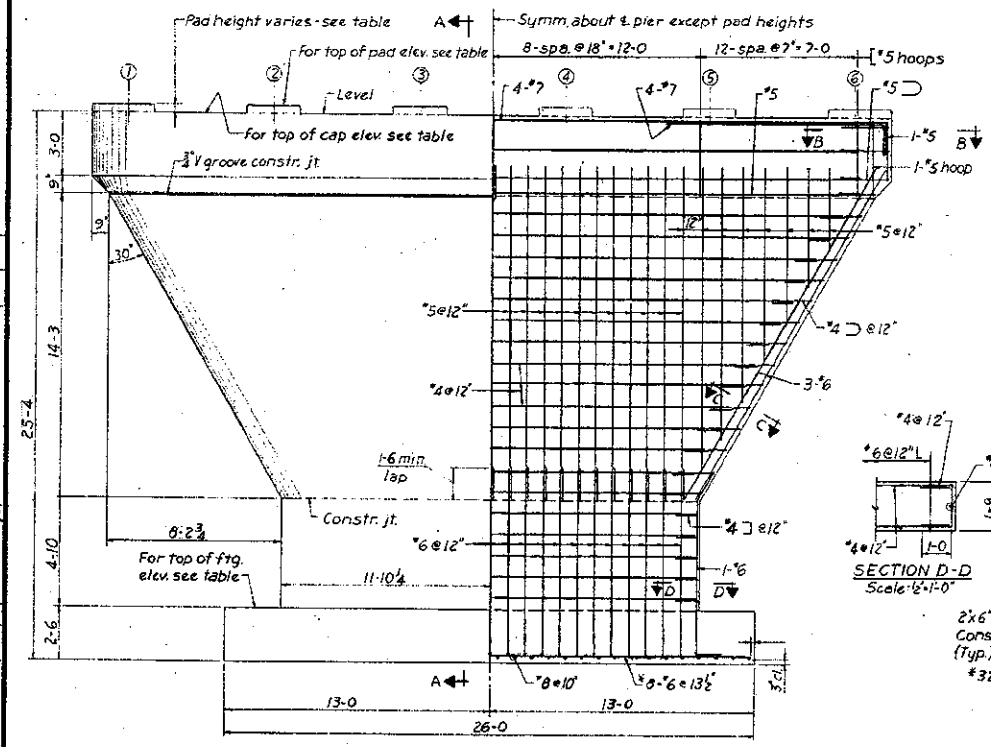
TOP OF FOOTING ELEVATIONS		
Loc.	W.B.	E.B.
Pier #3	1009.37	1009.39
Pier #6	1009.48	1009.49
Pier #9	1009.59	1009.60
Pier #12	1009.70	1009.71



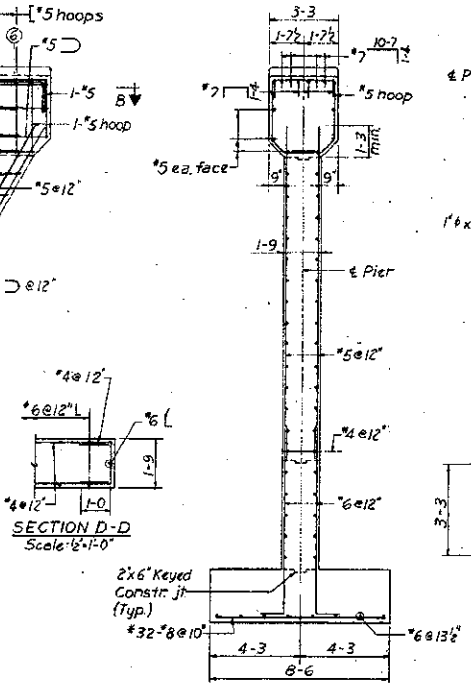
SECTION C-C
Scale: ½"=1'-0"

TABLE OF ELEVATIONS AND PAD HEIGHTS

Location	W.B. PAD	W.B. HEIGHT	W.B. ELEVATION	W.B. CAP ELEVATION	E.B. PAD	E.B. HEIGHT	E.B. ELEVATION	E.B. CAP ELEVATION
PIER 3 GIRD.# 1	+ 4	0/0	1032.541	1032.207	+10	11/16	1033.112	1032.220
GIRD.# 2	+ 5	3/8	1032.658		+ 9	3/8	1033.000	
GIRD.# 3	+ 6	11/16	1032.787		+ 8	0/0	1032.888	
GIRD.# 4	+ 8	1/16	1032.940		+ 6	11/16	1032.777	
GIRD.# 5	+ 9	7/16	1032.993		+ 5	9/16	1032.642	
GIRD.# 6	+10	13/16	1033.106		+ 4	0/0	1032.553	
PIER 6 GIRD.# 1	+ 4	0/0	1032.648	1032.314	+10	11/16	1033.218	1032.327
GIRD.# 2	+ 5	3/8	1032.761		+ 9	3/8	1033.108	
GIRD.# 3	+ 6	11/16	1032.876		+ 8	0/0	1032.996	
GIRD.# 4	+ 8	1/16	1032.987		+ 6	11/16	1032.884	
GIRD.# 5	+ 9	7/16	1033.100		+ 5	9/16	1032.772	
GIRD.# 6	+10	13/16	1033.213		+ 4	0/0	1032.660	
PIER 9 GIRD.# 1	+ 4	0/0	1032.755	1032.422	+10	11/16	1033.325	1032.434
GIRD.# 2	+ 5	3/8	1032.868		+ 9	3/8	1033.215	
GIRD.# 3	+ 6	11/16	1032.981		+ 8	0/0	1033.103	
GIRD.# 4	+ 8	1/16	1033.094		+ 6	11/16	1032.991	
GIRD.# 5	+ 9	7/16	1033.207		+ 5	9/16	1032.879	
GIRD.# 6	+10	13/16	1033.320		+ 4	0/0	1032.767	
PIER 12 GIRD.# 1	+ 4	0/0	1032.862	1032.529	+10	11/16	1033.438	1032.541
GIRD.# 2	+ 5	3/8	1032.975		+ 9	3/8	1033.328	
GIRD.# 3	+ 6	11/16	1033.088		+ 8	0/0	1033.210	
GIRD.# 4	+ 8	1/16	1033.201		+ 6	11/16	1033.098	
GIRD.# 5	+ 9	7/16	1033.315		+ 5	9/16	1032.986	
GIRD.# 6	+10	13/16	1033.428		+ 4	0/0	1032.874	

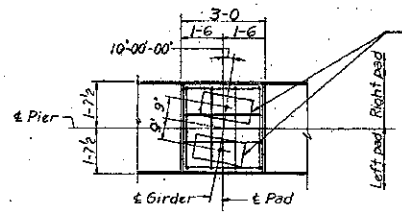


EXPANSION PIER ELEVATION
Looking Ahead
No Scale

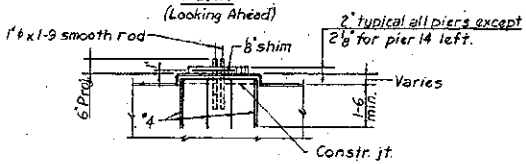


SECTION A-A
Scale: ⅜"=1'-0"

SECTION D-D
Scale: ½"=1'-0"

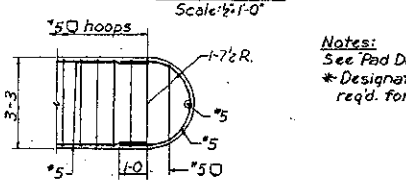


PLAN
(Looking Ahead)



ELEVATION

PAD DETAIL
Scale: ½"=1'-0"



SECTION B-B
Scale: ½"=1'-0"

Notes:
See "Pad Detail Note" sh. 9 of 28.
* Designates total number of bars req'd. for one pier.

		DATE
LAYOUT		
DESIGN	ES	4-70
ARCHITECTURE		
DRAFT'D	ES	5-70
TRACED		
CHECKED	J.D.S.	7-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
STA. 5527+
HASSAYAMPA RIVER BRIDGE
DETAIL OF PIERS 3, 6, 9 & 12 W.B. & E.B.

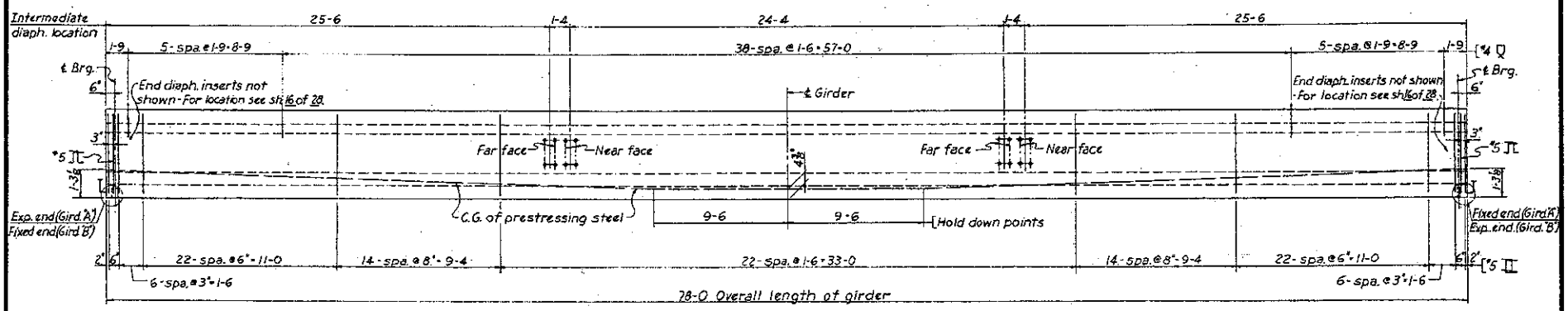
SHEET NO. 13 of 28 | 1443 | T-10 | 104.69

MARTIN TONEY
ARIZONA, U.S.A.
BRIDGE ENGINEER

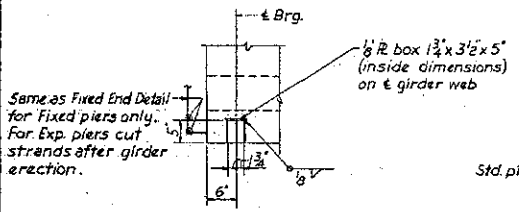
T-10-2(16)

EHRENBERG - PHOENIX HWY.
MARICOPA COUNTY

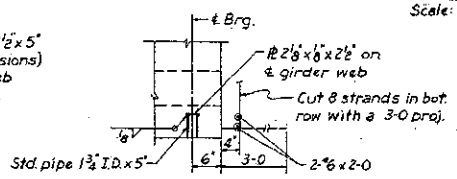
SHEET NO.	STATE	PROJECT NO.	FISCAL YEAR	TOTAL SHEETS	DATE
9	ARIZONA	I-10-2(16)	73	87	2-11-75



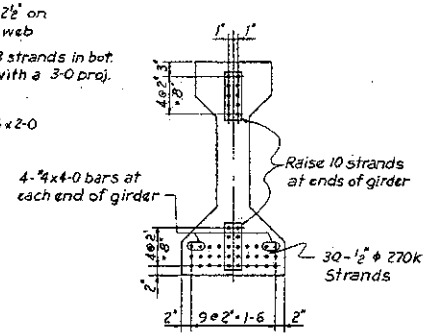
ELEVATION GIRDER 'A' (Drawn for interior girders *)
Girder 'B' Similar
Scale: 1/2" = 1'-0" Vert.; 3/8" = 1-0 Horiz.



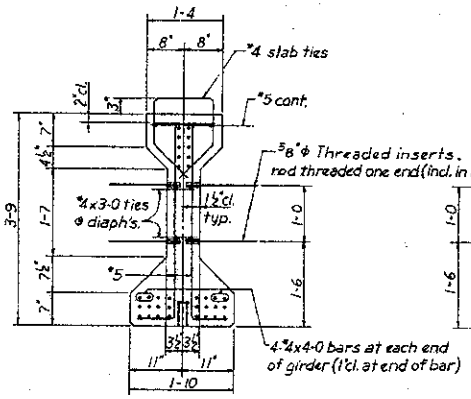
EXPANSION END DETAIL
Scale: 1" = 1'-0"



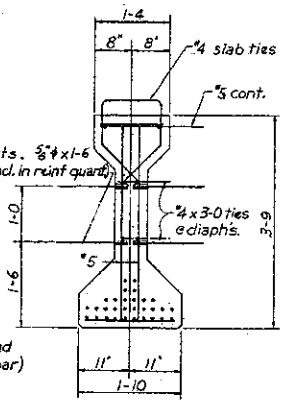
FIXED END DETAIL
Scale: 1" = 1'-0"



PROPOSED STRAND ARRANGEMENT
Scale: 1" = 1'-0"



SECTION THRU ℄ BRG.
Scale: 1" = 1'-0"



SECTION THRU MIDSPAN
Scale: 1" = 1'-0"

PRETENSION GIRDER NOTES:

P_w = 713.56^k = the total tension force in prestressing steel remaining after all losses. Total losses assumed at 35,000 P.S.I.

f'ci = 5000 psi = Minimum ultimate compressive strength of concrete at the time of initial prestress.

f'c = 5300 psi; n = 6

Ends of pretensioned steel exposed to weather shall be protected by a coating of asphaltic material.

A minimum of 2 depressions (as shown) within the girder shall be used to position the tendons. The center of gravity of the prestressing steel shall be as shown at the ends and center of the girders and shall approximate a parabola.

Ends of girders shall be cast so they will be vertical when erected.

* Exterior girders shall have provisions for diaphragms on interior side only.

DO NOT SCALE

		DATE
LAYOUT		
DESIGN	ES	4-70
ASSISTANT DESIGN		
DRAWN	ES	5-70
TRACED		
CHECKED	J.D.S.	7-70

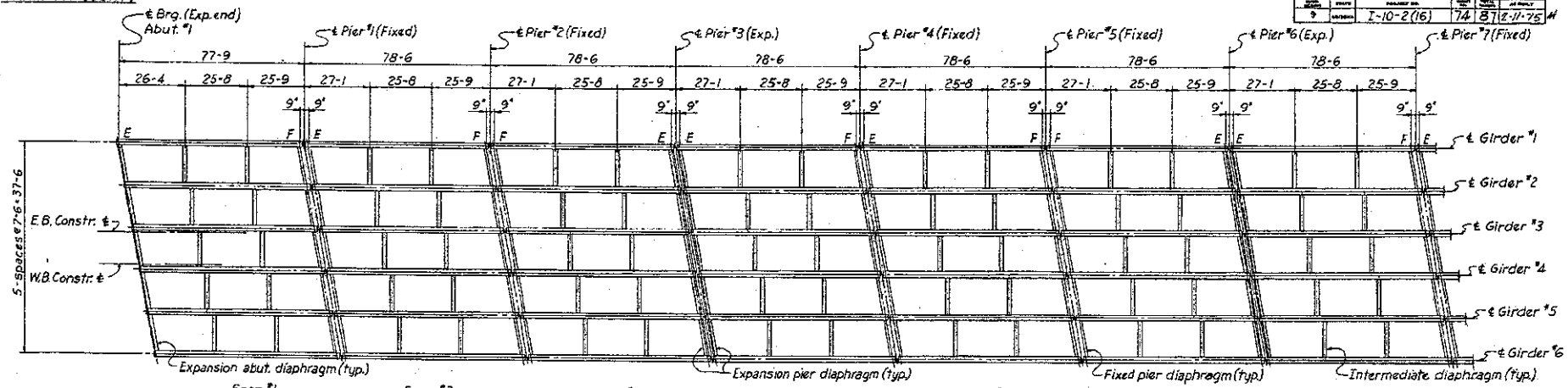
ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527 +
HASSAYAMPA RIVER BRIDGE
GIRDER DETAIL W.B. & E.B.

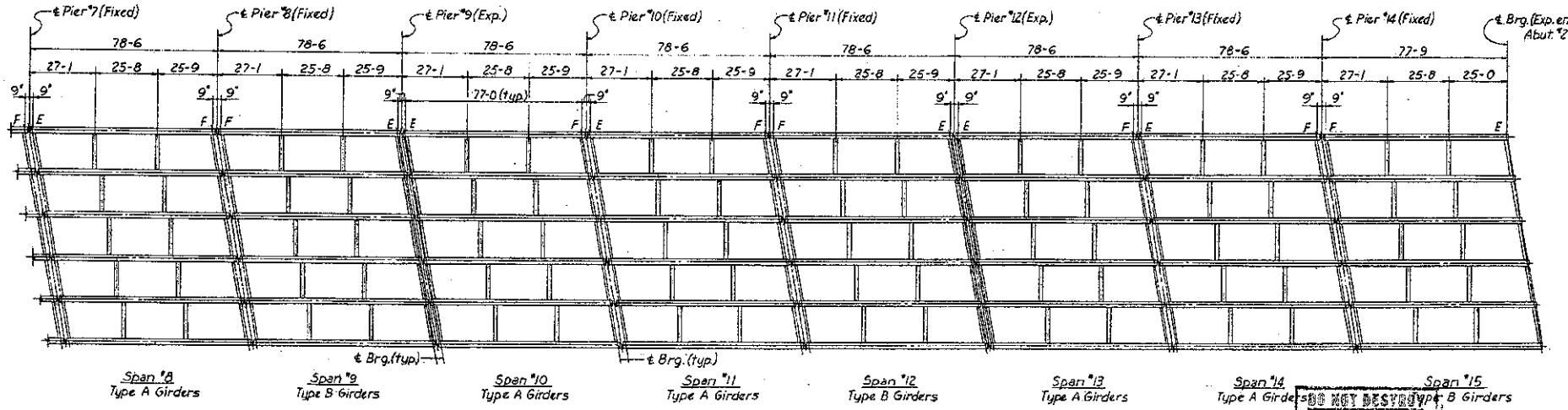
SHEET NO. 14 of 28 | 1645 | I-10 | 104.69

EHRENBERG - PHOENIX HWY.
MARICOPA COUNTY

FEDERAL REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZONA	I-10-2(16)	74	87	12-11-75



GIRDER PLAN
No Scale



DO NOT DESTROY

GIRDER PLAN
No Scale

Note:
Cast-in-place concrete is shaded.
F and F designates Exp. End Detail and Fixed End Detail of girders as shown on sh. 14 of 28.

		DATE
LAYOUT		
DESIGN	CES	4-70
ARCHITECTURE		
DRAWN	CES	5-70
TRACED		
CHECKED	J.D.S.	7-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+
HASSAYAMPA RIVER BRIDGE
GIRDER LAYOUT W.B. & E.B.

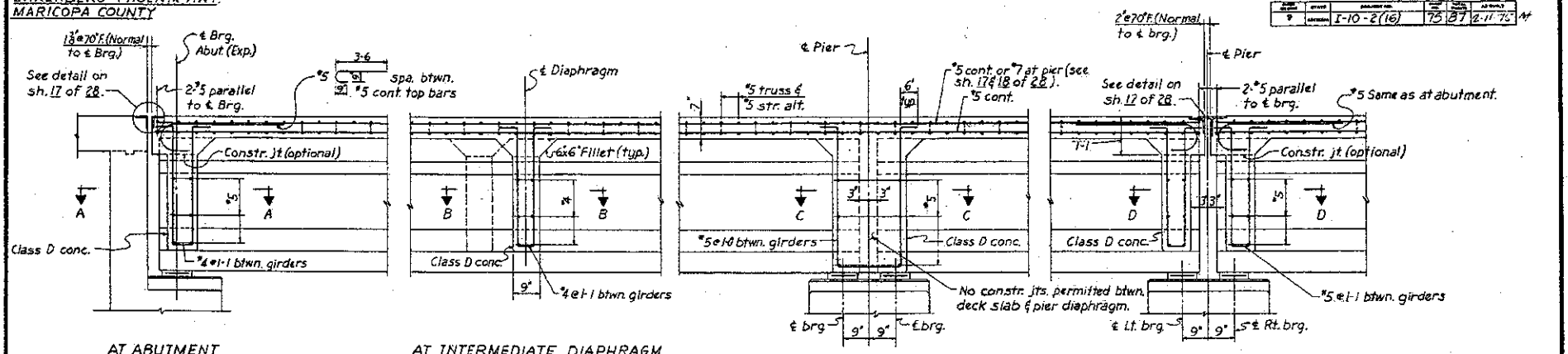
SHEET NO. 15 of 28

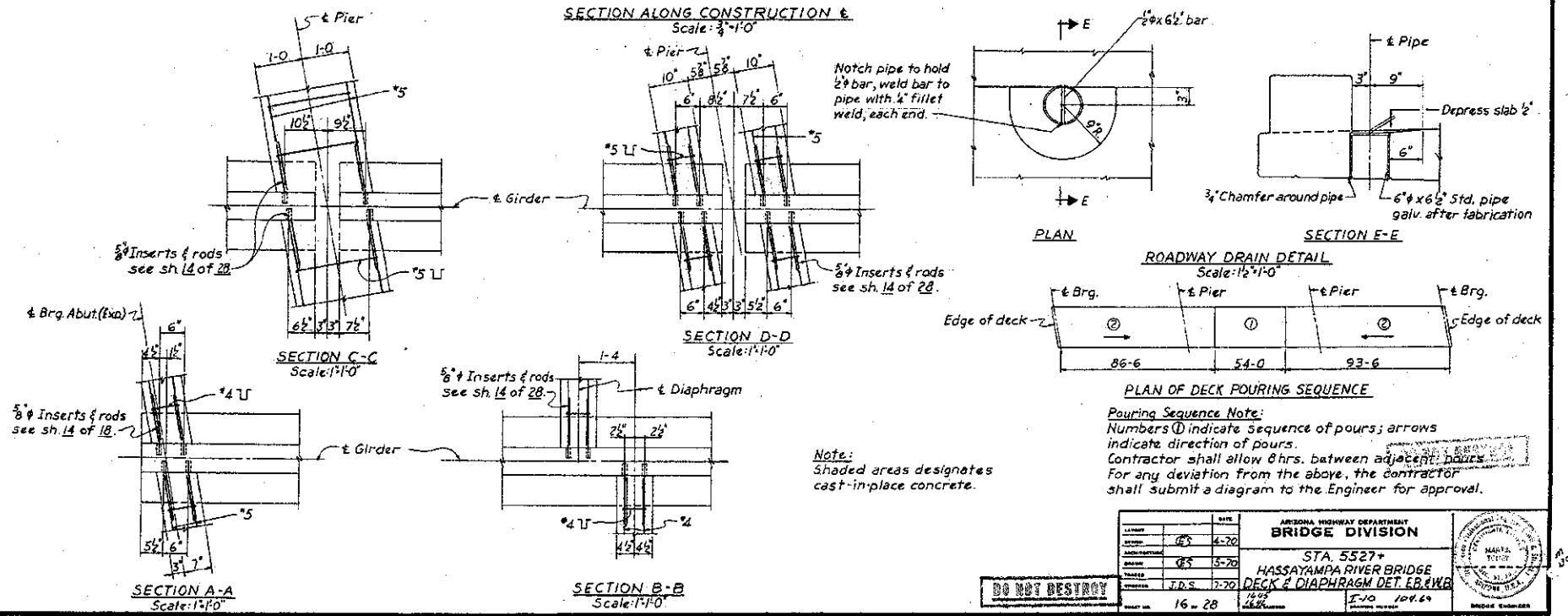
MARTIN TONEY
BRIDGE ENGINEER

I-10-2(16)

EHRENBERG - PHOENIX HWY.
MARICOPA COUNTY

9		I-10-2(16)	75	87	2-11-75





Note:
Shaded areas designates cast-in-place concrete.

Pouring Sequence Note:
Numbers ① indicate sequence of pours; arrows indicate direction of pours.
Contractor shall allow 8 hrs. between adjacent pours.
For any deviation from the above, the contractor shall submit a diagram to the Engineer for approval.

		DATE
LAYOUT		
DESIGN	GES	4-70
ASSISTANT		
DRAWN	GES	5-70
TRACED		
CHECKED	J.D.S.	7-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+
HASSAYAMPA RIVER BRIDGE
DECK & DIAPHRAGM DET. EB & WB

SHEET NO. 16 OF 28
I-10 1649 1649
DRAWING NUMBER 104.64

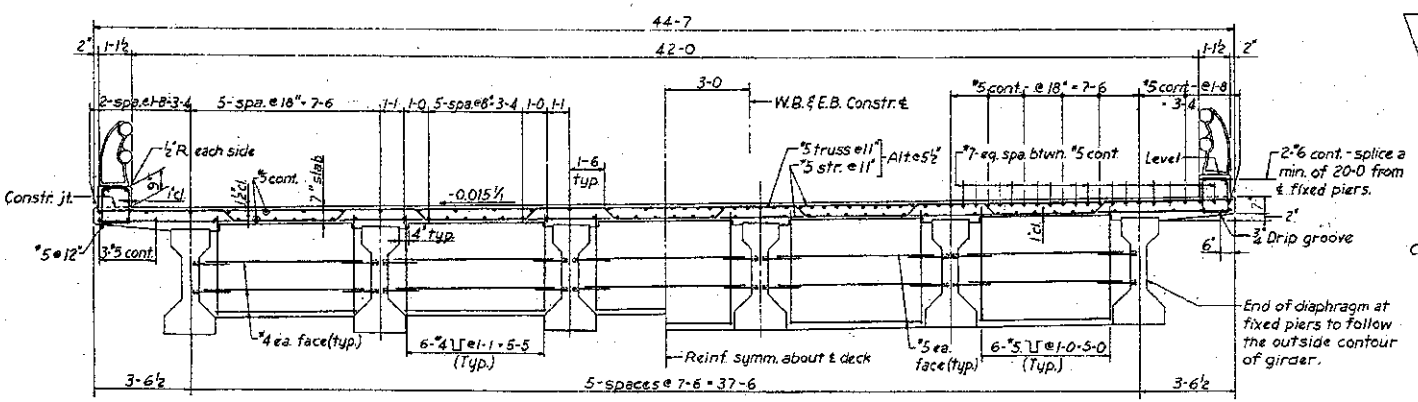
BRIDGE ENGINEER

DO NOT DESTROY

I-10-2(16)

ERHENBERG - PHOENIX HWY.
MARICOPA COUNTY

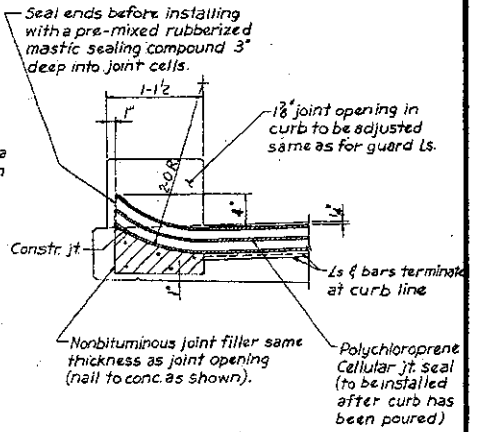
9	ARIZONA	I-10-2(16)	76	87	2-11-75



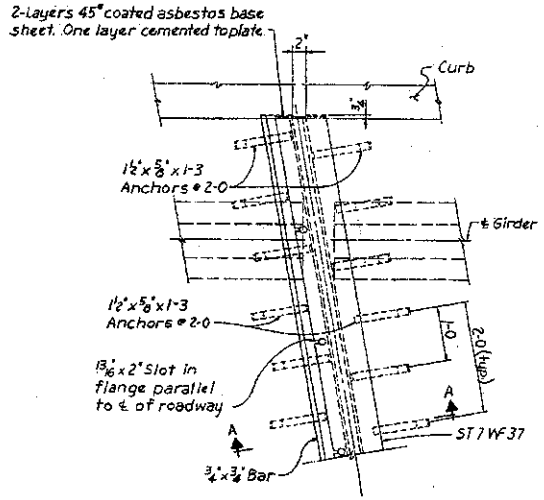
HALF SECTION NEAR MIDSPAN

HALF SECTION NEAR FIXED PIER

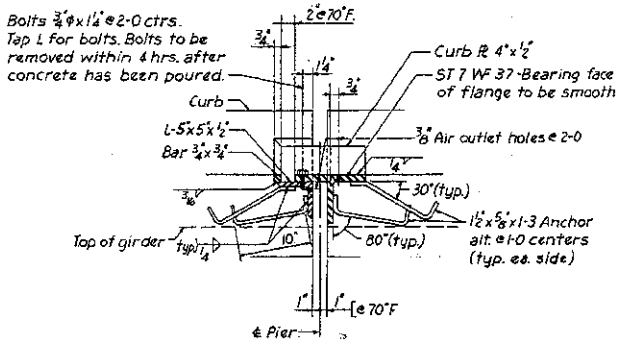
CROSS SECTION
No Scale



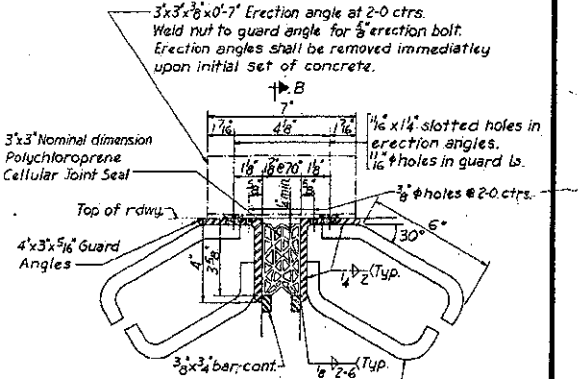
SECTION B-B
Scale: 1½" = 1'-0"



PARTIAL PLAN OF EXPANSION JOINT AT PIERS #3, #6, #9 & #12
Scale: 1" = 1'-0"



SECTION A-A
Scale: 1½" = 1'-0"



Joint opening must be adjusted in the field for 1⅛" @ 70°F. Correction:
- ⅛" per 10°F above 70°
+ ⅛" per 10°F below 70°
Measured parallel to constr. ℄

CROSS SECTION THRU EXPANSION JOINT AT ABUT.
Scale: ⅜" = 1'

Note:
Top of handrail curbs shall be built to grade after spans have taken slab dead load deflection.

Paint note for exp. jt. at abut.
Roadway surface: 1 coat each #1A or #1B, #3 and #10. Joint seal face - 1 coat #1A or #1B only.

DO NOT DESTROY

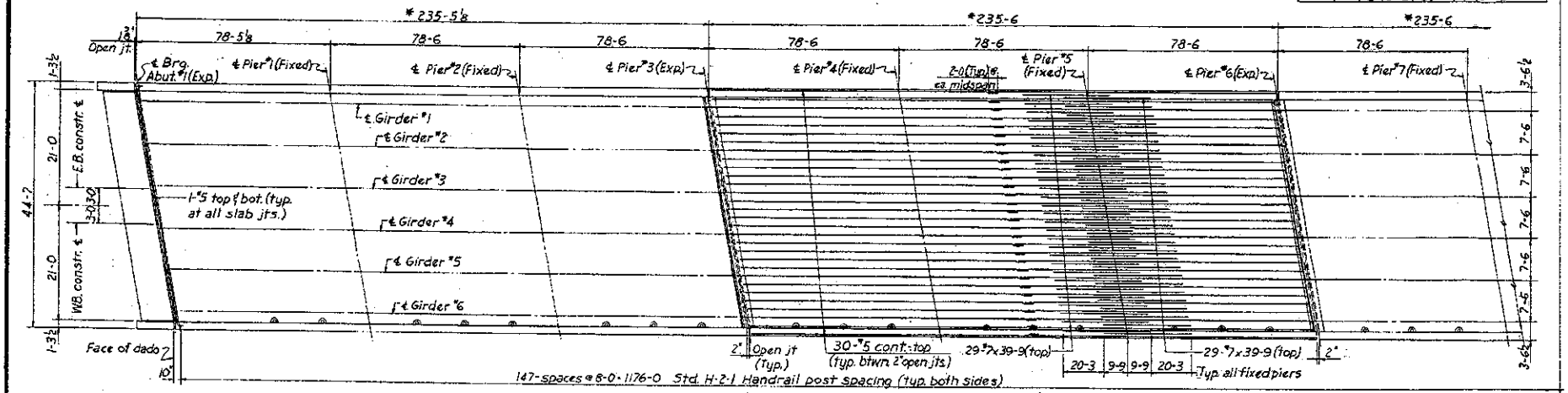
		DATE
LAYOUT		
DESIGN	E.S.	4-70
ASSUMPTIONS PLANS		
CALCS	E.S.	5-70
TRACED		
CHECKED	J.D.S.	7-70
SHEET NO.	17 of 28	

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
STA. 5527+
HASSAYAMPA RIVER BRIDGE
DECK & EXP. DETAIL E.B. & W.B.
1-68 / 1-69
I-10 104-49
BRIDGE ENGINEER

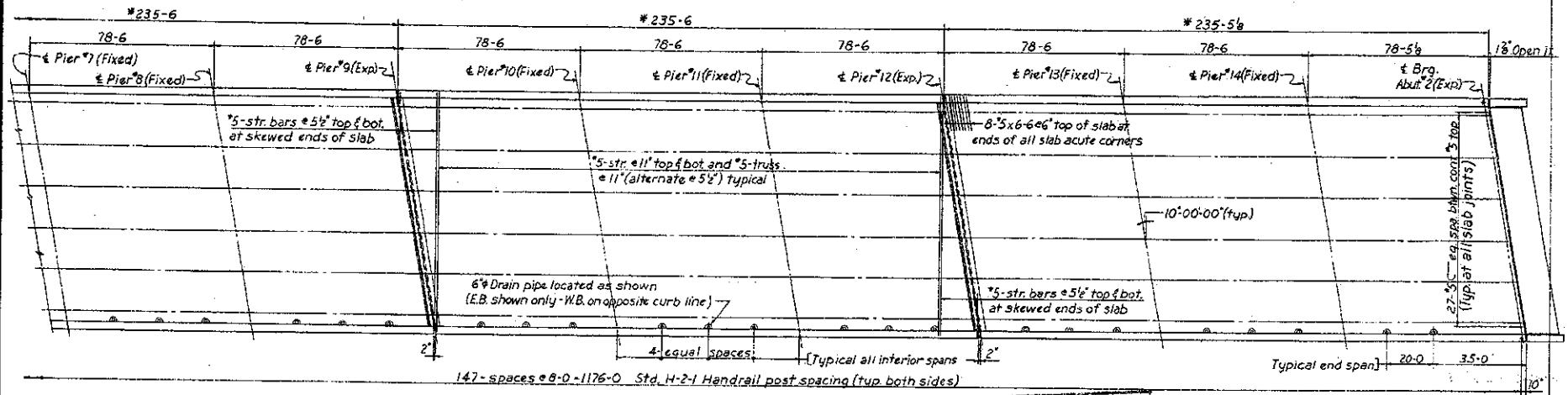
I-10-2(16)

EHRENBERG-PHOENIX HWY.
MARICOPA COUNTY

FEDERAL AID PROJECT NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS OF JULY
9	ARIZONA	I-10-2(16)	77	87	2-11-75



PLAN
No Scale



PLAN
No Scale

DO NOT DESTROY

Notes:
For drain detail see sh. 16 of 28.
*Denotes length of deck continuous for live load.
Bottom longitudinal reinf. cont. #5 - for location see cross section sh. 17 of 28.

		DATE
LAYOUT		
DESIGN	E.S.	4-70
CONSTRUCTION		
DRAWN	E.S.	5-70
TRACED		
CHECKED	J.D.S.	7-70
SHEET NO.	18 of 28	

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

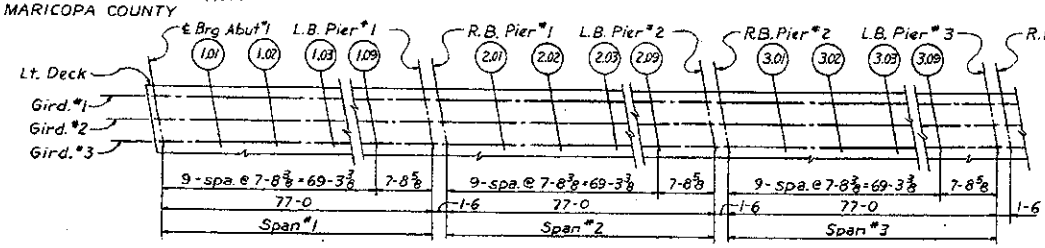
STA. 5527+
HASSAYAMPA RIVER BRIDGE
DECK REINF. PLAN E.B. & W.B.

I-10 104.69

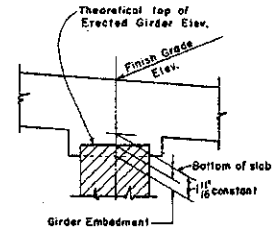
BRIDGE ENGINEER

I-10-2(16)

ERHENBERG - PHOENIX HWY.
MARICOPA COUNTY



PLAN
No Scale



L.B. = Left Bearing
R.B. = Right Bearing

STATE	FEDERAL AID PROJECT NO.	SHEET NO.	TOTAL SHEETS	JOB SUBLET
ARIZONA	I-10-2(16)	78	87	

NOTE—

The Theoretical Top of Erected Girder Elevations include an allowance for deflection of the girders due to their own dead load. The Top of Erected Girder Elevations shall be checked in the field. If the measured elevation is lower than the theoretical elevation, the difference shall be subtracted from the embedment. If the measured elevation is higher, the difference shall be added to the embedment.

The Finish Grade Elevations Adjusted for Deflection include an allowance for the dead load of the concrete deck and shall be used as shown regardless of the measured top of erected girder elevations.

Lt. Deck = Left Face of Deck.
Rt. Deck = Right Face of Deck.
CL = Constr. ℄

MASTER

SPAN #1

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
ABUT #1	LT. DECK	5519+97.37	1037.606				1037.606
	CL	5520+00.77	1037.318				1037.318
	RT. DECK	5520+05.23	1036.941				1036.941
	GIRD.# 1	5519+97.90	1037.553	1036.923		- 1 1/8	1037.553
	GIRD.# 2	5519+99.72	1037.461	1036.811		- 1 1/8	1037.461
	GIRD.# 3	5520+00.64	1037.329	1036.699		- 1 1/8	1037.329
	GIRD.# 4	5520+01.94	1037.217	1036.587		- 1 1/8	1037.217
	GIRD.# 5	5520+03.28	1037.105	1036.475		- 1 1/8	1037.105
	GIRD.# 6	5520+04.61	1036.993	1036.363		- 1 1/8	1036.993
1+03	LT. DECK	5520+09.07	1037.609				1037.636
	CL	5520+08.47	1037.321				1037.348
	RT. DECK	5520+12.93	1036.944				1036.969
	GIRD.# 1	5520+05.49	1037.556	1036.988		- 1 5/16	1037.556
	GIRD.# 2	5520+07.02	1037.464	1036.856		- 1 5/16	1037.464
	GIRD.# 3	5520+08.34	1037.333	1036.725		- 1 5/16	1037.333
	GIRD.# 4	5520+09.66	1037.221	1036.632		- 1 5/16	1037.221
	GIRD.# 5	5520+10.98	1037.109	1036.520		- 1 5/16	1037.109
	GIRD.# 6	5520+12.31	1036.997	1036.408		- 1 5/16	1037.022
1+02	LT. DECK	5520+12.77	1037.613				1037.637
	CL	5520+16.17	1037.325				1037.349
	RT. DECK	5520+20.63	1036.948				1036.972
	GIRD.# 1	5520+13.39	1037.560	1037.004		- 1 1/2	1037.604
	GIRD.# 2	5520+14.72	1037.468	1036.892		- 1 1/2	1037.493
	GIRD.# 3	5520+16.06	1037.336	1036.780		- 1 1/2	1037.381
	GIRD.# 4	5520+17.38	1037.224	1036.668		- 1 1/2	1037.269
	GIRD.# 5	5520+18.64	1037.112	1036.557		- 1 1/2	1037.157
	GIRD.# 6	5520+20.01	1037.000	1036.445		- 1 1/2	1037.045
1+03	LT. DECK	5520+20.47	1037.616				1037.675
	CL	5520+23.87	1037.328				1037.387
	RT. DECK	5520+28.33	1036.951				1037.010
	GIRD.# 1	5520+21.09	1037.563	1037.031		- 1 5/8	1037.622
	GIRD.# 2	5520+22.42	1037.471	1036.919		- 1 5/8	1037.516
	GIRD.# 3	5520+23.74	1037.340	1036.807		- 1 5/8	1037.394
	GIRD.# 4	5520+25.06	1037.228	1036.695		- 1 5/8	1037.286
	GIRD.# 5	5520+26.38	1037.116	1036.583		- 1 5/8	1037.174
	GIRD.# 6	5520+27.71	1037.005	1036.471		- 1 5/8	1037.062
1+04	LT. DECK	5520+30.17	1037.620				1037.684
	CL	5520+31.57	1037.332				1037.399
	RT. DECK	5520+36.03	1036.953				1037.021
	GIRD.# 1	5520+28.79	1037.567	1037.048		- 1 11/16	1037.634
	GIRD.# 2	5520+30.12	1037.485	1036.936		- 1 11/16	1037.522
	GIRD.# 3	5520+31.44	1037.353	1036.825		- 1 11/16	1037.391
	GIRD.# 4	5520+32.76	1037.231	1036.713		- 1 11/16	1037.298
	GIRD.# 5	5520+34.08	1037.119	1036.601		- 1 11/16	1037.186
	GIRD.# 6	5520+35.41	1037.007	1036.489		- 1 11/16	1037.074
1+05	LT. DECK	5520+39.07	1037.623				1037.693
	CL	5520+39.47	1037.335				1037.405
	RT. DECK	5520+43.73	1036.958				1037.028
	GIRD.# 1	5520+36.49	1037.570	1037.057		- 1 11/16	1037.640
	GIRD.# 2	5520+37.82	1037.488	1036.945		- 1 11/16	1037.528
	GIRD.# 3	5520+39.14	1037.347	1036.833		- 1 11/16	1037.416
	GIRD.# 4	5520+40.46	1037.235	1036.721		- 1 11/16	1037.304
	GIRD.# 5	5520+41.78	1037.123	1036.609		- 1 11/16	1037.192
	GIRD.# 6	5520+43.11	1037.011	1036.497		- 1 11/16	1037.080
1+06	LT. DECK	5520+43.57	1037.627				1037.694
	CL	5520+46.97	1037.339				1037.406
	RT. DECK	5520+51.43	1036.962				1037.028
	GIRD.# 1	5520+44.19	1037.574	1037.059		- 1 11/16	1037.641
	GIRD.# 2	5520+45.52	1037.482	1036.945		- 1 11/16	1037.529
	GIRD.# 3	5520+46.84	1037.350	1036.832		- 1 11/16	1037.417
	GIRD.# 4	5520+48.16	1037.238	1036.720		- 1 11/16	1037.305
	GIRD.# 5	5520+49.48	1037.126	1036.608		- 1 11/16	1037.193
	GIRD.# 6	5520+50.81	1037.014	1036.496		- 1 11/16	1037.081
1+07	LT. DECK	5520+54.27	1037.630				1037.689
	CL	5520+54.67	1037.342				1037.401
	RT. DECK	5520+59.13	1036.965				1037.024
	GIRD.# 1	5520+51.89	1037.577	1037.045		- 1 5/8	1037.636
	GIRD.# 2	5520+53.22	1037.485	1036.933		- 1 5/8	1037.526
	GIRD.# 3	5520+54.54	1037.354	1036.821		- 1 5/8	1037.394
	GIRD.# 4	5520+55.86	1037.242	1036.709		- 1 5/8	1037.282
	GIRD.# 5	5520+57.18	1037.130	1036.597		- 1 5/8	1037.188
	GIRD.# 6	5520+58.51	1037.018	1036.485		- 1 5/8	1037.076
1+08	LT. DECK	5520+62.97	1037.636				1037.678
	CL	5520+66.37	1037.348				1037.390
	RT. DECK	5520+70.83	1036.969				1037.013
	GIRD.# 1	5520+63.59	1037.581	1037.028		- 1 1/2	1037.625
	GIRD.# 2	5520+64.92	1037.489	1036.913		- 1 1/2	1037.514
	GIRD.# 3	5520+66.24	1037.358	1036.781		- 1 1/2	1037.402
	GIRD.# 4	5520+67.56	1037.246	1036.669		- 1 1/2	1037.290
	GIRD.# 5	5520+68.88	1037.133	1036.558		- 1 1/2	1037.178
	GIRD.# 6	5520+70.21	1037.021	1036.445		- 1 1/2	1037.066

SPAN #1 & #2

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
1+09	LT. DECK	5520+66.67	1037.637				1037.662
	CL	5520+70.07	1037.349				1037.376
	RT. DECK	5520+74.53	1036.972				1036.997
	GIRD.# 1	5520+67.29	1037.584	1036.996		- 1 5/16	1037.609
	GIRD.# 2	5520+68.62	1037.492	1036.804		- 1 5/16	1037.497
	GIRD.# 3	5520+69.94	1037.361	1036.772		- 1 5/16	1037.386
	GIRD.# 4	5520+71.26	1037.249	1036.660		- 1 5/16	1037.274
	GIRD.# 5	5520+72.58	1037.137	1036.548		- 1 5/16	1037.162
	GIRD.# 6	5520+73.91	1037.025	1036.436		- 1 5/16	1037.050
PIER 1 LB	LT. DECK	5520+79.37	1037.641				1037.641
	CL	5520+77.77	1037.352				1037.353
	RT. DECK	5520+82.23	1036.976				1036.976
	GIRD.# 1	5520+76.89	1037.588	1036.956		- 1 1/8	1037.588
	GIRD.# 2	5520+78.22	1037.476	1036.844		- 1 1/8	1037.476
	GIRD.# 3	5520+79.54	1037.344	1036.732		- 1 1/8	1037.344
	GIRD.# 4	5520+80.86	1037.232	1036.620		- 1 1/8	1037.232
	GIRD.# 5	5520+82.18	1037.140	1036.510		- 1 1/8	1037.140
	GIRD.# 6	5520+83.51	1037.028	1036.398		- 1 1/8	1037.028
PIER 1 RB	LT. DECK	5520+79.87	1037.641				1037.641
	CL	5520+79.27	1037.354				1037.354
	RT. DECK	5520+83.73	1036.976				1036.976
	GIRD.# 1	5520+76.49	1037.589	1036.958		- 1 1/8	1037.589
	GIRD.# 2	5520+77.82	1037.477	1036.846		- 1 1/8	1037.479
	GIRD.# 3	5520+79.14	1037.345	1036.735		- 1 1/8	1037.345
	GIRD.# 4	5520+80.46	1037.233	1036.623		- 1 1/8	1037.233
	GIRD.# 5	5520+81.78	1037.121	1036.511		- 1 1/8	1037.121
	GIRD.# 6	5520+83.11	1037.009	1036.399		- 1 1/8	1037.029
2+01	LT. DECK	5520+83.57	1037.642				1037.670
	CL	5520+86.97	1037.357				1037.342
	RT. DECK	5520+91.43	1036.980				1037.005
	GIRD.# 1	5520+84.19	1037.592	1037.004		- 1 5/16	1037.617
	GIRD.# 2	5520+85.52	1037.502	1036.892		- 1 5/16	1037.505
	GIRD.# 3	5520+86.84	1037.370	1036.780		- 1 5/16	1037.373
	GIRD.# 4	5520+88.16	1037.258	1036.668		- 1 5/16	1037.281
	GIRD.# 5	5520+89.48	1037.146	1036.556		- 1 5/16	1037.189
	GIRD.# 6	5520+90.81	1037.033	1036.444		- 1 5/16	1037.036
2+02	LT. DECK	5520+91.27	1037.666				1037.693
	CL	5520+94.67	1037.361				1037.408
	RT. DECK	5520+99.13	1036.983				1037.028
	GIRD.# 1	5520+91.89	1037.596	1037.080		- 1 1/2	1037.640
	GIRD.# 2	5520+93.22	1037.504	1036.928		- 1 1/2	1037.526
	GIRD.# 3	5520+94.54	1037.372	1036.816		- 1 1/2	1037.418
	GIRD.# 4	5520+95.88	1037.260	1036.704		- 1 1/2	1037.304
	GIRD.# 5	5520+97.18	1037.148	1036.592		- 1 1/2	1037.192
	GIRD.# 6	5520+98.51	1037.036	1036.480		- 1 1/2	1037.081
2+03	LT. DECK	5520+98.97	1037.681				1037.710
	CL	5521+02.37	1037.384				1037.423
	RT. DECK	5521+06.83	1036.987				1037.045
	GIRD.# 1	5520+99.59	1037.599	1037.087		- 1 5/8	1037.638
	GIRD.# 2	5521+00.92	1037.487	1036.955		- 1 5/8	1037.546
	GIRD.# 3	5521+02.24	1037.375	1036.843		- 1 5/8	1037.434
	GIRD.# 4	5521+03.56	1037.263	1036.731		- 1 5/8	1037.322
	GIRD.# 5	5521+04.88	1037.151	1036.619		- 1 5/8	1037.210
	GIRD.# 6	5521+06.21	1037.039	1036.507		- 1 5/8	1037.098
2+04	LT. DECK	5521+06.67	1037.655				1037.723
	CL	5521+10.07	1037.368				1037.434
	RT. DECK	5521+14.53	1036.990				1037.057
	GIRD.# 1	5521+07.29	1037.603	1037.089		- 1 11/16	1037.669
	GIRD.# 2	5521+08.62	1037.491	1036.972		- 1 11/16	1037.557
	GIRD.# 3	5521+09.94	1037.379	1036.860		- 1 11/16	1037.446
	GIRD.# 4	5521+11.26	1037.267	1036.748		- 1 11/16	1037.334
	GIRD.# 5	5521+12.58	1037.155	1036.636		- 1 11/16	1037.222
	GIRD.# 6	5521+13.91	1037.043	1036.525		- 1 11/16	1037.110
2+05	LT. DECK	5521+14.37	1037.659				1037.729
	CL	5521+17.77	1037.371				1037.441
	RT. DECK	5521+22.23	1036.994				1037.063
	GIRD.# 1	5521+14.99	1037.604	1037.092		- 1 11/16	1037.676
	GIRD.# 2	5521+16.32	1037.494	1036.980		- 1 11/16	1037.564
	GIRD.# 3	5521+17.64	1037.382	1036.868		- 1 11/16	1037.452
	GIRD.# 4	5521+18.96	1037.270	1036.757		- 1 11/16	1037.340
	GIRD.# 5	5521+20.28	1037.158	1036.645		- 1 11/16	1037.228
	GIRD.# 6	5521+21.61	1037.047	1036.533		- 1 11/16	1037.116
2+06	LT. DECK	5521+22.07	1037.664				1037.729
	CL	5521+25.47	1037.375				1037.441
	RT. DECK	5521+29.93	1036.997				1037.064
	GIRD.# 1	5521+22.69	1037.610	1037.091		- 1 11/16	1037.676
	GIRD.# 2	5521+24.02	1037.498	1036.979		- 1 11/16	1037.564
	GIRD.# 3	5521+25.34	1037.386	1036.867		- 1 11/16	1037.453
	GIRD.# 4	5521+26.66	1037.274	1036.755		- 1 11/16	1037.341
	GIRD.# 5	5521+27.98	1037.162	1036.643		- 1 11/16	1037.229
	GIRD.# 6	5521+29.31	1037.050	1036.532		- 1 11/16	1037.117

