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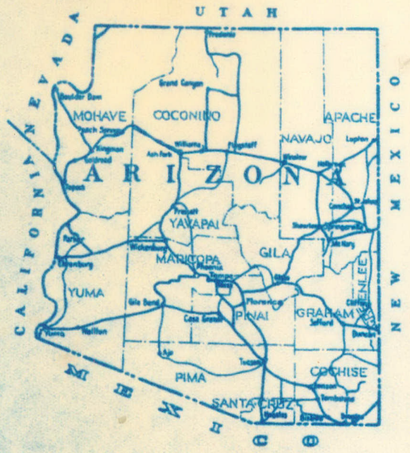


STATE OF ARIZONA
STATE HIGHWAY DEPARTMENT

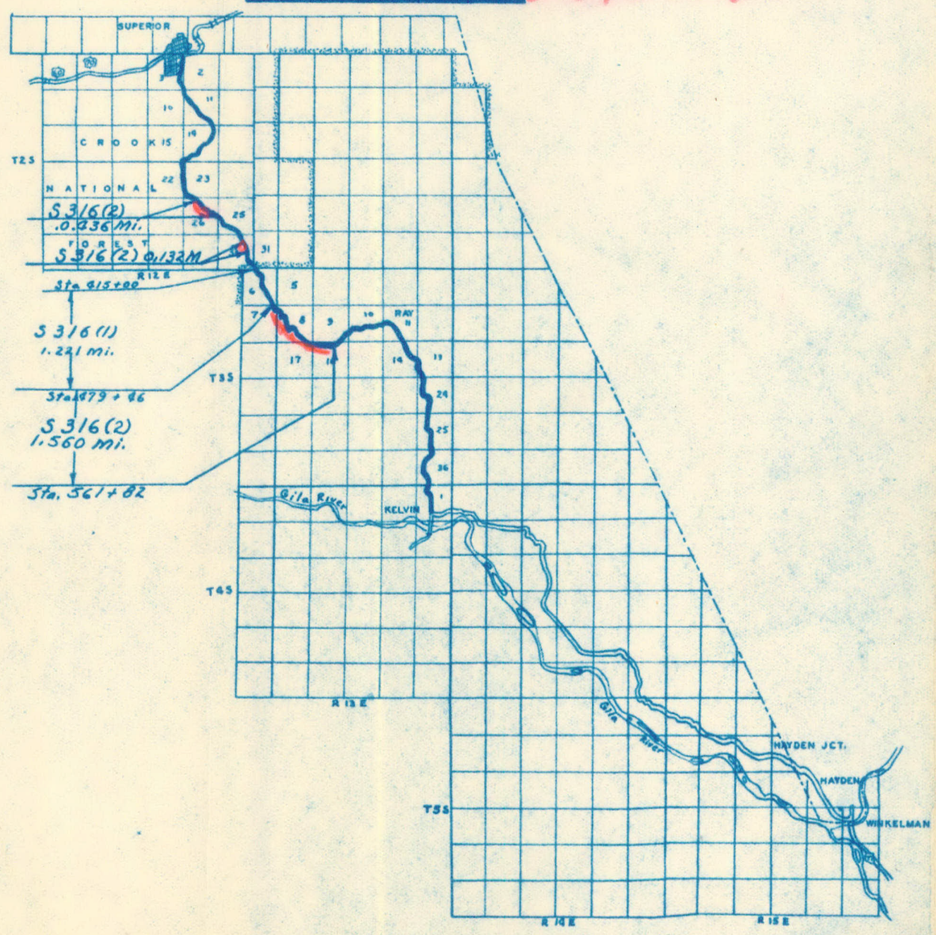
PLAN AND PROFILE OF PROPOSED

STATE HIGHWAY

SUPERIOR-WINKELMAN HWY.

PINAL COUNTY

S-316(2)



FED. ROAD SYS. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
7	ARIZ.	S 316(1)	1	5	
7	ARIZ.	S 316(2)	1	11	

INDEX OF SHEETS

TITLE ..... SHEET NO. 1
INDEX .....
DETAIL & SUMMARY ..... TO .....
PLAN & PROFILE .....
BRIDGE .....
CROSS SECTION .....

CONVENTIONAL SIGNS

STATE AND NATIONAL LINE	CULVERT, CONCRETE
COUNTY LINE	CULVERT, PIPE
CITY, VILLAGE OR BOROUGH	DROP INLET
TOWNSHIP LINE	CATTLE GUARD
SECTION LINE	POWER POLE
GRANT LINE	TELEPHONE POLE
FENCE LINE	CHANNEL OR DITCH
ROAD GUARD	DIKE
UNFENCED PROPERTY	GUIDE POST
RIGHT OF WAY LINE	BRIDGE
TRAVELED WAY	GRADE LINE
RAILROAD	GROUND LINE
RETAINING WALL	SECTION CORNER (FOUND)
BASE OR SURVEY LINE	R/W LINE MARKER
ROAD TRAFFIC SIGN	TREES AND SHRUBS

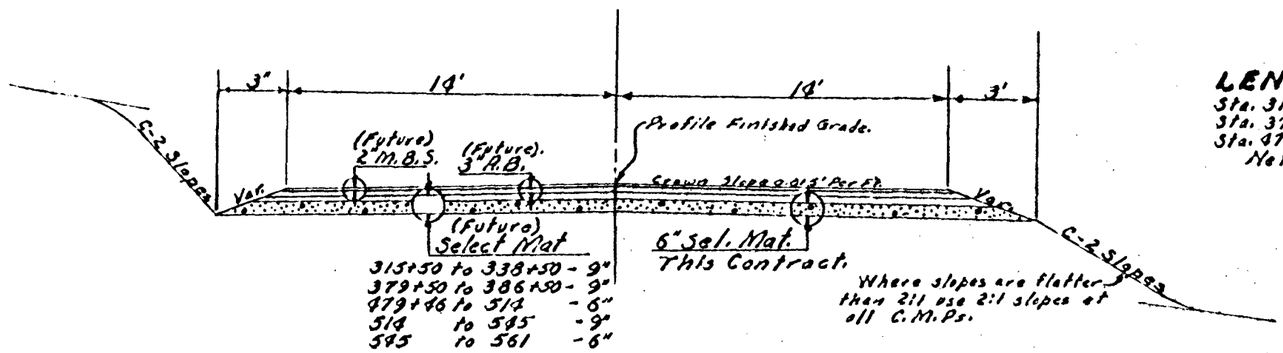
ARIZONA STATE HIGHWAY COMMISSION
APPROVED R.C. PERKINS
STATE HIGHWAY ENGINEER
DATE ..... DEP STATE ENGINEER
RECOMMENDED FOR APPROVAL
DATE ..... DISTRICT ENGINEER
RECOMMENDED FOR APPROVAL
DATE ..... BRIDGE ENGINEER
RECOMMENDED FOR APPROVAL
DATE ..... ENGINEER OF PLANS

DEPARTMENT OF COMMERCE
BUREAU OF PUBLIC ROADS
APPROVED ..... DATE .....
DISTRICT ENGINEER

FED. RD. DIV. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
7	ARIZ.	S 316(2)	2	11	1-14-58 K.S.

SUPERIOR-WINKELMAN HWY.
PINAL COUNTY.

TYPICAL ROADWAY SECTION.



LENGTH OF PROJECT.
Sta. 315+50 to Sta. 338+50 = 2300'
Sta. 379+50 to Sta. 386+50 = 700'
Sta. 479+46 to Sta. 561+82 = 8236'
Net Length 2.128 Miles = 11,236'

CORRUGATED METAL PIPE.

Station	Size	Remarks
487+25	New 24" x 120'	5° Sk. Lt.
494+22	New 48" x 130'	9°10' Sk. Lt.
497+89	New 30" x 80'	
507+16	New 30" x 54'	
512+26	New 42" x 82'	
514+75	New 60" x 70'	
521+15	New 30" x 68'	
522+20	New 60" x 70'	
525+00	New 30" x 96'	10° Sk. Lt.
529+75	New 30" x 84'	18° Sk. Lt.
538+30	New 60" x 86'	
539+72	New 24" x 68'	
545+00	New 60" x 110'	

GENERAL NOTES:
All encroachments within R/W to be removed by order of state unless otherwise noted on Plans. R/W agreements will be checked by Engineer to see that all considerations are carried out.

REDUCED SIZE
DO NOT SCALE.

DITCHES.
450' - Grader Ditch. Std. C-4.
3740' - Crown Ditch. Std. C-4.

STRUCTURES 20' CLEAR SPAN OR LESS.
Sta. 333+25, New 10' x 10' x 66'-0" Conc. Box. Std. C1-10-1a.
Sta. 382+20, New 10' x 10' x 61'-0" Conc. Box. Std. C1-10-1a.
Sta. 503+70, New 10' x 10' x 95'-0" Conc. Box. Skew 45° Lt. Special

RIPRAP.
113.4 C.Y. - Std. C-23. Type "E"

INDEX OF SHEETS.

No.	Title.
1.	Face Sheet.
2.	This Sheet.
3.-8.	Plan & Profile.
9.	Loc. & Spec. Details Sta. 322+, 503+
10.	Std. C1-10-1a.
11.	Std. C1-10-2a.
C-2	Slopes.
C-4	Ditches & Dykes.
C-8	Guide Posts.
C-13	Pipe Culvert Installation.
C-23	Riprap.
C-38	Proj., Bench, & Const. Mkrs. Mile Post.
C-41	Rock & Earth Cuts.

STRUCTURES OVER 20' CLEAR SPAN.
Sta. 322+25 to 322+47.5, New 2-10' x 10 x 71'-0" Conc. Box Special.

GUIDE POSTS.
113 - Std. C-8 Type "B".

PROJECT, BENCH & CONSTRUCTION MARKERS. MILE POSTS.
Standard C-38
(To be installed by Project Engineer.)