SPAN #2 & #3

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
2+07	LT. DECK	5521+29.77	1037.666				1037.724
	CL	5521+33.17	1037.378				1037.437
	RT. DECK	5521+37.63	1037.001				1037.059
	GIRD.# 1	5521+30.39	1037.613	1037.081		- 1 5/8	1037.672
	GIRD.# 2	5521+31.72	1037.521	1036.969		- 1 5/8	1037.560
	GIRD.# 3	5521+33.04	1037.389	1036.837		- 1 5/8	1037.448
	GIRD.# 4	5521+34.36	1037.277	1036.725		- 1 5/8	1037.336
	GIRD.# 5	5521+35.68	1037.165	1036.613		- 1 5/8	1037.224
	GIRD.# 6	5521+37.01	1037.054	1036.521		- 1 5/8	1037.112
2+08	LT. DECK	5521+37.47	1037.669				1037.714
	CL	5521+40.87	1037.382				1037.426
	RT. DECK	5521+45.33	1037.004				1037.049
	GIRD.# 1	5521+38.09	1037.616	1037.061		- 1 1/2	1037.660
	GIRD.# 2	5521+39.42	1037.525	1036.949		- 1 1/2	1037.569
	GIRD.# 3	5521+40.74	1037.393	1036.837		- 1 1/2	1037.437
	GIRD.# 4	5521+42.06	1037.281	1036.725		- 1 1/2	1037.325
	GIRD.# 5	5521+43.38	1037.169	1036.613		- 1 1/2	1037.214
	GIRD.# 6	5521+44.71	1037.057	1036.501		- 1 1/2	1037.102
2+09	LT. DECK	5521+45.17	1037.673				1037.698
	CL	5521+48.57	1037.385				1037.410
	RT. DECK	5521+52.93	1037.008				1037.033
	GIRD.# 1	5521+45.79	1037.620	1037.032		- 1 5/16	1037.665
	GIRD.# 2	5521+47.12	1037.528	1036.920		- 1 5/16	1037.533
	GIRD.# 3	5521+48.44	1037.396	1036.788		- 1 5/16	1037.421
	GIRD.# 4	5521+49.76	1037.284	1036.696		- 1 5/16	1037.309
	GIRD.# 5	5521+51.08	1037.172	1036.584		- 1 5/16	1037.197
	GIRD.# 6	5521+52.41	1037.061	1036.472		- 1 5/16	1037.086
PIER 2 LB	LT. DECK	5521+52.87	1037.676				1037.676
	CL	5521+56.47	1037.389				1037.389
	RT. DECK	5521+60.93	1037.011				1037.011
	GIRD.# 1	5521+53.49	1037.624	1036.993		- 1 1/8	1037.624
	GIRD.# 2	5521+54.82	1037.512	1036.881		- 1 1/8	1037.512
	GIRD.# 3	5521+56.14	1037.400	1036.769		- 1 1/8	1037.400
	GIRD.# 4	5521+57.46	1037.288	1036.658		- 1 1/8	1037.288
	GIRD.# 5	5521+58.78	1037.176	1036.546		- 1 1/8	1037.176
	GIRD.# 6	5521+60.11	1037.064	1036.434		- 1 1/8	1037.064
PIER 2 RB	LT. DECK	5521+57.37	1037.677				1037.677
	CL	5521+57.77	1037.389				1037.389
	RT. DECK	5521+62.23	1037.012				1037.012
	GIRD.# 1	5521+54.99	1037.624	1036.994		- 1 1/8	1037.624
	GIRD.# 2	5521+56.32	1037.512	1036.882		- 1 1/8	1037.512
	GIRD.# 3	5521+57.64	1037.400	1036.770		- 1 1/8	1037.400
	GIRD.# 4	5521+58.96	1037.289	1036.658		- 1 1/8	1037.289
	GIRD.# 5	5521+60.28	1037.177	1036.546		- 1 1/8	1037.177
	GIRD.# 6	5521+61.61	1037.065	1036.435		- 1 1/8	1037.065
3+01	LT. DECK	5521+64.07	1037.681				1037.706
	CL	5521+65.47	1037.393				1037.416
	RT. DECK	5521+69.93	1037.015				1037.040
	GIRD.# 1	5521+62.69	1037.628	1037.036		- 1 5/16	1037.693
	GIRD.# 2	5521+64.02	1037.516	1036.927		- 1 5/16	1037.541
	GIRD.# 3	5521+65.34	1037.404	1036.815		- 1 5/16	1037.429
	GIRD.# 4	5521+66.66	1037.292	1036.704		- 1 5/16	1037.317
	GIRD.# 5	5521+67.98	1037.180	1036.592		- 1 5/16	1037.205
	GIRD.# 6	5521+69.31	1037.068	1036.480		- 1 5/16	1037.093
3+02	LT. DECK	5521+69.77	1037.684				1037.729
	CL	5521+73.17	1037.396				1037.441
	RT. DECK	5521+77.63	1037.019				1037.064
	GIRD.# 1	5521+70.39	1037.631	1037.079		- 1 1/2	1037.676
	GIRD.# 2	5521+71.72	1037.519	1036.964		- 1 1/2	1037.564
	GIRD.# 3	5521+73.04	1037.407	1036.852		- 1 1/2	1037.452
	GIRD.# 4	5521+74.36	1037.296	1036.740		- 1 1/2	1037.340
	GIRD.# 5	5521+75.68	1037.184	1036.628		- 1 1/2	1037.228
	GIRD.# 6	5521+77.01	1037.072	1036.516		- 1 1/2	1037.116
3+03	LT. DECK	5521+77.47	1037.688				1037.734
	CL	5521+80.87	1037.400				1037.448
	RT. DECK	5521+85.33	1037.022				1037.081
	GIRD.# 1	5521+78.09	1037.635	1037.102		- 1 5/8	1037.693
	GIRD.# 2	5521+79.42	1037.523	1036.990		- 1 5/8	1037.581
	GIRD.# 3	5521+80.74	1037.411	1036.879		- 1 5/8	1037.469
	GIRD.# 4	5521+82.06	1037.299	1036.767		- 1 5/8	1037.358
	GIRD.# 5	5521+83.38	1037.187	1036.655		- 1 5/8	1037.246
	GIRD.# 6	5521+84.71	1037.075	1036.543		- 1 5/8	1037.134

SPAN #3

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
3+04	LT. DECK	5521+85.77	1037.691				1037.758
	CL	5521+86.57	1037.403				1037.470
	RT. DECK	5521+93.03	1037.025				1037.093
	GIRD.# 1	5521+85.79	1037.638	1037.120		- 1 11/16	1037.705
	GIRD.# 2	5521+87.12	1037.526	1036.008		- 1 11/16	1037.593
	GIRD.# 3	5521+88.44	1037.414	1036.896		- 1 11/16	1037.481
	GIRD.# 4	5521+89.76	1037.302	1036.784		- 1 11/16	1037.369
	GIRD.# 5	5521+91.08	1037.191	1036.672		- 1 11/16	1037.257
	GIRD.# 6	5521+92.41	1037.079	1036.560		- 1 11/16	1037.146
3+05	LT. DECK	5521+92.87	1037.695				1037.764
	CL	5521+96.27	1037.407				1037.476
	RT. DECK	5521+00.73	1037.029				1037.099
	GIRD.# 1	5521+93.49	1037.642	1037.128		- 1 11/16	1037.711
	GIRD.# 2	5521+94.82	1037.530	1037.016		- 1 11/16	1037.599
	GIRD.# 3	5521+96.14	1037.418	1036.904		- 1 11/16	1037.488
	GIRD.# 4	5521+97.46	1037.306	1036.792		- 1 11/16	1037.376
	GIRD.# 5	5521+98.78	1037.194	1036.680		- 1 11/16	1037.264
	GIRD.# 6	5522+00.11	1037.082	1036.569		- 1 11/16	1037.152
3+06	LT. DECK	5522+00.57	1037.696				1037.765
	CL	5522+03.97	1037.410				1037.477
	RT. DECK	5522+08.43	1037.033				1037.100
	GIRD.# 1	5522+01.19	1037.645	1037.127		- 1 11/16	1037.712
	GIRD.# 2	5522+02.52	1037.533	1037.015		- 1 11/16	1037.600
	GIRD.# 3	5522+03.84	1037.421	1036.903		- 1 11/16	1037.488
	GIRD.# 4	5522+05.16	1037.310	1036.791		- 1 11/16	1037.376
	GIRD.# 5	5522+06.48	1037.198	1036.679		- 1 11/16	1037.265
	GIRD.# 6	5522+07.81	1037.086	1036.567		- 1 11/16	1037.153
3+07	LT. DECK	5522+08.27	1037.702				1037.760
	CL	5522+11.67	1037.414				1037.472
	RT. DECK	5522+16.13	1037.036				1037.095
	GIRD.# 1	5522+08.89	1037.649	1037.116		- 1 5/8	1037.707
	GIRD.# 2	5522+10.22	1037.537	1037.004		- 1 5/8	1037.595
	GIRD.# 3	5522+11.54	1037.425	1036.893		- 1 5/8	1037.484
	GIRD.# 4	5522+12.86	1037.313	1036.781		- 1 5/8	1037.372
	GIRD.# 5	5522+14.18	1037.201	1036.669		- 1 5/8	1037.260
	GIRD.# 6	5522+15.51	1037.089	1036.557		- 1 5/8	1037.188
3+08	LT. DECK	5522+15.97	1037.700				1037.750
	CL	5522+19.37	1037.412				1037.462
	RT. DECK	5522+23.83	1037.036				1037.085
	GIRD.# 1	5522+16.59	1037.652	1037.097		- 1 1/2	1037.697
	GIRD.# 2	5522+17.92	1037.540	1037.085		- 1 1/2	1037.585
	GIRD.# 3	5522+19.24	1037.429	1036.973		- 1 1/2	1037.473
	GIRD.# 4	5522+20.56	1037.317	1036.761		- 1 1/2	1037.361
	GIRD.# 5	5522+21.88	1037.205	1036.649		- 1 1/2	1037.249
	GIRD.# 6	5522+23.21	1037.093	1036.537		- 1 1/2	1037.137
3+09	LT. DECK	5522+23.67	1037.709				1037.734
	CL	5522+27.07	1037.421				1037.446
	RT. DECK	5522+31.53	1037.043				1037.068
	GIRD.# 1	5522+24.29	1037.655	1037.097		- 1 5/16	1037.681
	GIRD.# 2	5522+25.62	1037.544	1036.995		- 1 5/16	1037.569
	GIRD.# 3	5522+26.94	1037.432	1036.883		- 1 5/16	1037.457
	GIRD.# 4	5522+28.26	1037.320	1036.772		- 1 5/16	1037.345
	GIRD.# 5	5522+29.58	1037.208	1036.660		- 1 5/16	1037.233
	GIRD.# 6	5522+30.91	1037.096	1036.548		- 1 5/16	1037.121
PIER 3 LB	LT. DECK	5522+34.37	1037.724				1037.724
	CL	5522+37.77	1037.436				1037.436
	RT. DECK	5522+42.23	1037.047				1037.047
	GIRD.# 1	5522+35.99	1037.659	1037.029		- 1 1/8	1037.659
	GIRD.# 2	5522+37.32	1037.547	1036.917		- 1 1/8	1037.547
	GIRD.# 3	5522+38.64	1037.436	1036.805		- 1 1/8	1037.436
	GIRD.# 4	5522+39.96	1037.324	1036.693		- 1 1/8	1037.324
	GIRD.# 5	5522+41.28	1037.212	1036.581		- 1 1/8	1037.212
	GIRD.# 6	5522+42.61	1037.100	1036.470		- 1 1/8	1037.100

		DATE
Design	CS	4-70
Drawn	CS	5-70
Checked	RR	5-70

19 of 28

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+ E.B.
HASSAYAMPA RIVER BRIDGE
GIRDER EMBEDMENT DETAILS

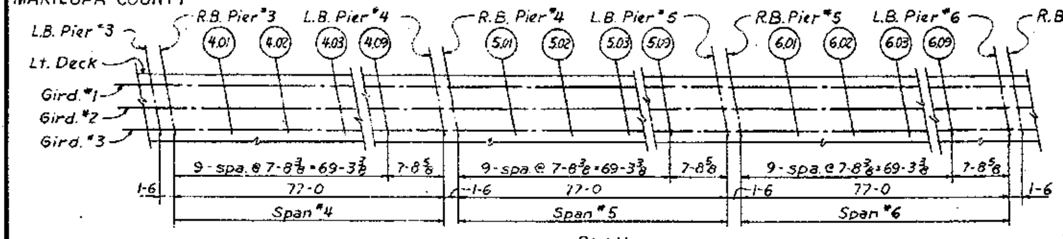
1643
BRIDGE NUMBER

I-10 104-69
SHEET NUMBER

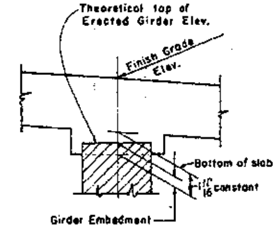
MARTIN TONEY
CERTIFICATE EXPIRES DEC. 31, 19
ARIZONA, U.S.A.
REGISTERED PROFESSIONAL ENGINEER

I-10-2(16)

ERHENBERG - PHOENIX HWY.
MARICOPA COUNTY



PLAN
No Scale



L.B. = Left Bearing
R.B. = Right Bearing

9	ARIZ.	I-10-2(16)	79	87	2-11-75 AF

NOTE —
The Theoretical Top of Erected Girder Elevations include an allowance for deflection of the girders due to their own dead load. The Top of Erected Girder Elevations shall be checked in the field. If the measured elevation is lower than the theoretical elevation, the difference shall be subtracted from the embedment. If the measured elevation is higher, the difference shall be added to the embedment.
The Finish Grade Elevations Adjusted for Deflection include an allowance for the dead load of the concrete deck and shall be used as shown regardless of the measured top of erected girder elevations.
Lt. Deck = Left Face of Deck.
Rt. Deck = Right Face of Deck.
CL = Constr. ℄

SPAN #4

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
PIER 3 RB	LT. DECK	5522+32.87	1037.713			1037.713
	CL	5522+36.27	1037.425			1037.425
	RT. DECK	5522+40.73	1037.048			1037.048
	GIRD.# 1	5522+33.49	1037.660	1037.030	-1 1/8	1037.660
	GIRD.# 2	5522+34.82	1037.548	1036.918	-1 1/8	1037.548
	GIRD.# 3	5522+36.14	1037.436	1036.806	-1 1/8	1037.436
	GIRD.# 4	5522+37.46	1037.324	1036.694	-1 1/8	1037.324
	GIRD.# 5	5522+38.78	1037.212	1036.582	-1 1/8	1037.212
	GIRD.# 6	5522+40.11	1037.101	1036.470	-1 1/8	1037.101
4.01	LT. DECK	5522+40.57	1037.716			1037.741
	CL	5522+43.97	1037.429			1037.454
	RT. DECK	5522+46.43	1037.051			1037.076
	GIRD.# 1	5522+41.19	1037.663	1037.075	-1 5/16	1037.688
	GIRD.# 2	5522+42.52	1037.552	1036.963	-1 5/16	1037.577
	GIRD.# 3	5522+43.84	1037.440	1036.851	-1 5/16	1037.465
	GIRD.# 4	5522+45.16	1037.328	1036.739	-1 5/16	1037.353
	GIRD.# 5	5522+46.46	1037.216	1036.627	-1 5/16	1037.241
	GIRD.# 6	5522+47.81	1037.104	1036.516	-1 5/16	1037.129
4.02	LT. DECK	5522+48.27	1037.720			1037.764
	CL	5522+51.67	1037.432			1037.477
	RT. DECK	5522+56.13	1037.055			1037.099
	GIRD.# 1	5522+48.89	1037.667	1037.111	-1 1/2	1037.712
	GIRD.# 2	5522+50.22	1037.555	1036.999	-1 1/2	1037.600
	GIRD.# 3	5522+51.54	1037.443	1036.888	-1 1/2	1037.488
	GIRD.# 4	5522+52.86	1037.331	1036.776	-1 1/2	1037.376
	GIRD.# 5	5522+54.18	1037.219	1036.664	-1 1/2	1037.264
	GIRD.# 6	5522+55.51	1037.108	1036.552	-1 1/2	1037.152
4.03	LT. DECK	5522+55.97	1037.723			1037.782
	CL	5522+59.37	1037.436			1037.496
	RT. DECK	5522+63.83	1037.058			1037.117
	GIRD.# 1	5522+56.59	1037.670	1037.138	-1 5/8	1037.729
	GIRD.# 2	5522+57.92	1037.559	1037.026	-1 5/8	1037.617
	GIRD.# 3	5522+59.24	1037.447	1036.914	-1 5/8	1037.505
	GIRD.# 4	5522+60.56	1037.335	1036.802	-1 5/8	1037.393
	GIRD.# 5	5522+61.88	1037.223	1036.691	-1 5/8	1037.281
	GIRD.# 6	5522+63.21	1037.111	1036.579	-1 5/8	1037.170
4.04	LT. DECK	5522+63.67	1037.727			1037.794
	CL	5522+67.07	1037.439			1037.506
	RT. DECK	5522+71.53	1037.062			1037.128
	GIRD.# 1	5522+64.29	1037.674	1037.156	-1 11/16	1037.741
	GIRD.# 2	5522+65.62	1037.562	1037.044	-1 11/16	1037.629
	GIRD.# 3	5522+66.94	1037.450	1036.932	-1 11/16	1037.517
	GIRD.# 4	5522+68.26	1037.338	1036.820	-1 11/16	1037.405
	GIRD.# 5	5522+69.58	1037.226	1036.708	-1 11/16	1037.293
	GIRD.# 6	5522+70.91	1037.115	1036.596	-1 11/16	1037.181
4.05	LT. DECK	5522+71.37	1037.730			1037.800
	CL	5522+74.77	1037.443			1037.512
	RT. DECK	5522+79.23	1037.065			1037.135
	GIRD.# 1	5522+71.99	1037.678	1037.168	-1 11/16	1037.747
	GIRD.# 2	5522+73.32	1037.566	1037.052	-1 11/16	1037.635
	GIRD.# 3	5522+74.64	1037.454	1036.940	-1 11/16	1037.523
	GIRD.# 4	5522+75.96	1037.342	1036.828	-1 11/16	1037.411
	GIRD.# 5	5522+77.28	1037.230	1036.716	-1 11/16	1037.300
	GIRD.# 6	5522+78.61	1037.118	1036.604	-1 11/16	1037.188
4.06	LT. DECK	5522+79.07	1037.734			1037.801
	CL	5522+82.47	1037.446			1037.513
	RT. DECK	5522+86.93	1037.069			1037.135
	GIRD.# 1	5522+79.69	1037.681	1037.163	-1 11/16	1037.748
	GIRD.# 2	5522+81.02	1037.569	1037.051	-1 11/16	1037.636
	GIRD.# 3	5522+82.34	1037.457	1036.939	-1 11/16	1037.524
	GIRD.# 4	5522+83.66	1037.345	1036.827	-1 11/16	1037.412
	GIRD.# 5	5522+84.98	1037.233	1036.715	-1 11/16	1037.300
	GIRD.# 6	5522+86.31	1037.122	1036.603	-1 11/16	1037.188
4.07	LT. DECK	5522+86.77	1037.737			1037.796
	CL	5522+90.17	1037.450			1037.508
	RT. DECK	5522+94.63	1037.072			1037.131
	GIRD.# 1	5522+87.39	1037.685	1037.152	-1 5/8	1037.743
	GIRD.# 2	5522+88.72	1037.573	1037.040	-1 5/8	1037.631
	GIRD.# 3	5522+90.04	1037.461	1036.928	-1 5/8	1037.519
	GIRD.# 4	5522+91.36	1037.349	1036.816	-1 5/8	1037.407
	GIRD.# 5	5522+92.68	1037.237	1036.705	-1 5/8	1037.295
	GIRD.# 6	5522+94.01	1037.125	1036.593	-1 5/8	1037.184
4.08	LT. DECK	5522+94.47	1037.741			1037.785
	CL	5522+97.87	1037.453			1037.498
	RT. DECK	5523+02.33	1037.076			1037.120
	GIRD.# 1	5522+95.09	1037.688	1037.132	-1 1/2	1037.733
	GIRD.# 2	5522+96.42	1037.576	1037.020	-1 1/2	1037.621
	GIRD.# 3	5522+97.74	1037.464	1036.909	-1 1/2	1037.509
	GIRD.# 4	5522+99.06	1037.352	1036.797	-1 1/2	1037.397
	GIRD.# 5	5523+00.38	1037.240	1036.685	-1 1/2	1037.285
	GIRD.# 6	5523+01.71	1037.129	1036.573	-1 1/2	1037.173

SPAN #4 & #5

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
4.09	LT. DECK	5523+02.27	1037.744			1037.769
	CL	5523+05.67	1037.457			1037.482
	RT. DECK	5523+10.03	1037.079			1037.104
	GIRD.# 1	5523+02.79	1037.692	1037.103	-1 5/16	1037.717
	GIRD.# 2	5523+04.12	1037.580	1036.991	-1 5/16	1037.605
	GIRD.# 3	5523+05.44	1037.468	1036.879	-1 5/16	1037.493
	GIRD.# 4	5523+06.76	1037.356	1036.767	-1 5/16	1037.381
	GIRD.# 5	5523+08.08	1037.244	1036.655	-1 5/16	1037.269
	GIRD.# 6	5523+09.41	1037.132	1036.544	-1 5/16	1037.157
PIER 4 LB	LT. DECK	5523+09.87	1037.748			1037.748
	CL	5523+13.27	1037.460			1037.460
	RT. DECK	5523+17.73	1037.083			1037.083
	GIRD.# 1	5523+10.49	1037.695	1037.065	-1 1/8	1037.695
	GIRD.# 2	5523+11.82	1037.583	1036.953	-1 1/8	1037.583
	GIRD.# 3	5523+13.14	1037.471	1036.841	-1 1/8	1037.471
	GIRD.# 4	5523+14.46	1037.359	1036.729	-1 1/8	1037.359
	GIRD.# 5	5523+15.78	1037.247	1036.617	-1 1/8	1037.247
	GIRD.# 6	5523+17.11	1037.136	1036.505	-1 1/8	1037.136
PIER 4 RB	LT. DECK	5523+11.37	1037.749			1037.749
	CL	5523+14.77	1037.461			1037.461
	RT. DECK	5523+19.23	1037.083			1037.083
	GIRD.# 1	5523+11.99	1037.696	1037.066	-1 1/8	1037.696
	GIRD.# 2	5523+13.32	1037.584	1036.954	-1 1/8	1037.584
	GIRD.# 3	5523+14.64	1037.472	1036.842	-1 1/8	1037.472
	GIRD.# 4	5523+15.96	1037.360	1036.730	-1 1/8	1037.360
	GIRD.# 5	5523+17.28	1037.248	1036.618	-1 1/8	1037.248
	GIRD.# 6	5523+18.61	1037.136	1036.506	-1 1/8	1037.136
5.01	LT. DECK	5523+19.07	1037.752			1037.777
	CL	5523+22.47	1037.464			1037.489
	RT. DECK	5523+26.93	1037.087			1037.112
	GIRD.# 1	5523+19.69	1037.699	1037.111	-1 5/16	1037.724
	GIRD.# 2	5523+21.02	1037.587	1036.999	-1 5/16	1037.612
	GIRD.# 3	5523+22.34	1037.475	1036.887	-1 5/16	1037.500
	GIRD.# 4	5523+23.66	1037.364	1036.775	-1 5/16	1037.389
	GIRD.# 5	5523+24.98	1037.252	1036.663	-1 5/16	1037.277
	GIRD.# 6	5523+26.31	1037.140	1036.551	-1 5/16	1037.165
5.02	LT. DECK	5523+26.77	1037.756			1037.800
	CL	5523+30.17	1037.468			1037.512
	RT. DECK	5523+34.63	1037.090			1037.135
	GIRD.# 1	5523+27.39	1037.703	1037.147	-1 1/2	1037.747
	GIRD.# 2	5523+28.72	1037.591	1037.035	-1 1/2	1037.635
	GIRD.# 3	5523+30.04	1037.479	1036.923	-1 1/2	1037.524
	GIRD.# 4	5523+31.36	1037.367	1036.811	-1 1/2	1037.412
	GIRD.# 5	5523+32.68	1037.255	1036.699	-1 1/2	1037.300
	GIRD.# 6	5523+34.01	1037.143	1036.588	-1 1/2	1037.188
5.03	LT. DECK	5523+34.47	1037.759			1037.818
	CL	5523+37.87	1037.471			1037.530
	RT. DECK	5523+42.33	1037.094			1037.152
	GIRD.# 1	5523+35.09	1037.706	1037.174	-1 5/8	1037.765
	GIRD.# 2	5523+36.42	1037.594	1037.062	-1 5/8	1037.653
	GIRD.# 3	5523+37.74	1037.482	1036.950	-1 5/8	1037.541
	GIRD.# 4	5523+39.06	1037.371	1036.838	-1 5/8	1037.429
	GIRD.# 5	5523+40.38	1037.259	1036.726	-1 5/8	1037.317
	GIRD.# 6	5523+41.71	1037.147	1036.614	-1 5/8	1037.205
5.04	LT. DECK	5523+42.17	1037.763			1037.829
	CL	5523+45.57	1037.475			1037.542
	RT. DECK	5523+50.03	1037.097			1037.164
	GIRD.# 1	5523+42.79	1037.710	1037.191	-1 11/16	1037.777
	GIRD.# 2	5523+44.12	1037.598	1037.079	-1 11/16	1037.665
	GIRD.# 3	5523+45.44	1037.486	1036.967	-1 11/16	1037.553
	GIRD.# 4	5523+46.76	1037.374	1036.856	-1 11/16	1037.441
	GIRD.# 5	5523+48.08	1037.262	1036.744	-1 11/16	1037.329
	GIRD.# 6	5523+49.41	1037.150	1036.632	-1 11/16	1037.217
5.05	LT. DECK	5523+49.87	1037.766			1037.834
	CL	5523+53.27	1037.478			1037.546
	RT. DECK	5523+57.73	1037.101			1037.170
	GIRD.# 1	5523+50.49	1037.713	1037.199	-1 11/16	1037.783
	GIRD.# 2	5523+51.82	1037.601	1037.088	-1 11/16	1037.671
	GIRD.# 3	5523+53.14	1037.489	1036.976	-1 11/16	1037.559
	GIRD.# 4	5523+54.46	1037.378	1036.864	-1 11/16	1037.447
	GIRD.# 5	5523+55.78	1037.266	1036.752	-1 11/16	1037.335
	GIRD.# 6	5523+57.11	1037.154	1036.640	-1 11/16	1037.223
5.06	LT. DECK	5523+57.57	1037.770			1037.836
	CL	5523+60.97	1037.482			1037.548
	RT. DECK	5523+65.43	1037.104			1037.171
	GIRD.# 1	5523+58.19	1037.717	1037.198	-1 11/16	1037.784
	GIRD.# 2	5523+59.52	1037.605	1037.086	-1 11/16	1037.672
	GIRD.# 3	5523+60.84	1037.493	1036.974	-1 11/16	1037.560
	GIRD.# 4	5523+62.16	1037.381	1036.863	-1 11/16	1037.448
	GIRD.# 5	5523+63.48	1037.269	1036.751	-1 11/16	1037.336
	GIRD.# 6	5523+64.81	1037.157	1036.639	-1 11/16	1037.224

SPAN #5 & #6

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
5.07	LT. DECK	5523+65.27	1037.773			1037.832
	CL	5523+68.67	1037.485			1037.544
	RT. DECK	5523+73.13	1037.108			1037.166
	GIRD.# 1	5523+65.89	1037.720	1037.188	-1 5/8	1037.779
	GIRD.# 2	5523+67.22	1037.608	1037.076	-1 5/8	1037.667
	GIRD.# 3	5523+68.54	1037.496	1036.964	-1 5/8	1037.555
	GIRD.# 4	5523+69.86	1037.385	1036.852	-1 5/8	1037.443
	GIRD.# 5	5523+71.18	1037.273	1036.740	-1 5/8	1037.331
	GIRD.# 6	5523+72.51	1037.161	1036.628	-1 5/8	1037.219
5.08	LT. DECK	5523+72.97	1037.777			1037.821
	CL	5523+76.37	1037.489			1037.533
	RT. DECK	5523+80.83	1037.111			1037.156
	GIRD.# 1	5523+73.59	1037.724	1037.168	-1 1/2	1037.768
	GIRD.# 2	5523+74.92	1037.612	1037.056	-1 1/2	1037.656
	GIRD.# 3	5523+76.24	1037.500	1036.944	-1 1/2	1037.545
	GIRD.# 4	5523+77.56	1037.388	1036.832	-1 1/2	1037.433
	GIRD.# 5	5523+78.88	1037.276	1036.720	-1 1/2	1037.321
	GIRD.# 6	5523+80.21	1037.164	1036.609	-1 1/2	1037.209
5.09	LT. DECK	5523+80.67	1037.780			1037.805
	CL	5523+84.07	1037.492			1037.517
	RT. DECK	5523+88.53	1037.115			1037.140
	GIRD.# 1	5523+81.29	1037.727	1037.139	-1 5/16	1037.752
	GIRD.# 2	5523+82.62	1037.615	1037.027	-1 5/16	1037.640
	GIRD.# 3	5523+83.94	1037.503	1036.915	-1 5/16	1037.528
	GIRD.# 4	5523+85.26	1037.392	1036.803	-1 5/16	1037.417
	GIRD.# 5	5523+86.58	1037.280	1036.691	-1 5/16	1037.305
	GIRD.# 6	5523+87.91	1037.168	1036.579	-1 5/16	1037.193
PIER 5 LB	LT. DECK	5523+88.37	1037.784			1037.784
	CL	5523+91.77	1037.496			1037.496
	RT. DECK	5523+96.43	1037.118			1037.118
	GIRD.# 1	5523+88.99	1037.731	1037.100	-1 1/8	1037.731
	GIRD.# 2	5523+90.32	1037.619	1036.989	-1 1/8	1037.619
	GIRD.# 3	5523+91.64	1037.507	1036.877	-1 1/8	1037.507
	GIRD.# 4	5523+92.96	1037.395	1036.765	-1 1/8	1037.395
	GIRD.# 5	5523+94.28	1037.283	1036.653	-1 1/8	1037.283
	GIRD.# 6	5523+95.61	1037.171	1036.541	-1 1/8	1037.171
PIER 5 RB	LT. DECK	5523+89.87	1037.784			1037.784
	CL	5523+93.27	1037.496			1037.496
	RT. DECK	5523+97.73	1037.119			1037.119
	GIRD.# 1	5523+90.49	1037.731	1037.101	-1 1/8	1037.731
	GIRD.# 2	5523+91.82	1037.620	1036.989	-1 1/8	1037.620
	GIRD.# 3	5523+93.14	1037.508	1036.877	-1 1/8	1037.508
	GIRD.# 4	5523+94.46	1037.396	1036.766	-1 1/8	1037.396
	GIRD.# 5	5523+95.78	1037.284	1036.654	-1 1/8	1037.284
	GIRD.# 6	5523+97.11	1037.172	1036.542	-1 1/8	1037.172
6.01	LT. DECK	5523+97.57	1037.788			1037.813
	CL	5524+00.97	1037.500			1037.525
	RT. DECK	5524+05.43	1037.123			1037.148
	GIRD.# 1	5523+98.19	1037.735	1037.146	-1 5/16	1037.760
	GIRD.# 2	5523+99.52	1037.623	1037.035	-1 5/16	1037.648
	GIRD.# 3	5524+00.84	1037.511	1036.923	-1 5/16	1037.536
	GIRD.# 4	5524+02.16	1037.399	1036.811	-1 5/16	1037.424
	GIRD.# 5	5524+03.48	1037.287	1036.699	-1 5/16	1037.312
	GIRD.# 6	5524+04.81	1037.175	1036.587	-1 5/16	1037.200
6.02	LT. DECK	5524+05.27	1037.791			1037.836
	CL	5524+08.67	1037.503			1037.548
	RT. DECK	5524+13.13	1037.126			1037.171
	GIRD.# 1	5524+05.89	1037.738	1037.183	-1 1/2	1037.783
	GIRD.# 2	5524+07.22	1037.627	1037.071	-1 1/2	1037.671
	GIRD.# 3	5524+08.54	1037.515	1036.959	-1 1/2	1037.559
	GIRD.# 4	5524+09.86	1037.403	1036.847	-1 1/2	1037.447
	GIRD.# 5	5524+11.18	1037.291	1036.735	-1 1/2	1037.335
	GIRD.# 6	5524+12.51	1037.179	1036.623	-1 1/2	1037.224
6.03	LT. DECK	5524+12.97	1037.795			1037.853
	CL	5524+16.37	1037.507			1037.565
	RT. DECK	5524+20.83	1037.130			1037.188
	GIRD.# 1	5524+13.59	1037.742	1037.210	-1 5/8	1037.800
	GIRD.# 2	5524+14.92	1037.630	1037.098	-1 5/8	1037.689
	GIRD.# 3	5524+16.24	1037.518	1036.986	-1 5/8	1037.577
	GIRD.# 4	5524+17.56	1037.406	1036.874	-1 5/8	1037.465
	GIRD.# 5	5524+18.88	1037.294	1036.762	-1 5/8	1037.353
	GIRD.# 6	5524+20.21	1037.182	1036.650	-1 5/8	1037.241

SPAN #6

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
6.04	LT. DECK	5524+20.67	1037.799			1037.865
	CL	5524+24.07	1037.510			1037.577
	RT. DECK	5524+28.53	1037.133			1037.200
	GIRD.# 1	5524+21.29	1037.745	1037.227	-1 11/16	1037.812
	GIRD.# 2	5524+22.62	1037.634	1037.115	-1 11/16	1037.700
	GIRD.# 3	5524+23.94	1037.522	1037.003	-1 11/16	1037.588
	GIRD.# 4	5524+25.26	1037.410	1036.891	-1 11/16	1037.477
	GIRD.# 5	5524+26.58	1037.298	1036.779	-1 11/16	1037.365
	GIRD.# 6	5524+27.91	1037.186	1036.667	-1 11/16	1037.253
6.05	LT. DECK	5524+28.37	1037.802			1037.871
	CL	5524+31.77	1037.514			1037.584
	RT. DECK	5524+36.23	1037.137			1037.206
	GIRD.# 1	5524+28.99	1037.749	1037.235	-1 11/16	1037.819
	GIRD.# 2	5524+30.32	1037.637	1037.123	-1 11/16	1037.707
	GIRD.# 3	5524+31.64	1037.525	1037.011	-1 11/16	1037.595
	GIRD.# 4	5524+32.96	1037.413	1036.899	-1 11/16	1037.483
	GIRD.# 5	5524+34.28	1037.301	1036.788	-1 11/16	1037.371
	GIRD.# 6	5524+35.61	1037.189	1036.676	-1 11/16	1037.259
6.06	LT. DECK	5524+36.07	1037.805			1037.872
	CL	5524+39.47	1037.517			1037.584
	RT. DECK	5524+43.93	1037.140			1037.207
	GIRD.# 1	5524+36.69	1037.752	1037.234	-1 11/16	1037.819
	GIRD.# 2	5524+38.02	1037.641	1037.122	-1 11/16	1037.707
	GIRD.# 3	5524+39.34	1037.529	1037.010	-1 11/16	1037.595
	GIRD.# 4	5524+40.66	1037.417	1036.898	-1 11/16	1037.484
	GIRD.# 5	5524+41.98	1037.305	1036.786	-1 11/16	1037.372
	GIRD.# 6	5524+43.31	1037.193	1036.674	-1 11/16	1037.260
6.07	LT. DECK	5524+43.77	1037.809			1037.867
	CL	5524+47.17	1037.521			1037.579
	RT. DECK	5524+51.63	1037.144			1037.202
	GIRD.# 1	5524+44.39	1037.756	1037.224	-1 5/8	1037.814
	GIRD.# 2	5524+45.72	1037.644	1037.112	-1 5/8	1037.703
	GIRD.# 3	5524+47.04	1037.532	1037.000	-1 5/8	1037.591
	GIRD.# 4	5524+48.36	1037.420	1036.888	-1 5/8	1037.479
	GIRD.# 5	5524+49.68	1037.308	1036.776	-1 5/8	1037.367
	GIRD.# 6	5524+51.01	1037.196	1036.664	-1 5/8	1037.255
6.08	LT. DECK	5524+51.47	1037.812			1037.857
	CL	5524+54.87	1037.524			1037.569
	RT. DECK	5524+59.33	1037.147			1037.192
	GIRD.# 1	5524+52.09	1037.759	1037.204	-1 1/2	1037.804
	GIRD.# 2	5524+53.42	1037.648	1037.092	-1 1/2	1037.692
	GIRD.# 3	5524+54.74	1037.536	1036.980	-1 1/2	1037.580
	GIRD.# 4	5524+56.06	1037.424	1036.868	-1 1/2	1037.468
	GIRD.# 5	5524+57.38	1037.312	1036.756	-1 1/2	1037.356
	GIRD.# 6	5524+58.71	1037.200	1036.644	-1 1/2	1037.245
6.09	LT. DECK	5524+59.27	1037.816			1037.841
	CL	5524+62.57	1037.528			1037.553
	RT. DECK	5524+67.03	1037.151			1037.176
	GIRD.# 1	5524+59.79	1037.763	1037.174	-1 5/16	1037.788
	GIRD.# 2	5524+61.12	1037.651	1037.063	-1 5/16	1037.676
	GIRD.# 3	5524+62.44	1037.539	1036.951	-1 5/16	1037.564
	GIRD.# 4	5524+63.76	1037.427	1036.839	-1 5/16	1037.452
	GIRD.# 5	5524+65.08	1037.315	1036.727	-1 5/16	1037.340
	GIRD.# 6	5524+66.41	1037.203	1036.615	-1 5/16	1037.228
PIER 6 LB	LT. DECK	5524+66.87	1037.819			1037.819
	CL	5524+70.27	1037.531			1037.531
	RT. DECK	5524+74.73	1037.154			1037.154
	GIRD.# 1	5524+67.49	1037.766	1037.136	-1 1/8	1037.766
	GIRD.# 2	5524+68.82	1037.655	1037.024	-1 1/8	1037.655
	GIRD.# 3	5524+70.14	1037.543	1036.912	-1 1/8	1037.543
	GIRD.# 4	5524+71.46	1037.431	1036.800	-1 1/8	1037.431
	GIRD.# 5	5524+72.78	1037.319	1036.689	-1 1/8	1037.319
	GIRD.# 6	5524+74.11	1037.207	1036.577	-1 1/8	1037.207

		Date
Design	ES	4-70
Drawn	EC	5-70
Checked	RK	5-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+ E.B.
HASSAYAMPA RIVER BRIDGE
GIRDER EMBEDMENT DETAILS

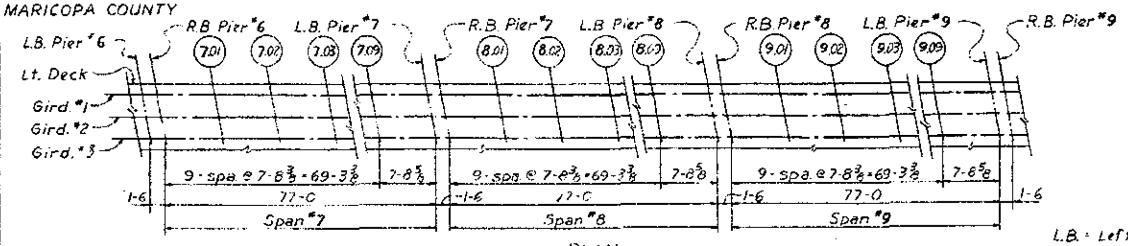
20 of 28 — 1645 (Bridge Number) — I-10 10469 (Drawing Number)

MARTIN TONEY

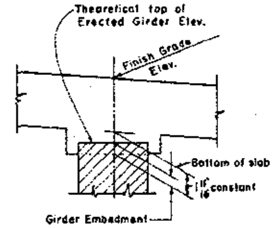
MASTER

I-10-2(16)

ERHENBERG - PHOENIX HWY.
MARICOPA COUNTY



PLAN
No Scale



L.B. = Left Bearing
R.B. = Right Bearing

9	ARIZONA	I-10-2(16)	80	87	2-11-75

NOTE —
The Theoretical Top of Erected Girder Elevations include an allowance for deflection of the girders due to their own dead load. The Top of Erected Girder Elevations shall be checked in the field. If the measured elevation is lower than the theoretical elevation, the difference shall be subtracted from the embedment. If the measured elevation is higher, the difference shall be added to the embedment.
The Finish Grade Elevations Adjusted for Deflection include an allowance for the dead load of the concrete deck and shall be used as shown regardless of the measured top of erected girder elevations.
Lt. Deck = Left Face of Deck.
Rt. Deck = Right Face of Deck.
CL = Constr. ℄

SPAN #7

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin Grade Adjusted for Defl.
PIER 6 RB	LT. DECK	5524+68.37	1037.820			1037.820
	CL	5524+71.77	1037.532			1037.532
	RT. DECK	5524+76.23	1037.155			1037.155
	GIRD.# 1	5524+68.99	1037.767	1037.137	- 1 1/8	1037.767
	GIRD.# 2	5524+70.32	1037.655	1037.025	- 1 1/8	1037.655
	GIRD.# 3	5524+71.64	1037.543	1036.913	- 1 1/8	1037.543
	GIRD.# 4	5524+72.96	1037.431	1036.801	- 1 1/8	1037.431
	GIRD.# 5	5524+74.28	1037.320	1036.689	- 1 1/8	1037.320
	GIRD.# 6	5524+75.61	1037.208	1036.577	- 1 1/8	1037.208
7+01	LT. DECK	5524+76.07	1037.823			1037.848
	CL	5524+79.47	1037.536			1037.561
	RT. DECK	5524+83.93	1037.158			1037.183
	GIRD.# 1	5524+76.69	1037.771	1037.182	- 1 5/16	1037.796
	GIRD.# 2	5524+78.02	1037.659	1037.070	- 1 5/16	1037.684
	GIRD.# 3	5524+79.34	1037.547	1036.958	- 1 5/16	1037.572
	GIRD.# 4	5524+80.66	1037.435	1036.846	- 1 5/16	1037.460
	GIRD.# 5	5524+81.98	1037.323	1036.735	- 1 5/16	1037.348
	GIRD.# 6	5524+83.31	1037.211	1036.623	- 1 5/16	1037.236
7+02	LT. DECK	5524+83.77	1037.827			1037.872
	CL	5524+87.17	1037.539			1037.584
	RT. DECK	5524+91.63	1037.162			1037.206
	GIRD.# 1	5524+84.39	1037.774	1037.214	- 1 1/2	1037.819
	GIRD.# 2	5524+85.72	1037.662	1037.107	- 1 1/2	1037.707
	GIRD.# 3	5524+87.04	1037.550	1036.995	- 1 1/2	1037.595
	GIRD.# 4	5524+88.36	1037.438	1036.883	- 1 1/2	1037.483
	GIRD.# 5	5524+89.68	1037.327	1036.771	- 1 1/2	1037.371
	GIRD.# 6	5524+91.01	1037.215	1036.659	- 1 1/2	1037.259
7+03	LT. DECK	5524+91.47	1037.830			1037.889
	CL	5524+94.87	1037.543			1037.601
	RT. DECK	5524+99.33	1037.165			1037.224
	GIRD.# 1	5524+92.09	1037.778	1037.245	- 1 5/8	1037.836
	GIRD.# 2	5524+93.42	1037.666	1037.133	- 1 5/8	1037.724
	GIRD.# 3	5524+94.74	1037.554	1037.021	- 1 5/8	1037.612
	GIRD.# 4	5524+96.06	1037.442	1036.910	- 1 5/8	1037.500
	GIRD.# 5	5524+97.34	1037.330	1036.798	- 1 5/8	1037.389
	GIRD.# 6	5524+98.71	1037.218	1036.686	- 1 5/8	1037.277
7+04	LT. DECK	5524+99.17	1037.838			1037.901
	CL	5525+02.57	1037.546			1037.613
	RT. DECK	5525+07.03	1037.169			1037.234
	GIRD.# 1	5524+99.79	1037.781	1037.263	- 1 11/16	1037.848
	GIRD.# 2	5525+01.12	1037.669	1037.151	- 1 11/16	1037.736
	GIRD.# 3	5525+02.44	1037.557	1037.039	- 1 11/16	1037.624
	GIRD.# 4	5525+03.76	1037.445	1036.927	- 1 11/16	1037.512
	GIRD.# 5	5525+05.08	1037.334	1036.815	- 1 11/16	1037.400
	GIRD.# 6	5525+06.41	1037.222	1036.703	- 1 11/16	1037.288
7+05	LT. DECK	5525+06.87	1037.838			1037.907
	CL	5525+10.27	1037.550			1037.619
	RT. DECK	5525+14.73	1037.172			1037.242
	GIRD.# 1	5525+07.49	1037.785	1037.271	- 1 11/16	1037.654
	GIRD.# 2	5525+08.82	1037.673	1037.159	- 1 11/16	1037.742
	GIRD.# 3	5525+10.14	1037.561	1037.047	- 1 11/16	1037.630
	GIRD.# 4	5525+11.46	1037.449	1036.935	- 1 11/16	1037.519
	GIRD.# 5	5525+12.78	1037.337	1036.823	- 1 11/16	1037.407
	GIRD.# 6	5525+14.11	1037.225	1036.711	- 1 11/16	1037.295
7+06	LT. DECK	5525+14.57	1037.841			1037.908
	CL	5525+17.97	1037.553			1037.620
	RT. DECK	5525+22.43	1037.176			1037.243
	GIRD.# 1	5525+15.19	1037.788	1037.270	- 1 11/16	1037.855
	GIRD.# 2	5525+16.52	1037.676	1037.158	- 1 11/16	1037.743
	GIRD.# 3	5525+17.84	1037.564	1037.046	- 1 11/16	1037.631
	GIRD.# 4	5525+19.16	1037.452	1036.934	- 1 11/16	1037.519
	GIRD.# 5	5525+20.48	1037.341	1036.822	- 1 11/16	1037.407
	GIRD.# 6	5525+21.81	1037.229	1036.710	- 1 11/16	1037.295
7+07	LT. DECK	5525+22.27	1037.845			1037.903
	CL	5525+25.67	1037.557			1037.615
	RT. DECK	5525+30.13	1037.179			1037.238
	GIRD.# 1	5525+22.89	1037.792	1037.259	- 1 5/8	1037.850
	GIRD.# 2	5525+24.22	1037.680	1037.147	- 1 5/8	1037.738
	GIRD.# 3	5525+25.54	1037.568	1037.035	- 1 5/8	1037.626
	GIRD.# 4	5525+26.86	1037.456	1036.924	- 1 5/8	1037.514
	GIRD.# 5	5525+28.18	1037.344	1036.812	- 1 5/8	1037.403
	GIRD.# 6	5525+29.51	1037.232	1036.700	- 1 5/8	1037.291
7+08	LT. DECK	5525+29.97	1037.848			1037.893
	CL	5525+33.37	1037.560			1037.605
	RT. DECK	5525+37.83	1037.183			1037.227
	GIRD.# 1	5525+30.59	1037.795	1037.239	- 1 1/2	1037.840
	GIRD.# 2	5525+31.92	1037.683	1037.128	- 1 1/2	1037.728
	GIRD.# 3	5525+33.24	1037.571	1037.016	- 1 1/2	1037.616
	GIRD.# 4	5525+34.56	1037.460	1036.904	- 1 1/2	1037.504
	GIRD.# 5	5525+35.88	1037.348	1036.792	- 1 1/2	1037.392
	GIRD.# 6	5525+37.21	1037.236	1036.680	- 1 1/2	1037.280