Hurlbert 1-19-53, 2-20-53

SUPERIOR~RAY HIGHWAY
PINAL COUNTY

FED. AID PROJ. NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	ADD'L PROJECTS
F	ARIZ	S 316(2)	3	11	F-S-I-X-1

Sta. 322+25 to 322+47.5
New 2-10'x10'x 71' Conc. Box
(See Bridge Sheets)

Pl. 316+23.00
Δ 0°56' Lt.
D 1°30'
R 3819.83'
L 395.56'
T 197.80'
Ex. 11.67'
Super 0.015'

S.56°10.0'E.

S 65°06' E

Rf. Sta 322+25 In Place.
29' Span Wood Bridge.
19' Clear Roadway.
Remove

Sta. 315+75 In Place.
98"x102" C.M.P.

Sta. 315+50
Begin Project S 316(2)

Sta. 333+25
New 10'x10'x66'-0" Conc. Box
Culvert. Std. CI-10-1a

Pl. 332+03.23
Δ 3°16'
D 1°30'
R 3819.83'
T 218.75'
Ex. 67.03'
Super 0.08'

S.82°52.0'E.

Pl. 345+17.74
Δ 37°55' Rt.
D 3°55'
R 1460.00'
T 509.87'
L 966.22'
Ex. 210.61'
Super 0.03'

REDUCED SIZE
DO NOT SCALE.

Sta. 338+50
Begin Exception To Project S 316(2)

B.M. #33-1/2" Steel Pin 3' Lt.
Sta. 320+00 -- Elev. 3033.26

B.M. #34-1/2" Steel Pin 33' Lt.
Sta. 338+00 -- Elev. 3042.78

B.M. #35-1/2" Steel Pin 33' Lt.
Sta. 348+00 -- Elev. 3078.15

D.A. 1.6 0.032 sq. mi.

D.A. 1.5 2.500 sq. mi.
C = 0.8 2,000 cfs

D.A. 1.7 0.222 sq. mi.
0.31 142.82 cfs

New 2-10'x10'x71'-0" Conc. Box Culvert. Std. CI-10-1a
302 C.Y. Str. Exc.
Finish Grade

New 10'x10'x66'-0" Conc. Culvert.
Conc. 150 C.Y. Culvert
128.59 C.Y. Conc.
12.5725 Lbs. Reinf. Steel
20 C.Y. Str. Exc.
152 C.Y. Stock Pass Exc. (Under Roadway)

Level

350 V.C.

100 V.C.

300 V.C.

+6.27%

-0.31%

+6.60%

3046.30
Curve 2.50

3027.90

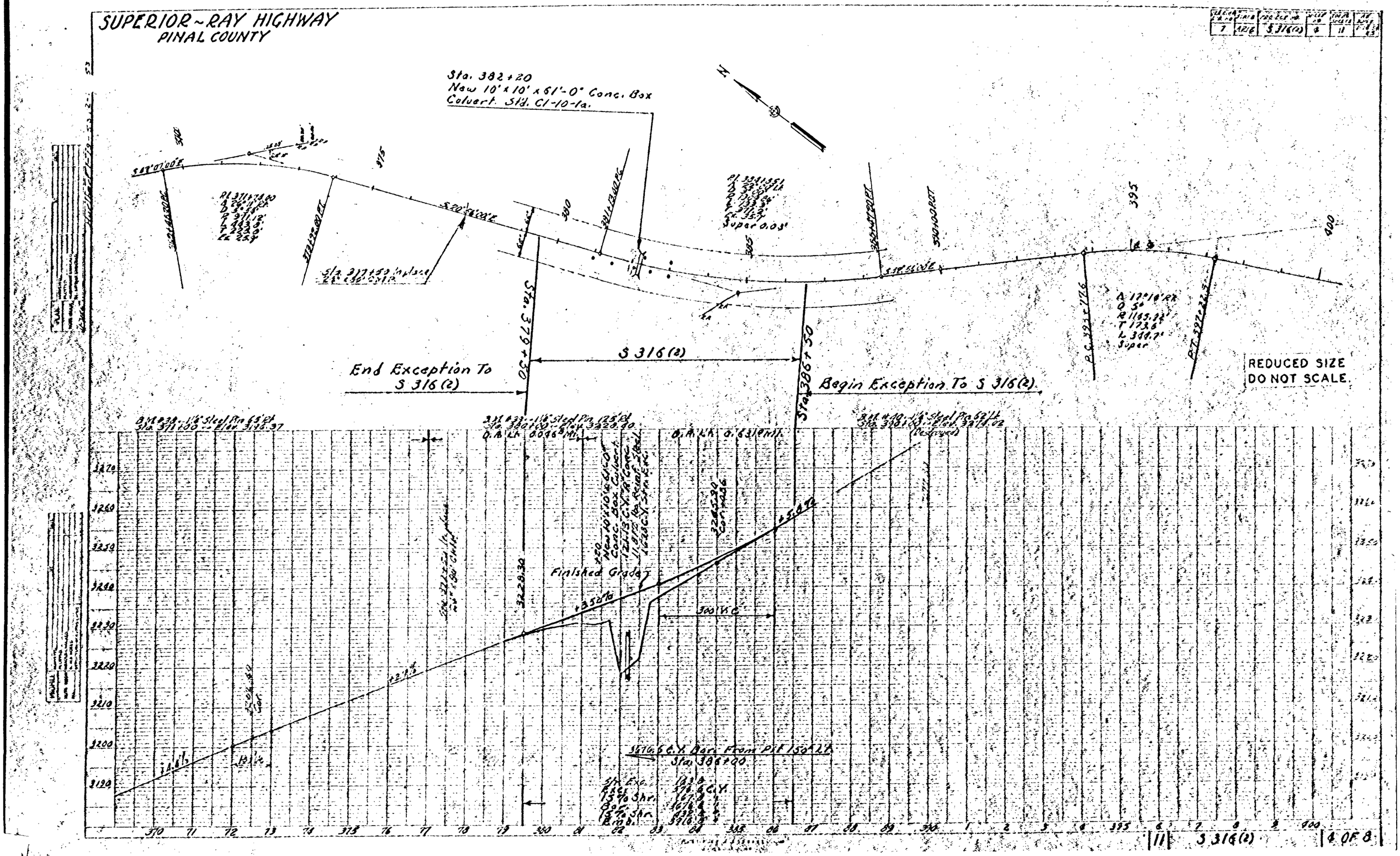
Exc. 5840.5 C.Y.
Fd. Str. 582.1 "
Bor. 2164.2 "
Str. Str. 3244.2 "
Emb. 7426.3 "
From Channel Excav. 102.2 "
To Str. 166.1 "

2164.2 C.Y. Bor. From Pit
200 Lf. Sta 333+50

Elevations: 3110, 3100, 3090, 3080, 3070, 3060, 3050, 3040, 3030

Stations: 310, 11, 12, 13, 14, 315, 16, 17, 18, 19, 320, 21, 22, 23, 24, 325, 26, 27, 28, 29, 330, 31, 32, 33, 34, 335, 36, 37, 38, 39, 340

11 | S 316(2) | 3 OF 8


SUPERIOR ~ RAY HIGHWAY
PINAL COUNTY
Sta. 382+20
New 10' x 10' x 61'-0" Conc. Box
Culvert. Std. C1-10-1a.
N
Sta. 379+50
S 316(2)
End Exception To
S 316(2)
Sta. 386+50
Begin Exception To S 316(2)
REDUCED SIZE
DO NOT SCALE.
Finished Grade
300' V.C.
Sta. 386+00
11
S 316(2)
4 OF 8

SUPERIOR - WINKELMAN HWY.

PINAL COUNTY

FED. ROAD DIV. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
9	ARIZ.	S 316(1)	5	5	E.O.P. 5-26-51
9	ARIZ.	S 316(2)	5	11	1-17-51 to 5-1-51

REDUCED SIZE
DO NOT SCALE.

Sta 487+85 ~ 5° Lt. Ll.
New 24" x 120' C.M.P.

3" Gas Main (In Place)

Sta. 479+96
End Proj. S 316(1)
End Exception To S 316(2)

Sta. 470+40
New C.M.P. Culv. 24"x50'
"L" Hwy. Lt. Std C-13
Inlet Basin.

Sta. 475+00
New C.M.P. Culv. 30"x138'

Sta. 478+38
96"x132" C.M.P. Culv.
Sk. 6°30' Lt.

Δ 37°37' Lt.
D 3°00'
R 1909.86'
T 650.98'
L 1259.89'
Super 0.02'

Δ 77°03' Lt.
D 10°00'
R 572.96'
T 456.16'
L 770.50'
Super 0.05'
Widening 2.0'

Lead Connection to Existing Sewer

Detour

3" Gas Line In Place Hurlbert 1-3-52

Remove 24"x60' C.M.P. I.P.

P.C. 466+22.78

P.T. 474+30.93

P.C.C. 477+54.52

T.S. P.I.E.

S.C. 481+77.78

S.C. 482+27.78

S 38° 05' E

Sta 466 Iron Pin 70' Lt. Elev. 3447.89
Sta 466.5 Iron Pin 60' Lt. Elev. 3426.55
Sta 467 Iron Pin 51' Lt.
Sta 468+75 Elev. 3427.75
Sta 471.00 Elev. 3421.13
Sta 480+00 Elev. 3268.98
Sta 485+00 Elev. 3215.93
Sta 490+00 Elev. 3160.69

D.A. Lt. C=1 0.009 sq. Mi. 3.9
D.A. Lt. C=1 0.009 sq. Mi. 2.0
D.A. Lt. C=1 0.01 sq. Mi. 0.0
D.A. Rt. C=1 0.015 sq. Mi. 3.9
D.A. Lt. C=1 0.015 sq. Mi. 3.9
D.A. Lt. C=1 0.009 sq. Mi. 2.0
D.A. Lt. C=1 0.009 sq. Mi. 2.0

3450 3390 3300 3290 3210 3200 3190 3180 3170 3160 3150 3140

Subgrade

0'-1' x 200' Ditch & Dyke-Lt. Along Old Road Ditch
Exc. 250 C.Y.