SPAN #7 & #8

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
7+09	LT. DECK	5525+37.67	1037.852			1037.877
	CL	5525+41.07	1037.564			1037.589
	RT. DECK	5525+45.53	1037.186			1037.211
	GIRD.# 1	5525+38.29	1037.799	1037.210	- 1 5/16	1037.824
	GIRD.# 2	5525+39.62	1037.687	1037.098	- 1 5/16	1037.712
	GIRD.# 3	5525+40.94	1037.575	1036.986	- 1 5/16	1037.600
	GIRD.# 4	5525+42.26	1037.463	1036.874	- 1 5/16	1037.488
	GIRD.# 5	5525+43.58	1037.351	1036.763	- 1 5/16	1037.376
	GIRD.# 6	5525+44.91	1037.239	1036.651	- 1 5/16	1037.264
PIER 7 LB	LT. DECK	5525+45.37	1037.855			1037.855
	CL	5525+48.77	1037.567			1037.567
	RT. DECK	5525+53.23	1037.190			1037.190
	GIRD.# 1	5525+45.99	1037.802	1037.172	- 1 1/8	1037.802
	GIRD.# 2	5525+47.32	1037.690	1037.060	- 1 1/8	1037.690
	GIRD.# 3	5525+48.64	1037.578	1036.948	- 1 1/8	1037.578
	GIRD.# 4	5525+49.96	1037.466	1036.836	- 1 1/8	1037.466
	GIRD.# 5	5525+51.28	1037.355	1036.724	- 1 1/8	1037.355
	GIRD.# 6	5525+52.61	1037.243	1036.612	- 1 1/8	1037.243
PIER 7 RB	LT. DECK	5525+46.87	1037.856			1037.856
	CL	5525+50.27	1037.568			1037.568
	RT. DECK	5525+54.73	1037.191			1037.191
	GIRD.# 1	5525+47.49	1037.803	1037.173	- 1 1/8	1037.803
	GIRD.# 2	5525+48.82	1037.691	1037.061	- 1 1/8	1037.691
	GIRD.# 3	5525+50.14	1037.579	1036.949	- 1 1/8	1037.579
	GIRD.# 4	5525+51.46	1037.467	1036.837	- 1 1/8	1037.467
	GIRD.# 5	5525+52.78	1037.355	1036.725	- 1 1/8	1037.356
	GIRD.# 6	5525+54.11	1037.243	1036.613	- 1 1/8	1037.243
8+01	LT. DECK	5525+54.57	1037.859			1037.884
	CL	5525+57.97	1037.571			1037.596
	RT. DECK	5525+62.43	1037.194			1037.219
	GIRD.# 1	5525+55.19	1037.806	1037.218	- 1 5/16	1037.831
	GIRD.# 2	5525+56.52	1037.694	1037.106	- 1 5/16	1037.719
	GIRD.# 3	5525+57.84	1037.583	1036.994	- 1 5/16	1037.608
	GIRD.# 4	5525+59.16	1037.471	1036.882	- 1 5/16	1037.496
	GIRD.# 5	5525+60.48	1037.359	1036.770	- 1 5/16	1037.384
	GIRD.# 6	5525+61.81	1037.247	1036.658	- 1 5/16	1037.272
8+02	LT. DECK	5525+62.27	1037.863			1037.907
	CL	5525+65.67	1037.575			1037.619
	RT. DECK	5525+70.13	1037.198			1037.242
	GIRD.# 1	5525+62.89	1037.810	1037.254	- 1 1/2	1037.854
	GIRD.# 2	5525+64.22	1037.698	1037.143	- 1 1/2	1037.743
	GIRD.# 3	5525+65.54	1037.586	1037.030	- 1 1/2	1037.631
	GIRD.# 4	5525+66.86	1037.474	1036.918	- 1 1/2	1037.519
	GIRD.# 5	5525+68.18	1037.362	1036.807	- 1 1/2	1037.407
	GIRD.# 6	5525+69.51	1037.250	1036.695	- 1 1/2	1037.295
8+03	LT. DECK	5525+69.97	1037.866			1037.925
	CL	5525+73.37	1037.578			1037.637
	RT. DECK	5525+77.83	1037.201			1037.260
	GIRD.# 1	5525+70.59	1037.813	1037.281	- 1 5/8	1037.872
	GIRD.# 2	5525+71.92	1037.701	1037.169	- 1 5/8	1037.760
	GIRD.# 3	5525+73.24	1037.590	1037.057	- 1 5/8	1037.648
	GIRD.# 4	5525+74.56	1037.478	1036.945	- 1 5/8	1037.536
	GIRD.# 5	5525+75.88	1037.366	1036.833	- 1 5/8	1037.424
	GIRD.# 6	5525+77.21	1037.254	1036.721	- 1 5/8	1037.312
8+04	LT. DECK	5525+77.67	1037.870			1037.937
	CL	5525+81.07	1037.582			1037.649
	RT. DECK	5525+85.53	1037.205			1037.271
	GIRD.# 1	5525+78.29	1037.817	1037.298	- 1 11/16	1037.884
	GIRD.# 2	5525+79.62	1037.705	1037.186	- 1 11/16	1037.772
	GIRD.# 3	5525+80.94	1037.593	1037.075	- 1 11/16	1037.660
	GIRD.# 4	5525+82.26	1037.481	1036.963	- 1 11/16	1037.548
	GIRD.# 5	5525+83.58	1037.369	1036.851	- 1 11/16	1037.436
	GIRD.# 6	5525+84.91	1037.257	1036.739	- 1 11/16	1037.324
8+05	LT. DECK	5525+85.37	1037.873			1037.943
	CL	5525+88.77	1037.585			1037.655
	RT. DECK	5525+93.23	1037.208			1037.278
	GIRD.# 1	5525+85.99	1037.820	1037.307	- 1 11/16	1037.890
	GIRD.# 2	5525+87.32	1037.708	1037.195	- 1 11/16	1037.778
	GIRD.# 3	5525+88.64	1037.597	1037.083	- 1 11/16	1037.666
	GIRD.# 4	5525+89.96	1037.485	1036.971	- 1 11/16	1037.554
	GIRD.# 5	5525+91.28	1037.373	1036.859	- 1 11/16	1037.442
	GIRD.# 6	5525+92.61	1037.261	1036.747	- 1 11/16	1037.330
8+06	LT. DECK	5525+93.07	1037.877			1037.944
	CL	5525+96.47	1037.589			1037.656
	RT. DECK	5526+00.93	1037.212			1037.278
	GIRD.# 1	5525+93.69	1037.824	1037.306	- 1 11/16	1037.891
	GIRD.# 2	5525+95.02	1037.712	1037.193	- 1 11/16	1037.779
	GIRD.# 3	5525+96.34	1037.600	1037.082	- 1 11/16	1037.667
	GIRD.# 4	5525+97.66	1037.488	1036.970	- 1 11/16	1037.555
	GIRD.# 5	5525+98.98	1037.376	1036.858	- 1 11/16	1037.443
	GIRD.# 6	5526+00.31	1037.264	1036.746	- 1 11/16	1037.331

SPAN #8 & #9

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (In.)	Fin Grade Adjusted for Defl.
8+07	LT. DECK	5526+00.77	1037.880			1037.939
	CL	5526+04.17	1037.592			1037.651
	RT. DECK	5526+08.63	1037.215			1037.274
	GIRD.# 1	5526+01.39	1037.827	1037.295	- 1 5/8	1037.886
	GIRD.# 2	5526+02.72	1037.715	1037.183	- 1 5/8	1037.774
	GIRD.# 3	5526+04.04	1037.604	1037.071	- 1 5/8	1037.662
	GIRD.# 4	5526+05.36	1037.492	1036.959	- 1 5/8	1037.550
	GIRD.# 5	5526+06.68	1037.380	1036.847	- 1 5/8	1037.438
	GIRD.# 6	5526+08.01	1037.268	1036.735	- 1 5/8	1037.326
8+08	LT. DECK	5526+08.47	1037.884			1037.928
	CL	5526+11.87	1037.596			1037.641
	RT. DECK	5526+16.33	1037.219			1037.263
	GIRD.# 1	5526+09.09	1037.831	1037.275	- 1 1/2	1037.875
	GIRD.# 2	5526+10.42	1037.719	1037.163	- 1 1/2	1037.764
	GIRD.# 3	5526+11.74	1037.607	1037.051	- 1 1/2	1037.652
	GIRD.# 4	5526+13.06	1037.495	1036.939	- 1 1/2	1037.540
	GIRD.# 5	5526+14.38	1037.383	1036.828	- 1 1/2	1037.428
	GIRD.# 6	5526+15.71	1037.271	1036.716	- 1 1/2	1037.316
8+09	LT. DECK	5526+16.17	1037.887			1037.912
	CL	5526+19.57	1037.599			1037.624
	RT. DECK	5526+24.03	1037.222			1037.247
	GIRD.# 1	5526+16.79	1037.834	1037.246	- 1 5/16	1037.859
	GIRD.# 2	5526+18.12	1037.722	1037.134	- 1 5/16	1037.747
	GIRD.# 3	5526+19.44	1037.611	1037.022	- 1 5/16	1037.636
	GIRD.# 4	5526+20.76	1037.499	1036.910	- 1 5/16	1037.524
	GIRD.# 5	5526+22.08	1037.387	1036.798	- 1 5/16	1037.412
	GIRD.# 6	5526+23.41	1037.275	1036.686	- 1 5/16	1037.300
PIER 8 LB	LT. DECK	5526+23.87	1037.891			1037.891
	CL	5526+27.27	1037.603			1037.603
	RT. DECK	5526+31.73	1037.226			1037.226
	GIRD.# 1	5526+24.49	1037.838	1037.208	- 1 1/8	1037.838
	GIRD.# 2	5526+25.82	1037.726	1037.096	- 1 1/8	1037.726
	GIRD.# 3	5526+27.14	1037.614	1036.984	- 1 1/8	1037.614
	GIRD.# 4	5526+28.46	1037.502	1036.872	- 1 1/8	1037.502
	GIRD.# 5	5526+29.78	1037.390	1036.760	- 1 1/8	1037.390
	GIRD.# 6	5526+31.11	1037.278	1036.648	- 1 1/8	1037.278
PIER 8 RB	LT. DECK	5526+26.37	1037.891			1037.891
	CL	5526+29.77	1037.604			1037.604
	RT. DECK	5526+35.23	1037.226			1037.226
	GIRD.# 1	5526+25.99	1037.839	1037.208	- 1 1/8	1037.839
	GIRD.# 2	5526+27.32	1037.727	1037.096	- 1 1/8	1037.727
	GIRD.# 3	5526+28.64	1037.615	1036.984	- 1 1/8	1037.615
	GIRD.# 4	5526+29.96	1037.503	1036.873	- 1 1/8	1037.503
	GIRD.# 5	5526+31.28	1037.391	1036.761	- 1 1/8	1037.391
	GIRD.# 6	5526+32.61	1037.279	1036.649	- 1 1/8	1037.279
9+01	LT. DECK	5526+33.07	1037.895			1037.920
	CL	5526+36.47	1037.607			1037.632
	RT. DECK	5526+40.93	1037.230			1037.255
	GIRD.# 1	5526+33.69	1037.842	1037.254	- 1 5/16	1037.867
	GIRD.# 2	5526+35.02	1037.730	1037.142	- 1 5/16	1037.755
	GIRD.# 3	5526+36.34	1037.618	1037.030	- 1 5/16	1037.643
	GIRD.# 4	5526+37.66	1037.506	1036.918	- 1 5/16	1037.531
	GIRD.# 5	5526+38.98	1037.394	1036.806	- 1 5/16	1037.419
	GIRD.# 6	5526+40.31	1037.283	1036.694	- 1 5/16	1037.308
9+02	LT. DECK	5526+40.77	1037.898			1037.943
	CL	5526+44.17	1037.611			1037.655
	RT. DECK	5526+48.63	1037.233			1037.278
	GIRD.# 1	5526+41.39	1037.846	1037.290	- 1 1/2	1037.890
	GIRD.# 2	5526+42.72	1037.734	1037.178	- 1 1/2	1037.778
	GIRD.# 3	5526+44.04	1037.622	1037.066	- 1 1/2	1037.666
	GIRD.# 4	5526+45.36	1037.510	1036.954	- 1 1/2	1037.554
	GIRD.# 5	5526+46.68	1037.398	1036.842	- 1 1/2	1037.443
	GIRD.# 6	5526+48.01	1037.286	1036.730	- 1 1/2	1037.331
9+03	LT. DECK	5526+48.47	1037.902			1037.960
	CL	5526+51.87	1037.614			1037.673
	RT. DECK	5526+56.33	1037.237			1037.295
	GIRD.# 1	5526+49.09	1037.849	1037.317	- 1 5/8	1037.908
	GIRD.# 2	5526+50.42	1037.737	1037.205	- 1 5/8	1037.796
	GIRD.# 3	5526+51.74	1037.625	1037.093	- 1 5/8	1037.684
	GIRD.# 4	5526+53.06	1037.513	1036.981	- 1 5/8	1037.572
	GIRD.# 5	5526+54.38	1037.401	1036.869	- 1 5/8	1037.460
	GIRD.# 6	5526+55.71	1037.290	1036.757	- 1 5/8	1037.348

SPAN #9

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin Grade Adjusted for Defl.
9+04	LT. DECK	5526+56.17	1037.905			1037.972
	CL	5526+59.57	1037.618			1037.684
	RT. DECK	5526+64.03	1037.240			1037.307
	GIRD.# 1	5526+56.79	1037.853	1037.334	- 1 11/16	1037.919
	GIRD.# 2	5526+58.12	1037.741	1037.222	- 1 11/16	1037.807
	GIRD.# 3	5526+59.44	1037.629	1037.110	- 1 11/16	1037.696
	GIRD.# 4	5526+60.76	1037.517	1036.998	- 1 11/16	1037.584
	GIRD.# 5	5526+62.08	1037.405	1036.887	- 1 11/16	1037.472
	GIRD.# 6	5526+63.41	1037.293	1036.775	- 1 11/16	1037.360
9+05	LT. DECK	5526+63.87	1037.909			1037.979
	CL	5526+67.27	1037.621			1037.691
	RT. DECK	5526+71.73	1037.244			1037.313
	GIRD.# 1	5526+64.49	1037.856	1037.342	- 1 11/16	1037.926
	GIRD.# 2	5526+65.82	1037.744	1037.230	- 1 11/16	1037.814
	GIRD.# 3	5526+67.14	1037.632	1037.118	- 1 11/16	1037.702
	GIRD.# 4	5526+68.46	1037.520	1037.007	- 1 11/16	1037.590
	GIRD.# 5	5526+69.78	1037.409	1036.895	- 1 11/16	1037.478
	GIRD.# 6	5526+71.11	1037.297	1036.783	- 1 11/16	1037.366
9+06	LT. DECK	5526+71.57	1037.912			1037.979
	CL	5526+74.97	1037.625			1037.691
	RT. DECK	5526+79.43	1037.247			1037.314
	GIRD.# 1	5526+72.19	1037.860	1037.341	- 1 11/16	1037.926
	GIRD.# 2	5526+73.52	1037.748	1037.229	- 1 11/16	1037.815
	GIRD.# 3	5526+74.84	1037.636	1037.117	- 1 11/16	1037.703
	GIRD.# 4	5526+76.16	1037.524	1037.005	- 1 11/16	1037.591
	GIRD.# 5	5526+77.48	1037.412	1036.894	- 1 11/16	1037.470
	GIRD.# 6	5526+78.81	1037.300	1036.782	- 1 11/16	1037.367
9+07	LT. DECK	5526+79.27	1037.916			1037.974
	CL	5526+82.67	1037.628			1037.687
	RT. DECK	5526+87.13	1037.251			1037.309
	GIRD.# 1	5526+79.89	1037.863	1037.331	- 1 5/8	1037.922
	GIRD.# 2	5526+81.22	1037.751	1037.219	- 1 5/8	1037.810
	GIRD.# 3	5526+82.54	1037.639	1037.107	- 1 5/8	1037.698
	GIRD.# 4	5526+83.86	1037.527	1036.995	- 1 5/8	1037.586
	GIRD.# 5	5526+85.18	1037.416	1036.883	- 1 5/8	1037.474
	GIRD.# 6	5526+86.51	1037.304	1036.771	- 1 5/8	1037.362
9+08	LT. DECK	5526+86.97	1037.919			1037.964
	CL	5526+90.37	1037.632			1037.676
	RT. DECK	5526+94.83	1037.254			1037.299
	GIRD.# 1	5526+87.59	1037.867	1037.311	- 1 1/2	1037.911
	GIRD.# 2	5526+88.92	1037.755	1037.199	- 1 1/2	1037.799
	GIRD.# 3	5526+90.24	1037.643	1037.087	- 1 1/2	1037.687
	GIRD.# 4	5526+91.56	1037.531	1036.975	- 1 1/2	1037.576
	GIRD.# 5	5526+92.88	1037.419	1036.863	- 1 1/2	1037.464
	GIRD.# 6	5526+94.21	1037.307	1036.751	- 1 1/2	1037.352
9+09	LT. DECK	5526+94.67	1037.923			1037.948
	CL	5526+98.07	1037.635			1037.660
	RT. DECK	5527+02.53	1037.258			1037.283
	GIRD.# 1	5526+95.29	1037.870	1037.282	- 1 5/16	1037.895
	GIRD.# 2	5526+96.62	1037.758	1037.170	- 1 5/16	1037.783
	GIRD.# 3	5526+97.94	1037.646	1037.058	- 1 5/16	1037.671
	GIRD.# 4	5526+99.26	1037.534	1036.946	- 1 5/16	1037.559
	GIRD.# 5	5527+00.58	1037.423	1036.834	- 1 5/16	1037.448
	GIRD.# 6	5527+01.91	1037.311	1036.722	- 1 5/16	1037.336
PIER 9 LB	LT. DECK	5527+02.37	1037.926			1037.926
	CL	5527+05.77	1037.639			1037.639
	RT. DECK	5527+10.23	1037.261			1037.261
	GIRD.# 1	5527+02.99	1037.874	1037.243	- 1 1/8	1037.874
	GIRD.# 2	5527+04.32	1037.762	1037.131	- 1 1/8	1037.762
	GIRD.# 3	5527+05.64	1037.650	1037.019	- 1 1/8	1037.650
	GIRD.# 4	5527+06.96	1037.538	1036.908	- 1 1/8	1037.538
	GIRD.# 5	5527+08.28	1037.426	1036.796	- 1 1/8	1037.426
	GIRD.# 6	5527+09.61	1037.314	1036.684	- 1 1/8	1037.314

Design	ES	4-70
Drawn	ES	5-70
Checked	R.K.	5-70

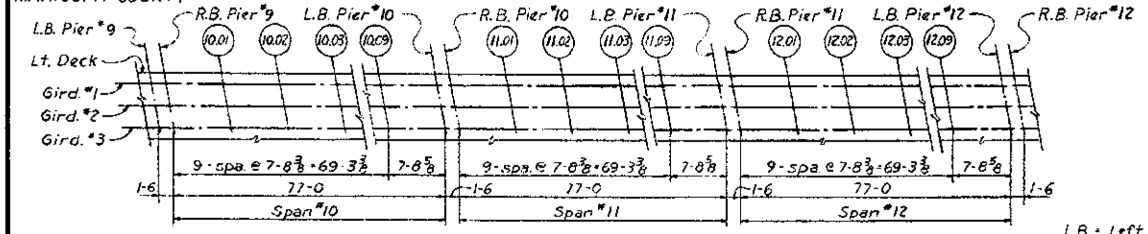
ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
STA 5527+ E.B.
HASSAYAMPA RIVER BRIDGE
GIRDER EMBEDMENT DETAILS
21-28 | 16 US (Bridge Number) | I-10 10449 (Drawing Number)

MARTIN TONEY — Registered Professional Engineer, Arizona, U.S.A.

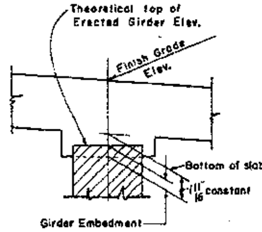
MASTER

I-10-2(16)

ERHENBERG - PHOENIX HWY.
MARICOPA COUNTY



PLAN
No Scale



L.B. = Left Bearing
R.B. = Right Bearing

Sheet No.	State	Project No.	Sheet No.	Total Sheets	As Built
9	ARIZONA	I-10-2(16)	81	87	2-11-75

NOTE —

The Theoretical Top of Erected Girder Elevations include an allowance for deflection of the girders due to their own dead load. The Top of Erected Girder Elevations shall be checked in the field. If the measured elevation is lower than the theoretical elevation, the difference shall be subtracted from the embedment. If the measured elevation is higher, the difference shall be added to the embedment.

The Finish Grade Elevations Adjusted for Deflection include an allowance for the dead load of the concrete deck and shall be used as shown regardless of the measured top of erected girder elevations.

Lt. Deck = Left Face of Deck.
Rt. Deck = Right Face of Deck.
CL = Constr. ℄

SPAN #10

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
PIER 9R	LT. DECK	5527+03.47	1037.927			1037.927
	CL	5527+07.27	1037.639			1037.639
	RT. DECK	5527+11.73	1037.262			1037.262
	GIRD.# 1	5527+04.49	1037.874	1037.244	- 1 1/8	1037.874
	GIRD.# 2	5527+05.82	1037.762	1037.132	- 1 1/8	1037.762
	GIRD.# 3	5527+07.14	1037.650	1037.020	- 1 1/8	1037.650
	GIRD.# 4	5527+08.46	1037.539	1036.908	- 1 1/8	1037.539
	GIRD.# 5	5527+09.78	1037.427	1036.797	- 1 1/8	1037.427
	GIRD.# 6	5527+11.11	1037.315	1036.685	- 1 1/8	1037.315
10+01	LT. DECK	5527+11.57	1037.931			1037.956
	CL	5527+14.97	1037.643			1037.668
	RT. DECK	5527+19.43	1037.265			1037.290
	GIRD.# 1	5527+12.39	1037.878	1037.289	- 1 5/16	1037.903
	GIRD.# 2	5527+13.32	1037.766	1037.177	- 1 5/16	1037.791
	GIRD.# 3	5527+14.84	1037.654	1037.066	- 1 5/16	1037.679
	GIRD.# 4	5527+16.16	1037.542	1036.954	- 1 5/16	1037.567
	GIRD.# 5	5527+17.48	1037.430	1036.842	- 1 5/16	1037.455
	GIRD.# 6	5527+18.81	1037.318	1036.730	- 1 5/16	1037.343
10+02	LT. DECK	5527+19.27	1037.934			1037.979
	CL	5527+22.67	1037.646			1037.691
	RT. DECK	5527+27.13	1037.269			1037.314
	GIRD.# 1	5527+19.89	1037.881	1037.326	- 1 1/2	1037.926
	GIRD.# 2	5527+21.22	1037.769	1037.214	- 1 1/2	1037.814
	GIRD.# 3	5527+22.54	1037.658	1037.102	- 1 1/2	1037.702
	GIRD.# 4	5527+23.86	1037.546	1036.990	- 1 1/2	1037.590
	GIRD.# 5	5527+25.18	1037.434	1036.878	- 1 1/2	1037.478
	GIRD.# 6	5527+26.51	1037.322	1036.766	- 1 1/2	1037.366
10+03	LT. DECK	5527+26.97	1037.938			1037.996
	CL	5527+30.37	1037.650			1037.708
	RT. DECK	5527+34.83	1037.272			1037.331
	GIRD.# 1	5527+27.59	1037.885	1037.352	- 1 5/8	1037.943
	GIRD.# 2	5527+28.92	1037.773	1037.241	- 1 5/8	1037.831
	GIRD.# 3	5527+30.24	1037.661	1037.129	- 1 5/8	1037.720
	GIRD.# 4	5527+31.56	1037.549	1037.017	- 1 5/8	1037.608
	GIRD.# 5	5527+32.88	1037.437	1036.905	- 1 5/8	1037.496
	GIRD.# 6	5527+34.21	1037.325	1036.793	- 1 5/8	1037.384
10+04	LT. DECK	5527+34.67	1037.941			1038.008
	CL	5527+38.07	1037.653			1037.720
	RT. DECK	5527+42.53	1037.276			1037.343
	GIRD.# 1	5527+35.29	1037.888	1037.370	- 1 11/16	1037.955
	GIRD.# 2	5527+36.62	1037.776	1037.258	- 1 11/16	1037.843
	GIRD.# 3	5527+37.94	1037.665	1037.146	- 1 11/16	1037.731
	GIRD.# 4	5527+39.26	1037.553	1037.034	- 1 11/16	1037.619
	GIRD.# 5	5527+40.58	1037.441	1036.912	- 1 11/16	1037.508
	GIRD.# 6	5527+41.91	1037.329	1036.810	- 1 11/16	1037.396
10+05	LT. DECK	5527+42.37	1037.945			1038.014
	CL	5527+45.77	1037.657			1037.726
	RT. DECK	5527+50.23	1037.279			1037.349
	GIRD.# 1	5527+42.99	1037.892	1037.378	- 1 11/16	1037.961
	GIRD.# 2	5527+44.32	1037.780	1037.246	- 1 11/16	1037.850
	GIRD.# 3	5527+45.64	1037.668	1037.134	- 1 11/16	1037.738
	GIRD.# 4	5527+46.96	1037.556	1037.042	- 1 11/16	1037.626
	GIRD.# 5	5527+48.28	1037.444	1036.930	- 1 11/16	1037.514
	GIRD.# 6	5527+49.61	1037.332	1036.819	- 1 11/16	1037.402
10+06	LT. DECK	5527+50.07	1037.948			1038.015
	CL	5527+53.47	1037.660			1037.727
	RT. DECK	5527+57.93	1037.283			1037.350
	GIRD.# 1	5527+50.69	1037.895	1037.377	- 1 11/16	1037.962
	GIRD.# 2	5527+52.02	1037.783	1037.265	- 1 11/16	1037.850
	GIRD.# 3	5527+53.34	1037.672	1037.153	- 1 11/16	1037.738
	GIRD.# 4	5527+54.66	1037.560	1037.041	- 1 11/16	1037.626
	GIRD.# 5	5527+55.98	1037.448	1036.929	- 1 11/16	1037.515
	GIRD.# 6	5527+57.31	1037.336	1036.817	- 1 11/16	1037.403
10+07	LT. DECK	5527+57.77	1037.952			1038.010
	CL	5527+61.17	1037.664			1037.722
	RT. DECK	5527+65.63	1037.286			1037.345
	GIRD.# 1	5527+58.39	1037.899	1037.366	- 1 5/8	1037.957
	GIRD.# 2	5527+59.72	1037.787	1037.255	- 1 5/8	1037.845
	GIRD.# 3	5527+61.04	1037.675	1037.143	- 1 5/8	1037.734
	GIRD.# 4	5527+62.36	1037.563	1037.031	- 1 5/8	1037.622
	GIRD.# 5	5527+63.68	1037.451	1036.919	- 1 5/8	1037.510
	GIRD.# 6	5527+65.01	1037.339	1036.807	- 1 5/8	1037.398
10+08	LT. DECK	5527+65.47	1037.955			1038.006
	CL	5527+68.87	1037.667			1037.712
	RT. DECK	5527+73.33	1037.290			1037.335
	GIRD.# 1	5527+66.09	1037.902	1037.347	- 1 1/2	1037.947
	GIRD.# 2	5527+67.42	1037.790	1037.235	- 1 1/2	1037.836
	GIRD.# 3	5527+68.74	1037.679	1037.123	- 1 1/2	1037.725
	GIRD.# 4	5527+70.06	1037.567	1037.011	- 1 1/2	1037.611
	GIRD.# 5	5527+71.38	1037.455	1036.899	- 1 1/2	1037.499
	GIRD.# 6	5527+72.71	1037.343	1036.787	- 1 1/2	1037.387

SPAN #10 & #11

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
10+09	LT. DECK	5527+73.17	1037.959			1037.984
	CL	5527+76.57	1037.671			1037.696
	RT. DECK	5527+81.03	1037.293			1037.318
	GIRD.# 1	5527+73.79	1037.906	1037.317	- 1 5/16	1037.931
	GIRD.# 2	5527+75.12	1037.794	1037.205	- 1 5/16	1037.819
	GIRD.# 3	5527+76.44	1037.682	1037.094	- 1 5/16	1037.707
	GIRD.# 4	5527+77.76	1037.570	1036.982	- 1 5/16	1037.595
	GIRD.# 5	5527+79.08	1037.458	1036.870	- 1 5/16	1037.483
	GIRD.# 6	5527+80.41	1037.346	1036.758	- 1 5/16	1037.371
PIER 10 L	LT. DECK	5527+80.87	1037.962			1037.962
	CL	5527+84.27	1037.674			1037.674
	RT. DECK	5527+88.73	1037.297			1037.297
	GIRD.# 1	5527+81.49	1037.909	1037.279	- 1 1/8	1037.909
	GIRD.# 2	5527+82.82	1037.797	1037.167	- 1 1/8	1037.797
	GIRD.# 3	5527+84.14	1037.686	1037.055	- 1 1/8	1037.686
	GIRD.# 4	5527+85.46	1037.574	1036.943	- 1 1/8	1037.574
	GIRD.# 5	5527+86.78	1037.462	1036.831	- 1 1/8	1037.462
	GIRD.# 6	5527+88.11	1037.350	1036.720	- 1 1/8	1037.350
PIER 10 R	LT. DECK	5527+82.37	1037.963			1037.963
	CL	5527+85.77	1037.675			1037.675
	RT. DECK	5527+90.23	1037.298			1037.298
	GIRD.# 1	5527+82.99	1037.910	1037.280	- 1 1/8	1037.910
	GIRD.# 2	5527+84.32	1037.798	1037.168	- 1 1/8	1037.798
	GIRD.# 3	5527+85.64	1037.686	1037.056	- 1 1/8	1037.686
	GIRD.# 4	5527+86.96	1037.574	1036.944	- 1 1/8	1037.574
	GIRD.# 5	5527+88.28	1037.462	1036.832	- 1 1/8	1037.462
	GIRD.# 6	5527+89.61	1037.351	1036.720	- 1 1/8	1037.351
11+01	LT. DECK	5527+90.07	1037.968			1037.991
	CL	5527+93.47	1037.679			1037.704
	RT. DECK	5527+97.93	1037.301			1037.326
	GIRD.# 1	5527+90.69	1037.914	1037.325	- 1 5/16	1037.939
	GIRD.# 2	5527+92.02	1037.802	1037.213	- 1 5/16	1037.827
	GIRD.# 3	5527+93.34	1037.690	1037.101	- 1 5/16	1037.715
	GIRD.# 4	5527+94.66	1037.578	1036.989	- 1 5/16	1037.603
	GIRD.# 5	5527+95.98	1037.466	1036.877	- 1 5/16	1037.491
	GIRD.# 6	5527+97.31	1037.354	1036.766	- 1 5/16	1037.379
11+02	LT. DECK	5527+97.77	1037.970			1038.014
	CL	5528+01.17	1037.682			1037.727
	RT. DECK	5528+05.63	1037.305			1037.349
	GIRD.# 1	5527+98.39	1037.917	1037.361	- 1 1/2	1037.962
	GIRD.# 2	5527+99.72	1037.805	1037.249	- 1 1/2	1037.850
	GIRD.# 3	5528+01.04	1037.693	1037.138	- 1 1/2	1037.738
	GIRD.# 4	5528+02.36	1037.581	1037.026	- 1 1/2	1037.626
	GIRD.# 5	5528+03.68	1037.469	1036.914	- 1 1/2	1037.514
	GIRD.# 6	5528+05.01	1037.358	1036.802	- 1 1/2	1037.403
11+03	LT. DECK	5528+05.47	1037.973			1038.032
	CL	5528+08.87	1037.686			1037.784
	RT. DECK	5528+13.33	1037.308			1037.367
	GIRD.# 1	5528+06.09	1037.921	1037.388	- 1 5/8	1037.979
	GIRD.# 2	5528+07.42	1037.809	1037.276	- 1 5/8	1037.867
	GIRD.# 3	5528+08.74	1037.697	1037.164	- 1 5/8	1037.755
	GIRD.# 4	5528+10.06	1037.585	1037.052	- 1 5/8	1037.643
	GIRD.# 5	5528+11.38	1037.473	1036.941	- 1 5/8	1037.531
	GIRD.# 6	5528+12.71	1037.361	1036.829	- 1 5/8	1037.420
11+04	LT. DECK	5528+13.17	1037.977			1038.044
	CL	5528+16.57	1037.689			1037.756
	RT. DECK	5528+21.03	1037.312			1037.378
	GIRD.# 1	5528+13.79	1037.924	1037.406	- 1 11/16	1037.991
	GIRD.# 2	5528+15.12	1037.812	1037.294	- 1 11/16	1037.879
	GIRD.# 3	5528+16.44	1037.700	1037.182	- 1 11/16	1037.767
	GIRD.# 4	5528+17.76	1037.588	1037.070	- 1 11/16	1037.655
	GIRD.# 5	5528+19.08	1037.476	1036.958	- 1 11/16	1037.543
	GIRD.# 6	5528+20.41	1037.365	1036.846	- 1 11/16	1037.431
11+05	LT. DECK	5528+20.87	1037.980			1038.050
	CL	5528+24.27	1037.693			1037.762
	RT. DECK	5528+28.73	1037.315			1037.385
	GIRD.# 1	5528+21.49	1037.928	1037.414	- 1 11/16	1037.997
	GIRD.# 2	5528+22.82	1037.816	1037.302	- 1 11/16	1037.885
	GIRD.# 3	5528+24.14	1037.704	1037.190	- 1 11/16	1037.773
	GIRD.# 4	5528+25.46	1037.592	1037.078	- 1 11/16	1037.661
	GIRD.# 5	5528+26.78	1037.480	1036.966	- 1 11/16	1037.550
	GIRD.# 6	5528+28.11	1037.368	1036.854	- 1 11/16	1037.438
11+06	LT. DECK	5528+28.57	1037.984			1038.051
	CL	5528+31.97	1037.696			1037.763
	RT. DECK	5528+36.43	1037.319			1037.386
	GIRD.# 1	5528+29.19	1037.931	1037.413	- 1 11/16	1037.998
	GIRD.# 2	5528+30.52	1037.819	1037.301	- 1 11/16	1037.886
	GIRD.# 3	5528+31.84	1037.707	1037.189	- 1 11/16	1037.774
	GIRD.# 4	5528+33.16	1037.595	1037.077	- 1 11/16	1037.662
	GIRD.# 5	5528+34.48	1037.483	1036.965	- 1 11/16	1037.550
	GIRD.# 6	5528+35.81	1037.372	1036.853	- 1 11/16	1037.438

SPAN #11 & #12

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
11+07	LT. DECK	5528+36.27	1037.987			1038.046
	CL	5528+39.67	1037.700			1037.758
	RT. DECK	5528+44.13	1037.322			1037.381
	GIRD.# 1	5528+36.89	1037.935	1037.402	- 1 5/8	1037.993
	GIRD.# 2	5528+38.22	1037.823	1037.290	- 1 5/8	1037.881
	GIRD.# 3	5528+39.54	1037.711	1037.178	- 1 5/8	1037.769
	GIRD.# 4	5528+40.86	1037.599	1037.066	- 1 5/8	1037.657
	GIRD.# 5	5528+42.18	1037.487	1036.955	- 1 5/8	1037.545
	GIRD.# 6	5528+43.51	1037.375	1036.843	- 1 5/8	1037.434
11+08	LT. DECK	5528+43.97	1037.991			1038.035
	CL	5528+47.37	1037.703			1037.748
	RT. DECK	5528+51.83	1037.326			1037.370
	GIRD.# 1	5528+44.59	1037.938	1037.382	- 1 1/2	1037.983
	GIRD.# 2	5528+45.92	1037.826	1037.270	- 1 1/2	1037.871
	GIRD.# 3	5528+47.24	1037.714	1037.159	- 1 1/2	1037.759
	GIRD.# 4	5528+48.56	1037.602	1037.047	- 1 1/2	1037.647
	GIRD.# 5	5528+49.88	1037.490	1036.935	- 1 1/2	1037.535
	GIRD.# 6	5528+51.21	1037.379	1036.823	- 1 1/2	1037.423
11+09	LT. DECK	5528+51.67	1037.994			1038.019
	CL	5528+55.07	1037.707			1037.732
	RT. DECK	5528+59.53	1037.329			1037.354
	GIRD.# 1	5528+52.29	1037.942	1037.353	- 1 5/16	1037.967
	GIRD.# 2	5528+53.62	1037.830	1037.241	- 1 5/16	1037.855
	GIRD.# 3	5528+54.94	1037.718	1037.129	- 1 5/16	1037.743
	GIRD.# 4	5528+56.26	1037.606	1037.017	- 1 5/16	1037.631
	GIRD.# 5	5528+57.58	1037.494	1036.905	- 1 5/16	1037.519
	GIRD.# 6	5528+58.91	1037.382	1036.794	- 1 5/16	1037.407
PIER 11 L	LT. DECK	5528+59.37	1037.998			1037.998
	CL	5528+62.77	1037.710			1037.710
	RT. DECK	5528+67.23	1037.333			1037.333
	GIRD.# 1	5528+59.99	1037.945	1037.315	- 1 1/8	1037.945
	GIRD.# 2	5528+61.32	1037.833	1037.203	- 1 1/8	1037.833
	GIRD.# 3	5528+62.64	1037.721	1037.091	- 1 1/8	1037.721
	GIRD.# 4	5528+63.96	1037.609	1036.979	- 1 1/8	1037.609
	GIRD.# 5	5528+65.28	1037.497	1036.867	- 1 1/8	1037.497
	GIRD.# 6	5528+66.61	1037.386	1036.755	- 1 1/8	1037.386
PIER 11 R	LT. DECK	5528+60.87	1037.999			1037.999
	CL	5528+64.27	1037.711			1037.711
	RT. DECK	5528+68.73	1037.333			1037.333
	GIRD.# 1	5528+61.49	1037.946	1037.316	- 1 1/8	1037.946
	GIRD.# 2	5528+62.82	1037.834	1037.204	- 1 1/8	1037.834
	GIRD.# 3	5528+64.14	1037.722	1037.092	- 1 1/8	1037.722
	GIRD.# 4	5528+65.46	1037.610	1036.980	- 1 1/8	1037.610
	GIRD.# 5	5528+66.78	1037.498	1036.868	- 1 1/8	1037.498
	GIRD.# 6	5528+68.11	1037.386	1036.756	- 1 1/8	1037.386
12+01	LT. DECK	5528+68.57	1038.002			1038.027
	CL	5528+71.97	1037.714			1037.739
	RT. DECK	5528+76.43	1037.337			1037.362
	GIRD.# 1	5528+69.19	1037.949	1037.361	- 1 5/16	1037.974
	GIRD.# 2	5528+70.52	1037.837	1037.249	- 1 5/16	1037.862
	GIRD.# 3	5528+71.84	1037.725	1037.137	- 1 5/16	1037.750
	GIRD.# 4	5528+73.16	1037.614	1037.025	- 1 5/16	1037.639
	GIRD.# 5	5528+74.48	1037.502	1036.913	- 1 5/16	1037.527
	GIRD.# 6	5528+75.81	1037.390	1036.801	- 1 5/16	1037.415
12+02	LT. DECK	5528+76.27	1038.006			1038.050
	CL	5528+79.67	1037.718			1037.762
	RT. DECK	5528+84.13	1037.340			1037.385
	GIRD.# 1	5528+76.89	1037.953	1037.397	- 1 1/2	1037.997
	GIRD.# 2	5528+78.22	1037.841	1037.285	- 1 1/2	1037.885
	GIRD.# 3	5528+79.54	1037.729	1037.173	- 1 1/2	1037.774
	GIRD.# 4	5528+80.86	1037.617	1037.061	- 1 1/2	1037.662
	GIRD.# 5	5528+82.18	1037.505	1036.949	- 1 1/2	1037.550
	GIRD.# 6	5528+83.51	1037.393	1036.838	- 1 1/2	1037.438
12+03	LT. DECK	5528+83.97	1038.009			1038.068
	CL	5528+87.37	1037.721			1037.780
	RT. DECK	5528+91.83	1037.344			1037.402
	GIRD.# 1	5528+84.59	1037.956	1037.424	- 1 5/8	1038.015
	GIRD.# 2	5528+85.92	1037.844	1037.312	- 1 5/8	1037.903
	GIRD.# 3	5528+87.24	1037.732	1037.200	- 1 5/8	1037.791
	GIRD.# 4	5528+88.56	1037.621	1037.088	- 1 5/8	1037.679
	GIRD.# 5	5528+89.88	1037.509	1036.976	- 1 5/8	1037.567
	GIRD.# 6	5528+91.21	1037.397	1036.864	- 1 5/8	1037.455

SPAN #12

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
12+04	LT. DECK	5528+91.67	1038.013			1038.079
	CL	5528+95.07	1037.725			1037.792
	RT. DECK	5528+99.53	1037.347			1037.414
	GIRD.# 1	5528+92.29	1037.960	1037.441	- 1 11/16	1038.027
	GIRD.# 2	5528+93.62	1037.848	1037.329	- 1 11/16	1037.915
	GIRD.# 3	5528+94.94	1037.736	1037.217	- 1 11/16	1037.803
	GIRD.# 4	5528+96.26	1037.624	1037.106	- 1 11/16	1037.691
	GIRD.# 5	5528+97.58	1037.512	1036.994	- 1 11/16	1037.579
	GIRD.# 6	5528+98.91	1037.400	1036.882	- 1 11/16	1037.467
12+05	LT. DECK	5528+99.37	1038.016			1038.086
	CL	5529+02.77	1037.728			1037.798
	RT. DECK	5529+07.23	1037.351			1037.421
	GIRD.# 1	5528+99.99	1037.963	1037.449	- 1 11/16	1038.033
	GIRD.# 2	5529+01.32	1037.851	1037.338	- 1 11/16	1037.921
	GIRD.# 3	5529+02.64	1037.739	1037.226	- 1 11/16	1037.809
	GIRD.# 4	5529+03.96	1037.628	1037.114	- 1 11/16	1037.697
	GIRD.# 5	5529+05.28	1037.516	1037.002	- 1 11/16	1037.585
	GIRD.# 6	5529+06.61	1037.404	1036.890	- 1 11/16	1037.473
12+06	LT. DECK	5529+07.07	1038.020			1038.086
	CL	5529+10.47	1037.732			1037.799
	RT. DECK	5529+14.93	1037.354			1037.421
	GIRD.# 1	5529+07.69	1037.967	1037.448	- 1 11/16	1038.034
	GIRD.# 2	5529+09.02	1037.855	1037.336	- 1 11/16	1037.922
	GIRD.# 3	5529+10.34	1037.743	1037.224	- 1 11/16	1037.810
	GIRD.# 4	5529+11.66	1037.631	1037.113	- 1 11/16	1037.698
	GIRD.# 5	5529+12.98	1037.519	1037.001	- 1 11/16	1037.586
	GIRD.# 6	5529+14.31	1037.407	1036.889	- 1 11/16	1037.474
12+07	LT. DECK	5529+14.77	1038.023			1038.082
	CL	5529+18.17	1037.735			1037.794
	RT. DECK	5529+22.63	1037.358			1037.416
	GIRD.# 1	5529+15.39	1037.970	1037.438	- 1 5/8	1038.029
	GIRD.# 2	5529+16.72	1037.858	1037.326	- 1 5/8	1037.917
	GIRD.# 3	5529+18.04	1037.746	1037.214	- 1 5/8	1037.805
	GIRD.# 4	5529+19.36	1037.635	1037.102	- 1 5/8	1037.693
	GIRD.# 5	5529+20.68	1037.523	1036.990	- 1 5/8	1037.581
	GIRD.# 6	5529+22.01	1037.411	1036.878	- 1 5/8	1037.469
12+08	LT. DECK	5529+22.47	1038.027			1038.071
	CL	5529+25.87	1037.739			1037.783
	RT. DECK	5529+30.33	1037.361			1037.406
	GIRD.# 1	5529+23.09	1037.974	1037.418	- 1 1/2	1038.018
	GIRD.# 2	5529+24.42	1037.862	1037.306	- 1 1/2	1037.906
	GIRD.# 3	5529+25.74	1037.750	1037.194	- 1 1/2	1037.795
	GIRD.# 4	5529+27.06	1037.638	1037.082	- 1 1/2	1037.683
	GIRD.# 5	5529+28.38	1037.526	1036.970	- 1 1/2	1037.571
	GIRD.# 6	5529+29.71	1037.414	1036.859	- 1 1/2	1037.459
12+09	LT. DECK	5529+30.17	1038.030			1038.055
	CL	5529+33.57	1037.742			1037.767
	RT. DECK	5529+38.03	1037.365			1037.390
	GIRD.# 1	5529+30.79	1037.977	1037.389	- 1 5/16	1038.002
	GIRD.# 2	5529+32.12	1037.865	1037.277	- 1 5/16	1037.890
	GIRD.# 3	5529+33.44	1037.753	1037.165	- 1 5/16	1037.778
	GIRD.# 4	5529+34.76	1037.642	1037.053	- 1 5/16	1037.667
	GIRD.# 5	5529+36.08	1037.530	1036.941	- 1 5/16	1037.555
	GIRD.# 6	5529+37.41	1037.418	1036.829	- 1 5/16	1037.443
PIER 12 L	LT. DECK	5529+37.87	1038.034			1038.034
	CL	5529+41.27	1037.746			1037.746
	RT. DECK	5529+45.73	1037.368			1037.368
	GIRD.# 1	5529+38.49	1037.981	1037.350	- 1 1/8	1037.981
	GIRD.# 2	5529+39.82	1037.869	1037.239	- 1 1/8	1037.869
	GIRD.# 3	5529+41.14	1037.757	1037.127	- 1 1/8	1037.757
	GIRD.# 4	5529+42.46	1037.645	1037.015	- 1 1/8	1037.645
	GIRD.# 5	5529+43.78	1037.533	1036.903	- 1 1/8	1037.533
	GIRD.# 6	5529+45.11	1037.421	1036.791	- 1 1/8	1037.421

		Date
Design	ES	4-70
Drawn	ES	5-70
Checked	RL	5-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+ E.B.
HASSAYAMPA RIVER BRIDGE
GIRDER EMBEDMENT DETAILS

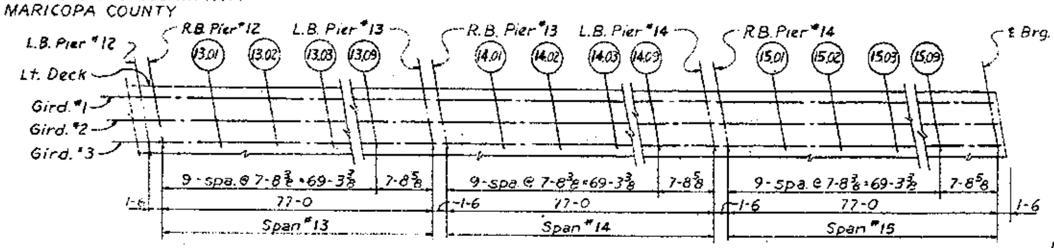
22 - 28 | 1645 Bridge Number | I-10 10469 Drawing Number

Registered Professional Engineer (Civil) — Certificate Expires — MARTIN TONEY — Arizona, U.S.A.