10'-1'-10' x 200' Ditch & Dyke Lt. Type 2B
Exc. 80 C.Y.

20"x50' C.M.P.
25 C.Y. Str. Exc.
1.5 C.Y. Conc.
Incl. Reinforcement
25 C.Y. Class A Exc. (Ditch)

-10%

4:1 cut Slopes

Exc. 2679.0 C.Y.
15% Shr. 386.1 "
Exc. 1095.1 "
15% Swell 200.3 "
Emb. 4367.3 "

Exc. 27,672.7 C.Y.
15% Swell 4,150.9 "
Emb. 31,823.6 "

07990 C.Y. - 960' - 5529.0 C.Y. M.O.H. from Sta. 483+01

30"x138' C.M.P.
56 C.Y. Str. Exc. (Concrete Cradle)
Incl. Reinforcement
20 C.Y. Conc.

Ditch Lt.

700' Grader Ditch Lt.

Finished Grade

Fill

Existing Ground

Sta. 479+96 Elev. 3268.98

Sta. 480+00 Elev. 3269.98

Sta. 485+00 Elev. 3215.93

Sta. 487+85 Elev. 3160.69

Exc. 2000.6 C.Y. Incl. 15% Shr.
Emb. 1773.11 Incl. 15% Swell
Exc. 11,603.0 C.Y. Incl. 15% Swell
Emb. 11,603.0 Incl. 15% Swell

Sta. 475+00 Elev. 3210.0 C.L.

Sta. 478+38 Elev. 3210.0 C.L.

Sta. 485+00 Elev. 3210.0 C.L.

Sta. 487+85 Elev. 3160.69

460 1 2 3 4 465 6 7 8 9 470 1 2 3 4 475 6 7 8 9 480 1 2 3 4 485 6 7 8 9 490

11 S 316(2) 5 OF 6 11 S 316(1) 5 OF 5

SUPERIOR - WINKELMAN HWY.
PINAL COUNTY

FED. AID PROJ. NO.	STATE	PROJ. NO.	SHEET NO.	TOTAL SHEETS	AS BUILT PLANS
9	ARIZ	331(6)T	6	11	

Sta. 490+22.- 9°51'11" New 48"x 130' C.M.P.

Sta. 497+89 Skew 30° Lt. New 30"x 80' C.M.P.

Δ 123°51' Rt.
D 10°
R 572.96'
T 1074.19'
L 1238.50'
Super 0.08'
Widening 2.0'

P.C. 496+06.66

P.O.T. 498+67.85

P.T. 500+44.96

P.O.T. 509+36.78

3673 WILD COW #9

N 5°56'E W 1500.00' 1486.15'

Sta. 503+70 Skew 95° Lt. New 10'x 10'x 95' Conc. Box Culvert (See Bridge Sheets.)

5 Mer 8 T 3 S R 13 E

Sta. 507+16 New 30"x 59' C.M.P.

Sta. 512+26 New 42"x 82' C.M.P.

Sta. 514+75 New 60"x 70' C.M.P.

P.O.T. 517+35.16

N 5°57'30" E

REDUCED SIZE
DO NOT SCALE.

B.M. #49 Iron Pin 60' Lt. Sta. 490+00 Elev. 3160.69

B.M. #49.5 Iron Pin 50' Lt. Sta. 495+00 Elev. 3115.75

B.M. #50 Iron Pin 90' Lt. Sta. 500+00 Elev. 3039.00

B.M. #50.5 Iron Pin 60' Lt. Sta. 505+00 Elev. 3016.18

B.M. #51 Iron Pin 50' Lt. Sta. 510+00 Elev. 3010.59

B.M. #52 Iron Pin 100' Lt. Sta. 520+00 Elev. 2959.66

D.A. Ct. 0.008 Sq. Mi. C=1 2.0 cfs

D.A. Lt. 0.09 Sq. Mi. C=1 21.2 cfs

D.A. Lt. 0.000 Sq. Mi. C=1 34.0 cfs

D.A. Lt. 1.52 Sq. Mi. C=1 190 cfs

D.A. Lt. 0.05 Sq. Mi. C=1 8.2 cfs

200' New Crown Ditch Lt.

3'x1'x20' Dyke Lt. Type "A" 20 C.Y.

Finished Grade

-10.0%

125' New Grader Ditch Lt.

-1.68%

-3.70%

Exc. 8,996 C.Y. Shr. 1,918.0 " Exc. 15,996 C.Y. Shr. 6,121.7 " Emb. 19,924.4 "

Exc. 21,842.5 C.Y. Shr. 6,121.7 " Emb. Ins. 13 Dykes.

Exc. 3,637 C.Y. Shr. 929.2 " Emb. 12,654.8 "

Exc. 5,441 C.Y. Shr. 1,382.1 " Emb. 8,170.6 " Ditch Excavation 813.9 "

11	S 316(6)	6 OF 8

SUPERIOR - WINKELMAN HWY.