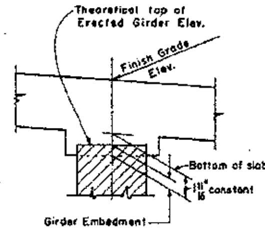
MASTER

I-10-2(16)

ERHENBERG - PHOENIX HWY.
MARICOPA COUNTY



PLAN
No Scale



L.B. = Left Bearing
R.B. = Right Bearing

STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
	I-10-2(16)	82	87	2-14-75

NOTE—
The Theoretical Top of Erected Girder Elevations include an allowance for deflection of the girders due to their own dead load. The Top of Erected Girder Elevations shall be checked in the field. If the measured elevation is lower than the theoretical elevation, the difference shall be subtracted from the embedment. If the measured elevation is higher, the difference shall be added to the embedment.
The Finish Grade Elevations Adjusted for Deflection include an allowance for the dead load of the concrete deck and shall be used as shown regardless of the measured top of erected girder elevations.
Lt. Deck = Left Face of Deck.
Rt. Deck = Right Face of Deck.
CL = Constr. ℄

SPAN #13

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
PIER 12 R	LT. DECK	5529+39.37	1038.034			1038.034
	CL	5529+42.77	1037.746			1037.746
	RT. DECK	5529+47.23	1037.369			1037.369
	GIRD.# 1	5529+39.89	1037.981	1037.351	- 1 1/8	1037.981
	GIRD.# 2	5529+41.32	1037.870	1037.239	- 1 1/8	1037.870
	GIRD.# 3	5529+42.64	1037.758	1037.127	- 1 1/8	1037.758
	GIRD.# 4	5529+43.96	1037.646	1037.016	- 1 1/8	1037.646
	GIRD.# 5	5529+45.28	1037.534	1036.904	- 1 1/8	1037.534
	GIRD.# 6	5529+46.01	1037.422	1036.792	- 1 1/8	1037.422
13+01	LT. DECK	5529+47.07	1038.038			1038.063
	CL	5529+50.47	1037.750			1037.775
	RT. DECK	5529+54.93	1037.373			1037.398
	GIRD.# 1	5529+47.69	1037.985	1037.396	- 1 5/16	1038.010
	GIRD.# 2	5529+49.02	1037.873	1037.285	- 1 5/16	1037.898
	GIRD.# 3	5529+50.34	1037.761	1037.173	- 1 5/16	1037.786
	GIRD.# 4	5529+51.66	1037.649	1037.061	- 1 5/16	1037.674
	GIRD.# 5	5529+52.98	1037.537	1036.949	- 1 5/16	1037.562
	GIRD.# 6	5529+54.31	1037.425	1036.837	- 1 5/16	1037.450
13+02	LT. DECK	5529+54.77	1038.041			1038.086
	CL	5529+58.17	1037.753			1037.798
	RT. DECK	5529+62.63	1037.376			1037.421
	GIRD.# 1	5529+55.39	1037.988	1037.433	- 1 1/2	1038.033
	GIRD.# 2	5529+56.72	1037.877	1037.321	- 1 1/2	1037.921
	GIRD.# 3	5529+58.04	1037.765	1037.209	- 1 1/2	1037.809
	GIRD.# 4	5529+59.36	1037.653	1037.097	- 1 1/2	1037.697
	GIRD.# 5	5529+60.68	1037.541	1036.985	- 1 1/2	1037.585
	GIRD.# 6	5529+62.01	1037.429	1036.873	- 1 1/2	1037.474
13+03	LT. DECK	5529+62.47	1038.045			1038.103
	CL	5529+65.87	1037.757			1037.815
	RT. DECK	5529+70.33	1037.380			1037.438
	GIRD.# 1	5529+63.09	1037.992	1037.460	- 1 5/8	1038.050
	GIRD.# 2	5529+64.42	1037.880	1037.348	- 1 5/8	1037.939
	GIRD.# 3	5529+65.74	1037.768	1037.236	- 1 5/8	1037.827
	GIRD.# 4	5529+67.06	1037.656	1037.124	- 1 5/8	1037.715
	GIRD.# 5	5529+68.38	1037.544	1037.012	- 1 5/8	1037.603
	GIRD.# 6	5529+69.71	1037.432	1036.900	- 1 5/8	1037.491
13+04	LT. DECK	5529+70.17	1038.048			1038.115
	CL	5529+73.57	1037.760			1037.827
	RT. DECK	5529+78.03	1037.383			1037.450
	GIRD.# 1	5529+70.79	1037.995	1037.477	- 1 11/16	1038.062
	GIRD.# 2	5529+72.12	1037.884	1037.365	- 1 11/16	1037.950
	GIRD.# 3	5529+73.44	1037.772	1037.253	- 1 11/16	1037.838
	GIRD.# 4	5529+74.76	1037.660	1037.141	- 1 11/16	1037.727
	GIRD.# 5	5529+76.08	1037.548	1037.029	- 1 11/16	1037.615
	GIRD.# 6	5529+77.41	1037.436	1036.917	- 1 11/16	1037.503
13+05	LT. DECK	5529+77.87	1038.052			1038.121
	CL	5529+81.27	1037.764			1037.834
	RT. DECK	5529+85.73	1037.387			1037.456
	GIRD.# 1	5529+78.49	1037.999	1037.485	- 1 11/16	1038.069
	GIRD.# 2	5529+79.82	1037.887	1037.373	- 1 11/16	1037.957
	GIRD.# 3	5529+81.14	1037.775	1037.261	- 1 11/16	1037.845
	GIRD.# 4	5529+82.46	1037.663	1037.149	- 1 11/16	1037.733
	GIRD.# 5	5529+83.76	1037.551	1037.038	- 1 11/16	1037.621
	GIRD.# 6	5529+85.11	1037.439	1036.926	- 1 11/16	1037.509
13+06	LT. DECK	5529+85.57	1038.055			1038.122
	CL	5529+88.97	1037.767			1037.834
	RT. DECK	5529+93.43	1037.390			1037.457
	GIRD.# 1	5529+86.19	1038.002	1037.484	- 1 11/16	1038.069
	GIRD.# 2	5529+87.52	1037.891	1037.372	- 1 11/16	1037.957
	GIRD.# 3	5529+88.84	1037.779	1037.260	- 1 11/16	1037.845
	GIRD.# 4	5529+90.16	1037.667	1037.148	- 1 11/16	1037.734
	GIRD.# 5	5529+91.48	1037.555	1037.036	- 1 11/16	1037.622
	GIRD.# 6	5529+92.81	1037.443	1036.924	- 1 11/16	1037.510
13+07	LT. DECK	5529+93.27	1038.059			1038.117
	CL	5529+96.67	1037.771			1037.829
	RT. DECK	5530+01.13	1037.394			1037.452
	GIRD.# 1	5529+93.89	1038.006	1037.474	- 1 5/8	1038.064
	GIRD.# 2	5529+95.22	1037.894	1037.362	- 1 5/8	1037.953
	GIRD.# 3	5529+96.54	1037.782	1037.250	- 1 5/8	1037.841
	GIRD.# 4	5529+97.86	1037.670	1037.138	- 1 5/8	1037.729
	GIRD.# 5	5529+99.18	1037.558	1037.026	- 1 5/8	1037.617
	GIRD.# 6	5530+00.51	1037.446	1036.914	- 1 5/8	1037.505
13+08	LT. DECK	5530+00.97	1038.062			1038.107
	CL	5530+04.37	1037.774			1037.819
	RT. DECK	5530+08.83	1037.397			1037.442
	GIRD.# 1	5530+01.59	1038.009	1037.454	- 1 1/2	1038.054
	GIRD.# 2	5530+02.92	1037.898	1037.342	- 1 1/2	1037.942
	GIRD.# 3	5530+04.24	1037.786	1037.230	- 1 1/2	1037.830
	GIRD.# 4	5530+05.56	1037.674	1037.118	- 1 1/2	1037.718
	GIRD.# 5	5530+06.88	1037.562	1037.006	- 1 1/2	1037.606
	GIRD.# 6	5530+08.21	1037.450	1036.894	- 1 1/2	1037.495

SPAN #13 & #14

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
13+09	LT. DECK	5530+08.67	1038.066			1038.091
	CL	5530+12.07	1037.778			1037.803
	RT. DECK	5530+16.53	1037.401			1037.426
	GIRD.# 1	5530+09.29	1038.013	1037.424	- 1 5/16	1038.038
	GIRD.# 2	5530+10.62	1037.901	1037.313	- 1 5/16	1037.926
	GIRD.# 3	5530+11.94	1037.789	1037.201	- 1 5/16	1037.814
	GIRD.# 4	5530+13.26	1037.677	1037.089	- 1 5/16	1037.702
	GIRD.# 5	5530+14.56	1037.565	1036.977	- 1 5/16	1037.590
	GIRD.# 6	5530+15.91	1037.453	1036.865	- 1 5/16	1037.478
PIER 13 L	LT. DECK	5530+16.37	1038.069			1038.069
	CL	5530+19.77	1037.781			1037.781
	RT. DECK	5530+24.23	1037.404			1037.404
	GIRD.# 1	5530+16.99	1038.016	1037.386	- 1 1/8	1038.016
	GIRD.# 2	5530+18.32	1037.905	1037.274	- 1 1/8	1037.905
	GIRD.# 3	5530+19.64	1037.793	1037.162	- 1 1/8	1037.793
	GIRD.# 4	5530+20.96	1037.681	1037.050	- 1 1/8	1037.681
	GIRD.# 5	5530+22.26	1037.569	1036.939	- 1 1/8	1037.569
	GIRD.# 6	5530+23.61	1037.457	1036.827	- 1 1/8	1037.457
PIER 13 R	LT. DECK	5530+17.67	1038.070			1038.070
	CL	5530+21.27	1037.782			1037.782
	RT. DECK	5530+25.73	1037.405			1037.405
	GIRD.# 1	5530+18.49	1038.017	1037.347	- 1 1/8	1038.017
	GIRD.# 2	5530+19.82	1037.905	1037.275	- 1 1/8	1037.905
	GIRD.# 3	5530+21.14	1037.793	1037.163	- 1 1/8	1037.793
	GIRD.# 4	5530+22.46	1037.681	1037.051	- 1 1/8	1037.681
	GIRD.# 5	5530+23.76	1037.570	1036.939	- 1 1/8	1037.570
	GIRD.# 6	5530+25.11	1037.458	1036.827	- 1 1/8	1037.458
14+01	LT. DECK	5530+25.57	1038.074			1038.099
	CL	5530+28.97	1037.786			1037.811
	RT. DECK	5530+33.43	1037.408			1037.433
	GIRD.# 1	5530+26.19	1038.021	1037.432	- 1 5/16	1038.046
	GIRD.# 2	5530+27.52	1037.909	1037.320	- 1 5/16	1037.934
	GIRD.# 3	5530+28.84	1037.797	1037.208	- 1 5/16	1037.822
	GIRD.# 4	5530+30.16	1037.685	1037.096	- 1 5/16	1037.710
	GIRD.# 5	5530+31.48	1037.573	1036.985	- 1 5/16	1037.598
	GIRD.# 6	5530+32.81	1037.461	1036.873	- 1 5/16	1037.486
14+02	LT. DECK	5530+33.27	1038.077			1038.122
	CL	5530+36.67	1037.789			1037.834
	RT. DECK	5530+41.13	1037.412			1037.456
	GIRD.# 1	5530+33.89	1038.024	1037.468	- 1 1/2	1038.069
	GIRD.# 2	5530+35.22	1037.912	1037.357	- 1 1/2	1037.957
	GIRD.# 3	5530+36.54	1037.800	1037.245	- 1 1/2	1037.845
	GIRD.# 4	5530+37.86	1037.688	1037.133	- 1 1/2	1037.733
	GIRD.# 5	5530+39.18	1037.577	1037.021	- 1 1/2	1037.621
	GIRD.# 6	5530+40.51	1037.465	1036.909	- 1 1/2	1037.509
14+03	LT. DECK	5530+40.97	1038.081			1038.139
	CL	5530+44.37	1037.793			1037.851
	RT. DECK	5530+48.83	1037.415			1037.474
	GIRD.# 1	5530+41.59	1038.028	1037.495	- 1 5/8	1038.086
	GIRD.# 2	5530+42.92	1037.916	1037.383	- 1 5/8	1037.974
	GIRD.# 3	5530+44.24	1037.804	1037.271	- 1 5/8	1037.862
	GIRD.# 4	5530+45.56	1037.692	1037.160	- 1 5/8	1037.750
	GIRD.# 5	5530+46.88	1037.580	1037.048	- 1 5/8	1037.638
	GIRD.# 6	5530+48.21	1037.468	1036.936	- 1 5/8	1037.527
14+04	LT. DECK	5530+48.67	1038.084			1038.151
	CL	5530+52.07	1037.796			1037.863
	RT. DECK	5530+56.53	1037.419			1037.486
	GIRD.# 1	5530+49.29	1038.031	1037.513	- 1 11/16	1038.098
	GIRD.# 2	5530+50.62	1037.919	1037.401	- 1 11/16	1037.986
	GIRD.# 3	5530+51.94	1037.807	1037.289	- 1 11/16	1037.874
	GIRD.# 4	5530+53.26	1037.695	1037.177	- 1 11/16	1037.762
	GIRD.# 5	5530+54.58	1037.584	1037.065	- 1 11/16	1037.650
	GIRD.# 6	5530+55.91	1037.472	1036.953	- 1 11/16	1037.538
14+05	LT. DECK	5530+56.37	1038.088			1038.157
	CL	5530+59.77	1037.800			1037.869
	RT. DECK	5530+64.23	1037.422			1037.492
	GIRD.# 1	5530+56.99	1038.035	1037.521	- 1 11/16	1038.104
	GIRD.# 2	5530+58.32	1037.923	1037.409	- 1 11/16	1037.992
	GIRD.# 3	5530+59.64	1037.811	1037.297	- 1 11/16	1037.880
	GIRD.# 4	5530+60.96	1037.699	1037.185	- 1 11/16	1037.769
	GIRD.# 5	5530+62.28	1037.587	1037.073	- 1 11/16	1037.657
	GIRD.# 6	5530+63.61	1037.475	1036.961	- 1 11/16	1037.545
14+06	LT. DECK	5530+64.07	1038.091			1038.158
	CL	5530+67.47	1037.803			1037.870
	RT. DECK	5530+71.93	1037.426			1037.493
	GIRD.# 1	5530+64.69	1038.038	1037.520	- 1 11/16	1038.105
	GIRD.# 2	5530+66.02	1037.926	1037.408	- 1 11/16	1037.993
	GIRD.# 3	5530+67.34	1037.814	1037.296	- 1 11/16	1037.881
	GIRD.# 4	5530+68.66	1037.702	1037.184	- 1 11/16	1037.769
	GIRD.# 5	5530+69.98	1037.591	1037.072	- 1 11/16	1037.657
	GIRD.# 6	5530+71.31	1037.479	1036.960	- 1 11/16	1037.545

SPAN #14 & #15

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
14+07	LT. DECK	5530+71.77	1038.095			1038.153
	CL	5530+75.17	1037.807			1037.866
	RT. DECK	5530+79.63	1037.429			1037.488
	GIRD.# 1	5530+72.39	1038.042	1037.509	- 1 5/8	1038.100
	GIRD.# 2	5530+73.72	1037.930	1037.397	- 1 5/8	1037.988
	GIRD.# 3	5530+75.04	1037.818	1037.285	- 1 5/8	1037.876
	GIRD.# 4	5530+76.36	1037.706	1037.174	- 1 5/8	1037.764
	GIRD.# 5	5530+77.68	1037.594	1037.062	- 1 5/8	1037.653
	GIRD.# 6	5530+79.01	1037.482	1036.950	- 1 5/8	1037.541
14+08	LT. DECK	5530+79.47	1038.098			1038.143
	CL	5530+82.87	1037.810			1037.855
	RT. DECK	5530+87.33	1037.433			1037.477
	GIRD.# 1	5530+80.09	1038.045	1037.489	- 1 1/2	1038.090
	GIRD.# 2	5530+81.42	1037.933	1037.378	- 1 1/2	1037.978
	GIRD.# 3	5530+82.74	1037.821	1037.266	- 1 1/2	1037.866
	GIRD.# 4	5530+84.06	1037.709	1037.154	- 1 1/2	1037.754
	GIRD.# 5	5530+85.38	1037.598	1037.042	- 1 1/2	1037.642
	GIRD.# 6	5530+86.71	1037.486	1036.930	- 1 1/2	1037.530
14+09	LT. DECK	5530+87.17	1038.102			1038.127
	CL	5530+90.57	1037.814			1037.839
	RT. DECK	5530+95.03	1037.436			1037.461
	GIRD.# 1	5530+87.79	1038.049	1037.460	- 1 5/16	1038.074
	GIRD.# 2	5530+89.12	1037.937	1037.348	- 1 5/16	1037.962
	GIRD.# 3	5530+90.44	1037.825	1037.236	- 1 5/16	1037.850
	GIRD.# 4	5530+91.76	1037.713	1037.124	- 1 5/16	1037.738
	GIRD.# 5	5530+93.08	1037.601	1037.013	- 1 5/16	1037.626
	GIRD.# 6	5530+94.41	1037.489	1036.901	- 1 5/16	1037.514
PIER 14 L	LT. DECK	5530+94.87	1038.105			1038.105
	CL	5530+98.27	1037.817			1037.817
	RT. DECK	5531+02.73	1037.440			1037.440
	GIRD.# 1	5530+95.49	1038.052	1037.422	- 1 1/8	1038.052
	GIRD.# 2	5530+96.82	1037.940	1037.310	- 1 1/8	1037.940
	GIRD.# 3	5530+98.14	1037.828	1037.198	- 1 1/8	1037.828
	GIRD.# 4	5530+99.46	1037.717	1037.086	- 1 1/8	1037.717
	GIRD.# 5	5531+00.76	1037.605	1036.974	- 1 1/8	1037.605
	GIRD.# 6	5531+02.11	1037.493	1036.862	- 1 1/8	1037.493
PIER 14 R	LT. DECK	5530+96.37	1038.106			1038.106
	CL	5530+99.77	1037.818			1037.818
	RT. DECK	5531+04.23	1037.441			1037.441
	GIRD.# 1	5530+96.99	1038.053	1037.409	- 15/16	1038.053
	GIRD.# 2	5530+98.32	1037.941	1037.297	- 15/16	1037.941
	GIRD.# 3	5530+99.64	1037.829	1037.185	- 15/16	1037.829
	GIRD.# 4	5531+00.96	1037.717	1037.073	- 15/16	1037.717
	GIRD.# 5	5531+02.28	1037.605	1036.961	- 15/16	1037.605
	GIRD.# 6	5531+03.61	1037.494	1036.849	- 15/16	1037.494
15+01	LT. DECK	5531+04.07	1038.109			1038.134
	CL	5531+07.47	1037.822			1037.847
	RT. DECK	5531+11.93	1037.445			1037.470
	GIRD.# 1	5531+04.69	1038.057	1037.459	- 1 3/16	1038.082
	GIRD.# 2	5531+06.02	1037.945	1037.347	- 1 3/16	1037.970
	GIRD.# 3	5531+07.34	1037.833	1037.236	- 1 3/16	1037.858
	GIRD.# 4	5531+08.66	1037.721	1037.124	- 1 3/16	1037.746
	GIRD.# 5	5531+09.98	1037.610	1037.012	- 1 1/4	1037.635
	GIRD.# 6	5531+11.31	1037.498	1036.901	- 1 1/4	1037.523
15+02	LT. DECK	5531+11.77	1038.114			1038.159
	CL	5531+15.17	1037.827			1037.872
	RT. DECK	5531+19.63	1037.451			1037.496
	GIRD.# 1	5531+12.39	1038.061	1037.501	- 1 7/16	1038.106
	GIRD.# 2	5531+13.72	1037.950	1037.389	- 1 7/16	1037.994
	GIRD.# 3	5531+15.04	1037.838	1037.277	- 1 7/16	1037.883
	GIRD.# 4	5531+16.36	1037.727	1037.166	- 1 7/16	1037.771
	GIRD.# 5	5531+17.68	1037.615	1037.055	- 1 7/16	1037.660
	GIRD.# 6	5531+19.01	1037.504	1036.943	- 1 7/16	1037.548
15+03	LT. DECK	5531+19.47	1038.120			1038.178
	CL	5531+22.87	1037.833			1037.892
	RT. DECK	5531+27.33	1037.458			1037.517
	GIRD.# 1	5531+20.09	1038.067	1037.533	- 1 9/16	1038.126
	GIRD.# 2	5531+21.42	1037.956	1037.421	- 1 9/16	1038.014
	GIRD.# 3	5531+22.74	1037.845	1037.310	- 1 9/16	1037.903
	GIRD.# 4	5531+24.06	1037.733	1037.199	- 1 9/16	1037.792
	GIRD.# 5	5531+25.38	1037.622	1037.087	- 1 9/16	1037.680
	GIRD.# 6	5531+26.71	1037.511	1036.976	- 1 9/16	1037.569

SPAN #15

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
15+04	LT. DECK	5531+27.17	1038.127			1038.194
	CL	5531+30.57	1037.841			1037.908
	RT. DECK	5531+35.03	1037.466			1037.533
	GIRD.# 1	5531+27.79	1038.074	1037.555	- 1 11/16	1038.141
	GIRD.# 2	5531+29.12	1037.963	1037.444	- 1 11/16	1038.030
	GIRD.# 3	5531+30.44	1037.852	1037.333	- 1 11/16	1037.919
	GIRD.# 4	5531+31.76	1037.741	1037.222	- 1 11/16	1037.808
	GIRD.# 5	5531+33.08	1037.630	1037.111	- 1 11/16	1037.696
	GIRD.# 6	5531+34.41	1037.519	1037.000	- 1 11/16	1037.585
15+05	LT. DECK	5531+34.87	1038.134			1038.204
	CL	5531+38.27	1037.849			1037.919
	RT. DECK	5531+42.73	1037.475			1037.545
	GIRD.# 1	5531+35.49	1038.082	1037.569	- 1 11/16	1038.152
	GIRD.# 2	5531+36.82	1037.971	1037.458	- 1 11/16	1038.041
	GIRD.# 3	5531+38.14	1037.860	1037.347	- 1 11/16	1037.930
	GIRD.# 4	5531+39.46	1037.749	1037.236	- 1 11/16	1037.819
	GIRD.# 5	5531+40.78	1037.639	1037.125	- 1 11/16	1037.708
	GIRD.# 6	5531+42.11	1037.528	1037.014	- 1 11/16	1037.597
15+06	LT. DECK	5531+42.57	1038.144			1038.211
	CL	5531+45.97	1037.859			1037.926
	RT. DECK	5531+50.43	1037.486			1037.553
	GIRD.# 1	5531+43.19	1038.092	1037.573	- 1 11/16	1038.158
	GIRD.# 2	5531+44.52	1037.981	1037.462	- 1 11/16	1038.048
	GIRD.# 3	5531+45.84	1037.870	1037.351	- 1 11/16	1037.937
	GIRD.# 4	5531+47.16	1037.759	1037.240	- 1 11/16	1037.826
	GIRD.# 5	5531+48.48	1037.649	1037.130	- 1 11/16	1037.715
	GIRD.# 6	5531+49.81	1037.538	1037.019	- 1 11/16	1037.605
15+07	LT. DECK	5531+50.27	1038.154			1038.213
	CL	5531+53.67	1037.870			1037.928
	RT. DECK	5531+58.13	1037.497			1037.556
	GIRD.# 1	5531+50.89	1038.102	1037.567	- 1 9/16	1038.161
	GIRD.# 2	5531+52.22	1037.991	1037.457	- 1 9/16	1038.050
	GIRD.# 3	5531+53.54	1037.881	1037.346	- 1 9/16	1037.939
	GIRD.# 4	5531+54.86	1037.770	1037.236	- 1 9/16	1037.829
	GIRD.# 5	5531+56.18	1037.660	1037.126	- 1 9/16	1037.718
	GIRD.# 6	5531+57.51	1037.549	1037.015	- 1 9/16	1037.608
15+08	LT. DECK	5531+57.97	1038.166			1038.210
	CL	5531+61.37	1037.882			1037.926
	RT. DECK	5531+65.83	1037.510			1037.556
	GIRD.# 1	5531+58.59	1038.114	1037.583	- 1 7/16	1038.158
	GIRD.# 2	5531+59.92	1038.003	1037.442	- 1 7/16	1038.048
	GIRD.# 3	5531+61.24	1037.893	1037.332	- 1 7/16	1037.937
	GIRD.# 4	5531+62.56	1037.782	1037.222	- 1 7/16	1037.827
	GIRD.# 5	5531+63.88	1037.672	1037.111	- 1 7/16	1037.717
	GIRD.# 6	5531+65.21	1037.562	1037.001	- 1 7/16	1037.606
15+09	LT. DECK	5531+65.67	1038.178			1038.203
	CL	5531+69.07	1037.895			1037.920
	RT. DECK	5531+73.53	1037.523			1037.548
	GIRD.# 1	5531+66.29	1038.126	1037.529	- 1 1/4	1038.151
	GIRD.# 2	5531+67.62	1038.016	1037.418	- 1 1/4	1038.041
	GIRD.# 3	5531+68.94	1037.906	1037.308	- 1 1/4	1037.931
	GIRD.# 4	5531+70.26	1037.796	1037.198	- 1 3/16	1037.821
	GIRD.# 5	5531+71.58	1037.685	1037.088	- 1 1/4	1037.710
	GIRD.# 6	5531+72.91	1037.575	1036.978	- 1 1/4	1037.600
ABUT 2	LT. DECK	5531+73.37	1038.192			1038.192
	CL	5531+76.77	1037.909			1037.909
	RT. DECK	5531+81.23	1037.538			1037.538
	GIRD.# 1	5531+73.99	1038.140	1037.496	- 15/16	1038.140
	GIRD.# 2	5531+75.32	1038.030	1037.386	- 15/16	1038.030
	GIRD.# 3	5531+76.64	1037.920	1037.276	- 15/16	1037.920
	GIRD.# 4	5531+77.96	1037.810	1037.165	- 15/16	1037.810
	GIRD.# 5	5531+79.28	1037.700	1037.056	- 15/16	1037.700
	GIRD.# 6	5531+80.61	1036.590	1036.946	- 15/16	1037.590

		DATE
Design	ES	4-70
Drawn	ES	5-70
Checked	PG	6-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+ E.B.
HASSAYAMPA RIVER BRIDGE
GIRDER EMBEDMENT DETAILS

23 of 28 | 1645 (Bridge number) | I-10 104-69 (Drawing number)

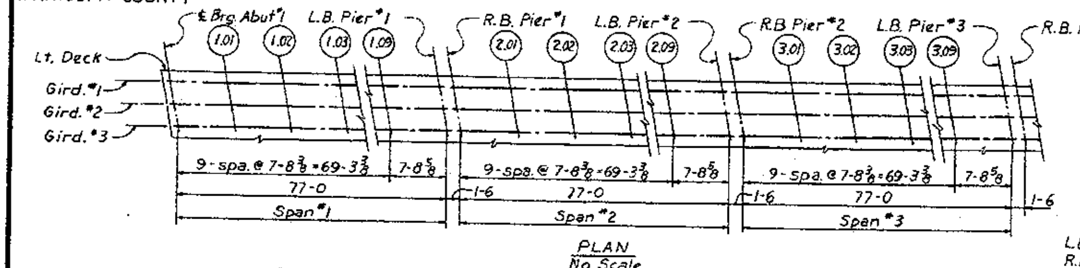
Registered Professional Engineer — Certificate — MARTIN — ARIZONA, U.S.A.

MASTER

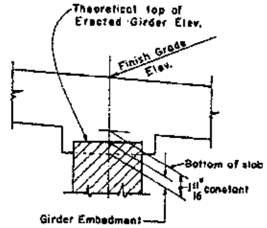
I-10-2(16)

MASTER

ERHENBERG - PHOENIX HWY.
MARICOPA COUNTY



PLAN
No Scale



L.B. = Left Bearing
R.B. = Right Bearing

	STATE	PROJECT NO.			AS BUILT
9	ARIZONA	I-10-2(16)	83	87	2.4.75

NOTE—

The Theoretical Top of Erected Girder Elevations include an allowance for deflection of the girders due to their own dead load. The Top of Erected Girder Elevations shall be checked in the field. If the measured elevation is lower than the theoretical elevation, the difference shall be subtracted from the embedment. If the measured elevation is higher, the difference shall be added to the embedment.

The Finish Grade Elevations Adjusted for Deflection include an allowance for the dead load of the concrete deck and shall be used as shown regardless of the measured top of erected girder elevations.

Lt. Deck = Left Face of Deck.
Rt. Deck = Right Face of Deck.
CL = Constr. ℄

SPAN #1

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
ABUT 1	LT. DECK	5519+77.27	1036.928				1036.928
	CL	5519+81.73	1037.309				1037.304
	RT. DECK	5519+85.13	1037.600				1037.600
	GIRD.# 1	5519+77.09	1036.981	1036.351		-1 1/8	1036.981
	GIRD.# 2	5519+78.22	1037.094	1036.464		-1 1/8	1037.094
	GIRD.# 3	5519+80.54	1037.207	1036.577		-1 1/8	1037.207
	GIRD.# 4	5519+81.86	1037.320	1036.690		-1 1/8	1037.320
	GIRD.# 5	5519+83.18	1037.434	1036.803		-1 1/8	1037.434
	GIRD.# 6	5519+84.51	1037.547	1036.917		-1 1/8	1037.547
1+01	LT. DECK	5519+84.97	1036.931				1036.956
	CL	5519+89.43	1037.313				1037.338
	RT. DECK	5519+92.83	1037.604				1037.629
	GIRD.# 1	5519+85.59	1036.985	1036.396		-1 5/16	1037.010
	GIRD.# 2	5519+86.92	1037.098	1036.509		-1 5/16	1037.123
	GIRD.# 3	5519+88.24	1037.211	1036.622		-1 5/16	1037.236
	GIRD.# 4	5519+89.56	1037.324	1036.736		-1 5/16	1037.349
	GIRD.# 5	5519+90.88	1037.437	1036.849		-1 5/16	1037.462
	GIRD.# 6	5519+92.21	1037.550	1036.962		-1 5/16	1037.575
1+02	LT. DECK	5519+92.67	1036.935				1036.970
	CL	5519+97.13	1037.316				1037.361
	RT. DECK	5520+00.53	1037.607				1037.652
	GIRD.# 1	5519+93.29	1036.986	1036.433		-1 1/2	1037.033
	GIRD.# 2	5519+94.62	1037.101	1036.546		-1 1/2	1037.146
	GIRD.# 3	5519+95.94	1037.214	1036.659		-1 1/2	1037.259
	GIRD.# 4	5519+97.26	1037.328	1036.772		-1 1/2	1037.372
	GIRD.# 5	5519+98.58	1037.441	1036.885		-1 1/2	1037.485
	GIRD.# 6	5519+99.91	1037.554	1036.998		-1 1/2	1037.598
1+03	LT. DECK	5520+00.37	1036.938				1036.997
	CL	5520+04.83	1037.320				1037.378
	RT. DECK	5520+08.23	1037.611				1037.669
	GIRD.# 1	5520+00.99	1036.992	1036.459		-1 5/8	1037.050
	GIRD.# 2	5520+02.32	1037.105	1036.572		-1 5/8	1037.163
	GIRD.# 3	5520+03.64	1037.218	1036.686		-1 5/8	1037.276
	GIRD.# 4	5520+04.96	1037.331	1036.799		-1 5/8	1037.390
	GIRD.# 5	5520+06.28	1037.444	1036.912		-1 5/8	1037.503
	GIRD.# 6	5520+07.61	1037.557	1037.025		-1 5/8	1037.616
1+04	LT. DECK	5520+08.07	1036.942				1037.009
	CL	5520+12.53	1037.323				1037.390
	RT. DECK	5520+15.93	1037.614				1037.681
	GIRD.# 1	5520+08.69	1036.995	1036.477		-1 11/16	1037.062
	GIRD.# 2	5520+10.02	1037.108	1036.590		-1 11/16	1037.175
	GIRD.# 3	5520+11.34	1037.221	1036.703		-1 11/16	1037.288
	GIRD.# 4	5520+12.66	1037.335	1036.816		-1 11/16	1037.401
	GIRD.# 5	5520+13.98	1037.448	1036.929		-1 11/16	1037.514
	GIRD.# 6	5520+15.31	1037.561	1037.042		-1 11/16	1037.628
1+05	LT. DECK	5520+15.77	1036.945				1037.015
	CL	5520+20.23	1037.327				1037.396
	RT. DECK	5520+23.63	1037.618				1037.687
	GIRD.# 1	5520+16.39	1036.999	1036.485		-1 11/16	1037.068
	GIRD.# 2	5520+17.72	1037.112	1036.598		-1 11/16	1037.181
	GIRD.# 3	5520+19.04	1037.225	1036.711		-1 11/16	1037.295
	GIRD.# 4	5520+20.36	1037.338	1036.824		-1 11/16	1037.408
	GIRD.# 5	5520+21.68	1037.451	1036.937		-1 11/16	1037.521
	GIRD.# 6	5520+23.01	1037.564	1037.050		-1 11/16	1037.634
1+06	LT. DECK	5520+23.47	1036.949				1037.016
	CL	5520+27.93	1037.330				1037.397
	RT. DECK	5520+31.33	1037.621				1037.688
	GIRD.# 1	5520+24.09	1037.002	1036.484		-1 11/16	1037.069
	GIRD.# 2	5520+25.42	1037.115	1036.597		-1 11/16	1037.182
	GIRD.# 3	5520+26.74	1037.228	1036.710		-1 11/16	1037.295
	GIRD.# 4	5520+28.06	1037.342	1036.823		-1 11/16	1037.408
	GIRD.# 5	5520+29.38	1037.455	1036.936		-1 11/16	1037.521
	GIRD.# 6	5520+30.71	1037.568	1037.049		-1 11/16	1037.635
1+07	LT. DECK	5520+31.17	1036.952				1037.011
	CL	5520+35.63	1037.334				1037.392
	RT. DECK	5520+39.03	1037.625				1037.683
	GIRD.# 1	5520+31.79	1037.006	1036.473		-1 5/8	1037.064
	GIRD.# 2	5520+33.12	1037.119	1036.586		-1 5/8	1037.177
	GIRD.# 3	5520+34.44	1037.232	1036.700		-1 5/8	1037.290
	GIRD.# 4	5520+35.76	1037.345	1036.813		-1 5/8	1037.404
	GIRD.# 5	5520+37.08	1037.458	1036.926		-1 5/8	1037.517
	GIRD.# 6	5520+38.41	1037.571	1037.039		-1 5/8	1037.630
1+08	LT. DECK	5520+38.87	1036.956				1037.000
	CL	5520+43.33	1037.337				1037.382
	RT. DECK	5520+46.73	1037.628				1037.673
	GIRD.# 1	5520+39.49	1037.009	1036.454		-1 1/2	1037.054
	GIRD.# 2	5520+40.82	1037.122	1036.567		-1 1/2	1037.167
	GIRD.# 3	5520+42.14	1037.235	1036.680		-1 1/2	1037.280
	GIRD.# 4	5520+43.46	1037.349	1036.793		-1 1/2	1037.393
	GIRD.# 5	5520+44.78	1037.462	1036.906		-1 1/2	1037.506
	GIRD.# 6	5520+46.11	1037.575	1037.019		-1 1/2	1037.619

SPAN #1 & #2

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
1+09	LT. DECK	5520+46.57	1036.959				1036.984
	CL	5520+51.03	1037.341				1037.366
	RT. DECK	5520+54.43	1037.632				1037.657
	GIRD.# 1	5520+47.19	1037.013	1036.424		-1 5/16	1037.038
	GIRD.# 2	5520+48.52	1037.126	1036.537		-1 5/16	1037.151
	GIRD.# 3	5520+49.84	1037.239	1036.650		-1 5/16	1037.264
	GIRD.# 4	5520+51.16	1037.352	1036.764		-1 5/16	1037.377
	GIRD.# 5	5520+52.48	1037.465	1036.877		-1 5/16	1037.490
	GIRD.# 6	5520+53.81	1037.578	1036.990		-1 5/16	1037.603
PIER 1 LB	LT. DECK	5520+54.27	1036.963				1036.963
	CL	5520+58.73	1037.344				1037.344
	RT. DECK	5520+62.13	1037.635				1037.635
	GIRD.# 1	5520+54.89	1037.016	1036.386		-1 1/8	1037.016
	GIRD.# 2	5520+56.22	1037.129	1036.499		-1 1/8	1037.129
	GIRD.# 3	5520+57.54	1037.242	1036.612		-1 1/8	1037.242
	GIRD.# 4	5520+58.86	1037.356	1036.725		-1 1/8	1037.356
	GIRD.# 5	5520+60.18	1037.469	1036.838		-1 1/8	1037.469
	GIRD.# 6	5520+61.51	1037.582	1036.951		-1 1/8	1037.582
PIER 1 RB	LT. DECK	5520+55.77	1036.964				1036.964
	CL	5520+60.23	1037.345				1037.345
	RT. DECK	5520+63.43	1037.636				1037.636
	GIRD.# 1	5520+56.39	1037.017	1036.387		-1 1/8	1037.017
	GIRD.# 2	5520+57.72	1037.130	1036.500		-1 1/8	1037.130
	GIRD.# 3	5520+59.04	1037.243	1036.613		-1 1/8	1037.243
	GIRD.# 4	5520+60.36	1037.356	1036.726		-1 1/8	1037.356
	GIRD.# 5	5520+61.68	1037.469	1036.839		-1 1/8	1037.469
	GIRD.# 6	5520+63.01	1037.582	1036.952		-1 1/8	1037.582
2+01	LT. DECK	5520+63.47	1036.967				1036.992
	CL	5520+67.93	1037.348				1037.373
	RT. DECK	5520+71.33	1037.639				1037.664
	GIRD.# 1	5520+64.09	1037.020	1036.432		-1 5/16	1037.045
	GIRD.# 2	5520+65.42	1037.134	1036.545		-1 5/16	1037.159
	GIRD.# 3	5520+66.74	1037.247	1036.658		-1 5/16	1037.272
	GIRD.# 4	5520+68.06	1037.360	1036.771		-1 5/16	1037.385
	GIRD.# 5	5520+69.38	1037.473	1036.884		-1 5/16	1037.498
	GIRD.# 6	5520+70.71	1037.586	1036.997		-1 5/16	1037.611
2+02	LT. DECK	5520+71.17	1036.971				1037.015
	CL	5520+75.63	1037.352				1037.397
	RT. DECK	5520+79.03	1037.643				1037.687
	GIRD.# 1	5520+71.79	1037.024	1036.468		-1 1/2	1037.069
	GIRD.# 2	5520+73.12	1037.137	1036.581		-1 1/2	1037.182
	GIRD.# 3	5520+74.44	1037.250	1036.694		-1 1/2	1037.295
	GIRD.# 4	5520+75.76	1037.363	1036.808		-1 1/2	1037.408
	GIRD.# 5	5520+77.08	1037.476	1036.921		-1 1/2	1037.521
	GIRD.# 6	5520+78.41	1037.589	1037.034		-1 1/2	1037.634
2+03	LT. DECK	5520+78.87	1036.974				1037.033
	CL	5520+83.33	1037.355				1037.414
	RT. DECK	5520+86.73	1037.646				1037.705
	GIRD.# 1	5520+79.49	1037.027	1036.495		-1 5/8	1037.086
	GIRD.# 2	5520+80.82	1037.141	1036.608		-1 5/8	1037.199
	GIRD.# 3	5520+82.14	1037.254	1036.721		-1 5/8	1037.312
	GIRD.# 4	5520+83.46	1037.367	1036.834		-1 5/8	1037.425
	GIRD.# 5	5520+84.78	1037.480	1036.947		-1 5/8	1037.538
	GIRD.# 6	5520+86.11	1037.593	1037.061		-1 5/8	1037.651
2+04	LT. DECK	5520+86.57	1036.978				1037.046
	CL	5520+91.03	1037.359				1037.426
	RT. DECK	5520+94.43	1037.650				1037.717
	GIRD.# 1	5520+87.19	1037.031	1036.512		-1 11/16	1037.098
	GIRD.# 2	5520+88.52	1037.144	1036.626		-1 11/16	1037.211
	GIRD.# 3	5520+89.84	1037.257	1036.739		-1 11/16	1037.324
	GIRD.# 4	5520+91.16	1037.370	1036.852		-1 11/16	1037.437
	GIRD.# 5	5520+92.48	1037.483	1036.965		-1 11/16	1037.550
	GIRD.# 6	5520+93.81	1037.596	1037.078		-1 11/16	1037.663
2+05	LT. DECK	5520+94.27	1036.981				1037.051
	CL	5520+98.73	1037.362				1037.432
	RT. DECK	5521+02.13	1037.653				1037.723
	GIRD.# 1	5520+94.89	1037.034	1036.521		-1 11/16	1037.104
	GIRD.# 2	5520+96.22	1037.148	1036.634		-1 11/16	1037.217
	GIRD.# 3	5520+97.54	1037.261	1036.747		-1 11/16	1037.330
	GIRD.# 4	5520+98.86	1037.374	1036.860		-1 11/16	1037.443
	GIRD.# 5	5521+00.18	1037.487	1036.973		-1 11/16	1037.556
	GIRD.# 6	5521+01.51	1037.600	1037.086		-1 11/16	1037.670
2+06	LT. DECK	5521+01.97	1036.985				1037.052
	CL	5521+06.43	1037.366				1037.433
	RT. DECK	5521+09.83	1037.657				1037.724
	GIRD.# 1	5521+02.59	1037.038	1036.519		-1 11/16	1037.105
	GIRD.# 2	5521+03.92	1037.151	1036.633		-1 11/16	1037.218
	GIRD.# 3	5521+05.24	1037.264	1036.746		-1 11/16	1037.331
	GIRD.# 4	5521+06.56	1037.377	1036.859		-1 11/16	1037.444
	GIRD.# 5	5521+07.88	1037.490	1036.972		-1 11/16	1037.557
	GIRD.# 6	5521+09.21	1037.603	1037.085		-1 11/16	1037.670

SPAN #2 & #3

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
2+07	LT. DECK	5521+09.67	1036.988				1037.047
	CL	5521+14.13	1037.369				1037.428
	RT. DECK	5521+17.53	1037.660				1037.719
	GIRD.# 1	5521+10.29	1037.041	1036.509		-1 5/8	1037.100
	GIRD.# 2	5521+11.62	1037.155	1036.622		-1 5/8	1037.213
	GIRD.# 3	5521+12.94	1037.268	1036.735		-1 5/8	1037.326
	GIRD.# 4	5521+14.26	1037.381	1036.848		-1 5/8	1037.439
	GIRD.# 5	5521+15.58	1037.494	1036.961		-1 5/8	1037.552
	GIRD.# 6	5521+16.91	1037.607	1037.075		-1 5/8	1037.665
2+08	LT. DECK	5521+17.37	1036.992				1037.036
	CL	5521+21.83	1037.373				1037.418
	RT. DECK	5521+25.23	1037.664				1037.708
	GIRD.# 1	5521+17.99	1037.045	1036.489		-1 1/2	1037.090
	GIRD.# 2	5521+19.32	1037.158	1036.602		-1 1/2	1037.203
	GIRD.# 3	5521+20.64	1037.271	1036.715		-1 1/2	1037.316
	GIRD.# 4	5521+21.96	1037.384	1036.829		-1 1/2	1037.429
	GIRD.# 5	5521+23.28	1037.497	1036.942		-1 1/2	1037.542
	GIRD.# 6	5521+24.61	1037.610	1037.055		-1 1/2	1037.655
2+09	LT. DECK	5521+25.07	1036.995				1037.020
	CL	5521+29.53	1037.376				1037.401
	RT. DECK	5521+32.93	1037.667				1037.692
	GIRD.# 1	5521+25.69	1037.048	1036.460		-1 5/16	1037.073
	GIRD.# 2	5521+27.02	1037.162	1036.573		-1 5/16	1037.187
	GIRD.# 3	5521+28.34	1037.275	1036.686		-1 5/16	1037.300
	GIRD.# 4	5521+29.66	1037.388	1036.799		-1 5/16	1037.413
	GIRD.# 5	5521+30.98	1037.501	1036.912		-1 5/16	1037.526
	GIRD.# 6	5521+32.31	1037.614	1037.025		-1 5/16	1037.639
PIER 2 LB	LT. DECK	5521+32.77	1036.999				1036.999
	CL	5521+37.23	1037.380				1037.380
	RT. DECK	5521+40.63	1037.671				1037.671
	GIRD.# 1	5521+33.39	1037.052	1036.422		-1 1/8	1037.052
	GIRD.# 2	5521+34.72	1037.165	1036.535		-1 1/8	1037.165
	GIRD.# 3	5521+36.04	1037.278	1036.648		-1 1/8	1037.278
	GIRD.# 4	5521+37.36	1037.391	1036.761		-1 1/8	1037.391
	GIRD.# 5	5521+38.68	1037.504	1036.874		-1 1/8	1037.504
	GIRD.# 6	5521+40.01	1037.617	1036.987		-1 1/8	1037.617
PIER 2 RB	LT. DECK	5521+34.27	1036.999				1036.999
	CL	5521+38.73	1037.381				1037.381
	RT. DECK	5521+42.13	1037.672				1037.672
	GIRD.# 1	5521+34.89	1037.053	1036.422		-1 1/8	1037.053
	GIRD.# 2	5521+36.22	1037.166	1036.536		-1 1/8	1037.166
	GIRD.# 3	5521+37.54	1037.279	1036.649		-1 1/8	1037.279
	GIRD.# 4	5521+38.86	1037.392	1036.762		-1 1/8	1037.392
	GIRD.# 5	5521+40.18	1037.505	1036.875		-1 1/8	1037.505
	GIRD.# 6	5521+41.51	1037.618	1036.988		-1 1/8	1037.618
3+01	LT. DECK	5521+41.97	1037.003				1037.028
	CL	5521+46.43	1037.384				1037.409
	RT. DECK	5521+49.83	1037.675				1037.700
	GIRD.# 1	5521+42.59	1037.056	1036.468		-1 5/16	1037.081
	GIRD.# 2	5521+43.92	1037.169	1036.581		-1 5/16	1037.194
	GIRD.# 3	5521+45.24	1037.282	1036.694		-1 5/16	1037.307
	GIRD.# 4	5521+46.56	1037.395	1036.807		-1 5/16	1037.420
	GIRD.# 5	5521+47.88	1037.509	1036.920		-1 5/16	1037.534
	GIRD.# 6	5521+49.21	1037.622	1037.033		-1 5/16	1037.647
3+02	LT. DECK	5521+49.67	1037.006				1037.051
	CL	5521+54.13	1037.388				1037.432
	RT. DECK	5521+57.53	1037.679				1037.723
	GIRD.# 1	5521+50.29	1037.060	1036.504		-1 1/2	1037.104
	GIRD.# 2	5521+51.62	1037.173	1036.617		-1 1/2	1037.217
	GIRD.# 3	5521+52.94	1037.286	1036.730		-1 1/2	1037.330
	GIRD.# 4	5521+54.26	1037.399	1036.843		-1 1/2	1037.444
	GIRD.# 5	5521+55.58	1037.512	1036.956		-1 1/2	1037.557
	GIRD.# 6	5521+56.91	1037.625	1037.069		-1 1/2	1037.670
3+03	LT. DECK	5521+57.37	1037.010				1037.068
	CL	5521+61.83	1037.391				1037.450
	RT. DECK	5521+65.23	1037.682				1037.741
	GIRD.# 1	5521+57.99	1037.063	1036.531		-1 5/8	1037.122
	GIRD.# 2	5521+59.32	1037.176	1036.644		-1 5/8	1037.235
	GIRD.# 3	5521+60.64	1037.289	1036.757		-1 5/8	1037.348
	GIRD.# 4	5521+61.96	1037.402	1036.870		-1 5/8	1037.461
	GIRD.# 5	5521+63.28	1037.516	1036.983		-1 5/8	1037.574
	GIRD.# 6	5521+64.61	1037.629	1037.096		-1 5/8	1037.687