PINAL COUNTY

FED. AID P.V. NO.	STATE	PROJ. NO.	SHT. NO.	TOT. SHTS.	AS BUILT PLANS
7	ARIZ.	S 316(2)	7	8	

Sta. 522+23 Skew 20° Lt.
New 60" x 70' C.M.P.

Sta. 521+15
New 30" x 66' C.M.P.

Sta. 525+00 Skew 10° Lt.
New 30" x 96' C.M.P.

Sta. 529+75 Skew 1° Lt.
New 30" x 84' C.M.P.

Sta. 538+30
New 60" x 86' C.M.P.

Sta. 539+72
New 24" x 66' C.M.P.

Sta. 595+00 Skew 30° Rt.
New 60" x 110' C.M.P.

See Sht. #8 for Detour Profile

REDUCED SIZE
DO NOT SCALE.

Canyon

3674 SILVER CREEK

3" Gas Main

P.C. 525+63.70 from P.I.

P.O.T. 534+75.64 from P.I.

P.O.T. 537+16.02 from P.I.

P.C. 539+16.22 from P.I.

P.T. 540+97.05 from P.I.

P.C. 591+10.18 from P.I.

Δ 50° 43' Lt.
D 6° 00'
R 950.93'
T 499.11'
L 911.99'
Super 0.08'
Widening 1.2'

Δ 39° 51' Rt.
D 6°
R 954.93'
T 299.71'
L 580.83'
Super 0.08'
Widening 1.2'

Δ 53° 00' Lt.
D 6°
R 950.93'
T 476.11'
L 883.33'
Super 0.08'
Widening 1.2'

B.M. #52 Iron Pin 100' Lt.
Sta. 520+00 Elev. 2858.66

B.M. #53 Iron Pin 20' Lt.
Sta. 529+00 Elev. 2861.93

B.M. #54 Iron Pin 50' Lt.
Sta. 540+13 Elev. 2913.53

B.M. #55 Iron Pin 60' Lt.
Sta. 595+00 Elev. 2896.08

B.M. #55 Iron Pin 60' Lt.
Sta. 550+00 Elev. 2973.95

+3.70%

-0.60%

+8.07%

-3.0%

+320 New 30" x 60' C.M.P. 20 C.Y. Str. Exc.

+345 New 30" x 70' C.M.P. 20 C.Y. Str. Exc.

+00 - 31.11 Lt. New 30" x 96' C.M.P.

+320 New 60" x 88' C.M.P. 28 C.Y. Str. Exc.

+320 New 60" x 110' C.M.P. 35 C.Y. Str. Exc.

New 24" Crown Ditch Lt.

New 30" Crown Ditch Lt.

New 60" Crown Ditch Rt.

400' V.C.

1200' V.C.

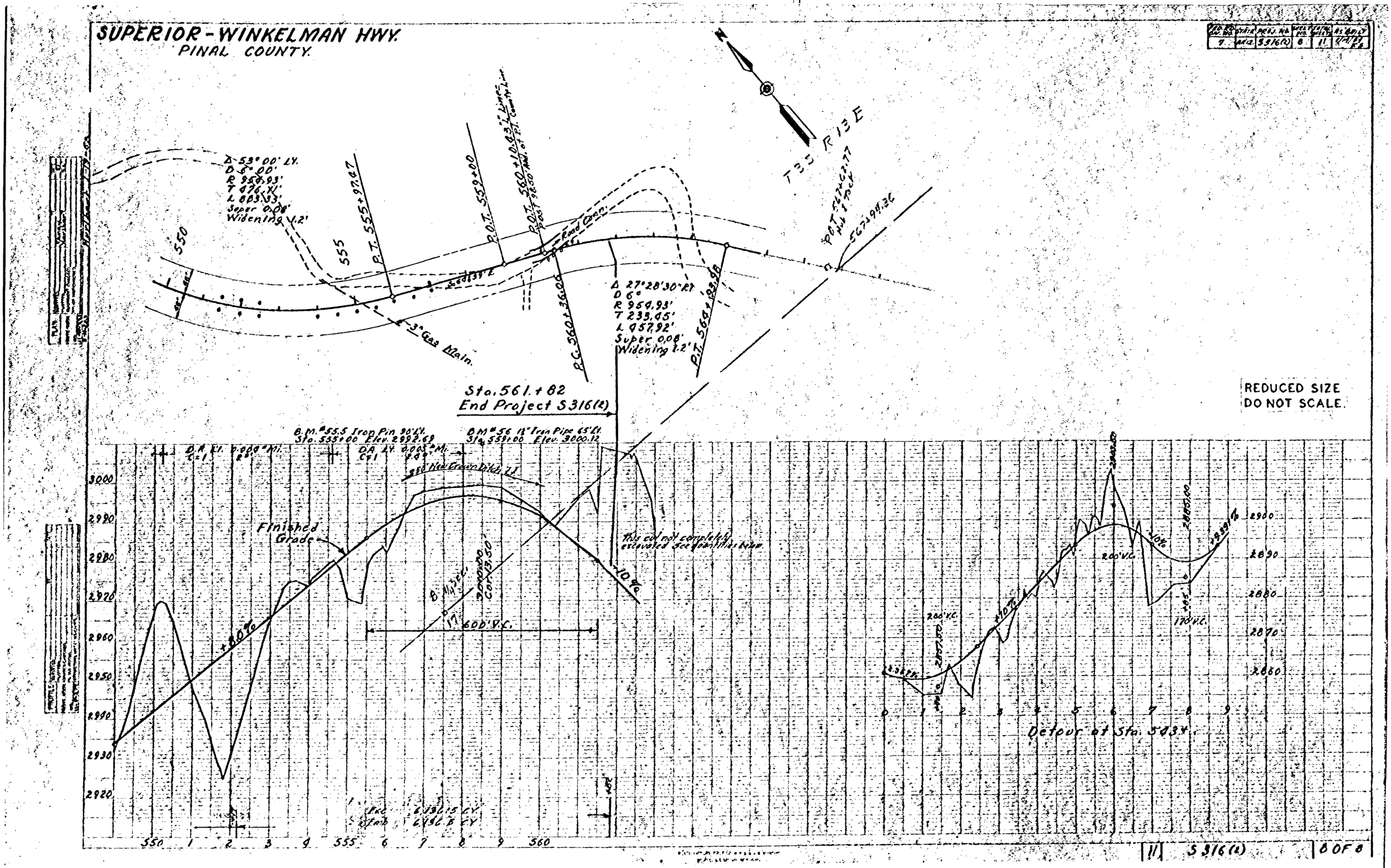
900' V.C.