SPAN #3

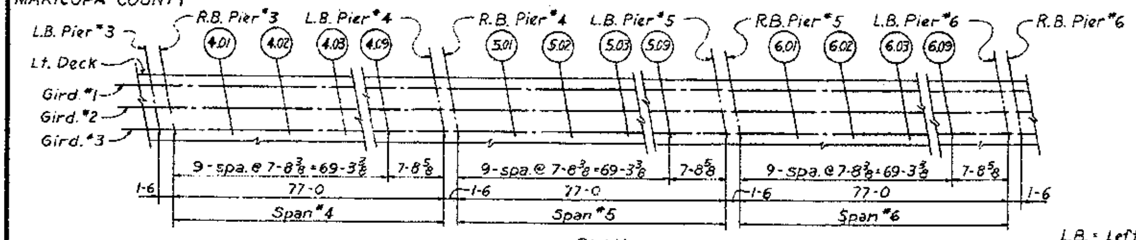
	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
3+04	LT. DECK	5521+65.07	1037.013				1037.080
	CL	5521+69.53	1037.395				1037.461
	RT. DECK	5521+72.93	1037.686				1037.752
	GIRD.# 1	5521+65.69	1037.067	1036.548		-1 11/16	1037.133
	GIRD.# 2	5521+67.02	1037.180	1036.661		-1 11/16	1037.247
	GIRD.# 3	5521+68.34	1037.293	1036.774		-1 11/16	1037.360
	GIRD.# 4	5521+69.66	1037.406	1036.887		-1 11/16	1037.473
	GIRD.# 5	5521+70.98	1037.519	1037.001		-1 11/16	1037.586
	GIRD.# 6	5521+72.31	1037.632	1037.114		-1 11/16	1037.699
3+05	LT. DECK	5521+72.77	1037.017				1037.086
	CL	5521+77.23	1037.398				1037.468
	RT. DECK	5521+80.63	1037.689				1037.759
	GIRD.# 1	5521+73.39	1037.070	1036.556		-1 11/16	1037.140
	GIRD.# 2	5521+74.72	1037.183	1036.669		-1 11/16	1037.253
	GIRD.# 3	5521+76.04	1037.296	1036.783		-1 11/16	1037.366
	GIRD.# 4	5521+77.36	1037.409	1036.896		-1 11/16	1037.479
	GIRD.# 5	5521+78.68	1037.523	1037.009		-1 11/16	1037.592
	GIRD.# 6	5521+80.01	1037.636	1037.122		-1 11/16	1037.705
3+06	LT. DECK	5521+80.47	1037.020				1037.087
	CL	5521+84.93	1037.402				1037.468
	RT. DECK	5521+88.33	1037.693				1037.759
	GIRD.# 1	5521+81.09	1037.074	1036.555		-1 11/16	1037.140
	GIRD.# 2	5521+82.42	1037.187	1036.668		-1 11/16	1037.254
	GIRD.# 3	5521+83.74	1037.300	1036.781		-1 11/16	1037.367
	GIRD.# 4	5521+85.06	1037.413	1036.894		-1 11/16	1037.480
	GIRD.# 5	5521+86.38	1037.526	1037.008		-1 11/16	1037.593
	GIRD.# 6	5521+87.71	1037.639	1037.121		-1 11/16	1037.706
3+07	LT. DECK	5521+88.17	1037.024				1037.082
	CL	5521+92.63	1037.405				1037.464
	RT. DECK	5521+96.03	1037.696				1037.755
	GIRD.# 1	5521+88.79	1037.077	1036.545		-1 5/8	1037.136
	GIRD.# 2	5521+90.12	1037.190	1036.658		-1 5/8	1037.249
	GIRD.# 3	5521+91.44	1037.303	1036.771		-1 5/8	1037.362
	GIRD.# 4	5521+92.76	1037.416	1036.884		-1 5/8	1037.475
	GIRD.# 5	5521+94.08	1037.530	1036.997		-1 5/8	1037.588
	GIRD.# 6	5521+95.41	1037.643	1037.110		-1 5/8	1037.701
3+08	LT. DECK	5521+95.87	1037.027				1037.072
	CL	5522+00.33	1037.409				1037.453
	RT. DECK	5522+03.73	1037.700				1037.744
	GIRD.# 1	5521+96.49	1037.081	1036.525		-1 1/2	1037.125
	GIRD.# 2	5521+97.82	1037.194	1036.638		-1 1/2	1037.238
	GIRD.# 3	5521+99.14	1037.307	1036.751		-1 1/2	1037.351
	GIRD.# 4	5522+00.46	1037.420	1036.864		-1 1/2	1037.465
	GIRD.# 5	5522+01.78	1037.533	1036.977		-1 1/2	1037.578
	GIRD.# 6	5522+03.11	1037.646	1037.090		-1 1/2	1037.691
3+09	LT. DECK	5522+03.57	1037.031				1037.056
	CL	5522+08.03	1037.412				1037.437
	RT. DECK	5522+11.43	1037.703				1037.728
	GIRD.# 1	5522+04.19	1037.084	1036.496		-1 5/16	1037.109
	GIRD.# 2	5522+05.52	1037.197	1036.609		-1 5/16	1037.222
	GIRD.# 3	5522+06.84	1037.310	1036.722		-1 5/16	1037.335
	GIRD.# 4	5522+08.16	1037.423	1036.835		-1 5/16	1037.448
	GIRD.# 5	5522+09.48	1037.537	1036.948		-1 5/16	1037.562
	GIRD.# 6	5522+10.81	1037.650	1037.061		-1 5/16	1037.675
PIER 3 LB	LT. DECK	5522+11.27	1037.034				1037.034
	CL	5522+15.73	1037.416				1037.416
	RT. DECK	5522+19.13	1037.707				1037.707
	GIRD.# 1	5522+11.89	1037.088	1036.457		-1 1/8	1037.088
	GIRD.# 2	5522+13.22	1037.201	1036.570		-1 1/8	1037.201
	GIRD.# 3	5522+14.54	1037.314	1036.684		-1 1/8	1037.314
	GIRD.# 4	5522+15.86	1037.427	1036.797		-1 1/8	1037.427
	GIRD.# 5	5522+17.18	1037.540	1036.910		-1 1/8	1037.540
	GIRD.# 6	5522+18.51	1037.653	1037.023		-1 1/8	1037.653

		DATE	
Design	ET	4-70	ARIZONA HIGHWAY DEPARTMENT BRIDGE DIVISION
Drawn	ES	5-70	STA. 5527+ W.B. HASSAYAMPA RIVER BRIDGE
Checked	CL	5-70	GIRDER EMBEDMENT DETAILS
24-28		1646 BRIDGE NUMBER	I-10 104.69 DRAWING NUMBER

MARTIN TONEY

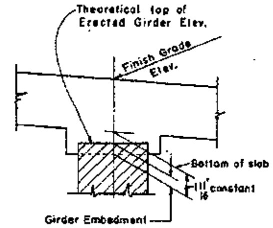
I-10-2(16)

ERHENBERG - PHOENIX HWY.
MARICOPA COUNTY



PLAN
No Scale

L.B. = Left Bearing
R.B. = Right Bearing



9	ARIZ.	I-10-2(16)	84	87	2-11-75

NOTE —
The Theoretical Top of Erected Girder Elevations include an allowance for deflection of the girders due to their own dead load. The Top of Erected Girder Elevations shall be checked in the field. If the measured elevation is lower than the theoretical elevation, the difference shall be subtracted from the embedment. If the measured elevation is higher, the difference shall be added to the embedment.
The Finish Grade Elevations Adjusted for Deflection include an allowance for the dead load of the concrete deck and shall be used as shown regardless of the measured top of erected girder elevations.
Lt. Deck = Left Face of Deck.
Rt. Deck = Right Face of Deck.
CL = Constr. ℄

SPAN #4

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
PIER 3 RB	LT. DECK	5522+12.77	1037.035				1037.035
	CL	5522+17.23	1037.416				1037.416
	RT. DECK	5522+20.43	1037.707				1037.707
	GIRD. # 1	5522+13.39	1037.088	1036.458		- 1 1/8	1037.088
	GIRD. # 2	5522+14.72	1037.201	1036.571		- 1 1/8	1037.201
	GIRD. # 3	5522+16.04	1037.315	1036.684		- 1 1/8	1037.315
	GIRD. # 4	5522+17.36	1037.428	1036.797		- 1 1/8	1037.428
	GIRD. # 5	5522+18.68	1037.541	1036.911		- 1 1/8	1037.541
	GIRD. # 6	5522+20.01	1037.654	1037.024		- 1 1/8	1037.654
4+01	LT. DECK	5522+20.47	1037.034				1037.083
	CL	5522+24.93	1037.420				1037.445
	RT. DECK	5522+28.33	1037.711				1037.736
	GIRD. # 1	5522+21.09	1037.092	1036.503		- 1 5/16	1037.117
	GIRD. # 2	5522+22.42	1037.205	1036.616		- 1 5/16	1037.230
	GIRD. # 3	5522+23.74	1037.318	1036.730		- 1 5/16	1037.343
	GIRD. # 4	5522+25.06	1037.431	1036.843		- 1 5/16	1037.456
	GIRD. # 5	5522+26.38	1037.544	1036.956		- 1 5/16	1037.569
	GIRD. # 6	5522+27.71	1037.657	1037.069		- 1 5/16	1037.682
4+02	LT. DECK	5522+28.17	1037.042				1037.087
	CL	5522+32.63	1037.423				1037.468
	RT. DECK	5522+36.03	1037.714				1037.759
	GIRD. # 1	5522+28.79	1037.095	1036.540		- 1 1/2	1037.140
	GIRD. # 2	5522+30.12	1037.208	1036.653		- 1 1/2	1037.253
	GIRD. # 3	5522+31.44	1037.322	1036.766		- 1 1/2	1037.366
	GIRD. # 4	5522+32.76	1037.435	1036.879		- 1 1/2	1037.479
	GIRD. # 5	5522+34.08	1037.548	1036.992		- 1 1/2	1037.592
	GIRD. # 6	5522+35.41	1037.661	1037.105		- 1 1/2	1037.705
4+03	LT. DECK	5522+35.87	1037.048				1037.104
	CL	5522+40.33	1037.427				1037.485
	RT. DECK	5522+43.73	1037.718				1037.776
	GIRD. # 1	5522+36.49	1037.099	1036.566		- 1 5/8	1037.157
	GIRD. # 2	5522+37.82	1037.212	1036.680		- 1 5/8	1037.270
	GIRD. # 3	5522+39.14	1037.325	1036.793		- 1 5/8	1037.384
	GIRD. # 4	5522+40.46	1037.438	1036.906		- 1 5/8	1037.497
	GIRD. # 5	5522+41.78	1037.551	1037.019		- 1 5/8	1037.610
	GIRD. # 6	5522+43.11	1037.664	1037.132		- 1 5/8	1037.723
4+04	LT. DECK	5522+43.57	1037.049				1037.114
	CL	5522+48.03	1037.430				1037.497
	RT. DECK	5522+51.43	1037.721				1037.788
	GIRD. # 1	5522+44.19	1037.102	1036.584		- 1 11/16	1037.169
	GIRD. # 2	5522+45.52	1037.215	1036.697		- 1 11/16	1037.282
	GIRD. # 3	5522+46.84	1037.329	1036.810		- 1 11/16	1037.395
	GIRD. # 4	5522+48.16	1037.442	1036.923		- 1 11/16	1037.508
	GIRD. # 5	5522+49.48	1037.555	1037.036		- 1 11/16	1037.622
	GIRD. # 6	5522+50.81	1037.668	1037.149		- 1 11/16	1037.735
4+05	LT. DECK	5522+51.27	1037.052				1037.122
	CL	5522+55.73	1037.434				1037.503
	RT. DECK	5522+59.13	1037.725				1037.794
	GIRD. # 1	5522+51.89	1037.106	1036.592		- 1 11/16	1037.175
	GIRD. # 2	5522+53.22	1037.219	1036.705		- 1 11/16	1037.289
	GIRD. # 3	5522+54.54	1037.332	1036.818		- 1 11/16	1037.402
	GIRD. # 4	5522+55.86	1037.445	1036.931		- 1 11/16	1037.515
	GIRD. # 5	5522+57.18	1037.558	1037.044		- 1 11/16	1037.628
	GIRD. # 6	5522+58.51	1037.671	1037.158		- 1 11/16	1037.741
4+06	LT. DECK	5522+58.97	1037.056				1037.123
	CL	5522+63.43	1037.437				1037.504
	RT. DECK	5522+66.83	1037.728				1037.795
	GIRD. # 1	5522+59.59	1037.109	1036.591		- 1 11/16	1037.176
	GIRD. # 2	5522+60.92	1037.222	1036.704		- 1 11/16	1037.289
	GIRD. # 3	5522+62.24	1037.336	1036.817		- 1 11/16	1037.402
	GIRD. # 4	5522+63.56	1037.449	1036.930		- 1 11/16	1037.515
	GIRD. # 5	5522+64.88	1037.562	1037.043		- 1 11/16	1037.629
	GIRD. # 6	5522+66.21	1037.675	1037.156		- 1 11/16	1037.742
4+07	LT. DECK	5522+66.67	1037.059				1037.118
	CL	5522+71.13	1037.441				1037.499
	RT. DECK	5522+74.53	1037.732				1037.790
	GIRD. # 1	5522+67.29	1037.113	1036.580		- 1 5/8	1037.171
	GIRD. # 2	5522+68.62	1037.226	1036.694		- 1 5/8	1037.284
	GIRD. # 3	5522+69.94	1037.339	1036.807		- 1 5/8	1037.398
	GIRD. # 4	5522+71.26	1037.452	1036.920		- 1 5/8	1037.511
	GIRD. # 5	5522+72.58	1037.565	1037.033		- 1 5/8	1037.624
	GIRD. # 6	5522+73.91	1037.678	1037.146		- 1 5/8	1037.737
4+08	LT. DECK	5522+74.37	1037.063				1037.108
	CL	5522+78.83	1037.444				1037.489
	RT. DECK	5522+82.23	1037.735				1037.780
	GIRD. # 1	5522+74.99	1037.116	1036.561		- 1 1/2	1037.161
	GIRD. # 2	5522+76.32	1037.229	1036.674		- 1 1/2	1037.274
	GIRD. # 3	5522+77.64	1037.343	1036.787		- 1 1/2	1037.387
	GIRD. # 4	5522+78.96	1037.456	1036.900		- 1 1/2	1037.500
	GIRD. # 5	5522+80.28	1037.569	1037.013		- 1 1/2	1037.613
	GIRD. # 6	5522+81.61	1037.682	1037.126		- 1 1/2	1037.726

SPAN #4 & #5

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
4+09	LT. DECK	5522+82.07	1037.066				1037.091
	CL	5522+86.53	1037.448				1037.473
	RT. DECK	5522+89.93	1037.739				1037.764
	GIRD. # 1	5522+82.69	1037.120	1036.531		- 1 5/16	1037.145
	GIRD. # 2	5522+84.02	1037.233	1036.644		- 1 5/16	1037.258
	GIRD. # 3	5522+85.34	1037.346	1036.758		- 1 5/16	1037.371
	GIRD. # 4	5522+86.66	1037.459	1036.871		- 1 5/16	1037.484
	GIRD. # 5	5522+87.98	1037.572	1036.984		- 1 5/16	1037.597
	GIRD. # 6	5522+89.31	1037.685	1037.097		- 1 5/16	1037.710
PIER 4 LB	LT. DECK	5522+89.77	1037.070				1037.070
	CL	5522+94.23	1037.451				1037.451
	RT. DECK	5522+97.63	1037.742				1037.742
	GIRD. # 1	5522+90.39	1037.123	1036.493		- 1 1/8	1037.123
	GIRD. # 2	5522+91.72	1037.236	1036.606		- 1 1/8	1037.236
	GIRD. # 3	5522+93.04	1037.350	1036.719		- 1 1/8	1037.350
	GIRD. # 4	5522+94.36	1037.463	1036.832		- 1 1/8	1037.463
	GIRD. # 5	5522+95.68	1037.576	1036.945		- 1 1/8	1037.576
	GIRD. # 6	5522+97.01	1037.689	1037.059		- 1 1/8	1037.689
PIER 4 RB	LT. DECK	5522+91.27	1037.071				1037.071
	CL	5522+95.73	1037.452				1037.452
	RT. DECK	5522+99.13	1037.743				1037.743
	GIRD. # 1	5522+91.89	1037.124	1036.494		- 1 1/8	1037.124
	GIRD. # 2	5522+93.22	1037.237	1036.607		- 1 1/8	1037.237
	GIRD. # 3	5522+94.54	1037.350	1036.720		- 1 1/8	1037.350
	GIRD. # 4	5522+95.86	1037.463	1036.833		- 1 1/8	1037.463
	GIRD. # 5	5522+97.18	1037.576	1036.946		- 1 1/8	1037.576
	GIRD. # 6	5522+98.51	1037.690	1037.059		- 1 1/8	1037.690
5+01	LT. DECK	5522+98.97	1037.074				1037.099
	CL	5523+03.43	1037.456				1037.481
	RT. DECK	5523+06.83	1037.746				1037.771
	GIRD. # 1	5522+99.59	1037.128	1036.539		- 1 5/16	1037.153
	GIRD. # 2	5523+00.92	1037.241	1036.652		- 1 5/16	1037.266
	GIRD. # 3	5523+02.24	1037.354	1036.765		- 1 5/16	1037.379
	GIRD. # 4	5523+03.56	1037.467	1036.878		- 1 5/16	1037.492
	GIRD. # 5	5523+04.88	1037.580	1036.991		- 1 5/16	1037.605
	GIRD. # 6	5523+06.21	1037.693	1037.105		- 1 5/16	1037.718
5+02	LT. DECK	5523+06.67	1037.078				1037.122
	CL	5523+11.13	1037.459				1037.504
	RT. DECK	5523+14.53	1037.750				1037.795
	GIRD. # 1	5523+07.29	1037.131	1036.575		- 1 1/2	1037.176
	GIRD. # 2	5523+08.62	1037.244	1036.688		- 1 1/2	1037.289
	GIRD. # 3	5523+09.94	1037.357	1036.802		- 1 1/2	1037.402
	GIRD. # 4	5523+11.26	1037.470	1036.916		- 1 1/2	1037.515
	GIRD. # 5	5523+12.58	1037.583	1037.028		- 1 1/2	1037.628
	GIRD. # 6	5523+13.91	1037.697	1037.141		- 1 1/2	1037.741
5+03	LT. DECK	5523+14.37	1037.081				1037.140
	CL	5523+18.83	1037.463				1037.521
	RT. DECK	5523+22.23	1037.753				1037.812
	GIRD. # 1	5523+14.99	1037.135	1036.602		- 1 5/8	1037.193
	GIRD. # 2	5523+16.32	1037.248	1036.715		- 1 5/8	1037.306
	GIRD. # 3	5523+17.64	1037.361	1036.828		- 1 5/8	1037.419
	GIRD. # 4	5523+18.96	1037.474	1036.941		- 1 5/8	1037.532
	GIRD. # 5	5523+20.28	1037.587	1037.055		- 1 5/8	1037.645
	GIRD. # 6	5523+21.61	1037.700	1037.168		- 1 5/8	1037.759
5+04	LT. DECK	5523+22.07	1037.083				1037.151
	CL	5523+26.53	1037.466				1037.533
	RT. DECK	5523+29.93	1037.757				1037.824
	GIRD. # 1	5523+22.69	1037.138	1036.620		- 1 11/16	1037.205
	GIRD. # 2	5523+24.02	1037.251	1036.733		- 1 11/16	1037.318
	GIRD. # 3	5523+25.34	1037.364	1036.846		- 1 11/16	1037.431
	GIRD. # 4	5523+26.66	1037.477	1036.959		- 1 11/16	1037.544
	GIRD. # 5	5523+27.98	1037.590	1037.072		- 1 11/16	1037.657
	GIRD. # 6	5523+29.31	1037.704	1037.185		- 1 11/16	1037.770
5+05	LT. DECK	5523+29.77	1037.088				1037.158
	CL	5523+34.23	1037.470				1037.539
	RT. DECK	5523+37.63	1037.760				1037.830
	GIRD. # 1	5523+30.39	1037.142	1036.628		- 1 11/16	1037.211
	GIRD. # 2	5523+31.72	1037.255	1036.741		- 1 11/16	1037.324
	GIRD. # 3	5523+33.04	1037.368	1036.854		- 1 11/16	1037.437
	GIRD. # 4	5523+34.36	1037.481	1036.967		- 1 11/16	1037.550
	GIRD. # 5	5523+35.68	1037.594	1037.080		- 1 11/16	1037.664
	GIRD. # 6	5523+37.01	1037.707	1037.193		- 1 11/16	1037.777
5+06	LT. DECK	5523+37.47	1037.092				1037.158
	CL	5523+41.93	1037.473				1037.540
	RT. DECK	5523+45.33	1037.764				1037.831
	GIRD. # 1	5523+38.09	1037.145	1036.627		- 1 11/16	1037.212
	GIRD. # 2	5523+39.42	1037.258	1036.740		- 1 11/16	1037.325
	GIRD. # 3	5523+40.74	1037.371	1036.853		- 1 11/16	1037.438
	GIRD. # 4	5523+42.06	1037.484	1036.966		- 1 11/16	1037.551
	GIRD. # 5	5523+43.38	1037.597	1037.079		- 1 11/16	1037.664
	GIRD. # 6	5523+44.71	1037.711	1037.192		- 1 11/16	1037.777

SPAN #5 & #6

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
5+07	LT. DECK	5523+45.17	1037.095				1037.154
	CL	5523+49.63	1037.477				1037.535
	RT. DECK	5523+53.03	1037.768				1037.826
	GIRD. # 1	5523+45.79	1037.149	1036.616		- 1 5/8	1037.207
	GIRD. # 2	5523+47.12	1037.262	1036.729		- 1 5/8	1037.320
	GIRD. # 3	5523+48.44	1037.375	1036.842		- 1 5/8	1037.433
	GIRD. # 4	5523+49.76	1037.488	1036.955		- 1 5/8	1037.546
	GIRD. # 5	5523+51.08	1037.601	1037.069		- 1 5/8	1037.659
	GIRD. # 6	5523+52.41	1037.714	1037.182		- 1 5/8	1037.773
5+08	LT. DECK	5523+52.87	1037.099				1037.143
	CL	5523+57.33	1037.480				1037.525
	RT. DECK	5523+60.73	1037.771				1037.816
	GIRD. # 1	5523+53.49	1037.152	1036.596		- 1 1/2	1037.197
	GIRD. # 2	5523+54.82	1037.265	1036.709		- 1 1/2	1037.310
	GIRD. # 3	5523+56.14	1037.378	1036.823		- 1 1/2	1037.423
	GIRD. # 4	5523+57.46	1037.491	1036.936		- 1 1/2	1037.536
	GIRD. # 5	5523+58.78	1037.604	1037.049		- 1 1/2	1037.649
	GIRD. # 6	5523+60.11	1037.718	1037.162		- 1 1/2	1037.762
5+09	LT. DECK	5523+60.57	1037.102				1037.127
	CL	5523+65.03	1037.484				1037.509
	RT. DECK	5523+68.43	1037.775				1037.800
	GIRD. # 1	5523+61.19	1037.156	1036.567		- 1 5/16	1037.181
	GIRD. # 2	5523+62.52	1037.269	1036.680		- 1 5/16	1037.294
	GIRD. # 3	5523+63.84	1037.382	1036.793		- 1 5/16	1037.407
	GIRD. # 4	5523+65.16	1037.495	1036.906		- 1 5/16	1037.520
	GIRD. # 5	5523+66.48	1037.608	1037.019		- 1 5/16	1037.633
	GIRD. # 6	5523+67.81	1037.721	1037.133		- 1 5/16	1037.746
PIER 5 LB	LT. DECK	5523+68.27	1037.106				1037.106
	CL	5523+72.73	1037.487				1037.487
	RT. DECK	5523+76.13	1037.778				1037.778
	GIRD. # 1	5523+68.89	1037.159	1036.529		- 1 1/8	1037.159
	GIRD. # 2	5523+70.22	1037.272	1036.642		- 1 1/8	1037.272
	GIRD. # 3	5523+71.54	1037.385	1036.755		- 1 1/8	1037.385
	GIRD. # 4	5523+72.86	1037.498	1036.868		- 1 1/8	1037.498
	GIRD. # 5	5523+74.18	1037.612	1036.981		- 1 1/8	1037.612
	GIRD. # 6	5523+75.51	1037.725	1037.095		- 1 1/8	1037.725
PIER 5 RB	LT. DECK	5523+69.77	1037.106				1037.106
	CL	5523+74.23	1037.488				1037.488
	RT. DECK	5523+77.63	1037.779				1037.779
	GIRD. # 1	5523+70.39	1037.160	1036.529		- 1 1/8	1037.160
	GIRD. # 2	5523+71.72	1037.273	1036.643		- 1 1/8	1037.273
	GIRD. # 3	5523+73.04	1037.386	1036.756		- 1 1/8	1037.386
	GIRD. # 4	5523+74.36	1037.499	1036.869		- 1 1/8	1037.499
	GIRD. # 5	5523+75.68	1037.612	1036.982		- 1 1/8	1037.612
	GIRD. # 6	5523+77.01	1037.725	1037.095		- 1 1/8	1037.725
6+01	LT. DECK	5523+77.47	1037.110				1037.135
	CL	5523+81.93	1037.491				1037.516
	RT. DECK	5523+85.33	1037.782				1037.807
	GIRD. # 1	5523+78.09	1037.163	1036.575		- 1 5/16	1037.188
	GIRD. # 2	5523+79.42	1037.276	1036.688		- 1 5/16	1037.301
	GIRD. # 3	5523+80.74	1037.389	1036.801		- 1 5/16	1037.414
	GIRD. # 4	5523+82.06	1037.503	1036.914		- 1 5/16	1037.528
	GIRD. # 5	5523+83.38	1037.616	1037.027		- 1 5/16	1037.641
	GIRD. # 6	5523+84.71	1037.729	1037.140		- 1 5/16	1037.754
6+02	LT. DECK	5523+85.17	1037.113				1037.158
	CL	5523+89.63	1037.495				1037.539
	RT. DECK	5523+93.03	1037.786				1037.830
	GIRD. # 1	5523+85.79	1037.167	1036.611		- 1 1/2	1037.211
	GIRD. # 2	5523+87.12	1037.280	1036.724		- 1 1/2	1037.324
	GIRD. # 3	5523+88.44	1037.393	1036.837		- 1 1/2	1037.438
	GIRD. # 4	5523+89.76	1037.506	1036.950		- 1 1/2	1037.551
	GIRD. # 5	5523+91.08	1037.619	1037.064		- 1 1/2	1037.664
	GIRD. # 6	5523+92.41	1037.732	1037.177		- 1 1/2	1037.777
6+03	LT. DECK	5523+92.87	1037.117				1037.175
	CL	5523+97.33	1037.498				1037.557
	RT. DECK	5524+00.73	1037.789				1037.848
	GIRD. # 1	5523+93.49	1037.170	1036.638		- 1 5/8	1037.229
	GIRD. # 2	5523+94.82	1037.283	1036.751		- 1 5/8	1037.342
	GIRD. # 3	5523+96.14	1037.396	1036.864		- 1 5/8	1037.455
	GIRD. # 4	5523+97.46	1037.510	1036.977		- 1 5/8	1037.568
	GIRD. # 5	5523+98.78	1037.623	1037.090		- 1 5/8	1037.681
	GIRD. # 6	5524+00.11	1037.736	1037.203		- 1 5/8	1037.794

SPAN #6

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
6+04	LT. DECK	5524+00.57	1037.120				1037.187
	CL	5524+05.03	1037.502				1037.569
	RT. DECK	5524+08.43	1037.793				1037.860
	GIRD. # 1	5524+01.19	1037.174	1036.655		- 1 11/16	1037.241
	GIRD. # 2	5524+02.52	1037.287	1036.768		- 1 11/16	1037.354
	GIRD. # 3	5524+03.84	1037.400	1036.882		- 1 11/16	1037.467
	GIRD. # 4	5524+05.16	1037.513	1036.995		- 1 11/16	1037.580
	GIRD. # 5	5524+06.48	1037.626	1037.108		- 1 11/16	1037.693
	GIRD. # 6	5524+07.81	1037.739	1037.221		- 1 11/16	1037.806
6+05	LT. DECK	5524+08.27	1037.124				1037.193
	CL	5524+12.73	1037.505				1037.575
	RT. DECK	5524+16.13	1037.796				1037.866
	GIRD. # 1	5524+08.89	1037.177	1036.663		- 1 11/16	1037.247
	GIRD. # 2	5524+10.22	1037.290	1036.777		- 1 11/16	1037.360
	GIRD. # 3	5524+11.54	1037.404	1036.890		- 1 11/16	1037.473
	GIRD. # 4	5524+12.86	1037.517	1037.003		- 1 11/16	1037.586
	GIRD. # 5	5524+14.18	1037.630	1037.116		- 1 11/16	1037.699
	GIRD. # 6	5524+15.51	1037.743	1037.229		- 1 11/16	1037.812
6+06	LT. DECK	5524+15.97	1037.127				1037.196
	CL	5524+20.43	1037.509				1037.576
	RT. DECK	5524+23.83	1037.800				1037.867
	GIRD. # 1	5524+16.59	1037.181	1036.662		- 1 11/16	1037.248
	GIRD. # 2	5524+17.92	1037.294	1036.775		- 1 11/16	1037.361
	GIRD. # 3	5524+19.24	1037.407	1036.889		- 1 11/16	1037.474
	GIRD. # 4	5524+20.56	1037.520	1037.002		- 1 11/16	1037.587
	GIRD. # 5	5524+21.88	1037.633	1037.115		- 1 11/16	1037.700
	GIRD. # 6	5524+23.21	1037.746	1037.228		- 1 11/16	1037.813
6+07	LT. DECK	5524+23.67	1037.131				1037.189
	CL	5524+28.13	1037.512				1037.571
	RT. DECK	5524+31.53	1037.803				1037.862
	GIRD. # 1	5524+24.29	1037.184	1036.652		- 1 5/8	1037.243
	GIRD. # 2	5524+25.62	1037.297	1036.765		- 1 5/8	1037.356
	GIRD. # 3	5524+26.94	1037.411	1036.878		- 1 5/8	1037.469
	GIRD. # 4	5524+28.26	1037.524	1036.991		- 1 5/8	1037.582
	GIRD. # 5	5524+29.58	1037.637	1037.104		- 1 5/8	1037.695
	GIRD. # 6	5524+30.91	1037.750	1037.217		- 1 5/8	1037.808
6+08	LT. DECK	5524+31.37	1037.134				1037.179
	CL	5524+35.83	1037.516				1037.560
	RT. DECK	5524+39.23	1037.807				1037.851
	GIRD. # 1	5524+31.99	1037.188	1036.632		- 1 1/2	1037.232
	GIRD. # 2	5524+33.32	1037.301	1036.745		- 1 1/2	1037.346
	GIRD. # 3	5524+34.64	1037.414	1036.858		- 1 1/2	1037.459
	GIRD. # 4	5524+35.96	1037.527	1036.971		- 1 1/2	1037.572
	GIRD. # 5	5524+37.28	1037.640	1037.085		- 1 1/2	1037.685
	GIRD. # 6	5524+38.61	1037.753	1037.198		- 1 1/2	1037.798
6+09	LT. DECK	5524+39.07	1037.138				1037.163
	CL	5524+43.53	1037.519				1037.544
	RT. DECK	5524+46.93	1037.810				1037.835
	GIRD. # 1	5524+39.69	1037.191	1036.603		- 1 5/16	1037.216
	GIRD. # 2	5524+41.02	1037.304	1036.716		- 1 5/16	1037.329
	GIRD. # 3	5524+42.34	1037.418	1036.829		- 1 5/16	1037.443
	GIRD. # 4	5524+43.66	1037.531	1036.942		- 1 5/16	1037.556
	GIRD. # 5	5524+44.98	1037.644	1037.055		- 1 5/16	1037.669
	GIRD. # 6	5524+46.31	1037.757	1037.168		- 1 5/16	1037.782
PIER 6 LB	LT. DECK	5524+46.77	1037.141				1037.141
	CL	5524+51.23	1037.523				1037.523
	RT. DECK	5524+54.63	1037.814				1037.814
	GIRD. # 1	5524+47.39	1037.195	1036.564		- 1 1/8	1037.195
	GIRD. # 2	5524+48.72	1037.308	1036.678		- 1 1/8	1037.308
	GIRD. # 3	5524+50.04	1037.421	1036.791		- 1 1/8	1037.421
	GIRD. # 4	5524+51.36	1037.534	1036.904		- 1 1/8	1037.534
	GIRD. # 5	5524+52.68	1037.647	1037.017		- 1 1/8	1037.647
	GIRD. # 6	5524+54.01	1037.760	1037.130		- 1 1/8	1037.760

MASTER

		DATE
Design	ES	4-70
Drawn	ES	5-70
Checked	R.C.	5-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

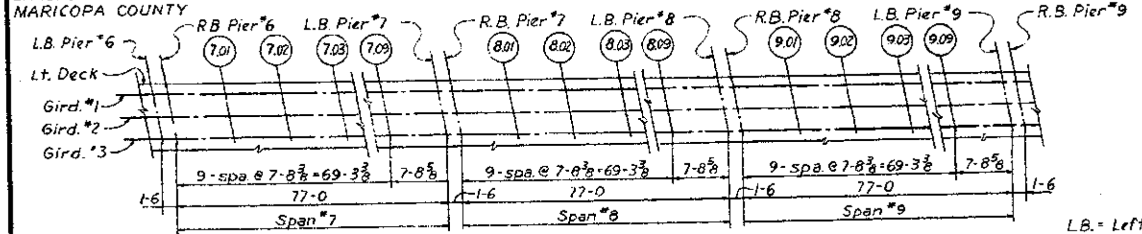
STA. 5527+ W.B.
HASSAYAMPA RIVER BRIDGE
GIRDER EMBEDMENT DETAILS

25-78 | 1646 BRIDGE NUMBER | I-10 10469 DRAWING NUMBER

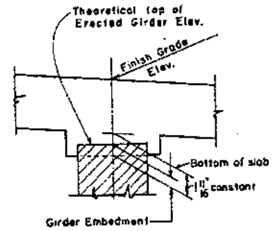
Registered Professional Engineer (Civil & Structural) — Certificate Expires Dec. 31, 19— — MARTIN TOTET — ARIZONA, U.S.A.

I-10-2(16)

ERHENBERG - PHOENIX HWY.
MARICOPA COUNTY



PLAN
No Scale



L.B. = Left Bearing
R.B. = Right Bearing

9	ARIZ.	I-10-2(16)	85	87	2-11-75

NOTE—
The Theoretical Top of Erected Girder Elevations include an allowance for deflection of the girders due to their own dead load. The Top of Erected Girder Elevations shall be checked in the field. If the measured elevation is lower than the theoretical elevation, the difference shall be subtracted from the embedment. If the measured elevation is higher, the difference shall be added to the embedment.
The Finish Grade Elevations Adjusted for Deflection include an allowance for the dead load of the concrete deck and shall be used as shown regardless of the measured top of erected girder elevations.
Lt. Deck = Left Face of Deck.
Rt. Deck = Right Face of Deck.
CL = Constr. ℄

SPAN #7

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
PIER 6 RB	LT. DECK	5524+44+47	1037.142				1037.142
	CL	5524+52+73	1037.523				1037.523
	RT. DECK	5524+56+73	1037.814				1037.814
	GIRD.# 1	5524+46+89	1037.195	1036.565		-1 1/8	1037.195
	GIRD.# 2	5524+50+22	1037.309	1036.678		-1 1/8	1037.309
	GIRD.# 3	5524+51+54	1037.422	1036.792		-1 1/8	1037.422
	GIRD.# 4	5524+52+66	1037.535	1036.905		-1 1/8	1037.535
	GIRD.# 5	5524+54+16	1037.648	1037.018		-1 1/8	1037.648
	GIRD.# 6	5524+55+51	1037.761	1037.131		-1 1/8	1037.761
7+01	LT. DECK	5524+55+97	1037.146				1037.171
	CL	5524+60+43	1037.527				1037.552
	RT. DECK	5524+63+83	1037.818				1037.843
	GIRD.# 1	5524+56+59	1037.199	1036.611		-1 5/16	1037.224
	GIRD.# 2	5524+57+92	1037.312	1036.724		-1 5/16	1037.337
	GIRD.# 3	5524+59+24	1037.425	1036.837		-1 5/16	1037.450
	GIRD.# 4	5524+60+56	1037.538	1036.950		-1 5/16	1037.563
	GIRD.# 5	5524+61+88	1037.651	1037.063		-1 5/16	1037.676
	GIRD.# 6	5524+63+21	1037.765	1037.176		-1 5/16	1037.790
7+02	LT. DECK	5524+63+47	1037.149				1037.194
	CL	5524+68+13	1037.531				1037.575
	RT. DECK	5524+71+53	1037.821				1037.866
	GIRD.# 1	5524+64+29	1037.203	1036.647		-1 1/2	1037.247
	GIRD.# 2	5524+65+62	1037.316	1036.760		-1 1/2	1037.360
	GIRD.# 3	5524+66+94	1037.429	1036.873		-1 1/2	1037.473
	GIRD.# 4	5524+68+26	1037.542	1036.986		-1 1/2	1037.586
	GIRD.# 5	5524+69+58	1037.655	1037.099		-1 1/2	1037.700
	GIRD.# 6	5524+70+91	1037.768	1037.212		-1 1/2	1037.813
7+03	LT. DECK	5524+71+37	1037.153				1037.211
	CL	5524+75+83	1037.534				1037.593
	RT. DECK	5524+79+23	1037.825				1037.883
	GIRD.# 1	5524+71+99	1037.206	1036.674		-1 5/8	1037.265
	GIRD.# 2	5524+73+32	1037.319	1036.787		-1 5/8	1037.378
	GIRD.# 3	5524+74+64	1037.432	1036.900		-1 5/8	1037.491
	GIRD.# 4	5524+75+96	1037.545	1037.013		-1 5/8	1037.604
	GIRD.# 5	5524+77+28	1037.658	1037.126		-1 5/8	1037.717
	GIRD.# 6	5524+78+61	1037.771	1037.239		-1 5/8	1037.830
7+04	LT. DECK	5524+79+07	1037.156				1037.243
	CL	5524+83+53	1037.536				1037.604
	RT. DECK	5524+86+93	1037.828				1037.895
	GIRD.# 1	5524+79+69	1037.210	1036.691		-1 11/16	1037.276
	GIRD.# 2	5524+81+02	1037.323	1036.804		-1 11/16	1037.389
	GIRD.# 3	5524+82+34	1037.436	1036.917		-1 11/16	1037.503
	GIRD.# 4	5524+83+66	1037.549	1037.030		-1 11/16	1037.616
	GIRD.# 5	5524+84+98	1037.662	1037.143		-1 11/16	1037.729
	GIRD.# 6	5524+86+31	1037.775	1037.257		-1 11/16	1037.842
7+05	LT. DECK	5524+86+77	1037.160				1037.229
	CL	5524+91+23	1037.541				1037.611
	RT. DECK	5524+94+63	1037.832				1037.902
	GIRD.# 1	5524+87+39	1037.213	1036.699		-1 11/16	1037.283
	GIRD.# 2	5524+88+72	1037.326	1036.812		-1 11/16	1037.396
	GIRD.# 3	5524+90+04	1037.439	1036.925		-1 11/16	1037.509
	GIRD.# 4	5524+91+36	1037.552	1037.038		-1 11/16	1037.622
	GIRD.# 5	5524+92+68	1037.665	1037.152		-1 11/16	1037.735
	GIRD.# 6	5524+94+01	1037.779	1037.265		-1 11/16	1037.848
7+06	LT. DECK	5524+94+47	1037.163				1037.230
	CL	5524+98+93	1037.545				1037.611
	RT. DECK	5525+02+33	1037.835				1037.902
	GIRD.# 1	5524+95+09	1037.217	1036.698		-1 11/16	1037.283
	GIRD.# 2	5524+96+42	1037.330	1036.811		-1 11/16	1037.396
	GIRD.# 3	5524+97+74	1037.443	1036.924		-1 11/16	1037.510
	GIRD.# 4	5524+99+06	1037.556	1037.037		-1 11/16	1037.623
	GIRD.# 5	5525+00+38	1037.669	1037.150		-1 11/16	1037.736
	GIRD.# 6	5525+01+71	1037.782	1037.264		-1 11/16	1037.849
7+07	LT. DECK	5525+02+17	1037.167				1037.225
	CL	5525+06+63	1037.548				1037.607
	RT. DECK	5525+10+03	1037.839				1037.897
	GIRD.# 1	5525+02+79	1037.220	1036.688		-1 5/8	1037.279
	GIRD.# 2	5525+04+12	1037.333	1036.801		-1 5/8	1037.392
	GIRD.# 3	5525+05+44	1037.446	1036.914		-1 5/8	1037.505
	GIRD.# 4	5525+06+76	1037.559	1037.027		-1 5/8	1037.618
	GIRD.# 5	5525+08+08	1037.672	1037.140		-1 5/8	1037.731
	GIRD.# 6	5525+09+41	1037.786	1037.253		-1 5/8	1037.844
7+08	LT. DECK	5525+09+87	1037.170				1037.215
	CL	5525+14+33	1037.552				1037.596
	RT. DECK	5525+17+73	1037.842				1037.887
	GIRD.# 1	5525+10+49	1037.224	1036.668		-1 1/2	1037.268
	GIRD.# 2	5525+11+82	1037.337	1036.781		-1 1/2	1037.381
	GIRD.# 3	5525+13+14	1037.450	1036.894		-1 1/2	1037.494
	GIRD.# 4	5525+14+46	1037.563	1037.007		-1 1/2	1037.607
	GIRD.# 5	5525+15+78	1037.676	1037.120		-1 1/2	1037.721
	GIRD.# 6	5525+17+11	1037.789	1037.233		-1 1/2	1037.834

SPAN #7 & #8

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
7+09	LT. DECK	5525+17+57	1037.174				1037.199
	CL	5525+22+03	1037.555				1037.580
	RT. DECK	5525+25+43	1037.846				1037.871
	GIRD.# 1	5525+18+39	1037.227	1036.639		-1 5/16	1037.252
	GIRD.# 2	5525+19+52	1037.340	1036.752		-1 5/16	1037.365
	GIRD.# 3	5525+20+84	1037.453	1036.865		-1 5/16	1037.478
	GIRD.# 4	5525+22+16	1037.566	1036.978		-1 5/16	1037.591
	GIRD.# 5	5525+23+48	1037.679	1037.091		-1 5/16	1037.704
	GIRD.# 6	5525+24+81	1037.793	1037.204		-1 5/16	1037.818
PIER 7 LB	LT. DECK	5525+25+27	1037.177				1037.177
	CL	5525+29+73	1037.559				1037.559
	RT. DECK	5525+33+13	1037.849				1037.849
	GIRD.# 1	5525+25+89	1037.231	1036.600		-1 1/8	1037.231
	GIRD.# 2	5525+27+22	1037.344	1036.713		-1 1/8	1037.344
	GIRD.# 3	5525+28+54	1037.457	1036.826		-1 1/8	1037.457
	GIRD.# 4	5525+29+86	1037.570	1036.940		-1 1/8	1037.570
	GIRD.# 5	5525+31+18	1037.683	1037.053		-1 1/8	1037.683
	GIRD.# 6	5525+32+51	1037.796	1037.166		-1 1/8	1037.796
PIER 7 RB	LT. DECK	5525+26+77	1037.178				1037.178
	CL	5525+31+23	1037.559				1037.559
	RT. DECK	5525+34+63	1037.850				1037.850
	GIRD.# 1	5525+27+39	1037.231	1036.601		-1 1/8	1037.231
	GIRD.# 2	5525+28+72	1037.344	1036.714		-1 1/8	1037.344
	GIRD.# 3	5525+30+04	1037.457	1036.827		-1 1/8	1037.457
	GIRD.# 4	5525+31+34	1037.571	1036.940		-1 1/8	1037.571
	GIRD.# 5	5525+32+66	1037.684	1037.053		-1 1/8	1037.684
	GIRD.# 6	5525+34+01	1037.797	1037.167		-1 1/8	1037.797
8+01	LT. DECK	5525+34+47	1037.181				1037.206
	CL	5525+38+93	1037.563				1037.588
	RT. DECK	5525+42+33	1037.854				1037.879
	GIRD.# 1	5525+35+09	1037.235	1036.646		-1 5/16	1037.260
	GIRD.# 2	5525+36+42	1037.348	1036.759		-1 5/16	1037.373
	GIRD.# 3	5525+37+74	1037.461	1036.872		-1 5/16	1037.486
	GIRD.# 4	5525+39+06	1037.574	1036.986		-1 5/16	1037.599
	GIRD.# 5	5525+40+38	1037.687	1037.099		-1 5/16	1037.712
	GIRD.# 6	5525+41+71	1037.800	1037.212		-1 5/16	1037.825
8+02	LT. DECK	5525+42+17	1037.185				1037.229
	CL	5525+46+63	1037.566				1037.611
	RT. DECK	5525+50+03	1037.857				1037.902
	GIRD.# 1	5525+42+79	1037.238	1036.683		-1 1/2	1037.283
	GIRD.# 2	5525+44+12	1037.351	1036.796		-1 1/2	1037.396
	GIRD.# 3	5525+45+44	1037.464	1036.909		-1 1/2	1037.509
	GIRD.# 4	5525+46+76	1037.578	1037.022		-1 1/2	1037.622
	GIRD.# 5	5525+48+08	1037.691	1037.135		-1 1/2	1037.735
	GIRD.# 6	5525+49+41	1037.804	1037.248		-1 1/2	1037.848
8+03	LT. DECK	5525+49+87	1037.188				1037.247
	CL	5525+54+33	1037.570				1037.628
	RT. DECK	5525+57+73	1037.861				1037.919
	GIRD.# 1	5525+50+49	1037.242	1036.709		-1 5/8	1037.300
	GIRD.# 2	5525+51+82	1037.355	1036.822		-1 5/8	1037.413
	GIRD.# 3	5525+53+14	1037.468	1036.936		-1 5/8	1037.526
	GIRD.# 4	5525+54+46	1037.581	1037.049		-1 5/8	1037.640
	GIRD.# 5	5525+55+78	1037.694	1037.162		-1 5/8	1037.753
	GIRD.# 6	5525+57+11	1037.807	1037.275		-1 5/8	1037.866
8+04	LT. DECK	5525+57+57	1037.192				1037.259
	CL	5525+62+03	1037.573				1037.640
	RT. DECK	5525+65+43	1037.864				1037.931
	GIRD.# 1	5525+58+19	1037.245	1036.727		-1 11/16	1037.312
	GIRD.# 2	5525+59+52	1037.358	1036.840		-1 11/16	1037.425
	GIRD.# 3	5525+60+84	1037.471	1036.953		-1 11/16	1037.538
	GIRD.# 4	5525+62+16	1037.585	1037.066		-1 11/16	1037.651
	GIRD.# 5	5525+63+48	1037.698	1037.179		-1 11/16	1037.764
	GIRD.# 6	5525+64+81	1037.811	1037.292		-1 11/16	1037.878
8+05	LT. DECK	5525+65+27	1037.195				1037.265
	CL	5525+69+73	1037.577				1037.646
	RT. DECK	5525+73+13	1037.868				1037.937
	GIRD.# 1	5525+65+89	1037.249	1036.735		-1 11/16	1037.318
	GIRD.# 2	5525+67+22	1037.362	1036.848		-1 11/16	1037.431
	GIRD.# 3	5525+68+54	1037.475	1036.961		-1 11/16	1037.545
	GIRD.# 4	5525+69+86	1037.588	1037.074		-1 11/16	1037.658
	GIRD.# 5	5525+71+18	1037.701	1037.187		-1 11/16	1037.771
	GIRD.# 6	5525+72+51	1037.814	1037.300		-1 11/16	1037.884
8+06	LT. DECK	5525+72+97	1037.199				1037.266
	CL	5525+77+43	1037.580				1037.647
	RT. DECK	5525+80+83	1037.871				1037.938
	GIRD.# 1	5525+73+59	1037.252	1036.734		-1 11/16	1037.319
	GIRD.# 2	5525+74+92	1037.365	1036.847		-1 11/16	1037.432
	GIRD.# 3	5525+76+24	1037.478	1036.960		-1 11/16	1037.545
	GIRD.# 4	5525+77+56	1037.592	1037.073		-1 11/16	1037.659
	GIRD.# 5	5525+78+88	1037.705	1037.186		-1 11/16	1037.772
	GIRD.# 6	5525+80+21	1037.818	1037.299		-1 11/16	1037.885

SPAN #8 & #9

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
8+07	LT. DECK	5525+80+67	1037.202				1037.261
	CL	5525+85+13	1037.584				1037.642
	RT. DECK	5525+88+53	1037.875				1037.933
	GIRD.# 1	5525+81+29	1037.256	1036.723		-1 5/8	1037.314
	GIRD.# 2	5525+82+62	1037.369	1036.836		-1 5/8	1037.427
	GIRD.# 3	5525+83+94	1037.482	1036.950		-1 5/8	1037.540
	GIRD.# 4	5525+85+26	1037.595	1037.063		-1 5/8	1037.654
	GIRD.# 5	5525+86+58	1037.708	1037.176		-1 5/8	1037.767
	GIRD.# 6	5525+87+91	1037.821	1037.289		-1 5/8	1037.880
8+08	LT. DECK	5525+88+37	1037.206				1037.250
	CL	5525+92+83	1037.587				1037.631
	RT. DECK	5525+96+23	1037.878				1037.923
	GIRD.# 1	5525+88+99	1037.259	1036.704		-1 1/2	1037.304
	GIRD.# 2	5525+90+32	1037.372	1036.817		-1 1/2	1037.417
	GIRD.# 3	5525+91+64	1037.485	1036.930		-1 1/2	1037.530
	GIRD.# 4	5525+92+96	1037.599	1037.043		-1 1/2	1037.643
	GIRD.# 5	5525+94+28	1037.712	1037.156		-1 1/2	1037.756
	GIRD.# 6	5525+95+61	1037.825	1037.269		-1 1/2	1037.869
8+09	LT. DECK	5525+96+07	1037.209				1037.234
	CL	5526+00+53	1037.591				1037.616
	RT. DECK	5526+03+93	1037.882				1037.907
	GIRD.# 1	5525+96+69	1037.263	1036.674		-1 5/16	1037.288
	GIRD.# 2	5525+98+02	1037.376	1036.787		-1 5/16	1037.401
	GIRD.# 3	5525+99+34	1037.489	1036.900		-1 5/16	1037.514
	GIRD.# 4	5526+00+66	1037.602	1037.014		-1 5/16	1037.627
	GIRD.# 5	5526+01+98	1037.715	1037.127		-1 5/16	1037.740
	GIRD.# 6	5526+03+31	1037.828	1037.240		-1 5/16	1037.853
PIER 8 LB	LT. DECK	5526+03+77	1037.213				1037.213
	CL	5526+08+23	1037.594				1037.594
	RT. DECK	5526+11+63	1037.885				1037.885
	GIRD.# 1	5526+04+39	1037.266	1036.636		-1 1/8	1037.266
	GIRD.# 2	5526+05+72	1037.379	1036.749		-1 1/8	1037.379
	GIRD.# 3	5526+07+04	1037.492	1036.862		-1 1/8	1037.492
	GIRD.# 4	5526+08+36	1037.606	1036.975		-1 1/8	1037.606
	GIRD.# 5	5526+09+68	1037.719	1037.088		-1 1/8	1037.719
	GIRD.# 6	5526+11+01	1037.832	1037.201		-1 1/8	1037.832
PIER 8 RB	LT. DECK	5526+05+27	1037.214				1037.214
	CL	5526+09+73	1037.595				1037.595
	RT. DECK	5526+13+13	1037.886				1037.886
	GIRD.# 1	5526+05+89	1037.267	1036.637		-1 1/8	1037.267
	GIRD.# 2	5526+07+22	1037.380	1036.750		-1 1/8	1037.380
	GIRD.# 3	5526+08+54	1037.493	1036.863		-1 1/8	1037.493
	GIRD.# 4	5526+09+86	1037.606	1036.976		-1 1/8	1037.606
	GIRD.# 5	5526+11+18	1037.719	1037.089		-1 1/8	1037.719
	GIRD.# 6	5526+12+51	1037.832	1037.202		-1 1/8	1037.832
9+01	LT. DECK	5526+12+97	1037.217				1037.242
	CL	5526+17+43	1037.598				1037.623
	RT. DECK	5526+20+83	1037.889				1037.914
	GIRD.# 1	5526+13+59	1037.270	1036.682		-1 5/16	1037.295
	GIRD.# 2	5526+14+92	1037.384	1036.795		-1 5/16	1037.409
	GIRD.# 3	5526+16+24	1037.497	1036.908		-1 5/16	1037.522
	GIRD.# 4	5526+17+56	1037.610	1037.021		-1 5/16	1037.635
	GIRD.# 5	5526+18+88	1037.723	1037.134		-1 5/16	1037.748
	GIRD.# 6	5526+20+21	1037.836	1037.247		-1 5/16	1037.861
9+02	LT. DECK	5526+20+67	1037.221				1037.265
	CL	5526+25+13	1037.602				1037.647
	RT. DECK	5526+28+53	1037.893				1037.937
	GIRD.# 1	5526+21+29	1037.274	1036.718		-1 1/2	1037.319
	GIRD.# 2	5526+22+62	1037.387	1036.831		-1 1/2	1037.432
	GIRD.# 3	5526+23+94	1037.500	1036.944		-1 1/2	1037.545
	GIRD.# 4	5526+25+26	1037.613	1037.058		-1 1/2	1037.658
	GIRD.# 5	5526+26+58	1037.726	1037.171		-1 1/2	1037.771
	GIRD.# 6	5526+27+91	1037.839	1037.284		-1 1/2	1037.884
9+03	LT. DECK	5526+28+37	1037.224				1037.283
	CL	5526+32+83	1037.605				1037.664
	RT. DECK	5526+36+23	1037.896				1037.955
	GIRD.# 1	5526+28+99	1037.277	1036.745		-1 5/8	1037.336
	GIRD.# 2	5526+30+32	1037.391	1036.858		-1 5/8	1037.449
	GIRD.# 3	5526+31+64	1037.504	1036.971		-1 5/8	1037.562
	GIRD.# 4	5526+32+96	1037.617	1037.084		-1 5/8	1037.675
	GIRD.# 5	5526+34+28	1037.730	1037.197		-1 5/8	1037.788
	GIRD.# 6	5526+35+61	1037.843	1037.311		-1 5/8	1037.901

SPAN #9

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
9+04	LT. DECK	5526+36+07	1037.228				1037.294
	CL	5526+40+53	1037.609				1037.676
	RT. DECK	5526+43+93	1037.900				1037.967
	GIRD.# 1	5526+36+69	1037.281	1036.762		-1 11/16	1037.348
	GIRD.# 2	5526+38+02	1037.394	1036.876		-1 11/16	1037.461
	GIRD.# 3	5526+39+34	1037.507	1036.989		-1 11/16	1037.574
	GIRD.# 4	5526+40+66	1037.620	1037.102		-1 11/16	1037.687
	GIRD.# 5	5526+41+98	1037.733	1037.215		-1 11/16	1037.800
	GIRD.# 6	5526+43+31	1037.846	1037.328		-1 11/16	1037.913
9+05	LT. DECK	5526+43+77	1037.231				1037.301
	CL	5526+48+23	1037.612				1037.682
	RT. DECK	5526+51+63	1037.903				1037.973
	GIRD.# 1	5526+44+39	1037.284	1036.771		-1 11/16	1037.354
	GIRD.# 2	5526+45+72	1037.398	1036.884		-1 11/16	1037.467
	GIRD.# 3	5526+47+04	1037.511	1036.997		-1 11/16	1037.580
	GIRD.# 4	5526+48+36	1037.624	1037.110		-1 11/16	1037.693
	GIRD.# 5	5526+49+68	1037.737	1037.223		-1 11/16	1037.806
	GIRD.# 6	5526+51+01	1037.850	1037.336		-1 11/16	1037.920
9+06	LT. DECK	5526+51+47	1037.235				1037.301
	CL	5526+55+93	1037.616				1037.683
	RT. DECK	5526+59+33	1037.907				1037.974
	GIRD.# 1	5526+52+09	1037.288	1036.769		-1 11/16	1037.355
	GIRD.# 2	5526+53+42	1037.401	1036.883		-1 11/16	1037.468
	GIRD.# 3	5526+54+74	1037.514	1036.996		-1 11/16	1037.581
	GIRD.# 4	5526+56+06	1037.627	1037.109		-1 11/16	1037.694
	GIRD.# 5	5526+57+38	1037.740	1037.222		-1 11/16	1037.807
	GIRD.# 6	5526+58+71	1037.853	1037.335		-1 11/16	1037.920
9+07	LT. DECK	5526+59+17	1037.238				1037.297
	CL	5526+63+63	1037.619				1037.678
	RT. DECK	5526+67+03	1037.910				1037.969
	GIRD.# 1	5526+59+79	1037.291	1036.759		-1 5/8	1037.350
	GIRD.# 2	5526+61+12	1037.405	1036.872		-1 5/8	1037.463
	GIRD.# 3	5526+62+44	1037.518	1036.985		-1 5/8	1037.576
	GIRD.# 4	5526+63+76	1037.631	1037.098		-1 5/8	1037.689
	GIRD.# 5	5526+65+08	1037.744	1037.211		-1 5/8	1037.802
	GIRD.# 6	5526+66+41	1037.857	1037.325		-1 5/8	1037.915
9+08	LT. DECK	5526+66+87	1037.242				1037.286
	CL	5526+71+33	1037.623				1037.668
	RT. DECK	5526+74+73	1037.914				1037.958
	GIRD.# 1	5526+67+49	1037.295	1036.739		-1 1/2	1037.340
	GIRD.# 2	5526+68+82	1037.408	1036.852		-1 1/2	1037.453
	GIRD.# 3	5526+70+14	1037.521	1036.965		-1 1/2	1037.566
	GIRD.# 4	5526+71+46	1037.634	1037.079		-1 1/2	1037.679
	GIRD.# 5	5526+72+78	1037.747	1037.192		-1 1/2	1037.792
	GIRD.# 6	5526+74+11	1037.860	1037.305		-1 1/2	1037.905
9+09	LT. DECK	5526+74+57	1037.245				1037.270
	CL	5526+79+03	1037.626				1037.651
	RT. DECK	5526+82+43	1037.917				1037.942
	GIRD.# 1	5526+75+19	1037.298	1036.710		-1 5/16	1037.323
	GIRD.# 2	5526+76+52	1037.412	1036.823		-1 5/16	1037.437
	GIRD.# 3	5526+77+84	1037.525	1036.936		-1 5/16	1037.550
	GIRD.# 4	5526+79+16	1037.638	1037.049		-1 5/16	1037.663
	GIRD.# 5	5526+80+48	1037.751	1037.162		-1 5/16	1037.776
	GIRD.# 6	5526+81+81	1037.864	1037.275		-1 5/16	1037.889
PIER 9 LB	LT. DECK	5526+82+27	1037.249				1037.249
	CL	5526+86+73	1037.630				1037.630
	RT. DECK	5526+90+13	1037.921				1037.921
	GIRD.# 1	5526+82+89	1037.302	1036.672		-1 1/8	1037.302
	GIRD.# 2	5526+84+22	1037.415	1036.785		-1 1/8	1037.415
	GIRD.# 3	5526+85+54	1037.528	1036.898		-1 1/8	1037.528
	GIRD.# 4	5526+86+86	1037.641	1037.011		-1 1/8	1037.641
	GIRD.# 5	5526+88+18	1037.754	1037.124		-1 1/8	1037.754
	GIRD.# 6	5526+89+51	1037.867	1037.237		-1 1/8	1037.867

		Date	
Design	CS	4-70	ARIZONA HIGHWAY DEPARTMENT BRIDGE DIVISION
Drawn	CS	5-70	STA. 5527+ W.B. HASSAYAMPA RIVER BRIDGE
Checked	R.K.	5-70	GIRDER EMBEDMENT DETAILS
26 of 29			1606 Bridge Number; I-10 104.69 Drawing Number

Registered Professional Engineer (Civil & Structural), Certificate Number, MARTIN TONEY, Arizona, U.S.A. — Bridge Engineer

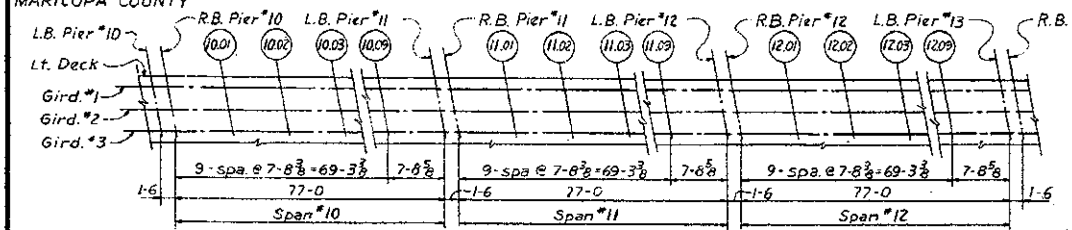
MASTER

I-10-2(16)

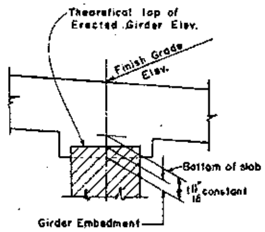
MASTER

ERHENBERG - PHOENIX HWY.
MARICOPA COUNTY

9	ARIZONA	I-10-2(16)	86	87	2-11-75



PLAN
No Scale



L.B. = Left Bearing
R.B = Right Bearing

NOTE —
The Theoretical Top of Erected Girder Elevations include an allowance for deflection of the girders due to their own dead load. The Top of Erected Girder Elevations shall be checked in the field. If the measured elevation is lower than the theoretical elevation, the difference shall be subtracted from the embedment. If the measured elevation is higher, the difference shall be added to the embedment.
The Finish Grade Elevations Adjusted for Deflection include an allowance for the dead load of the concrete deck and shall be used as shown regardless of the measured top of erected girder elevations.
Lt. Deck = Left Face of Deck.
Rt. Deck = Right Face of Deck.
CL = Constr. ℄

SPAN #10

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
PIER 9 R	LT. DECK	5526+83.77	1037.249			1037.249
	CL	5526+86.23	1037.651			1037.631
	RT. DECK	5526+91.03	1037.922			1037.922
	GIRD.# 1	5526+84.39	1037.303	1036.672	-1 1/8	1037.303
	GIRD.# 2	5526+85.72	1037.416	1036.786	-1 1/8	1037.416
	GIRD.# 3	5526+87.04	1037.529	1036.899	-1 1/8	1037.529
	GIRD.# 4	5526+88.36	1037.642	1037.012	-1 1/8	1037.642
	GIRD.# 5	5526+89.68	1037.755	1037.125	-1 1/8	1037.755
	GIRD.# 6	5526+91.01	1037.868	1037.238	-1 1/8	1037.868
10+01	LT. DECK	5526+91.47	1037.253			1037.278
	CL	5526+95.93	1037.636			1037.669
	RT. DECK	5526+99.33	1037.925			1037.956
	GIRD.# 1	5526+92.09	1037.306	1036.718	-1 5/16	1037.331
	GIRD.# 2	5526+93.42	1037.419	1036.831	-1 5/16	1037.444
	GIRD.# 3	5526+94.74	1037.532	1036.944	-1 5/16	1037.557
	GIRD.# 4	5526+96.06	1037.665	1037.057	-1 5/16	1037.670
	GIRD.# 5	5526+97.38	1037.759	1037.170	-1 5/16	1037.784
	GIRD.# 6	5526+98.71	1037.872	1037.283	-1 5/16	1037.897
10+02	LT. DECK	5526+99.17	1037.256			1037.301
	CL	5527+03.63	1037.638			1037.682
	RT. DECK	5527+07.03	1037.929			1037.973
	GIRD.# 1	5526+99.79	1037.310	1036.754	-1 1/2	1037.354
	GIRD.# 2	5527+01.12	1037.423	1036.867	-1 1/2	1037.467
	GIRD.# 3	5527+02.44	1037.536	1036.980	-1 1/2	1037.580
	GIRD.# 4	5527+03.76	1037.649	1037.093	-1 1/2	1037.694
	GIRD.# 5	5527+05.08	1037.762	1037.206	-1 1/2	1037.807
	GIRD.# 6	5527+06.41	1037.875	1037.319	-1 1/2	1037.920
10+03	LT. DECK	5527+06.87	1037.260			1037.314
	CL	5527+11.33	1037.641			1037.700
	RT. DECK	5527+14.73	1037.932			1037.991
	GIRD.# 1	5527+07.49	1037.313	1036.781	-1 5/8	1037.372
	GIRD.# 2	5527+08.82	1037.426	1036.894	-1 5/8	1037.485
	GIRD.# 3	5527+10.14	1037.539	1037.007	-1 5/8	1037.598
	GIRD.# 4	5527+11.46	1037.652	1037.120	-1 5/8	1037.711
	GIRD.# 5	5527+12.78	1037.766	1037.233	-1 5/8	1037.824
	GIRD.# 6	5527+14.11	1037.879	1037.346	-1 5/8	1037.937
10+04	LT. DECK	5527+14.57	1037.263			1037.330
	CL	5527+19.03	1037.645			1037.711
	RT. DECK	5527+22.43	1037.936			1038.002
	GIRD.# 1	5527+15.19	1037.317	1036.798	-1 11/16	1037.383
	GIRD.# 2	5527+16.52	1037.430	1036.911	-1 11/16	1037.497
	GIRD.# 3	5527+17.84	1037.543	1037.024	-1 11/16	1037.610
	GIRD.# 4	5527+19.16	1037.656	1037.137	-1 11/16	1037.723
	GIRD.# 5	5527+20.48	1037.769	1037.251	-1 11/16	1037.836
	GIRD.# 6	5527+21.81	1037.882	1037.364	-1 11/16	1037.949
10+05	LT. DECK	5527+22.27	1037.267			1037.336
	CL	5527+26.73	1037.648			1037.718
	RT. DECK	5527+30.13	1037.939			1038.009
	GIRD.# 1	5527+22.89	1037.320	1036.806	-1 11/16	1037.390
	GIRD.# 2	5527+24.22	1037.433	1036.919	-1 11/16	1037.503
	GIRD.# 3	5527+25.54	1037.546	1037.033	-1 11/16	1037.616
	GIRD.# 4	5527+26.86	1037.659	1037.146	-1 11/16	1037.729
	GIRD.# 5	5527+28.18	1037.773	1037.259	-1 11/16	1037.842
	GIRD.# 6	5527+29.51	1037.886	1037.372	-1 11/16	1037.958
10+06	LT. DECK	5527+29.97	1037.270			1037.337
	CL	5527+34.43	1037.652			1037.714
	RT. DECK	5527+37.83	1037.943			1038.004
	GIRD.# 1	5527+30.59	1037.324	1036.805	-1 11/16	1037.390
	GIRD.# 2	5527+31.92	1037.437	1036.918	-1 11/16	1037.504
	GIRD.# 3	5527+33.24	1037.550	1037.031	-1 11/16	1037.617
	GIRD.# 4	5527+34.56	1037.663	1037.144	-1 11/16	1037.730
	GIRD.# 5	5527+35.88	1037.776	1037.258	-1 11/16	1037.843
	GIRD.# 6	5527+37.21	1037.889	1037.371	-1 11/16	1037.956
10+07	LT. DECK	5527+37.67	1037.274			1037.332
	CL	5527+42.13	1037.655			1037.714
	RT. DECK	5527+45.53	1037.946			1038.005
	GIRD.# 1	5527+38.29	1037.327	1036.795	-1 5/8	1037.386
	GIRD.# 2	5527+39.62	1037.440	1036.908	-1 5/8	1037.499
	GIRD.# 3	5527+40.94	1037.553	1037.021	-1 5/8	1037.611
	GIRD.# 4	5527+42.26	1037.666	1037.134	-1 5/8	1037.725
	GIRD.# 5	5527+43.58	1037.780	1037.247	-1 5/8	1037.838
	GIRD.# 6	5527+44.91	1037.893	1037.360	-1 5/8	1037.951
10+08	LT. DECK	5527+45.37	1037.277			1037.322
	CL	5527+49.83	1037.659			1037.703
	RT. DECK	5527+53.23	1037.950			1037.994
	GIRD.# 1	5527+45.99	1037.331	1036.775	-1 1/2	1037.375
	GIRD.# 2	5527+47.32	1037.444	1036.888	-1 1/2	1037.488
	GIRD.# 3	5527+48.64	1037.557	1037.001	-1 1/2	1037.601
	GIRD.# 4	5527+49.96	1037.670	1037.114	-1 1/2	1037.715
	GIRD.# 5	5527+51.28	1037.783	1037.227	-1 1/2	1037.828
	GIRD.# 6	5527+52.61	1037.896	1037.340	-1 1/2	1037.941

SPAN #10 & #11

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
10+09	LT. DECK	5527+53.07	1037.281			1037.306
	CL	5527+57.53	1037.662			1037.687
	RT. DECK	5527+60.93	1037.953			1037.978
	GIRD.# 1	5527+53.69	1037.334	1036.746	-1 5/16	1037.359
	GIRD.# 2	5527+55.02	1037.447	1036.859	-1 5/16	1037.472
	GIRD.# 3	5527+56.34	1037.560	1036.972	-1 5/16	1037.585
	GIRD.# 4	5527+57.66	1037.673	1037.085	-1 5/16	1037.698
	GIRD.# 5	5527+58.96	1037.787	1037.198	-1 5/16	1037.812
	GIRD.# 6	5527+60.31	1037.900	1037.311	-1 5/16	1037.925
PIER 10 L	LT. DECK	5527+60.77	1037.284			1037.284
	CL	5527+65.23	1037.666			1037.666
	RT. DECK	5527+68.63	1037.957			1037.957
	GIRD.# 1	5527+61.39	1037.338	1036.707	-1 1/8	1037.338
	GIRD.# 2	5527+62.72	1037.451	1036.820	-1 1/8	1037.451
	GIRD.# 3	5527+64.04	1037.564	1036.934	-1 1/8	1037.564
	GIRD.# 4	5527+65.36	1037.677	1037.047	-1 1/8	1037.677
	GIRD.# 5	5527+66.68	1037.790	1037.160	-1 1/8	1037.790
	GIRD.# 6	5527+68.01	1037.903	1037.273	-1 1/8	1037.903
PIER 10 R	LT. DECK	5527+62.27	1037.285			1037.285
	CL	5527+66.73	1037.666			1037.666
	RT. DECK	5527+70.13	1037.957			1037.957
	GIRD.# 1	5527+62.89	1037.338	1036.708	-1 1/8	1037.338
	GIRD.# 2	5527+64.22	1037.451	1036.821	-1 1/8	1037.451
	GIRD.# 3	5527+65.54	1037.565	1036.934	-1 1/8	1037.565
	GIRD.# 4	5527+66.86	1037.678	1037.047	-1 1/8	1037.678
	GIRD.# 5	5527+68.18	1037.791	1037.160	-1 1/8	1037.791
	GIRD.# 6	5527+69.51	1037.904	1037.274	-1 1/8	1037.904
11+01	LT. DECK	5527+69.97	1037.288			1037.313
	CL	5527+74.43	1037.670			1037.695
	RT. DECK	5527+77.83	1037.961			1037.986
	GIRD.# 1	5527+70.59	1037.342	1036.753	-1 5/16	1037.367
	GIRD.# 2	5527+71.92	1037.455	1036.866	-1 5/16	1037.480
	GIRD.# 3	5527+73.24	1037.568	1036.980	-1 5/16	1037.593
	GIRD.# 4	5527+74.56	1037.681	1037.093	-1 5/16	1037.706
	GIRD.# 5	5527+76.88	1037.794	1037.206	-1 5/16	1037.819
	GIRD.# 6	5527+77.21	1037.907	1037.319	-1 5/16	1037.932
11+02	LT. DECK	5527+77.07	1037.292			1037.337
	CL	5527+82.13	1037.673			1037.718
	RT. DECK	5527+85.53	1037.964			1038.009
	GIRD.# 1	5527+78.29	1037.345	1036.790	-1 1/2	1037.390
	GIRD.# 2	5527+79.62	1037.458	1036.903	-1 1/2	1037.503
	GIRD.# 3	5527+80.94	1037.572	1037.016	-1 1/2	1037.616
	GIRD.# 4	5527+82.26	1037.685	1037.129	-1 1/2	1037.729
	GIRD.# 5	5527+83.58	1037.798	1037.242	-1 1/2	1037.842
	GIRD.# 6	5527+84.91	1037.911	1037.355	-1 1/2	1037.955
11+03	LT. DECK	5527+85.37	1037.295			1037.354
	CL	5527+89.83	1037.677			1037.735
	RT. DECK	5527+93.23	1037.968			1038.026
	GIRD.# 1	5527+85.99	1037.349	1036.816	-1 5/8	1037.407
	GIRD.# 2	5527+87.32	1037.462	1036.930	-1 5/8	1037.520
	GIRD.# 3	5527+88.64	1037.575	1037.043	-1 5/8	1037.634
	GIRD.# 4	5527+89.96	1037.688	1037.156	-1 5/8	1037.747
	GIRD.# 5	5527+91.28	1037.801	1037.269	-1 5/8	1037.860
	GIRD.# 6	5527+92.61	1037.914	1037.382	-1 5/8	1037.973
11+04	LT. DECK	5527+93.07	1037.299			1037.366
	CL	5527+97.53	1037.680			1037.747
	RT. DECK	5528+00.93	1037.971			1038.038
	GIRD.# 1	5527+93.69	1037.352	1036.834	-1 11/16	1037.419
	GIRD.# 2	5527+95.02	1037.465	1036.947	-1 11/16	1037.532
	GIRD.# 3	5527+96.34	1037.579	1037.060	-1 11/16	1037.645
	GIRD.# 4	5527+97.66	1037.692	1037.173	-1 11/16	1037.758
	GIRD.# 5	5527+98.98	1037.805	1037.286	-1 11/16	1037.872
	GIRD.# 6	5528+00.31	1037.918	1037.399	-1 11/16	1037.985
11+05	LT. DECK	5528+00.77	1037.302			1037.372
	CL	5528+05.23	1037.684			1037.753
	RT. DECK	5528+08.63	1037.975			1038.044
	GIRD.# 1	5528+01.39	1037.356	1036.842	-1 11/16	1037.425
	GIRD.# 2	5528+02.72	1037.469	1036.955	-1 11/16	1037.539
	GIRD.# 3	5528+04.04	1037.582	1037.068	-1 11/16	1037.652
	GIRD.# 4	5528+05.36	1037.695	1037.181	-1 11/16	1037.765
	GIRD.# 5	5528+06.68	1037.808	1037.294	-1 11/16	1037.878
	GIRD.# 6	5528+08.01	1037.921	1037.408	-1 11/16	1037.991
11+06	LT. DECK	5528+08.47	1037.306			1037.373
	CL	5528+12.93	1037.687			1037.754
	RT. DECK	5528+16.33	1037.978			1038.045
	GIRD.# 1	5528+09.09	1037.359	1036.841	-1 11/16	1037.426
	GIRD.# 2	5528+10.42	1037.472	1036.954	-1 11/16	1037.539
	GIRD.# 3	5528+11.74	1037.586	1037.067	-1 11/16	1037.652
	GIRD.# 4	5528+13.06	1037.699	1037.180	-1 11/16	1037.765
	GIRD.# 5	5528+14.38	1037.812	1037.293	-1 11/16	1037.879
	GIRD.# 6	5528+15.71	1037.925	1037.406	-1 11/16	1037.992

SPAN #11 & #12

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
11+07	LT. DECK	5528+16.17	1037.309			1037.368
	CL	5528+20.63	1037.691			1037.749
	RT. DECK	5528+24.03	1037.982			1038.040
	GIRD.# 1	5528+16.79	1037.363	1036.830	-1 5/8	1037.421
	GIRD.# 2	5528+18.12	1037.476	1036.944	-1 5/8	1037.534
	GIRD.# 3	5528+19.44	1037.589	1037.057	-1 5/8	1037.648
	GIRD.# 4	5528+20.76	1037.702	1037.170	-1 5/8	1037.761
	GIRD.# 5	5528+22.08	1037.815	1037.283	-1 5/8	1037.874
	GIRD.# 6	5528+23.41	1037.928	1037.396	-1 5/8	1037.987
11+08	LT. DECK	5528+23.87	1037.313			1037.358
	CL	5528+28.33	1037.694			1037.739
	RT. DECK	5528+31.73	1037.985			1038.030
	GIRD.# 1	5528+24.49	1037.366	1036.811	-1 1/2	1037.411
	GIRD.# 2	5528+25.82	1037.479	1036.924	-1 1/2	1037.524
	GIRD.# 3	5528+27.14	1037.593	1037.037	-1 1/2	1037.637
	GIRD.# 4	5528+28.46	1037.706	1037.150	-1 1/2	1037.750
	GIRD.# 5	5528+29.78	1037.819	1037.263	-1 1/2	1037.863
	GIRD.# 6	5528+31.11	1037.932	1037.376	-1 1/2	1037.977
11+09	LT. DECK	5528+31.57	1037.316			1037.341
	CL	5528+36.03	1037.698			1037.723
	RT. DECK	5528+39.43	1037.989			1038.014
	GIRD.# 1	5528+32.19	1037.370	1036.781	-1 5/16	1037.395
	GIRD.# 2	5528+33.52	1037.483	1036.894	-1 5/16	1037.508
	GIRD.# 3	5528+34.84	1037.596	1037.008	-1 5/16	1037.621
	GIRD.# 4	5528+36.16	1037.709	1037.121	-1 5/16	1037.734
	GIRD.# 5	5528+37.48	1037.822	1037.234	-1 5/16	1037.847
	GIRD.# 6	5528+38.81	1037.936	1037.347	-1 5/16	1037.960
PIER 11 L	LT. DECK	5528+39.27	1037.320			1037.320
	CL	5528+43.73	1037.701			1037.701
	RT. DECK	5528+47.13	1037.992			1037.992
	GIRD.# 1	5528+39.89	1037.373	1036.743	-1 1/8	1037.373
	GIRD.# 2	5528+41.22	1037.487	1036.856	-1 1/8	1037.487
	GIRD.# 3	5528+42.54	1037.600	1036.969	-1 1/8	1037.600
	GIRD.# 4	5528+43.86	1037.713	1037.082	-1 1/8	1037.713
	GIRD.# 5	5528+45.18	1037.826	1037.195	-1 1/8	1037.826
	GIRD.# 6	5528+46.51	1037.939	1037.309	-1 1/8	1037.939
PIER 11 R	LT. DECK	5528+40.77	1037.321			1037.321
	CL	5528+45.23	1037.702			1037.702
	RT. DECK	5528+48.63	1037.993			1037.993
	GIRD.# 1	5528+41.39	1037.374	1036.744	-1 1/8	1037.374
	GIRD.# 2	5528+42.72	1037.487	1036.857	-1 1/8	1037.487
	GIRD.# 3	5528+44.04	1037.600	1036.970	-1 1/8	1037.600
	GIRD.# 4	5528+45.36	1037.713	1037.083	-1 1/8	1037.713
	GIRD.# 5	5528+46.68	1037.826	1037.196	-1 1/8	1037.826
	GIRD.# 6	5528+48.01	1037.940	1037.309	-1 1/8	1037.940
12+01	LT. DECK	5528+48.47	1037.324			1037.349
	CL	5528+52.93	1037.706			1037.731
	RT. DECK	5528+56.33	1037.997			1038.022
	GIRD.# 1	5528+49.09	1037.378	1036.789	-1 5/16	1037.403
	GIRD.# 2	5528+50.42	1037.491	1036.902	-1 5/16	1037.516
	GIRD.# 3	5528+51.74	1037.604	1037.015	-1 5/16	1037.629
	GIRD.# 4	5528+53.06	1037.717	1037.128	-1 5/16	1037.742
	GIRD.# 5	5528+54.38	1037.830	1037.242	-1 5/16	1037.855
	GIRD.# 6	5528+55.71	1037.943	1037.355	-1 5/16	1037.968
12+02	LT. DECK	5528+56.17	1037.328			1037.372
	CL	5528+60.63	1037.709			1037.754
	RT. DECK	5528+64.03	1038.000			1038.045
	GIRD.# 1	5528+56.79	1037.381	1036.825	-1 1/2	1037.426
	GIRD.# 2	5528+58.12	1037.494	1036.939	-1 1/2	1037.539
	GIRD.# 3	5528+59.44	1037.607	1037.052	-1 1/2	1037.652
	GIRD.# 4	5528+60.76	1037.720	1037.165	-1 1/2	1037.765
	GIRD.# 5	5528+62.08	1037.833	1037.278	-1 1/2	1037.878
	GIRD.# 6	5528+63.41	1037.947	1037.391	-1 1/2	1037.991
12+03	LT. DECK	5528+63.87	1037.331			1037.390
	CL	5528+68.33	1037.713			1037.771
	RT. DECK	5528+71.73	1038.004			1038.062
	GIRD.# 1	5528+64.49	1037.385	1036.852	-1 5/8	1037.443
	GIRD.# 2	5528+65.82	1037.498	1036.965	-1 5/8	1037.556
	GIRD.# 3	5528+67.14	1037.611	1037.078	-1 5/8	1037.669
	GIRD.# 4	5528+68.46	1037.724	1037.192	-1 5/8	1037.782
	GIRD.# 5	5528+69.78	1037.837	1037.305	-1 5/8	1037.896
	GIRD.# 6	5528+71.11	1037.950	1037.418	-1 5/8	1038.009

SPAN #12

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.	Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
12+04	LT. DECK	5528+71.57	1037.335			1037.401
	CL	5528+76.03	1037.716			1037.783
	RT. DECK	5528+79.43	1038.007			1038.074
	GIRD.# 1	5528+72.19	1037.388	1036.870	-1 11/16	1037.455
	GIRD.# 2	5528+73.52	1037.501	1036.983	-1 11/16	1037.568
	GIRD.# 3	5528+74.84	1037.614	1037.096	-1 11/16	1037.681
	GIRD.# 4	5528+76.16	1037.727	1037.209	-1 11/16	1037.794
	GIRD.# 5	5528+77.48	1037.841	1037.322	-1 11/16	1037.907
	GIRD.# 6	5528+78.81	1037.954	1037.435	-1 11/16	1038.020
12+05	LT. DECK	5528+79.27	1037.338			1037.408
	CL	5528+83.73	1037.720			1037.789
	RT. DECK	5528+87.13	1038.011			1038.080
	GIRD.# 1	5528+79.89	1037.392	1036.878	-1 11/16	1037.461
	GIRD.# 2	5528+81.22	1037.505	1036.991	-1 11/16	1037.574
	GIRD.# 3	5528+82.54	1037.618	1037.104	-1 11/16	1037.687
	GIRD.# 4	5528+83.86	1037.731	1037.217	-1 11/16	1037.801
	GIRD.# 5	5528+85.18	1037.844	1037.330	-1 11/16	1037.914
	GIRD.# 6	5528+86.51	1037.957	1037.443	-1 11/16	1038.027
12+06	LT. DECK	5528+86.97	1037.342			1037.406
	CL	5528+91.43	1037.723			1037.790
	RT. DECK	5528+94.83	1038.014			1038.081
	GIRD.# 1	5528+87.59	1037.395	1036.877	-1 11/16	1037.462
	GIRD.# 2	5528+88.92	1037.508	1036.990	-1 11/16	1037.575
	GIRD.# 3	5528+90.24	1037.621	1037.103	-1 11/16	1037.688
	GIRD.# 4	5528+91.56	1037.734	1037.216	-1 11/16	1037.801
	GIRD.# 5	5528+92.88	1037.848	1037.329	-1 11/16	1037.914
	GIRD.# 6	5528+94.21	1037.961	1037.442	-1 11/16	1038.027
12+07	LT. DECK	5528+94.67	1037.345			1037.404
	CL	5528+99.13	1037.727			1037.785
	RT. DECK	5529+02.53	1038.018			1038.076
	GIRD.# 1	5528+95.29	1037.399	1036.866	-1 5/8	1037.457
	GIRD.# 2	5528+96.62	1037.512	1036.979	-1 5/8	1037.570
	GIRD.# 3	5528+97.94	1037.625	1037.092	-1 5/8	1037.683
	GIRD.# 4	5528+99.26	1037.738	1037.206	-1 5/8	1037.796
	GIRD.# 5	5529+00.58	1037.851	1037.319	-1 5/8	1037.910
	GIRD.# 6	5529+01.91	1037.964	1037.432	-1 5/8	1038.023
12+08	LT. DECK	5529+02.37	1037.349			1037.393
	CL	5529+06.83	1037.730			1037.775
	RT. DECK	5529+10.23	1038.021			1038.066
	GIRD.# 1	5529+02.99	1037.402	1036.846	-1 1/2	1037.447
	GIRD.# 2	5529+04.32	1037.515	1036.960	-1 1/2	1037.560
	GIRD.# 3	5529+05.64	1037.628	1037.073	-1 1/2	1037.673
	GIRD.# 4	5529+06.96	1037.741	1037.186	-1 1/2	1037.786
	GIRD.# 5	5529+08.28	1037.855	1037.299	-1 1/2	1037.899
	GIRD.# 6	5529+09.61	1037.968	1037.412	-1 1/2	1038.012
12+09	LT. DECK	5529+10.07	1037.352			1037.377
	CL	5529+14.53	1037.734			1037.759
	RT. DECK	5529+17.93	1038.025			1038.050
	GIRD.# 1	5529+10.69	1037.406	1036.817	-1 5/16	1037.431
	GIRD.# 2	5529+12.02	1037.519	1036.930	-1 5/16	1037.544
	GIRD.# 3	5529+13.34	1037.632	1037.043	-1 5/16	1037.657
	GIRD.# 4	5529+14.66	1037.745	1037.156	-1 5/16	1037.770
	GIRD.# 5	5529+15.98	1037.858	1037.270	-1 5/16	1037.883
	GIRD.# 6	5529+17.31	1037.971	1037.383	-1 5/16	1037.996
PIER 12 L	LT. DECK	5529+17.77	1037.356			1037.356
	CL	5529+22.23	1037.737			1037.737
	RT. DECK	5529+25.63	1038.028			1038.028
	GIRD.# 1	5529+18.39	1037.409	1036.779	-1 1/8	1037.409
	GIRD.# 2	5529+19.72	1037.522	1036.892	-1 1/8	1037.522
	GIRD.# 3	5529+21.04	1037.635	1037.005	-1 1/8	1037.635
	GIRD.# 4	5529+22.36	1037.748	1037.118	-1 1/8	1037.748
	GIRD.# 5	5529+23.68	1037.862	1037.231	-1 1/8	1037.862
	GIRD.# 6	5529+25.01	1037.975	1037.344	-1 1/8	1037.975

		Date
Design	ES	4-70
Drawn	ES	5-70
Checked	R.V.	5-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

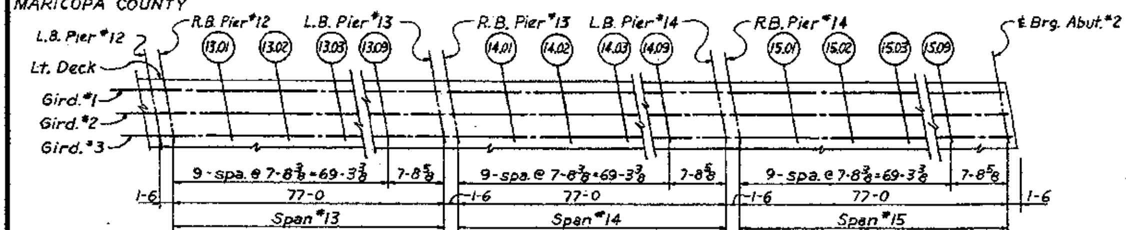
STA. 5527+ W.B.
HASSAYAMPA RIVER BRIDGE
GIRDER EMBEDMENT DETAILS

27 of 28 — 1646 — I-10 104.69

Registered Professional Engineer (Civil & Struct.) — Certificate — MARTIN TONEY — Arizona, U.S.A.

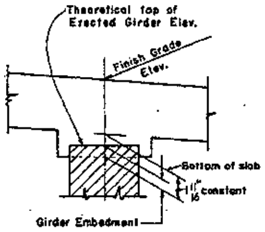
I-10-2(16)

ERHENBERG - PHOENIX HWY.
MARICOPA COUNTY



PLAN
No Scale

L.B. = Left Bearing
R.B. = Right Bearing



Sheet No.	State	Project No.	Sheet No.	Total Sheets	As Built
9	Arizona	I-10-2(16)	87	87	

NOTE—
The Theoretical Top of Erected Girder Elevations include an allowance for deflection of the girders due to their own dead load. The Top of Erected Girder Elevations shall be checked in the field. If the measured elevation is lower than the theoretical elevation, the difference shall be subtracted from the embedment. If the measured elevation is higher, the difference shall be added to the embedment.
The Finish Grade Elevations Adjusted for Deflection include an allowance for the dead load of the concrete deck and shall be used as shown regardless of the measured top of erected girder elevations.
Lt. Deck = Left Face of Deck.
Rt. Deck = Right Face of Deck.
CL = Constr. ℄.

SPAN #13

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
PIER 12 R	LT. DECK	5529+19.27	1037.356				1037.356
	CL	5529+23.73	1037.738				1037.738
	RT. DECK	5529+27.13	1038.029				1038.029
	GIRD.# 1	5529+19.89	1037.410	1036.780		-1 1/8	1037.410
	GIRD.# 2	5529+21.22	1037.523	1036.893		-1 1/8	1037.523
	GIRD.# 3	5529+22.54	1037.636	1037.006		-1 1/8	1037.636
	GIRD.# 4	5529+23.86	1037.749	1037.119		-1 1/8	1037.749
	GIRD.# 5	5529+25.18	1037.862	1037.232		-1 1/8	1037.862
	GIRD.# 6	5529+26.51	1037.975	1037.345		-1 1/8	1037.975
13+01	LT. DECK	5529+26.97	1037.360				1037.365
	CL	5529+31.43	1037.741				1037.766
	RT. DECK	5529+34.83	1038.032				1038.057
	GIRD.# 1	5529+27.59	1037.413	1036.825		-1 5/16	1037.438
	GIRD.# 2	5529+28.92	1037.526	1036.938		-1 5/16	1037.551
	GIRD.# 3	5529+30.24	1037.640	1037.051		-1 5/16	1037.665
	GIRD.# 4	5529+31.56	1037.753	1037.164		-1 5/16	1037.778
	GIRD.# 5	5529+32.88	1037.866	1037.277		-1 5/16	1037.891
	GIRD.# 6	5529+34.21	1037.979	1037.390		-1 5/16	1038.004
13+02	LT. DECK	5529+34.67	1037.363				1037.408
	CL	5529+39.13	1037.745				1037.789
	RT. DECK	5529+42.53	1038.036				1038.080
	GIRD.# 1	5529+35.29	1037.417	1036.861		-1 1/2	1037.461
	GIRD.# 2	5529+36.62	1037.530	1036.974		-1 1/2	1037.575
	GIRD.# 3	5529+37.94	1037.643	1037.087		-1 1/2	1037.688
	GIRD.# 4	5529+39.26	1037.756	1037.200		-1 1/2	1037.801
	GIRD.# 5	5529+40.58	1037.869	1037.314		-1 1/2	1037.914
	GIRD.# 6	5529+41.91	1037.982	1037.427		-1 1/2	1038.027
13+03	LT. DECK	5529+42.37	1037.367				1037.425
	CL	5529+46.83	1037.748				1037.807
	RT. DECK	5529+50.23	1038.039				1038.098
	GIRD.# 1	5529+42.99	1037.420	1036.888		-1 5/8	1037.479
	GIRD.# 2	5529+44.32	1037.533	1037.001		-1 5/8	1037.592
	GIRD.# 3	5529+45.64	1037.647	1037.114		-1 5/8	1037.705
	GIRD.# 4	5529+46.96	1037.760	1037.227		-1 5/8	1037.818
	GIRD.# 5	5529+48.28	1037.873	1037.340		-1 5/8	1037.931
	GIRD.# 6	5529+49.61	1037.986	1037.453		-1 5/8	1038.044
13+04	LT. DECK	5529+50.07	1037.370				1037.437
	CL	5529+54.53	1037.752				1037.819
	RT. DECK	5529+57.93	1038.043				1038.110
	GIRD.# 1	5529+50.69	1037.424	1036.905		-1 11/16	1037.491
	GIRD.# 2	5529+52.02	1037.537	1037.018		-1 11/16	1037.604
	GIRD.# 3	5529+53.34	1037.650	1037.132		-1 11/16	1037.717
	GIRD.# 4	5529+54.66	1037.763	1037.245		-1 11/16	1037.830
	GIRD.# 5	5529+55.98	1037.876	1037.358		-1 11/16	1037.943
	GIRD.# 6	5529+57.31	1037.989	1037.471		-1 11/16	1038.056
13+05	LT. DECK	5529+57.77	1037.374				1037.444
	CL	5529+62.23	1037.755				1037.825
	RT. DECK	5529+65.63	1038.046				1038.116
	GIRD.# 1	5529+58.39	1037.427	1036.914		-1 11/16	1037.497
	GIRD.# 2	5529+59.72	1037.540	1037.027		-1 11/16	1037.610
	GIRD.# 3	5529+61.04	1037.654	1037.140		-1 11/16	1037.723
	GIRD.# 4	5529+62.36	1037.767	1037.253		-1 11/16	1037.836
	GIRD.# 5	5529+63.68	1037.880	1037.366		-1 11/16	1037.949
	GIRD.# 6	5529+65.01	1037.993	1037.479		-1 11/16	1038.062
13+06	LT. DECK	5529+65.47	1037.377				1037.446
	CL	5529+69.93	1037.759				1037.828
	RT. DECK	5529+73.33	1038.050				1038.117
	GIRD.# 1	5529+66.09	1037.431	1036.912		-1 11/16	1037.498
	GIRD.# 2	5529+67.42	1037.544	1037.025		-1 11/16	1037.611
	GIRD.# 3	5529+68.74	1037.657	1037.139		-1 11/16	1037.724
	GIRD.# 4	5529+70.06	1037.770	1037.252		-1 11/16	1037.837
	GIRD.# 5	5529+71.38	1037.883	1037.365		-1 11/16	1037.950
	GIRD.# 6	5529+72.71	1037.996	1037.478		-1 11/16	1038.063
13+07	LT. DECK	5529+73.17	1037.381				1037.439
	CL	5529+77.63	1037.762				1037.821
	RT. DECK	5529+81.03	1038.053				1038.112
	GIRD.# 1	5529+73.79	1037.434	1036.902		-1 5/8	1037.493
	GIRD.# 2	5529+75.12	1037.547	1037.015		-1 5/8	1037.606
	GIRD.# 3	5529+76.44	1037.661	1037.128		-1 5/8	1037.719
	GIRD.# 4	5529+77.76	1037.774	1037.241		-1 5/8	1037.832
	GIRD.# 5	5529+79.08	1037.887	1037.354		-1 5/8	1037.945
	GIRD.# 6	5529+80.41	1038.000	1037.467		-1 5/8	1038.058
13+08	LT. DECK	5529+80.87	1037.384				1037.429
	CL	5529+85.33	1037.766				1037.810
	RT. DECK	5529+88.73	1038.057				1038.101
	GIRD.# 1	5529+81.49	1037.438	1036.882		-1 1/2	1037.482
	GIRD.# 2	5529+82.82	1037.551	1036.995		-1 1/2	1037.596
	GIRD.# 3	5529+84.14	1037.664	1037.108		-1 1/2	1037.709
	GIRD.# 4	5529+85.46	1037.777	1037.221		-1 1/2	1037.822
	GIRD.# 5	5529+86.78	1037.890	1037.335		-1 1/2	1037.935
	GIRD.# 6	5529+88.11	1038.003	1037.448		-1 1/2	1038.048

SPAN #13 & #14

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
13+09	LT. DECK	5529+88.57	1037.388				1037.413
	CL	5529+93.03	1037.769				1037.794
	RT. DECK	5529+96.43	1038.060				1038.085
	GIRD.# 1	5529+89.19	1037.441	1036.853		-1 5/16	1037.466
	GIRD.# 2	5529+90.52	1037.554	1036.966		-1 5/16	1037.579
	GIRD.# 3	5529+91.84	1037.668	1037.079		-1 5/16	1037.693
	GIRD.# 4	5529+93.16	1037.781	1037.192		-1 5/16	1037.806
	GIRD.# 5	5529+94.48	1037.894	1037.305		-1 5/16	1037.919
	GIRD.# 6	5529+95.81	1038.007	1037.418		-1 5/16	1038.032
PIER 13 L	LT. DECK	5529+96.27	1037.391				1037.391
	CL	5530+00.73	1037.773				1037.773
	RT. DECK	5530+04.13	1038.064				1038.064
	GIRD.# 1	5529+96.89	1037.445	1036.815		-1 1/8	1037.445
	GIRD.# 2	5529+98.22	1037.558	1036.928		-1 1/8	1037.558
	GIRD.# 3	5529+99.54	1037.671	1037.041		-1 1/8	1037.671
	GIRD.# 4	5530+00.86	1037.784	1037.154		-1 1/8	1037.784
	GIRD.# 5	5530+02.18	1037.897	1037.267		-1 1/8	1037.897
	GIRD.# 6	5530+03.51	1038.010	1037.380		-1 1/8	1038.010
PIER 13 R	LT. DECK	5529+97.77	1037.392				1037.392
	CL	5530+02.23	1037.774				1037.774
	RT. DECK	5530+05.63	1038.064				1038.064
	GIRD.# 1	5529+98.39	1037.446	1036.815		-1 1/8	1037.446
	GIRD.# 2	5529+99.72	1037.559	1036.928		-1 1/8	1037.559
	GIRD.# 3	5530+01.04	1037.672	1037.042		-1 1/8	1037.672
	GIRD.# 4	5530+02.36	1037.785	1037.155		-1 1/8	1037.785
	GIRD.# 5	5530+03.68	1037.898	1037.268		-1 1/8	1037.898
	GIRD.# 6	5530+05.01	1038.011	1037.381		-1 1/8	1038.011
14+01	LT. DECK	5530+05.47	1037.396				1037.421
	CL	5530+09.93	1037.777				1037.802
	RT. DECK	5530+13.33	1038.068				1038.093
	GIRD.# 1	5530+06.09	1037.449	1036.861		-1 5/16	1037.474
	GIRD.# 2	5530+07.42	1037.562	1036.974		-1 5/16	1037.587
	GIRD.# 3	5530+08.74	1037.675	1037.087		-1 5/16	1037.700
	GIRD.# 4	5530+10.06	1037.788	1037.200		-1 5/16	1037.813
	GIRD.# 5	5530+11.38	1037.901	1037.313		-1 5/16	1037.926
	GIRD.# 6	5530+12.71	1038.015	1037.426		-1 5/16	1038.040
14+02	LT. DECK	5530+13.17	1037.399				1037.444
	CL	5530+17.63	1037.781				1037.825
	RT. DECK	5530+21.03	1038.071				1038.116
	GIRD.# 1	5530+13.79	1037.453	1036.897		-1 1/2	1037.497
	GIRD.# 2	5530+15.12	1037.566	1037.010		-1 1/2	1037.610
	GIRD.# 3	5530+16.44	1037.679	1037.123		-1 1/2	1037.723
	GIRD.# 4	5530+17.76	1037.792	1037.236		-1 1/2	1037.836
	GIRD.# 5	5530+19.08	1037.905	1037.349		-1 1/2	1037.950
	GIRD.# 6	5530+20.41	1038.018	1037.462		-1 1/2	1038.063
14+03	LT. DECK	5530+20.87	1037.403				1037.461
	CL	5530+25.33	1037.784				1037.843
	RT. DECK	5530+28.73	1038.075				1038.133
	GIRD.# 1	5530+21.49	1037.456	1036.924		-1 5/8	1037.515
	GIRD.# 2	5530+22.82	1037.569	1037.037		-1 5/8	1037.628
	GIRD.# 3	5530+24.14	1037.682	1037.150		-1 5/8	1037.741
	GIRD.# 4	5530+25.46	1037.795	1037.263		-1 5/8	1037.854
	GIRD.# 5	5530+26.78	1037.908	1037.376		-1 5/8	1037.967
	GIRD.# 6	5530+28.11	1038.022	1037.489		-1 5/8	1038.080
14+04	LT. DECK	5530+28.57	1037.406				1037.473
	CL	5530+33.03	1037.788				1037.854
	RT. DECK	5530+36.43	1038.078				1038.145
	GIRD.# 1	5530+29.19	1037.460	1036.941		-1 11/16	1037.526
	GIRD.# 2	5530+30.52	1037.573	1037.054		-1 11/16	1037.639
	GIRD.# 3	5530+31.84	1037.686	1037.167		-1 11/16	1037.753
	GIRD.# 4	5530+33.16	1037.799	1037.280		-1 11/16	1037.866
	GIRD.# 5	5530+34.48	1037.912	1037.393		-1 11/16	1037.979
	GIRD.# 6	5530+35.81	1038.025	1037.507		-1 11/16	1038.092
14+05	LT. DECK	5530+36.27	1037.410				1037.479
	CL	5530+40.73	1037.791				1037.861
	RT. DECK	5530+44.13	1038.082				1038.152
	GIRD.# 1	5530+36.89	1037.463	1036.949		-1 11/16	1037.533
	GIRD.# 2	5530+38.22	1037.576	1037.062		-1 11/16	1037.646
	GIRD.# 3	5530+39.54	1037.689	1037.175		-1 11/16	1037.759
	GIRD.# 4	5530+40.86	1037.802	1037.289		-1 11/16	1037.872
	GIRD.# 5	5530+42.18	1037.915	1037.402		-1 11/16	1037.985
	GIRD.# 6	5530+43.51	1038.029	1037.515		-1 11/16	1038.098
14+06	LT. DECK	5530+43.97	1037.413				1037.480
	CL	5530+48.43	1037.795				1037.861
	RT. DECK	5530+51.83	1038.085				1038.152
	GIRD.# 1	5530+44.59	1037.467	1036.948		-1 11/16	1037.533
	GIRD.# 2	5530+45.92	1037.580	1037.061		-1 11/16	1037.646
	GIRD.# 3	5530+47.24	1037.693	1037.174		-1 11/16	1037.760
	GIRD.# 4	5530+48.56	1037.806	1037.287		-1 11/16	1037.873
	GIRD.# 5	5530+49.88	1037.919	1037.400		-1 11/16	1037.986
	GIRD.# 6	5530+51.21	1038.032	1037.514		-1 11/16	1038.099