Exc. 22,512.9
Emb. 122,362.7

Exc. 15,760.5 C.Y.
Emb. 15,760.5 C.Y.

(Incls. Berms)

11	S 316(2)	7 OF 8


SUPERIOR - WINKELMAN HWY.
PINAL COUNTY.
Δ 53° 00' LY.
D 6° 00'
R 954.93'
T 476.11'
L 883.33'
Super 0.08'
Widening 1.2'
P.T. 555+97.47
P.O.T. 559+00
P.O.T. 560+10.43
Road Conn.
3" Gas Main.
P.C. 560+36.06
Δ 27°28'30" RT
D 6°
R 954.93'
T 233.45'
L 457.92'
Super 0.08'
Widening 1.2'
P.T. 564+93.98
T35 R13E
Sta. 561+82
End Project S316(2)
B.M. #55.5 Iron Pin 90' Lt.
Sta. 555+00 Elev. 2992.69
B.M. #56 1½" Iron Pipe 65' Lt.
Sta. 559+00 Elev. 3000.12
Finished Grade
+8.0%
-10%
600' V.C.
This cut not completely excavated See quantities below.
Detour at Sta. 5434
REDUCED SIZE
DO NOT SCALE.
11
S 316(2)
8 OF 8

SUPERIOR-RAY HWY
PINAL COUNTY

100' Plain Rip Rap 70 C.Y. | 18' 5 C.Y. | 85' Plain Rip Rap 60 C.Y.

WALNUT

Top of fly level El 958.34

Top of fly level El [illegible]

Top rip rap El 3002.5

Joint

To Superior

Curve 10° Rt

Top floor El 2951.50

Top slab El 2952.42

Bot. of Cy El 3004.55

To Ray

Joint

Slab reinf. shall be cut to fit in field. Use cut ends upstream.

Top of fly level El 2982.74

Top of fly level El [illegible]

CANYON

Sta 503+
LOCATION PLAN
New 10'x10'x95'-0" Box Culvert 45° Sk Lt
Spec. hdwls Lt & Rt
Scale 1"=20'-0"

Length of wing 32'-0"
23'-0" Reinf same as upstream end
7'-0"

PART WING ELEVATION
Long wing downstream end

NOTE-
Future finished grade & profile grade ±1.0'±

NOTE- Sta 322+
Build culvert on [illegible] slope to Rt.

PI 550 VC

END ELEVATION
Cut off wall detail for long wing downstream end only

NOTE-
Remove & salvage existing 24 span, 14' clear roadway timber bridge 30 Ft of Sta 322+25.

See CO 2 to eliminate curtain wall downstream and to build wings & footings to Solid Rock Sta 322+

SECTION ON ℄ RDWY.
New 2-10'x10'x11'-0" Box
Scale 1"=10'

NOTE- Sta 503+
See Std. D-10-10 for all other barrel details, dimensions, and bend diagrams.