SPAN #14 & #15

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
14+07	LT. DECK	5530+51.67	1037.417				1037.475
	CL	5530+56.13	1037.798				1037.857
	RT. DECK	5530+59.53	1038.089				1038.147
	GIRD.# 1	5530+52.29	1037.470	1036.938		-1 5/8	1037.529
	GIRD.# 2	5530+53.62	1037.583	1037.051		-1 5/8	1037.642
	GIRD.# 3	5530+54.94	1037.696	1037.164		-1 5/8	1037.755
	GIRD.# 4	5530+56.26	1037.809	1037.277		-1 5/8	1037.868
	GIRD.# 5	5530+57.58	1037.922	1037.390		-1 5/8	1037.981
	GIRD.# 6	5530+58.91	1038.036	1037.503		-1 5/8	1038.094
14+08	LT. DECK	5530+59.37	1037.420				1037.465
	CL	5530+63.83	1037.802				1037.846
	RT. DECK	5530+67.23	1038.092				1038.137
	GIRD.# 1	5530+59.99	1037.474	1036.918		-1 1/2	1037.518
	GIRD.# 2	5530+61.32	1037.587	1037.031		-1 1/2	1037.632
	GIRD.# 3	5530+62.64	1037.700	1037.144		-1 1/2	1037.745
	GIRD.# 4	5530+63.96	1037.813	1037.257		-1 1/2	1037.857
	GIRD.# 5	5530+65.28	1037.926	1037.370		-1 1/2	1037.971
	GIRD.# 6	5530+66.61	1038.039	1037.483		-1 1/2	1038.084
14+09	LT. DECK	5530+67.07	1037.424				1037.449
	CL	5530+71.53	1037.805				1037.830
	RT. DECK	5530+74.93	1038.096				1038.121
	GIRD.# 1	5530+67.69	1037.477	1036.889		-1 5/16	1037.502
	GIRD.# 2	5530+69.02	1037.590	1037.002		-1 5/16	1037.615
	GIRD.# 3	5530+70.34	1037.703	1037.115		-1 5/16	1037.728
	GIRD.# 4	5530+71.66	1037.816	1037.228		-1 5/16	1037.841
	GIRD.# 5	5530+72.98	1037.929	1037.341		-1 5/16	1037.954
	GIRD.# 6	5530+74.31	1038.043	1037.454		-1 5/16	1038.068
PIER 14 L	LT. DECK	5530+74.77	1037.427				1037.427
	CL	5530+79.23	1037.809				1037.809
	RT. DECK	5530+82.63	1038.099				1038.099
	GIRD.# 1	5530+75.39	1037.481	1036.850		-1 1/8	1037.481
	GIRD.# 2	5530+76.72	1037.594	1036.963		-1 1/8	1037.594
	GIRD.# 3	5530+78.04	1037.707	1037.076		-1 1/8	1037.707
	GIRD.# 4	5530+79.36	1037.820	1037.190		-1 1/8	1037.820
	GIRD.# 5	5530+80.68	1037.933	1037.303		-1 1/8	1037.933
	GIRD.# 6	5530+82.01	1038.046	1037.416		-1 1/8	1038.046
PIER 14 R	LT. DECK	5530+76.27	1037.428				1037.428
	CL	5530+80.73	1037.809				1037.809
	RT. DECK	5530+84.13	1038.100				1038.100
	GIRD.# 1	5530+76.89	1037.481	1036.839		-1 0/0	1037.481
	GIRD.# 2	5530+78.22	1037.594	1036.952		-1 0/0	1037.594
	GIRD.# 3	5530+79.54	1037.707	1037.065		-1 0/0	1037.707
	GIRD.# 4	5530+80.86	1037.821	1037.178		-1 0/0	1037.821
	GIRD.# 5	5530+82.18	1037.934	1037.291		-1 0/0	1037.934
	GIRD.# 6	5530+83.51	1038.047	1037.403		- 15/16	1038.047
15+01	LT. DECK	5530+83.97	1037.431				1037.456
	CL	5530+88.43	1037.813				1037.838
	RT. DECK	5530+91.83	1038.104				1038.129
	GIRD.# 1	5530+84.59	1037.485	1036.887		-1 1/4	1037.510
	GIRD.# 2	5530+85.92	1037.598	1037.000		-1 3/16	1037.623
	GIRD.# 3	5530+87.24	1037.711	1037.113		-1 3/16	1037.736
	GIRD.# 4	5530+88.56	1037.824	1037.226		-1 3/16	1037.849
	GIRD.# 5	5530+89.88	1037.937	1037.339		-1 3/16	1037.962
	GIRD.# 6	5530+91.21	1038.050	1037.452		-1 3/16	1038.075
15+02	LT. DECK	5530+91.67	1037.435				1037.479
	CL	5530+96.13	1037.816				1037.861
	RT. DECK	5530+99.53	1038.107				1038.152
	GIRD.# 1	5530+92.29	1037.488	1036.926		-1 7/16	1037.533
	GIRD.# 2	5530+93.62	1037.601	1037.039		-1 7/16	1037.646
	GIRD.# 3	5530+94.94	1037.714	1037.153		-1 7/16	1037.759
	GIRD.# 4	5530+96.26	1037.828	1037.266		-1 7/16	1037.872
	GIRD.# 5	5530+97.58	1037.941	1037.379		-1 7/16	1037.985
	GIRD.# 6	5530+98.91	1038.054	1037.492		-1 7/16	1038.098
15+03	LT. DECK	5530+99.37	1037.438				1037.497
	CL	5531+03.83	1037.820				1037.878
	RT. DECK	5531+07.23	1038.111				1038.170
	GIRD.# 1	5530+99.99	1037.492	1036.956		-1 9/16	1037.550
	GIRD.# 2	5531+01.32	1037.605	1037.069		-1 9/16	1037.663
	GIRD.# 3	5531+02.64	1037.718	1037.182		-1 9/16	1037.777
	GIRD.# 4	5531+03.96	1037.831	1037.296		-1 9/16	1037.890
	GIRD.# 5	5531+05.28	1037.944	1037.409		-1 9/16	1038.003
	GIRD.# 6	5531+06.61	1038.058	1037.523		-1 9/16	1038.116

SPAN #15

	Line	Station	Finish Grade Elev.	Theo. Top of Erected Gird. El.		Girder Embedment (in.)	Fin. Grade Adjusted for Defl.
15+04	LT. DECK	5531+07.07	1037.442				1037.509
	CL	5531+11.53	1037.826				1037.891
	RT. DECK	5531+14.93	1038.116				1038.183
	GIRD.# 1	5531+07.69	1037.496	1036.976		-1 5/8	1037.563
	GIRD.# 2	5531+09.02	1037.609	1037.090		-1 5/8	1037.676
	GIRD.# 3	5531+10.34	1037.723	1037.203		-1 5/8	1037.789
	GIRD.# 4	5531+11.66	1037.836	1037.316		-1 5/8	1037.903
	GIRD.# 5	5531+12.98	1037.949	1037.430		-1 5/8	1038.016
	GIRD.# 6	5531+14.31	1038.063	1037.544		-1 5/8	1038.130
15+05	LT. DECK	5531+14.77	1037.447				1037.517
	CL	5531+19.23	1037.830				1037.900
	RT. DECK	5531+22.63	1038.123				1038.192
	GIRD.# 1	5531+15.39	1037.501	1036.987		-1 11/16	1037.571
	GIRD.# 2	5531+16.72	1037.615	1037.101		-1 11/16	1037.684
	GIRD.# 3	5531+18.04	1037.728	1037.214		-1 11/16	1037.798
	GIRD.# 4	5531+19.36	1037.842	1037.328		-1 11/16	1037.911
	GIRD.# 5	5531+20.68	1037.955	1037.442		-1 11/16	1038.025
	GIRD.# 6	5531+22.01	1038.069	1037.555		-1 11/16	1038.139
15+06	LT. DECK	5531+22.47	1037.454				1037.521
	CL	5531+26.93	1037.837				1037.904
	RT. DECK	5531+30.33	1038.130				1038.197
	GIRD.# 1	5531+23.09	1037.507	1036.989		-1 11/16	1037.574
	GIRD.# 2	5531+24.42	1037.621	1037.103		-1 11/16	1037.688
	GIRD.# 3	5531+25.74	1037.735	1037.216		-1 11/16	1037.802
	GIRD.# 4	5531+27.06	1037.849	1037.330		-1 11/16	1037.916
	GIRD.# 5	5531+28.38	1037.963	1037.444		-1 11/16	1038.029
	GIRD.# 6	5531+29.71	1038.076	1037.558		-1 11/16	1038.143
15+07	LT. DECK	5531+30.17	1037.461				1037.520
	CL	5531+34.63	1037.845				1037.904
	RT. DECK	5531+38.03	1038.139				1038.197
	GIRD.# 1	5531+30.79	1037.515	1036.981		-1 9/16	1037.574
	GIRD.# 2	5531+32.12	1037.629	1037.095		-1 9/16	1037.687
	GIRD.# 3	5531+33.44	1037.743	1037.209		-1 9/16	1037.801
	GIRD.# 4	5531+34.76	1037.857	1037.323		-1 9/16	1037.915
	GIRD.# 5	5531+36.08	1037.971	1037.437		-1 9/16	1038.029
	GIRD.# 6	5531+37.41	1038.085	1037.551		-1 9/16	1038.143
15+08	LT. DECK	5531+37.87	1037.470				1037.514
	CL	5531+42.33	1037.856				1037.899
	RT. DECK	5531+45.73	1038.149				1038.193
	GIRD.# 1	5531+38.49	1037.524	1036.964		-1 7/16	1037.568
	GIRD.# 2	5531+39.82	1037.638	1037.078		-1 7/16	1037.682
	GIRD.# 3	5531+41.14	1037.752	1037.192		-1 7/16	1037.797
	GIRD.# 4	5531+42.46	1037.866	1037.306		-1 7/16	1037.911
	GIRD.# 5	5531+43.78	1037.980	1037.420		-1 7/16	1038.025
	GIRD.# 6	5531+45.11	1038.095	1037.535		-1 7/16	1038.139
15+09	LT. DECK	5531+45.57	1037.480				1037.508
	CL	5531+50.03	1037.865				1037.890
	RT. DECK	5531+53.43	1038.160				1038.185
	GIRD.# 1	5531+46.19	1037.534	1036.938		-1 1/4	1037.559
	GIRD.# 2	5531+47.52	1037.648	1037.052		-1 1/4	1037.673
	GIRD.# 3	5531+48.84	1037.762	1037.166		-1 1/4	1037.787
	GIRD.# 4	5531+50.16	1037.877	1037.280		-1 1/4	1037.902
	GIRD.# 5	5531+51.48	1037.991	1037.395		-1 1/4	1038.016
	GIRD.# 6	5531+52.81	1038.106	1037.509		-1 1/4	1038.131
ABUT 2	LT. DECK	5531+53.27	1037.491				1037.491
	CL	5531+57.73	1037.877				1037.877
	RT. DECK	5531+61.13	1038.172				1038.172
	GIRD.# 1	5531+53.89	1037.545	1036.902		-1 0/0	1037.545
	GIRD.# 2	5531+55.22	1037.659	1037.017		-1 0/0	1037.659
	GIRD.# 3	5531+56.54	1037.774	1037.131		-1 0/0	1037.774
	GIRD.# 4	5531+57.86	1037.888	1037.245		-1 0/0	1037.888
	GIRD.# 5	5531+59.18	1038.003	1037.360		- 15/16	1038.003
	GIRD.# 6	5531+60.51	1038.118	1037.474		- 15/16	1038.118

MASTER

		Date
Design	ES	4-70
Drawn	ES	5-70
Checked	[illegible]	5-70

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

STA. 5527+ W.B.
HASSAYAMPA RIVER BRIDGE
GIRDER EMBEDMENT DETAILS

28 of 28 | 1646 (Bridge Number) | I-10 104.69

Registered Professional Engineer — Certificate Expires — MARTIN TONEY — Dec. 31, 19[illegible] — Arizona, U.S.A.

I-10-2(16)

Microsoft Access - [Query2 : Select Query]

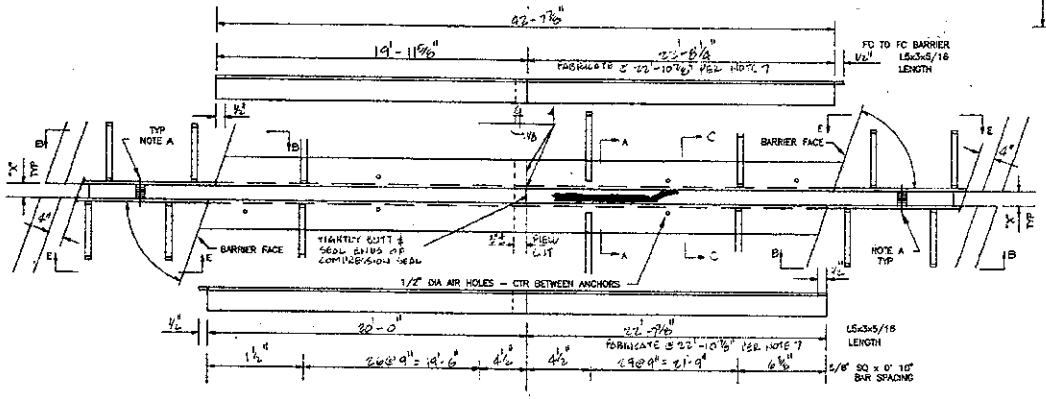
File Edit View Insert Format Records Tools Window Help

X	Y	Section	Township	Range	TRS
395073.73	987832.106	6	T04N	R06W	T04NR06W6
400268.757	987775.059	5	T04N	R06W	T04NR06W5
405526.783	987726.012	4	T04N	R06W	T04NR06W4
410788.809	987706.965	3	T04N	R06W	T04NR06W3
416098.836	987669.918	2	T04N	R06W	T04NR06W2
421355.862	987633.871	1	T04N	R06W	T04NR06W1
426649.889	987586.824	6	T04N	R05W	T04NR05W6
431594.914	987497.779	5	T04N	R05W	T04NR05W5
436851.94	987455.733	4	T04N	R05W	T04NR05W4
442176.967	987398.685	3	T04N	R05W	T04NR05W3
447295.99	987439.648	2	T04N	R05W	T04NR05W2
452627.004	987355.647	1	T04N	R05W	T04NR05W1
457921.018	987277.646	6	T04N	R04W	T04NR04W6

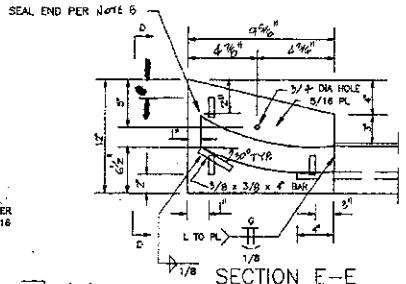
Record: 1 of 492

Datasheet View NUM

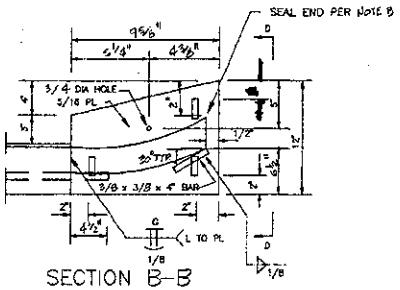
PROJECT NO.	SHEET	TOTAL SHEETS	REVISED
I-10-2-513	3A	3	10-14-92



COMPRESSION SEAL JOINT @ PIERS 3, 6, 9 & 12 (EB & WB)
6 LOCATIONS
*DIM AT 70 DEGREES



SECTION E–E

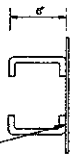


SECTION B–B

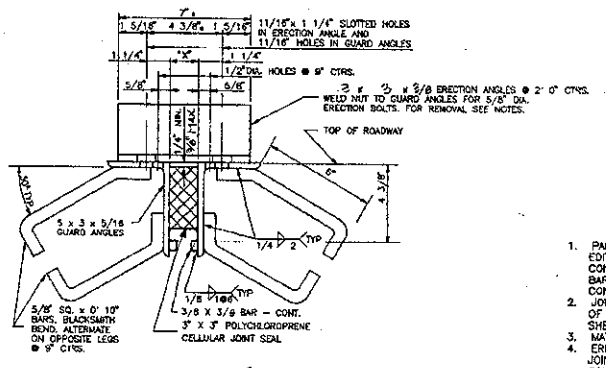
NOTE B: BEND JOINT SEAL AS SHOWN AND SEAL ENDS BEFORE COMPRESSION WITH A PRE-MIXED RUBBERIZED MASTIC SEALING COMPOUND 3" DEEP INTO JOINT CELLS

NOTE A: 5/8" ϕ CURB PL BOLTS WITH WASHER SPACERS. (WASHER SPACERS NOT REQUIRED WHEN JOINT SEAL IS INSTALLED IN SHOP)

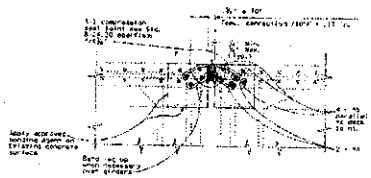
A. D. O. T. STRUCTURES SECTION	
PROJECT NO.	I-10-2-513
RTE. MP	I-10 104.69
STRUCTURE NO.	1645 & 1646
SHEET NO.	2A OF 2



SECTION D–D



SECTION A–A



SECTION C–C

TEMPERATURE CHART

°F	DIM "X"
30	2.43
40	2.26
50	2.09
60	1.92
70	1.75
80	1.58
90	1.41
100	1.24
110	1.07

NOTES: TEMPERATURE IS TO BE MEAN BEAM TEMPERATURE AND NOT DECK TEMPERATURE.

JOINT WIDTH IS GIVEN PERPENDICULAR TO CENTERLINE OF JOINT.

NOTES:
1. PAINT AND PAINTING SHALL CONFORM TO STD. SPECS. OF ADOT, CURRENT EDITION. ONE PRIME COAT ON ALL SURFACES NOT IN CONTACT WITH CONCRETE, TWO COATS OF PAINT ON SURFACES OF GUARD ANGLES, BAR G, BAR G1, AND 5/16" PLATES NOT IN CONTACT WITH JOINT SEAL OR CONCRETE.
2. JOINT OPENING "X" SHALL BE ADJUSTED IN THE FIELD FOR ANY VARIATION OF TEMPERATURE ABOVE OR BELOW THE MEAN TEMPERATURE. SEE BRIDGE SHEETS FOR THE MEAN TEMPERATURE AND TEMPERATURE CORRECTION.
3. MATERIAL – STRUCTURAL STEEL A.S.T.M. A36.
4. ERECTION ANGLES AND CURB PLATE BOLTS SHALL NOT BE REMOVED UNTIL JOINT IS FULLY ENCASED IN CONCRETE (EXCEPT CURBS) AND SUCH CONCRETE HAS ATTAINED ITS INITIAL SET.
5. HOLES FOR CURB PLATE BOLTS SHALL BE PLUGGED BEFORE PLACING CURB CONCRETE.
6. FABRICATED STEEL SHIPPED IN ASSEMBLED LENGTHS.
7. FIELD CUT END OF 22' 10 7/8" SECTION FOR GOOD FIT.

NOTE: CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

APPROVAL BLOCK

APPROVED
ARIZONA DEPARTMENT OF TRANSPORTATION
STRUCTURES SECTION
DATE 2/11/1992
BY Sherly Paul
Approval is an additional precaution against errors and shall not relieve the contractor of full responsibility for the accuracy of these plans.

BEGIN PRINTING

BEGIN PRINTING

BEGIN PRINTING

BILL OF MATERIALS

MATERIAL	QUANTITY		DESCRIPTION
GUARD ANGLES	687	L.F.	L 5 x 3 x 5/16
MEMBRANE	358	L.F.	3" x 3" POLYCHLOROPRENE CELLULAR
			INCLUDES 18" SAMPLE FOR TESTING
ANCHORS	456	EA.	5/8" SQ x 10" BAR
	456	EA.	5/8" SQ x 10" BAR
	96	EA.	5/8" SQ x 10" BAR
BAR – JOINT	694	L.F.	3/8 x 3/8 BAR
	36	EA.	3/8 x 3/8 x 0' 4" BAR
5/16" CURB PL	32	EA.	AS DETAILED
~~5/16" END PL~~		~~EA.~~	~~AS DETAILED~~
SEALANT	8	TUBES	SIKAFLEX 1A TO SEAL END OF COMPRESSION SEAL

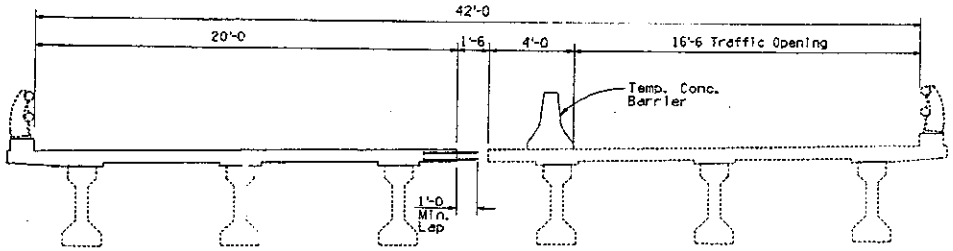
LOCAL SUPPLIER: BORDER PRODUCTS
3880 E. BROADWAY RD. PHOENIX, AZ 85040 602/437-1900
1855 W. GRANT RD. TUCSON, AZ 85745 602/623-9448

MFR./PROD.

PROJ. NAME	HASSAYAMPA RIVER BRG. JOINT REPLACEMENT	PROJ. NO.	I-10-2-513
CONTR.	HASSLOCK CONSTR.	OWNER	ADOT TRACS # H56501C
STRUCTURE	1645 & 1646	LOCATION	HASSAYAMPA RIVER BR
DRAWN BY TLB	DATE 12-91	CHKD. BY DH	DATE 12-91
REVN.		DATE	JOB NO. BP91-03
REVN.		DATE	SHEET 1 OF 1

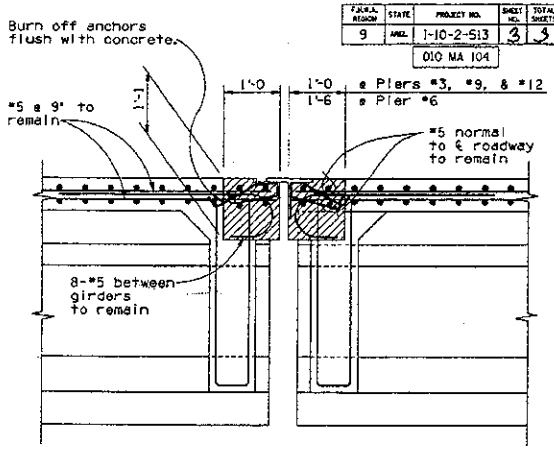
P.O. –1.5..25

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	I-10-2-513	3	3	10-14-92 JH
		010 MA 104			

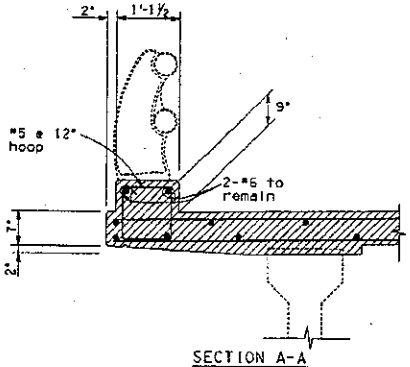


TYPICAL SECTION
Scale 3/8" = 1'-0
Dimensions are shown normal to ℄ roadway.

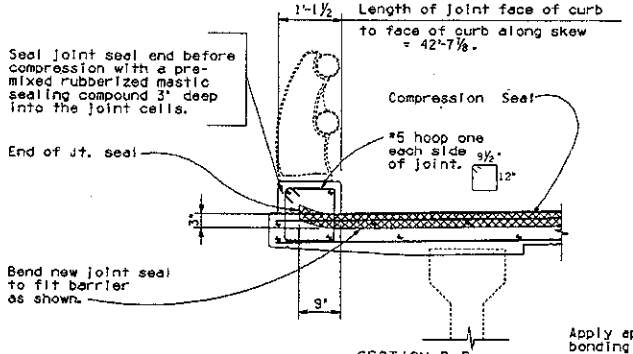
1. The deck joint shall be replaced in 20'-0 and 22'-0 sections. Adjoining ends of neoprene cells shall be tightly butted together.
2. Maintain one open lane of traffic as shown during construction.
3. The lane under construction shall remain closed until work on all joints on that side is complete.



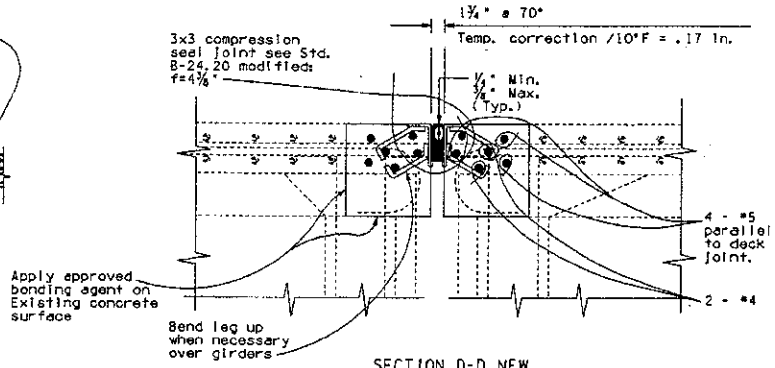
SECTION C-C REMOVAL
Scale: 1" = 1'-0



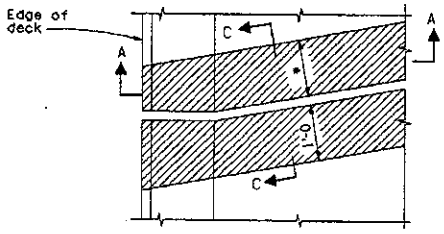
SECTION A-A



SECTION B-B

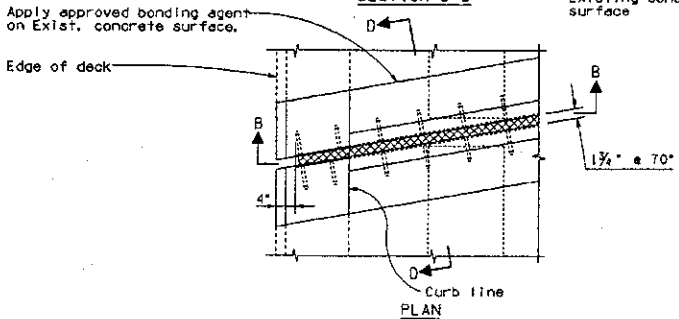


SECTION D-D NEW
Scale: 1½" = 1'-0



* = 1'-0 @ Piers #3, #9, & #12
= 1'-6 @ Pier #6

PLAN
TYPICAL CURB DETAIL-REMOVAL
Scale: 1" = 1'-0



PLAN
TYPICAL CURB DETAIL-NEW
Scale: 1" = 1'-0

A.D.O.T.-STRUCTURES
DO NOT SCALE!

NOTE:

Hatched areas indicate those portions of existing conc. structure to be removed.

Existing reinforcing bars to remain shall be cleaned and incorporated into new concrete.

The Contractor shall take all precautionary measures required to insure that the existing reinforcing steel is not damaged.

		DATE
DESIGN	T. SISLEY	9-91
DESIGN CKD	D. FILLERS	9-91
DRAWN	R. MURRIETA	9-91
DWG CKD	D. FILLERS	9-91
APPROVED-TEAM LEADER	T. SISLEY	9-91
APPROVED-SUPERVISOR	J. Pyne	10-91

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STRUCTURES SECTION
STA. 5519 +
HASSAYAMPA RIVER BR. #1645 & #1646
LOCATION PLAN-JOINT REPLACEMENT

ROUTE	MILEPOST	STRUCTURE NO.	LOCATION
I-10	104.69	1645/1646	HASSAYAMPA RIVER BR. #1645&#1646

BRIDGE ENGINEER
SHEET 2 OF 2

No.	Change this Sheet - As Built	DATE
1		
2		
3		
4		

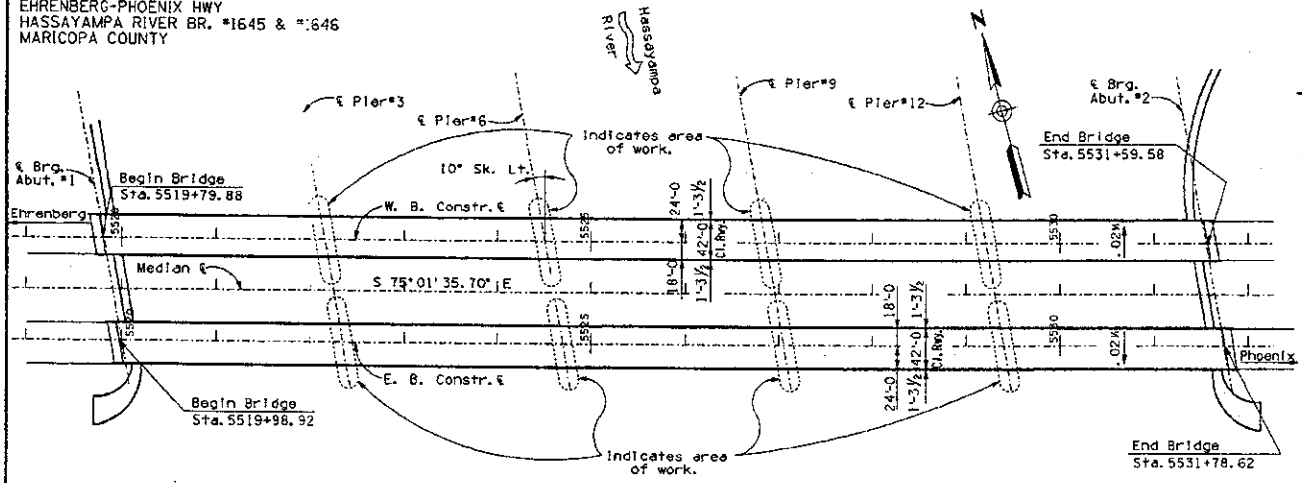
DESCRIPTION OF REVISIONS

ZF1(0510101011645XS.DGN)9
15-OCT-1991 16:52
VIEW NAME: Dr

TRACS NO. H3165 OIC | 7 | I-10-2-513 | 3 OF 3

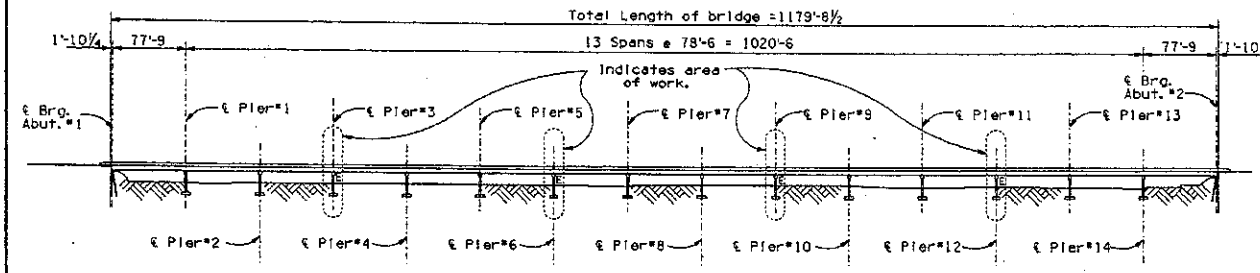
EHRENBERG-PHOENIX HWY
HASSAYAMPA RIVER BR. #1645 & #1646
MARICOPA COUNTY

F.H.W.A. REGION	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	I-10-2-513	2	3	10-14-92
		010 MA 104			



LOCATION PLAN

2-Existing 15 Span Prestressed Concrete Girder Bridges
Skew 10°0'0" Lt.
Scale 1" = 60'-0



TYPICAL ELEVATION

Scale 1" = 60'-0

GENERAL NOTES:

Construction Specification - Arizona Department of Transportation Standard Specifications for Road and Bridge Construction, Edition of 1990.

Design Specifications - AASHTO Standard Specifications for Highway Bridges, Edition of 1989; and the 1990 and 1991 Interim Specifications.

All concrete shall be Class "S" (f'c=3000 psi). Concrete shall attain a minimum compressive strength of 2000 psi in 24 hrs. Traffic may be placed on the new joints anytime after 2000 psi strength is attained.

Reinforcing steel shall conform to ASTM Specification A615. Bar sizes #6 and smaller shall be designed as Grade 40 but may be furnished as Grade 40 or Grade 60 (fs=20,000 psi).

All bend dimensions for reinforcing steel shall be out-to-out of bars. All placement dimensions for reinforcing steel shall be to center of bars unless noted otherwise.

All reinforcing steel shall have 2 inch clear cover unless noted otherwise.

Structural Steel shall conform to ASTM specification A36 unless noted otherwise.

All welding shall conform to the requirements of the AASHTO/American Welding Society Bridge Welding Code. D1.5-88.

Dimensions shall not be scaled from drawings.

Chamfer all exposed corners 3/4" as per Std. B-19.10 unless noted otherwise.

NOTES:

The Contractor shall verify all dimensions in the field prior to fabrication of materials.

All removed material shall be disposed of by the Contractor.

STANDARDS LIST:

Structures Section Standards 1988; B-19.10, B-24.20.

APPROXIMATE QUANTITIES				
JOINT REPLACEMENT	CONCRETE REMOVAL C.Y.	CLASS "S" CONC. f'c = 3000 psi C.Y.	REINF. STEEL LBS.	DECK JOINT ASSEMBLY 3"x3" COMPRESSION SEAL L.F.
TOTALS	27.8	27.8	4240	340
AS-BUILT				

Original Bridge built by Arizona Highway Department in 1974 under Project I-10-2(16).

ADOT-STRUCTURES
DO NOT DESTROY

		DATE
DESIGN	T. SISLEY	9-91
DESIGN CKD	D. FILLERS	9-91
DRAWN	R. MURRIETA	9-91
DWG CKD	D. FILLERS	9-91
APPROVED-TEAM LEADER	T. SISLEY	10-91
APPROVED-SUPERVISOR	J. Fox	10-91

ARIZONA DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STRUCTURES SECTION

STA. 5519 +
HASSAYAMPA RIVER BR. #1645 & #1646
LOCATION PLAN-JOINT REPLACEMENT

I-10	104.69	1645/1646
ROUTE	MILEPOST	STRUCTURE NO.

LOCATION: HASSAYAMPA RIVER BR. #1645&#1646

BRIDGE ENGINEER

SHEET 1 OF 2

NO.	REVISION	DATE	BY
1	No changes this sheet - Re Built	10-92	
2			
3			
4			

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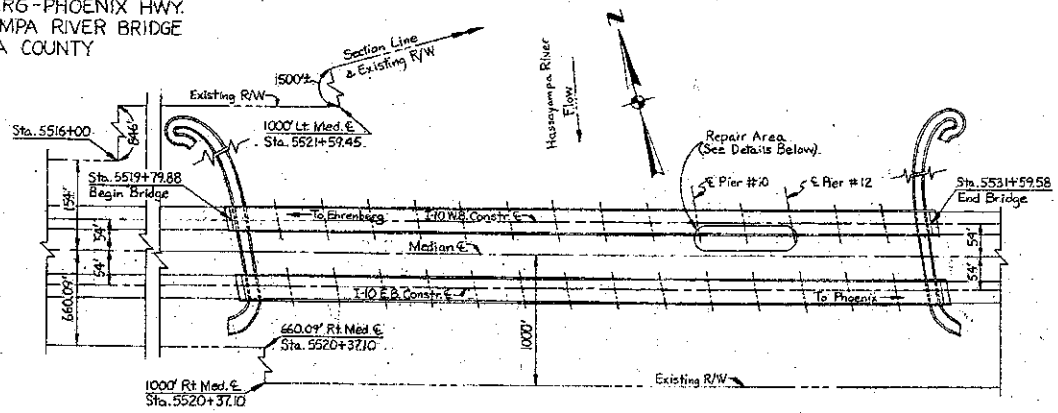
15-OCT-1991 17:18
VIEW NAME:

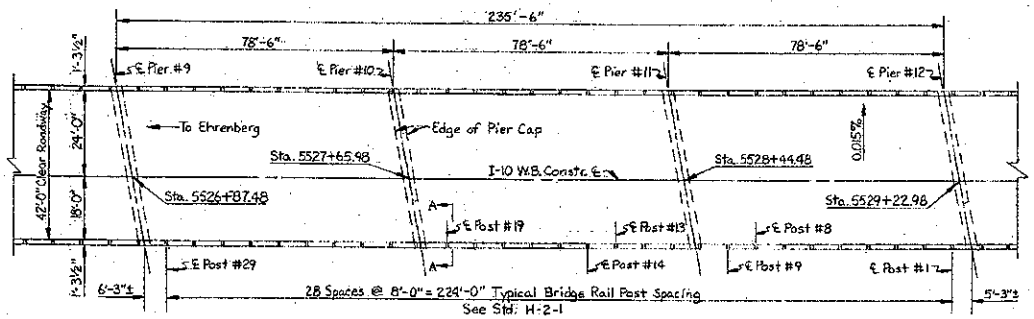
TRACS NO. H3165 010 | 7 | I-10-2-513 | 2 OF 3

HRENBERG-PHOENIX HWY.
HASSAYAMPA RIVER BRIDGE
MARICOPA COUNTY

SHEET NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
2	ARIZONA	I-10-2-910	3	3	10-86 MAR

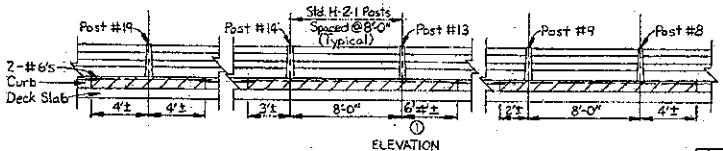


LOCATION PLAN
No Scale



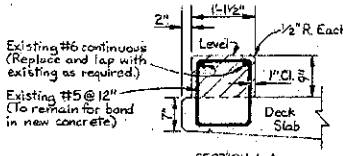
PARTIAL PLAN
WESTBOUND BRIDGE
No Scale

NOTE:
Bridge rail posts are numbered from right to left starting with first post west of Pier #12 center line.



ELEVATION
(SOUTH SIDE OF WESTBOUND BRIDGE)

Curb Concrete to Be Removed & Replaced



SECTION A-A
CURB DETAIL

DOWEL NOTE:
If doweling is required, core 6" deep into deck with 1" ϕ hole for #5 dowel. Epoxy dowel in hole with approved epoxy adhesive. Epoxy anchorage shall develop a tensile strength of 7 Kips. Details of anchorage system shall be submitted to the Engineer for approval prior to installation.

GENERAL NOTES:

Construction — Std. Specs. Arizona Dept. of Transportation Edition of 1982 revised to date.
All concrete shall be class S, f'c = 3,000 psi.
Reinforcing steel shall conform to ASTM Spec. A615, Grade 40 or Grade 60.
All material removed shall be disposed of by the contractor.
Aluminum bridge rail posts, tubes, and fittings to be provided at the project site by ADOT. Post anchorage components shall be provided by the contractor as per Std. H-2-1.
Bridge rail tubes may require cutting to length and drilling for toggle bolts in the field.
Any concrete blackened or stained from accident shall be cleaned as approved by the Engineer.

RAIL POST & CURB REPAIR NOTES:

Sawcut curb ½" deep prior to all concrete removals to create straight and uniform joint between new and existing concrete.
Posts #8, #9, #13 & #14 — Remove curb concrete to limits shown in Elevation view and install new post anchorages. Replace reinforcing steel as necessary; form and place new concrete curb sections.
Post #19 — Remove curb concrete to a distance of 4'± on each side of post; straighten and/or rebuild reinforcing cage; install new post anchorage system; form and place concrete curb (see Dowel Note if doweling is required).
A.D.O.T. has made temporary repairs to the aluminum rail system. Some disassembly and reassembly of the rail may be necessary.

Existing Structure Constructed Under Project I-10-2(16)

		DATE	ARIZONA DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION STRUCTURES SECTION
LAYOUT			
DESIGN	M.W. Dearborn	1-85	
DESIGN CK'D	W.R. Bruesch	1-85	STA. 5527+ HASSAYAMPA RIVER BRIDGE-W.B. SOUTH BRIDGE RAIL & CURB REPAIR
DRAWN	E.G. Dobnaugl	1-85	
DRAWN CK'D	M.W. Dearborn	1-85	
APPROVED	W.R. Bruesch	1-85	

SHEET NO.	OF	ROUTE	MILEPOST	STRUCTURE NO.	PROJECT NUMBER
1		I-10	104.69	1645	I-10-2-910

BRIDGE ENGINEER

114

M.W. 7-178

G. Correspondence

Memorandum WEST Consultants, Inc.

DATE: August 5, 2005

TO: Catherine W. Regester, P.E., Flood Control District of Maricopa County

FROM: Leo Kreymborg, P.E. & Iftekhar Ahmed, Ph.D., P.E., WEST Consultants, Inc.

RE: Response to Catherine W. Regester's June 27 comments on *Draft Hydraulics Report,* Revised Proposed Cross Sections, Bank Stations, and Hydraulic Baseline Submittal of June 16 and July 22 for Lower Hassayampa WCMP

CC: Ted Lehman, P.E., John Fuller, P.E., Hari Sundararaghavan, Ph.D., P.E., JE Fuller Hydrology & Geomorphology, Inc.
Dennis Richards, P.E., D.WRE, WEST Consultants, Inc.

File

Thank you for your July 27 comments on our *Draft Hydraulics Report,* Proposed Cross Sections, Bank Stations, and Hydraulic Baseline submittal of June 16 and June 22 for Lower Hassayampa WCMP. Our responses are given below following your boldfaced comments.

1. **I am still not clear how the heights of the blocked obstructions at the pits were set. How does the channel slope of 0.005 figure into the calculation? Please include a more detailed write-up on page 14 of the *Hydraulics Report,* in the paragraph discussing the blocked obstructions. I think this is a minor point and don't foresee any change in the water surface elevations. I would just like to have this clarified in the report.**

   This issue was further investigated. It was noted that per the ADWR State Standard Attachment 9-02 (ADWR, 2002) titled "Floodplain Hydraulic Modeling," when off-channel pits are expected to store water but not actively convey flow downstream, which is the case in this study, the pits should be modeled as ineffective flow areas in HEC-RAS. Therefore, the blocked obstructions have been taken out of the final HEC-RAS model, and replaced by ineffective flow areas. The State Standard does not mention how the ineffective flow area elevations should be set. The predominant overbank elevation was used for this purpose. In order to set this elevation, the adjacent overbank ground elevations to the right and/or left of the pits were listed in Excel spreadsheet. The average of the adjacent ground elevations was taken as the predominant elevation, and used in HEC-RAS to set the ineffective flow area elevations. The channel slope did not play any role in determining the ineffective flow area elevations. The Excel spreadsheet is included on the CD with cross section ID at pit locations, and overbank station-elevation data adjacent to the pits.

2. **In Table 3-2, Bridge Data, I think it would be helpful to include one more column for the date of the design or as-built plans.**

   An additional column in Table 3-2 showing the As-Built dates has been added. The dates are in month/year format per the As-Builts.

3. **The report says that as-built or design plans were used for modeling the bridges. Didn't we get survey data at the bridges? Please provide the plans or survey data so that the bridge modeling may be verified.**

   A PDF version of the survey notes is included on the CD. Also included with the report are the hard copies of Bridge As-Builts, and MCDOT channel improvement Design Plans for the U.S. 80 Highway Bridge.

4. **In Table 3-5 on page 23 of the *Hydraulics Report*, there is a significant change in the channel 'n' value between the Cella Barr and WEST studies (composited 'n' value) for sections 0.35 to 1.58. Is it likely that there has been a significant growth in vegetation in this area since the Cella Barr study? I would like to try to explain this difference, if possible, and include it in the report.**

   Significant growth in vegetation was noted along the main channel banks in the vicinity of the Old U.S. 80 Highway Bridge based on field observation, and comparison of 2003 Mr. Sid format color aerial photos and photos appearing in Thomsen and Hjalmarson (1991). The Cell Barr (1988) model Manning's *n* values in this reach represent desert brush along the main channel (e.g., Figure 17-E on page 64 of the Thomsen and Hjalmarson report). The 2003 aerial photo (Figure 1) show tall trees and dense vegetation in the vicinity of the Old U.S. 80 Highway Bridge. Dense vegetation follows along the Main channel down to the Gila-Lower Hassayamapa Confluence. Manning's *n* values as high as 0.2 and 0.15 were used at the Gila River, and at locations upstream of the confluence where dense vegetation was noted.

5. **Please revise the paragraph in the *Hydraulics Report* relating to the spill over the US 80 bridge embankment to reflect the latest modeling results. If there is flow over the embankment perhaps we should consider using this flow as the starting discharge for the Right Bank reach.**

   The hydraulic model was revised showing no spill over the U.S. 80 Bridge. The hydraulics report has been updated accordingly.

References

Arizona Department of Water Resources (2002). "Floodplain Hydraulic Modeling." State Standard Attachment 9-02, ADWR Dam Safety Section, Phoenix, AZ.

Thomsen, B.W., and Hjalmarson, H.W. (1991). "Estimated Manning roughness coefficients for stream channels and flood plains in Maricopa County, Arizona." Prepared for the Flood Control District of Maricopa County by the USGS, Tucson, AZ.

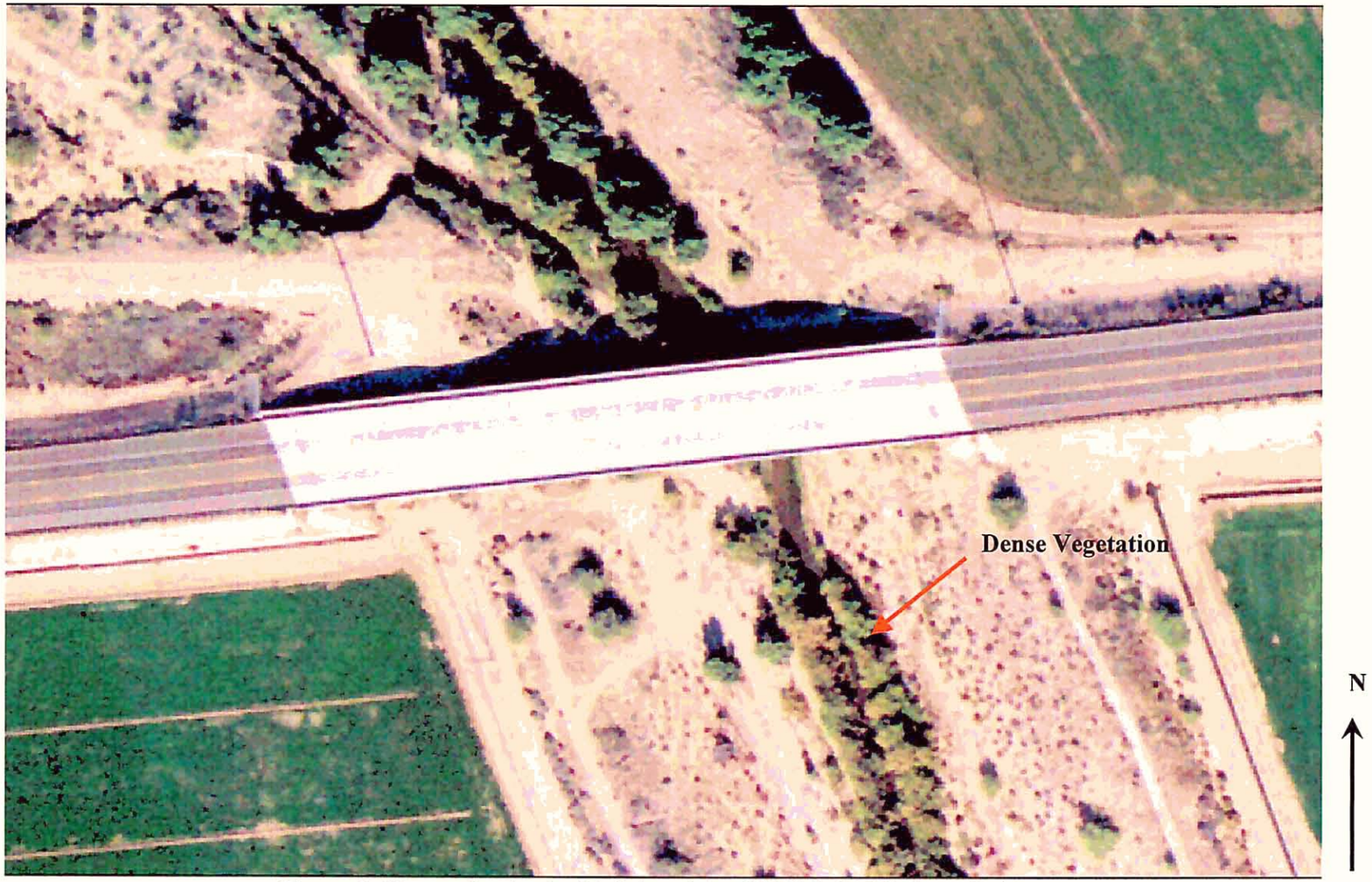


Figure 1. Vegetation in the Vicinity of the Old U.S. 80 Highway Bridge

Flood Control District
of Maricopa County

INTEROFFICE MEMORANDUM

Date: July 27, 2005

To: John Hathaway, PPM

From: Catherine W. Regester, Engineering Division

Subject: Lower Hassayampa WCMP
Draft *Hydraulics Report*
Revised Proposed Cross Sections, Bank Stations, and Hydraulic Baseline
Submittal of June 16 and July 22, 2005

I have completed my review of the subject submittal and have the following questions/comments for the consultant:

1. I am still not clear how the heights of the blocked obstructions at the pits were set. How does the channel slope of 0.005 figure into the calculation? Please include a more detailed write-up on page 14 of the *Hydraulics Report*, in the paragraph discussing the blocked obstructions. I think this is a minor point and don't foresee any change in the water surface elevations. I would just like to have this clarified in the report.

2. In Table 3-2, Bridge Data, I think it would be helpful to include one more column for the date of the design or as-built plans.

3. The report says that as-built or design plans were used for modeling the bridges. Didn't we get survey data at the bridges? Please provide the plans or survey data so that the bridge modeling may be verified.

4. In Table 3-5 on page 23 of the *Hydraulics Report*, there is a significant change in the channel 'n' value between the Cella Barr and WEST studies (composited 'n' value) for sections 0.35 to 1.58. Is it likely that there has been a significant growth in vegetation in this area since the Cella Barr study? I would like to try to explain this difference, if possible, and include it in the report.

5. Please revise the paragraph in the *Hydraulics Report* relating to the spill over the US 80 bridge embankment to reflect the latest modeling results. If there is flow over the embankment perhaps we should consider using this flow as the starting discharge for the Right Bank reach.

cc: Bing Zhao
Jon Fuller
Ted Lehman
Leo Kreymborg
Michael Duncan

2801 West Durango Street Phoenix, Arizona 85009 Phone: 602-506-1501 Fax: 602-506-4601

Memorandum WEST Consultants, Inc.

DATE: June 15, 2005

TO: Catherine W. Regester, P.E., Flood Control District of Maricopa County

FROM: Leo Kreymborg, P.E. & Iftekhar Ahmed, Ph.D., P.E., WEST Consultants, Inc.

RE: Response to Catherine W. Regester's June 2 comments on *Selection of Manning's Roughness Coefficient, HEC-RAS* Proposed Cross Sections, Bank Stations, and Hydraulic Baseline submittal of May 18 for Lower Hassayampa WCMP

CC: Ted Lehman, P.E., John Fuller, P.E., Hari Sundararaghavan, Ph.D., P.E., JE Fuller Hydrology & Geomorphology, Inc.
Dennis Richards, P.E., D.WRE, WEST Consultants, Inc.

File

Thank you for your June 2 comments on our draft *Selection of Manning's Roughness Coefficient, HEC-RAS* Proposed Cross Sections, Bank Stations, and Hydraulic Baseline submittal of May 18 for Lower Hassayampa WCMP. We have revised the hydraulic model for the lower Hassayampa River based on your comments, and our meeting of June 8. Our responses are given below following your boldfaced comments.

1. **From x-sec 25.70 to the upstream limit of the study, the channel bank stations have been moved from the previous submittal from, essentially, the east side of the floodplain to the west side of the floodplain. It is explained that the west side appears to have the deeper channel section and more area for conveyance of the 100-yr flows. I agree that this is what the cross sections indicate. However, in looking at the topography and aerial photos of the upstream area, it appears to me that the tendency of the river would be to direct the majority of flows toward the east bank. Additionally, the lower 'n' value areas (0.028) are found on the east side of the channel. ('n' = 0.035 in the area currently identified as channel.) I'm wondering if the west side is looking like the larger conveyance area due to the cross section orientation.**

   We agree, and have moved the hydraulic baseline (the thalweg or 10,000 line) close to the east bank in this upstream study reach to capture the natural course of the river main channel along the sandy (low Manning's *n*) bottom.

2. **The majority of the model does not break the 'n' values at the channel bank stations. I have seen in previous versions of HEC-RAS where having a break, even if the 'n' value does not change, can make a difference in the calculations. Does this impact any of the calculations in this study.**

We ran a test where we introduced break in Manning's *n* at bank stations for a few selected cross sections. We did not see any change in the water surface elevations compared with no break conditions. The calculation in HEC-RAS is not impacted in this study for not having *n* value breaks at the channel bank stations.

3. **At cross section 24.87, the 'n' values are not consistent with the upstream and downstream cross sections.**

   This has been fixed in the current model.

4. **From x-sec 22.78 to 23.35, the main channel stationing includes what appears to be a small channel which may carry drainage from some of the east side tributaries. The small channel is identified as the thalweg and 10,000 station; and, is located within a 0.035 'n' value area. I am questioning whether this small channel and the 0.035 'n' value area between it and the sandy bottom channel should have been included in the HEC-RAS main channel stationing.**

   We have moved the hydraulic baseline (the thalweg or the 10,000 line) closer to the right bank in this reach to maintain main channel definition. The left bank stations (23.54 through 22.69) have been moved in, and the right bank stations (23.07 through 22.03) have been moved out to maintain consistency.

5. **From x-sec 22.21 to 23.45, the main channel stationing is shown on the east side of floodplain. From the HEC-RAS cross sections. I am wondering if the cross section orientation in this area is the reason that it appears that the channel flows should be shown in the in the 0.028 and east side, smaller, 0.025 'n' value area rather than that on the west side. Additionally, the original submittal showed an 0.035 'n' value "island" area. However, the area seems to have changed to an 0.025 and 0.028 'n' value. Is this correct?**

   The Manning's *n* value of 0.035 reported in the original submittal was in error. We have re-oriented cross sections 22.31 through 22.97 to capture the sandy portions of the channel within the left and right bank stations on either side of the island. In the original submittal we had used HEC-GeoRAS to pick up Manning's *n* values from polygons developed in ArcViewGIS. However, in case of very small gaps between polygons, HEC-GeoRAS can record erroneous Manning's *n* values, which is what we suspect to have happened in the original submittal. We have developed scripts to resolve this problem outside HEC-GeoRAS, and correct Manning's *n* values have been incorporated in the current hydraulic model.

6. **X-Sec 19.19 to 19.66: Please check the right bank station locations.**

   We noted that the right bank stations at cross section numbers 19.09 and 19.00 were misaligned with those upstream and downstream. The right bank stations for these two cross sections have been moved out to preserve a gradual change in main channel definition.

7. **X-Sec 18.71 to 18.81: Please check the left and right bank station locations. They do not appear to be consistent with the upstream and downstream cross sections.**

   The left bank stations at cross section numbers 18.62, 18.71, and 18.81 have been moved out to capture the sandy portion to the east of the island in this area. Consistency is maintained with bank stations upstream and downstream.

8. **X-Sec 16.16 and 17.20: There is an abrupt change in the main channel definition between these two sections and the adjoining downstream section.**

   At cross sections upstream of cross section 17.01, the left bank stations have been moved in to maintain main channel definition down to cross section number 16.16. The right bank stations at 16.44 and 16.35 have been moved out while the right bank stations at 15.87, 15.78, and 15.68 have been moved in to maintain main channel definition downstream.

9. **X-Sec 11.62 to 12.75: The left channel definition changes in this reach.**

   The left bank stations at cross sections 12.75 through 11.33 have been moved out to represent proper left channel definition in the vicinity of the pits.

10. **X-Sec 7.37 to 8.03: Appears that left channel banks may need to move in somewhat.**

    Per our June 8 telephone conversation with you, we have left the bank stations as is in this reach of the river.

11. **Document how heights of blocked obstructions were determined.**

    The blocked obstructions at the pits upstream of Interstate-10 were used to represent dead storage. It was assumed that water will spill over once the pits are filled with water. Therefore, the most efficient way to define the blocked obstruction height was to confer to the channel slope between the cross sections upstream and downstream of the pit locations. A uniform slope of 0.005 was used to define the blocked obstruction heights. The elevations have been revised versus the last submittal.

12. **Is there a spreadsheet with the composite 'n' value calculations?**

    We have used method described in Chow (1959) to composite the Manning's *n* values. We have generated a log text file showing results of calculations. The sample below shows the wetted perimeters for water sub-areas at cross section number 14.27, and the corresponding base Manning's *n* values. The "Logcomp.txt" file is included on the CD for this submittal. The formula used is given in the Manning's *n* report.

"River=1 Reach=1, Sec=14.27 Left Bank=9215.500000, RightBank=10143.160000:
From station 9215.500000 to 10143.160000, wetted perimeters and n-values are
Perimeter: 89.838180 , n-value=0.035000, p/n=2566.805156
Perimeter: 236.102849 , n-value=0.025000, p/n=9444.113959
Perimeter: 403.446306 , n-value=0.028000, p/n=14408.796659
Perimeter: 196.428451 , n-value=0.025000, p/n=7857.138059
Perimeter: 4.632953 , n-value=0.035000, p/n=132.370098
Sum of p/n: 34409.223930
Total perimeter: 930.448741
Composite n = Total perimeter / (Sum of p/n) = 0.027041"

13. **For the right overbank lateral weir, at river station 1.55, the elevation of the weir at section 1.49 is given as 826.66. At river station 1.45, the elevation of the weir is given as 826.04. From the cross section plot, it appears that 826.04 is correct. Please check.**

    This was an error and has been fixed.

14. **Please provide justification for the selection of the weir coefficient (C) in the lateral weir calculations. Generally, the District uses Hager's Equation. I can supply an Excel spreadsheet for calculating C using Hager's Equation, if requested.**

    We developed a spreadsheet to compute side weir discharge coefficients based on Hager's (1987) method reported by Davis & Holley (1988). Hager (1987) derived an analytical function which can be used to convert a discharge coefficient for a normal weir transverse to the direction of flow in the main channel into a discharge coefficient for the same weir used as a side weir. Our calculations suggest an average weir discharge coefficient of 2.0 along the bermed reaches upstream (left overbank) and downstream (left and right overbank) of the old U.S. 80 Highway Bridge. The spreadsheet is included on the CD.

15. **The 'n' value report discusses a *HEC-6T* analysis. I believe this should be *HEC-6*.**

    Yes, it should be *HEC-6* for this project. We have corrected this and the Manning's *n* report is included on the CD.

Additional Changes to the model not addressed in the comments:

Additional changes discussed below were made to the model to capture flows in the sandy areas and maintain consistency in main channel definition. If you prefer the previous definition in some reaches of the river, please advise.

1. The 3-mile reach starting at cross section 24.30 up to the upstream model boundary is heavily braided. As mentioned in the response to Comment number 1 above, the hydraulic baseline was relocated close to the east (left) bank to capture the natural course of the channel from cross section 25.81 to the upstream model boundary. To capture the significant flow in the local inflow channel that enters the model boundary in the northwest (channel right), the bank stations were widened in this reach. The main channel definition was maintained downstream of the CAP canal, between cross sections and 25.24 and 24.20, by moving the left bank stations out. The sandy portion at either side of the island downstream of the CAP canal has been captured.

2. Cross sections 26.29, 26.19, and 26.10 were re-cut as the originals appeared crooked with the new hydraulic baseline (these were not discussed in your comments or the June 8 meeting). The revised cross sections were doglegged in the sandy portion of the channel.

3. As mentioned in response to comment number 5 above, we have re-oriented cross sections 22.31 through 22.97 to capture the sandy portions of the channel within the left and right bank stations on either side of the island in this reach. Upstream of 22.97 the main channel narrows within the sandy portion. Here, the left bank stations were moved in to capture the sandy portions and maintain contraction and expansion in the upstream and downstream, respectively.

4. Upstream of the Interstate-10 Bridges, the main channel bank stations have been widened up to the pit locations to capture flow east of the sandy bottom. A flow split occurs at 14.08 (with visible island in the channel) and continues downstream with significant flow in the channel close to the east bank. In order to maintain main channel definition, bank stations were adjusted down to the Interstate-10 Bridge.

References

Chow, V.T. (1959). *Open Channel Flow.* McGraw-Hill, New York, NY.

Hager, W.H. (1987). Lateral Outflow Over Side Weirs. *Journal of Hydraulic Engineering,* ASCE, 113(4), 491-504.

Davis, J.E., and E.R. Holley (1988). Modeling Side-Weir Diversions for Flood Control. *Hydraulic Engineering, Proceedings of the 1988 ASCE National Conference,* Colorado Springs, CO.

Flood Control District
of Maricopa County

INTEROFFICE MEMORANDUM

Date: June 2, 2005

To: John Hathaway, PPM

From: Catherine W. Regester, Engineering Division

Subject: Lower Hassayampa WCMP
Draft *Selection of Manning's Roughness Coefficient*
Proposed Cross Sections, Bank Stations, and Hydraulic Baseline
Submittal of May 18, 2005

I have completed my review of the subject submittal and have the following questions/comments for discussion:

1. From x-sec 25.70 to the upstream limit of the study, the channel bank stations have been moved from the previous submittal from, essentially, the east side of the floodplain to the west side of the floodplain. It is explained that the west side appears to have the deeper channel section and more area for conveyance of the 100-yr flows. I agree that this is what the cross sections indicate. However, in looking at the topography and aerial photos of the upstream area, it appears to me that the tendency of the river would be to direct the majority of flows toward the east bank. Additionally, the lower 'n' value areas (0.028) are found on the east side of the channel. ('n' = 0.035 in the area currently identified as channel.) I'm wondering if the west side is looking like the larger conveyance area due to the cross section orientation.

2. The majority of the model does not break the 'n' values at the channel bank stations. I have seen in previous versions of HEC-RAS where having a break, even if the 'n' value does not change, can make a difference in the calculations. Does this impact any of the calculations in this study.

3. At cross section 24.87, the 'n' values are not consistent with the upstream and downstream cross sections.

4. From x-sec 22.78 to 23.35, the main channel stationing includes what appears to be a small channel which may carry drainage from some of the east side tributaries. The small channel is identified as the thalweg and 10,000 station; and, is located within a 0.035 'n' value area. I am questioning whether this small channel and the 0.035 'n' value area between it and the sandy bottom channel should have been included in the HEC-RAS main channel stationing.

2801 West Durango Street Phoenix, Arizona 85009 Phone: 602-506-1501 Fax: 602-506-4601

5. From x-sec 22.21 to 23.45, the main channel stationing is shown on the east side of floodplain. From the HEC-RAS cross sections. I am wondering if the cross section orientation in this area is the reason that it appears that the channel flows should be shown in the in the 0.028 and east side, smaller, 0.025 'n' value area rather than that on the west side. Additionally, the original submittal showed an 0.035 'n' value "island" area. However, the area seems to have changed to an 0.025 and 0.028 'n' value. Is this correct?

6. X-Sec 19.19 to 19.66: Please check the right bank station locations.

7. X-Sec 18.71 to 18.81: Please check the left and right bank station locations. They do not appear to be consistent with the upstream and downstream cross sections.

8. X-Sec 16.16 and 17.20: There is an abrupt change in the main channel definition between these two sections and the adjoining downstream section.

9. X-Sec 11.62 to 12.75: The left channel definition changes in this reach.

10. X-Sec 7.37 to 8.03: Appears that left channel banks may need to move in somewhat.

11. Document how heights of blocked obstructions were determined.

12. Is there a spreadsheet with the composite 'n' value calculations?

13. For the right overbank lateral weir, at river station 1.55, the elevation of the weir at section 1.49 is given as 826.66. At river station 1.45, the elevation of the weir is given as 826.04. From the cross section plot, it appears that 826.04 is correct. Please check.

14. Please provide justification for the selection of the weir coefficient (C) in the lateral weir calculations. Generally, the District uses Hager's Equation. I can supply an Excel spreadsheet for calculating C using Hager's Equation, if requested.

15. The 'n' value report discusses a *HEC-6T* analysis. I believe this should be *HEC-6*.

cc: Bing Zhao
Jon Fuller
Ted Lehman
Leo Kreymborg

Memorandum WEST Consultants, Inc.

DATE: May 18, 2005

TO: Ted Lehman, P.E. & Hari Sundararaghavan, Ph.D., P.E., JE Fuller

FROM: Leo Kreymborg, P.E. & Iftekhar Ahmed, Ph.D., P.E., WEST

RE: Response to JE Fuller comments on the draft hydraulic model for LHWCMP

CC: File

Thank you for your May 2 comments on the draft HEC-RAS hydraulic model for LHWCMP. We have revised the draft hydraulic model for the lower Hassayampa River based on your comments. Our responses are given below following your boldfaced comments.

1) **Flow optimization does not converge. Is there a way to achieve convergence? If not, can we estimate the amount of error resulting from the failure to converge?**

   We have recently discussed this as part of the changes summarized in the May 11, 2005 memo sent to Cathy Regester, P.E. of the Flood Control District of Maricopa County.

2) **River mile station numbers must be set based on the distance along the centerline. It appears the FIS model numbers are used even though the cross-section cutlines are not the same. As I recall we decided go with this approach to make comparison to the effective FIS model easier, correct?**

   Correct.

3) **XS 27.610, 27.43, 8.03 – Block obstruction must be used rather than the ineffective flow in the left side.**

   The left sides of XS 27.610, 27.43, 8.03 have been trimmed to avoid improper use of ineffective flow areas.

4) **XS 23.350 – The cutline must be extended to the right to contain the flow**

   The cutline has been extended to the right to contain flow.

5) **XS 13.610, 13.510 – Block obstruction must be used to block the gravel pits. Presently, the pits convey flow.**

   Blocked obstruction has been added at XS 13.51.

6) **XS 11.09 – Should the bridges be modeled as 1 bridge? Would this be better from hydraulics point of view?**

   It makes little difference hydraulically. We have kept the bridges separate for this review.

7) **XS 23.07, 27.78 – Right bank station may be moved a little to the right side.**

   Bank stations have been adjusted for the 3 reaches. The changes accommodate your suggestions where hydraulically possible.

8) **XS 4.82, 24.30 – Bank Stations may need to moved to widen main channel**

   Bank stations have been adjusted for the 3 reaches. The changes accommodate your suggestions where hydraulically possible.

9) **Reaches 2 and 3 – The distance between the bank stations are probably too large. Adjust the bank stations to match regime width.**

   Bank stations in reaches 2 and 3 were moved out to the cross-section limits since "banks" have no real meaning in this area.

10) **XS 26.1, 26.0, 25.9, 23.73, 23.63, 23.45, 21.93 21.65, 17.39, 16.44, 16.35, 14.83, 11.62, 7.28 and 3.25 – Bank station located near thalwegs may be moved to a higher elevation – preferably match the height at the other side.**

    Bank stations have been adjusted for the 3 reaches. The changes accommodate your suggestions where hydraulically possible.

11) **Ineffective areas from XS 24.87 to 26.38 – Are these needed?**

    The ineffective areas were taken out.

12) **XS 18.71 – Flow widens rapidly from XS 18.81 in the left side of the XS. It is necessary to adjust ineffective areas**

    The ineffective areas have been adjusted.

13) **XS 6.99 – Ineffective area location at the left side may be adjusted so that it is consistent with the upstream and downstream cross-sections.**

    The ineffective areas have been adjusted.

14) **Left Ineffective Area location seen on top of aerials jumps abruptly between XS 0.59 to 0.63. The ineffective areas need to be moved to get a more gradual transition.**

The transition has been smoothed out somewhat.

15) **Ineffective flow area may be needed on the right side near XS 23.15 to 23.54**

Ineffective flow area has been added on the right side of XS 23.35. Additional ineffective flow areas were not necessary since there exists no physical obstruction or tributary flows.

16) **Ineffective flow area may be needed on the right side near XS 16.91 to 17.1**

Additional ineffective flow areas were not necessary since there exists no physical obstruction or tributary flows.

17) **Ineffective flow area may be needed on the right side near XS 14.55 to 15.02**

The ineffective areas have been adjusted.

18) **Use Block obstructions rather than ineffective areas to block gravel pit between XS 12.37 to 12.85.**

Blocked obstructions were used.

19) **Value of manning's n seems high at XS 0.82 to 1.39 in the main channel. Check if it is alright.**

You may be looking at the composited-n model. In the non-composited-n model, there are very high n-values (0.15) adjacent to the channel due to "Extremely Dense Vegetation" in those areas. When the sandy channel was not visible from the aerial photograph due to the vegetation, this 0.15 n-value region goes right across the thalweg. In the composited n-value model, the 0.15 n-value areas raise the composited n-value significantly.

20) **Only 1 cfs is specified at XS 2.57 in Reach 3 and 3.97 in Reach 2 – Is this reasonable? Isn't there a flow split?**

Because the flow from these reaches is due to spillover from the main channel, the upstream cross-section in each reach is expected to have no flow, and essentially be in a backwater condition. A very low cfs was specified to prevent HEC-RAS from crashing.

21) **There are big jumps in effective manning's n and top width values in Reach 2 between XS 1.07 to 1.11. Check the manning's n values and ineffective limits in these cross-sections.**

This is due to the inadequacy of a 1-dimensional model for this reach. There is some discussion of this the 11 May memo to Cathy Regester.

22) **Reach 2; XS 3.910 – Critical depth is located at thalwegs? Why is it like this?**

The critical depth is low because of the 1 cfs specified at this cross-section; HEC-RAS is calculating the critical depth for 1 cfs.

23) **Reach 3; XS 2.57 – Thalweg is not located between the bank stations. The bank stations may be moved to avoid this.**

Bank stations have been updated.

24) **XS 26.95 – The bank stations may be moved so that there is flow consistency in the left overbank in this region.**

Bank stations have been adjusted for the 3 reaches. The changes accommodate your suggestions where hydraulically possible.

25) **XS 20.8 and 23.07 – The left bank station may be moved a little to the left.**

Bank stations have been adjusted for the 3 reaches. The changes accommodate your suggestions where hydraulically possible.

26) **XS 20.32, 19.66 and 18.9 - The left bank station may be moved a little to the right.**

Bank stations have been adjusted for the 3 reaches. The changes accommodate your suggestions where hydraulically possible.

27) **Ineffective areas are needed upstream of XS 15.97.**

Ineffective areas have been added.

28) **The left ineffective area may be moved to the right at XS 11.09.**

Ineffective areas have been adjusted.

29) **XS 27.04 and 27.89. It appears that the main channel is on the right side of the cross-section rather than the left. The bank stations and the centerline may be moved to the right.**

We have relocated the thalweg. Bank stations have been adjusted for the 3 reaches. The changes accommodate your suggestions where hydraulically possible. The relevant changes were summarized in the May 11, 2005 memo sent to Cathy Regester, P.E. of the Flood Control District of Maricopa County.

30) **XS 21.74 - The right bank station may be moved to the left.**

Bank stations have been adjusted for the 3 reaches. The changes accommodate your suggestions where hydraulically possible.

31) **Ineffective areas may be added at the right of XS 6.71 and 15.4.**

Ineffective flow areas have been added and adjusted.

32) **The ineffective area may be moved to the right at XS 12.85.**

Blocked obstruction was introduced at this pit location.

33) **The ineffective area may be moved to the left at XS 9.74.**

Ineffective flow areas have been adjusted to represent gradual contraction and expansion.

34) **A more gradual transition of the ineffective area is needed between XS 2.78 and 3.06. Ineffective area needs to be added at XS 3.06.**

Ineffective flow areas have been added and adjusted.

35) **XS 22.31 to XS 22.85 – The centerline may need to be shifted to left as most of the flow is on the left side.**

This has been corrected by adjusting bank stations and thalweg location.

36) **Lateral weir at locations 0.95 to 2.55 at the left overbank should flow into the right overbank of Reach 2. Presently, it is flowing into the left overbank.**

When this change is made in HEC-RAS, the change does not save with the geometry file. In any case, the side into which the flow goes has no real meaning in a 1-D model.

37) **In some cross-sections the weir height is below the ground elevation. Is it needed to make the weir elevation a tiny bit higher than the adjacent ground elevation?**

The weir heights are now set to be the highest elevation on the left (or right) side of the upstream and downstream bounding cross-sections. Re-cutting the cross-sections from the new TIN had the effect of raising the weir heights slightly.

38) **At some cross-sections, the weir does not extend entirely between cross-sections. Is it better to a tiny weir on top of the ground elevation for the part without weir?**

The small errors were corrected so weirs extend entirely between cross-sections.

39) **Smaller event flows may be added based on scope of work.**

No response required.

40) **The selection of bank station locations is frequently curious. We need to discuss the criteria we want to use for selection of bank station locations. Look at the LB stations at RM 26.85 – 26.38 and bank stations for RM 26.19 – 25.43, 24.2 - 20.0, and 18.81-18.14 for examples of places where we have questions.**

Bank stations have been adjusted for the 3 reaches. The changes accommodate your suggestions where hydraulically possible.

41) **The use of the thalweg as defined presents some unexpected juxtapositions when looking through the profile data, such as bank stations at the thalweg elevation, etc. We will need to have good clear explanations in the report to avoid criticism of some of these apparent "problems".**

The thalweg was chosen in the conventional manner and has been revised. The relevant changes were summarized in the May 11, 2005 memo sent to Cathy Regester, P.E. of the Flood Control District of Maricopa County.

42) **There is a big rise in the WSE for a reach upstream of Old US 80. Why is this?**

I assume you mean from cross-section 2.78 to 2.72. If you overlay cross-sections 2.72 and the next downstream section, 2.66, onto each other you can see that 2.66 is considerably lower and is also wider than 2.72, although it is only 338 feet downstream. In the latest model (May 17) model, the critical depth at 2.66 is about 4.5 feet lower than at 2.72. The sudden drop/expansion accounts for the flow going critical at 2.72 (HEC-RAS reports no valid subcritical solution). Up at 2.78, meanwhile, the profile is returning to a subcritical profile, thus the sudden rise in water surface elevation. From the perspective of floodplain inundation upstream of the bridge, it may be advisable to add another cross section between 2.78 and 2.72.

43) Again, are we sure the bridge data for Old US 80 reflect the most recent modifications (i.e. late this past fall)?

Yes, the bridge data was verified against As-Builts and recent scour retrofit design plans obtained from the Maricopa County Department of Transportation.

44) The ineffective flow elevations seem a little too high at Old US 80. If flow can go over the roadway into the ROB, at some lesser depth it would seem like the area would begin to flow effectively. Comparison with the upstream WSE at 2.660 and the high weir elevation at 2.65 D/S show the WSE 0.8 ft above the weir. Should this flow be effective? (about 560 cfs if effective)

We have recut the bounding cross-sections upstream and downstream so they capture the top of the road on the right overbank. Also, we have removed the ineffective flow areas on the right side to allow flow over the embankment. HEC-RAS now reports about 280 cfs over the right embankment at the 100-year event. Note that this goes into reach 1 downstream, when it really should go into reach 3. However, it is probably better to allow the conveyance and put the flow back in the channel rather than disallow it with an ineffective flow area.

45) Why are there n values for some segments carried out to 6 significant digits? (e.g. RM 9.17)

These values are composited. The uncomposited version of the model does not have them.

46) Where do the channel low n values come from for RM 1.72? Similarly, at RM 1.58, the bare dirt road surely has a low n-value, but does the entire reach represented by this cross section? Probably not.

The n-values at this cross-section were modified to be representative of the reach and not the exact roughness at the road crossing.

47) The model reports a negative weir flow at RM 3.6. Is this possible?

Yes, reverse flow from either reach 2 or 3 into the main channel is possible.

48) The cross section orientation in the Reach 2 model seems unnecessarily complex. Consider realignment of these sections.

These were realigned for May 11, 2005 submittal.

49) What are the rational for the "half weirs" in some of the lateral structures? (e.g. RM 3.0)

The original submittal had small differences in some cases between the lateral weir lengths and the overbank reach lengths. However, the weirs now extend completely between cross sections.

Additional Changes to the model not addressed in the comments:

1. The lateral structures at 1.54 and 1.63 were modified to account for the road crossing.

2. A "notch" was put in the lateral structure at 3.40 to account for a drainage channel which flows into the Hassayampa, essentially causing a break in the left levee. This notch results in 3,000 – 5,000 more cfs in the left overbank. The ineffective flow areas were modified to take into account the modified floodplain. The hydraulic baseline was shifted slightly as well.

To: Cathy Regester, Flood Control District of Maricopa County
Cc: Ted Lehman, JE Fuller Hydrology & Geomorphology
From: Leo Kreymborg
Re: Lower Hassayampa HEC-RAS model
Date: May 11, 2005

Cathy,

Here is, for your review:

(1) The HEC-RAS model for the Lower Hassayampa, cut from the latest topography. Two versions of the model are included: g44 has the original n-values, and g45 has n-values composited at certain sections.
(2) A plot of the cross-sections, the 100-year floodplain (automatically generated from HEC-GeoRAS; has not been cleaned up for stray polygons, etc), the bank stations, and the ineffective flow limits at each cross section.
(3) The Manning n-value report.

Notes:

(1) I recut the sections based on the breakline and mass point topography (I had used contours and masspoints for old datasets). The most significant impact this had is that it tended to make the tops of the berms higher, by about 0.5 foot to 1 foot I would estimate on average. It turns out this makes a difference retaining water in the channel—more is retained now versus the previous model. This shows that the model is sensitive to the heights of the berms and how they are modeled.

(2) I recut the cross-sections that you commented on in your 2004 review of the preliminary model, and changed some others as well.

(3) I asked you last year if we should use the thalweg line or the centroid between the channel banks to determine the hydraulic baseline. You indicated that you preferred the centroid. After careful consideration, I decided to revert to the traditional approach which is to use the thalweg. There were two reasons for this (a) the centroid depends on the bank stations, and every time I moved the bank stations, the centroid moved. If JE Fuller subsequently moves that bank stations, then the centroid will again be in the wrong place, (b) I figured that if this model was ever to be used as the basis of an FIS, it would be better to have the thalweg as the baseline, per FCD guidelines. Using the thalweg means of course that the baseline and the cross-sections are not as perpendicular. Both Ted Lehman and yourself expressed a desire that there shouldn't be tons of doglegs in the sections, so I tended to avoid them.

(4) Determination of the baseline was tricky in some cases, due the very braided nature of the stream. Often there are multiple candidates for the thalweg, and

these can parallel each other for a mile or more. Sometimes one is lower, sometimes the other. Also, the thalweg may not actually be in the sandy (low n-value portion) of the channel in every case, although it is most of the time it is. Notably, at the upstream limit of the model, the thalweg line doesn't go through the sandy / smoother part of the channel. I originally had the thalweg on left side of the channel (my previous submittal), but Ted Lehman noticed that the channel is really deeper on the right, and also the region on the right is larger and would carry more flow in the 100-year event, so I moved it. I also did not follow every hook and turn of the thalweg, I thought this would make it too sinuous and lead to unrealistically long reach lengths, so sometimes I cut corners where the thalweg is moving side to side a lot. We can change this to follow the exact thalweg if you wish.

(5) The overall length of our baseline from 0.35 to 27.61 (1st and last common sections) is 142,190 feet versus 143,950 in the Cella-Barr model, about 1,760 feet shorter in the new model, or about 1.2% shorter.

(6) I have not overlaid the original cross-sections on these plots; do you want the plots to have the cross-sections overlaid?

(7) Manning n values in the channel were composited outside of HEC-RAS where HEC-RAS was trying to composite the original values. This is discussed in the Manning n value report. We composited the Manning n in the channel for numerous cross sections, the sections are easily recognized because they have the n-value to 5 or 6 decimal places.

(8) The plan file that you should review uses the composited n-value geometry (p24 and g48) in locations where the HEC-RAS composited the n-values from the original geometry (g47).

(9) Some cross-sections report "cannot balance the energy equation." The majority of these cross-sections also report that there is no subcritical solution; examination of these sections by interpolation, etc. shows that indeed the flow should be supercritical at these sections (the run was subcritical), or alternately there is some subcritical/supercritical transition very near the section. Four cross-sections report "cannot balance" without reporting that there is no subcritical solution: 5.76, 8.03 24.96 and 25.06; Examination of these cross-sections also shows that the results there are either very near critical depth or at critical depth regardless of what is done nearby (e.g additional or interpolated cross-sections), even when HEC-RAS is able to balance the energy equation. Supercritical/subcritical transitions or critical depth results sometimes crop up near these cross-sections regardless of how many cross-sections are cut.

(10) The overflow into the overbanks in the last few miles of the reach, where there are berms in place, are handled using lateral weirs. The overbanks are

then handled as separate reaches. Because of the lateral weirs, an iterative solution is required, and HEC-RAS complains that it does not converge, even after 30 or 60 iterations. However, the 60-iteration solution water surfaces have the same elevations (within 0.01 feet) as the 30-iteration solution at every cross section, also the discharges are within 1 cfs, so I think it's close enough to convergence.

(11) I still need to modify the lateral weirs in a couple of places where they are more open that what is shown the model (a road crossing across the main channel which lowers the tops of the berms by 2 feet or so, and a place on the left bank upstream of the US80 where there is an opening in the berm for a drainage ditch). However, I wanted to get what I had to you without further delay.

(12) The downstream boundary condition for the reaches are based on the 10-year flood run using the Dames & Moore Gila River model.

(13) The most upstream cross-sections of the overbank reaches (reach 2 on the left and reach 3 on the right) each start with 1 cfs. The reasons I didn't put any additional flow into these sections is that this flow gets added to the total discharge, and both the total flow and the optimization would be wrong if I put anything significant in there; in addition any hard-coded discharge would only work for a particular incoming discharge upstream and I wanted it to work for a range of discharges. Therefore I need to start with some discharge that was very low. I could, however, put a couple of dummy sections upstream of these sections. That will have almost impact on the floodplains, since those upstream sections are in a backwater condition in the current model; it might provide a little more conveyance in that 1st cross-section in each of the overbanks, thus draining the main channel a little sooner.

(14) The situation in the left overbank cannot really be modeled well using a 1-dimensional model, because the flow direction cannot be easily determined. If you look at the floodplain map, you see a large gap in the floodplain at about river mile 1.0. What is happening is that some of the farm fields are quite a bit higher than the others, you can see this on the contours. The placement I have of ineffective flow areas is probably quite consvervative i.e. flow would be effective in more regions, and it would not necessarily flow perpendicular to the sections in many places).

(15) The downstream few cross-sections on the left bank do not currently contain the floodplain. I will extend them; this will not affect the hydraulics as that area is ineffective flow.

To: Cathy Regester, Flood Control District of Maricopa County
Cc: Ted Lehman, JE Fuller Hydrology & Geomorphology
From: Leo Kreymborg
Re: Lower Hassayampa HEC-RAS model
Date: April 19, 2005

Cathy,

Here is, for your review:

(1) The HEC-RAS model for the Lower Hassayampa, cut from the latest topography. Two versions of the model are included: g24 has the original n-values, and g26 has n-values composited at certain sections.
(2) A plot of the cross-sections, the 100-year floodplain (automatically generated from HEC-GeoRAS; has not been cleaned up for stray polygons, etc), the bank stations, and the ineffective flow limits at each cross section.
(3) The Manning n-value report.

Notes:

(1) We recut the cross-sections that you commented on in your 2004 review of the preliminary model, and changed some others as well.

(2) I asked you last year if we should use the thalweg line or the centroid between the channel banks to determine the hydraulic baseline. You indicated that you preferred the centroid. After careful consideration, I decided to revert to the traditional approach which is to use the thalweg. There were two reasons for this (a) the centroid depends on the bank stations, and every time I moved the bank stations, the centroid moved. If JE Fuller subsequently moves that bank stations, then the centroid will again be in the wrong place, (b) I figured that if this model was ever to be used as the basis of an FIS, it would be better to have the thalweg as the baseline, per FCD guidelines. Using the thalweg means of course that the baseline and the cross-sections are not as perpendicular; the cross-sections are cut with our best guess to over perpendicularity. Both Ted Lehman and yourself expressed a desire that there shouldn't be tons of doglegs in the sections, so I tended to avoid them. The overall length of our baseline from 0.35 to 27.61 (1st and last common sections) is 143,444 feet versus 143,950 in the Cella-Barr model, 506 feet apart, which quite close. The location of the baseline is often very different but the overall length is close.

(3) I have not overlaid the original cross-sections on these plots; do you want the plots to have the cross-sections overlaid?

(4) The most downstream cross-section of the left overbank reach (Reach 2) runs out of topography at the left limit; this is an ineffective flow area anyway. I think all the other cross-sections in the model contain the 100-year flood.

(5) (5) Manning n values in the channel were composited outside of HEC-RAS where HEC-RAS was trying to composite the original values. This is discussed in the Manning n value report. We composited the Manning n in the channel for the following cross sections, this list is not included in the Manning n-value report:

0.82
1.2
1.58
1.72
2.87
3.15
3.34
3.63
4
4.01
4.72
7.28
7.84
8.7
8.89
8.98
9.08
9.17
10.31
11.33
12.18
12.37
13.23
13.89
14.73
15.02
16.82
16.91
17.58
19.75
20.32
20.42
21.84
22.5
23.16
24.58

24.68
25.34
25.62

(6) The ground profile beneath the US-80 bridge needs to be changed a little (at cross-sections 2.66 and 2.64). However, the change is a couple of feet higher than the flood elevation so it won't affect the flood profile. We modified this section to account for changes MCDOT has made under the bridge, but an overflow area also needs to be added.

Lower Hassayampa
Sheet 1 of 4

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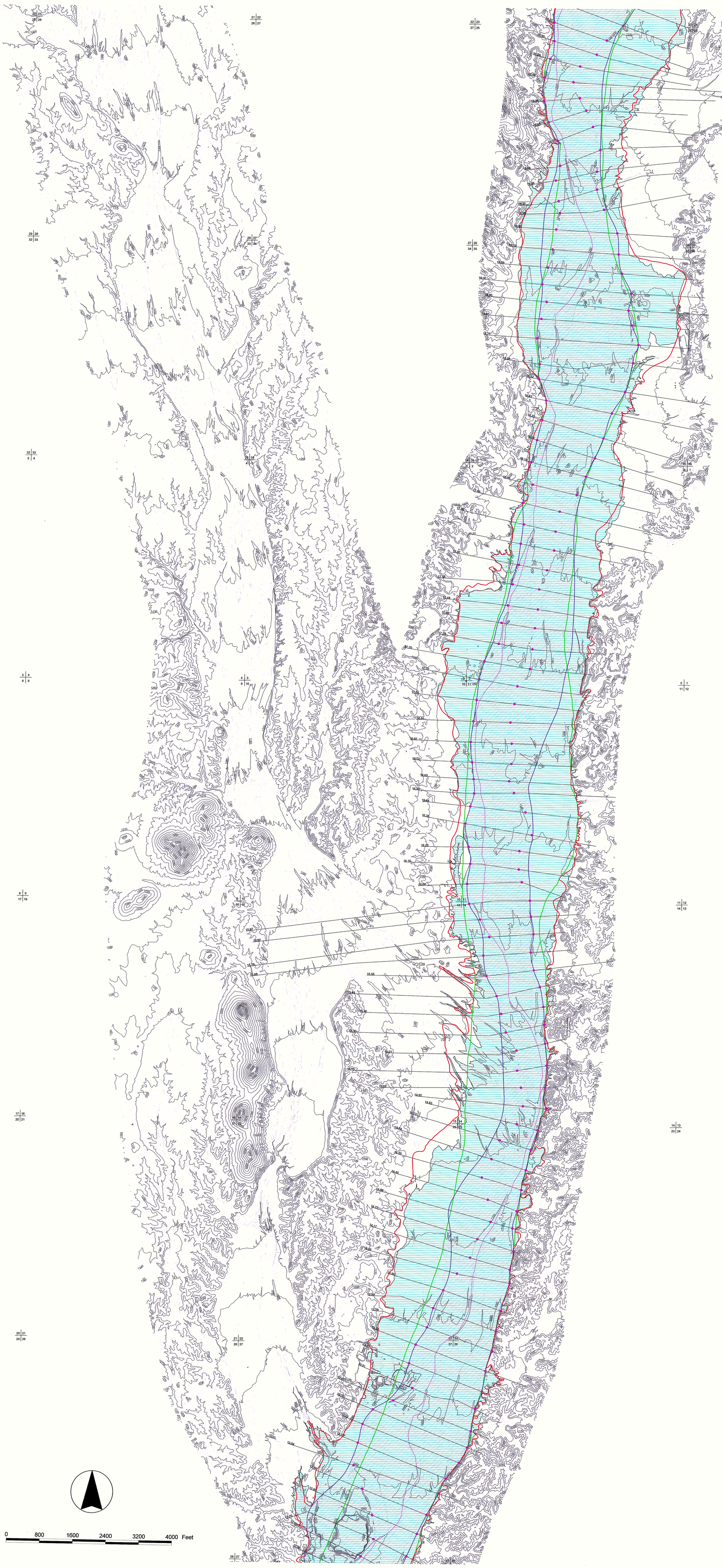

Legend

- Bank Stations
- Baseline
- Cross-Sections
- 10-ft Contours
- 2-ft Contours
- FEMA Floodplain Limits
- FEMA Floodway Limits
- Revised Floodway
- Revised Floodplain

Lower Hassayampa
Sheet 2 of 4

February 2006

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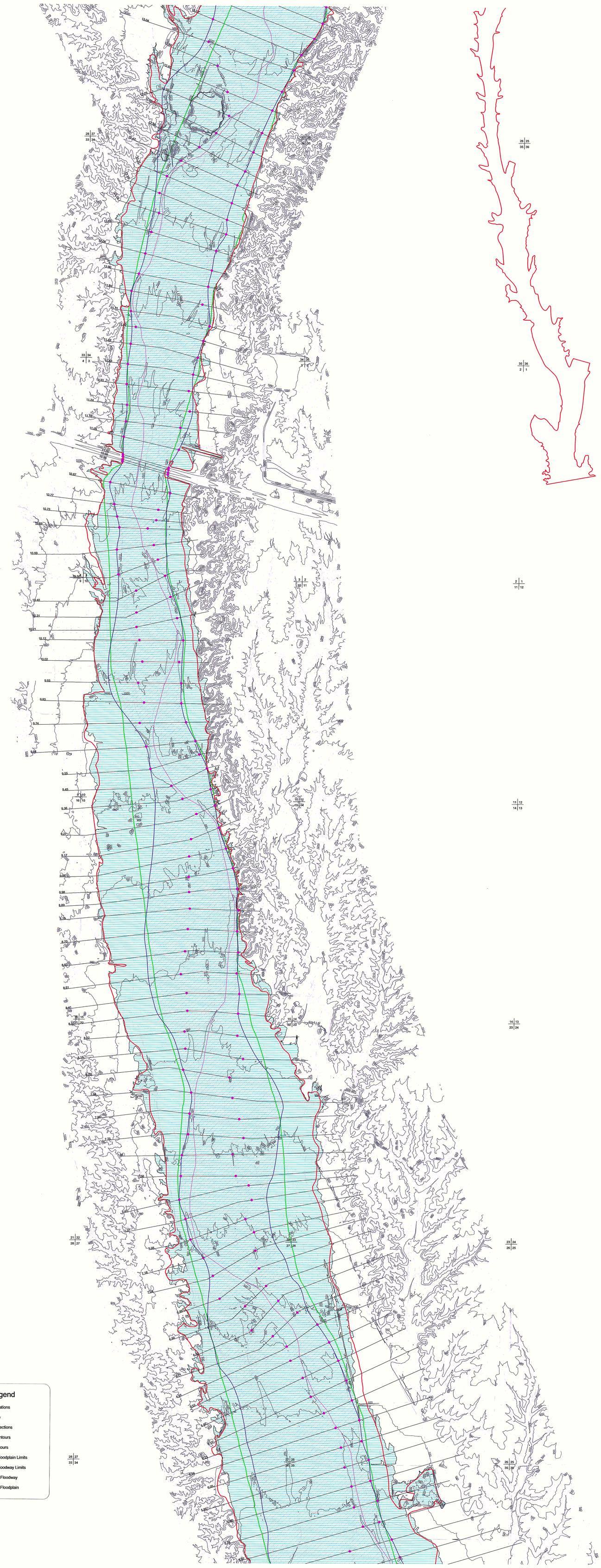

Legend

- Bank Stations
- Baseline
- Cross-Sections
- 10-ft Contours
- 2-ft Contours
- FEMA Floodplain Limits
- FEMA Floodway Limits
- Revised Floodway
- Revised Floodplain

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Lower Hassayampa
Sheet 3 of 4

February 2006

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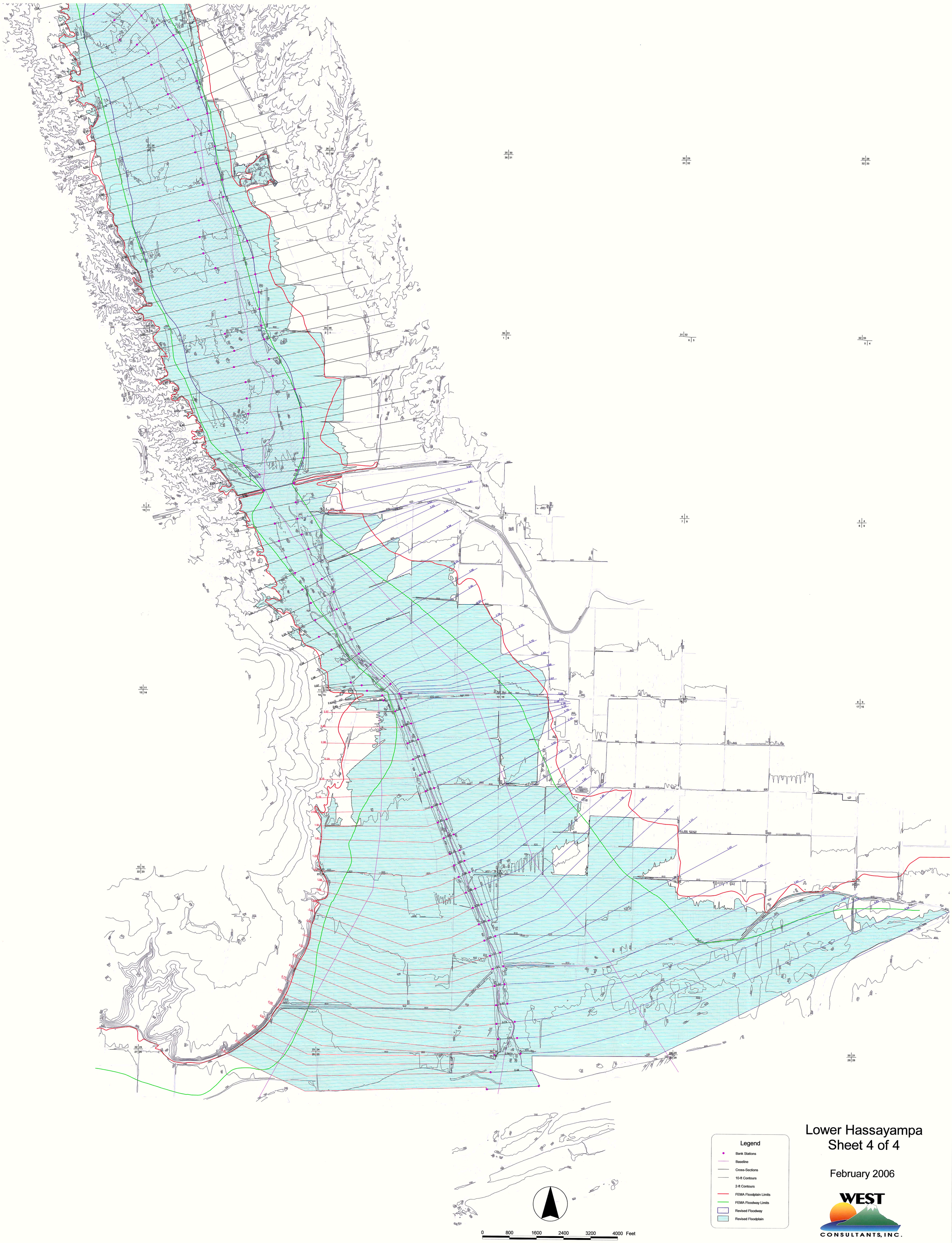

Lower Hassayampa
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