REDUCED SIZE
DO NOT SCALE

Sta 503+ HDWL. STEEL

Mark	No.	Bars	Length	Type
a_1	10	#8	12'-3"	A
a_2	12	″	11'-0"	″
a_3	12	″	10'-0"	″
a_4	10	″	8'-9"	″
a_5	8	″	8'-3"	″
a_6	8	″	7'-0"	″
a_7	22	″	5'-3"	″
a_8	8	″	6'-0"	″
a_9	4	″	7'-6"	″
a_{10}	2	″	5'-3"	″
a_{11}	2	″	6'-6"	″
b	10	#11	24'-6"	E
b_1	4	″	19'-8"	″
b_2	2	″	13'-6"	″
b_3	2	″	9'-6"	″
b_4	2	″	5'-0"	″
b_5	3	″	9'-0"	Str.
b_6	1	″	5'-6"	″
c	6	″	12'-9"	E
c_1	4	″	9'-6"	″
c_2	4	″	7'-0"	″
c_3	4	″	4'-7"	″
e	2	#9	14'-0"	Str.
f	2	″	26'-0"	″
f_1	1	″	9'-6"	″
g	10	″	15'-6"	″
g_1	16	#11	5'-3"	G
h	4	″	12'-0"	Str.
h_1	4	″	12'-0"	Hz
h_2	2	″	22'-6"	E
h_3	12	″	7'-0"	H
h_4	2	″	53'-6"	E
k	14	#8	3'-0"	Str.
k_1	16	″	4'-6"	″
k_2	10	″	6'-0"	″
k_3	12	″	3'-6"	″
k_4	10	″	2'-9"	″
m	2	#9	25'-0"	″
m_1	2	″	26'-0"	″
n	6	″	10'-0"	″
o_1	8	″	12'-0"	″
o_2	2	″	6'-0"	″
o_3	20	″	6'-0"	M
o_4	20	″	6'-0"	M_1

Sta 503+
BARREL STEEL

Mark	No.	Bars	Length	Type
a_3	180	#8	12'-5"	A
a_{11}	112	#8	3'-6"	Str.
a_3	261	″	9'-5"	″
a_3	66	#8	13'-0"	D
ee	286	″	11'-3"	Str.

*Average length

Chamfer all exposed corners thus unless otherwise noted

JOINT NOTE-
All culverts shall have contraction or cold joints in top slab and walls (optional in floor slab) spaced not more than 30' apart as shown. The joint may be made with ½" plywood bulkhead which shall be left in place. Reinforcing steel shall project thru the joint. Plywood for bulkhead shall be treated, either hot dipped 4 hours in approved treating solution or standard pressure treated.

GENERAL NOTES-
Construction - Standard Specifications Arizona Highway Dept. Edition of 1948.
Reinforcing steel shall be intermediate grade and shall conform to AASHO designation M 137-48.

All concrete Class A

APPROXIMATE QUANTITIES

Structure	Std. No.	Sheet No.	Struct. Excav. C.Y.	Class A Conc. C.Y.	Reinf. Steel lbs.	Plain R.R. Rip C.Y.
Sta 322+						
New 2-10'x10'x7'-0" Box Culvert	Spec. D-10-20	9 11	[illegible]	[illegible]	24900	-
Sta 503+						
New 10'x10'x95'-0" Box 45° Sk Lt. Spec Hdwls	Spec. D-10-10	9 10	170	[illegible]	7595	135

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION

Sta's 322+ & 503+
LOCATION & SPECIAL DETAILS

REGISTERED CIVIL ENGINEER
ARIZONA

AS-3-16-121

Top of short bars

Short bars a_6

PART PLAN UPSTREAM END
Scale ½"=1'-0

END ELEVATION

Curtain wall (will to solid rock short wing downstream end

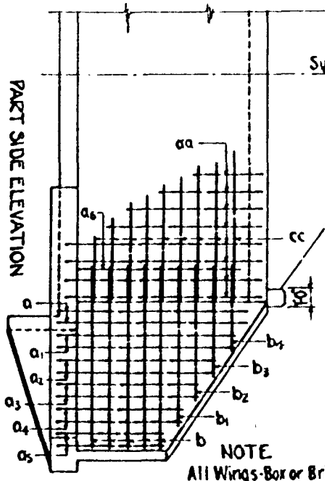
SHORT WING ELEV.

WING SECTION

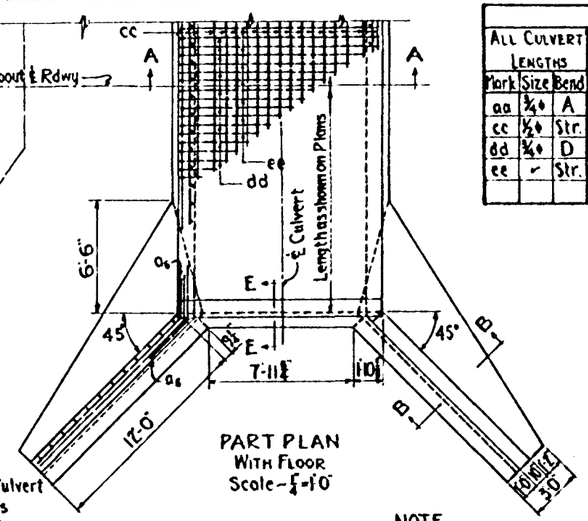
SECTION A-A
Scale ½"=1'-0

BARREL STEEL													
ALL CULVERT LENGTHS			25'6" CULVERT				29'6" CULVERT				33'6" CULVERT			
			BOX		BRIDGE		BOX		BRIDGE		BOX		BRIDGE	
Mark	Size	Bend	N°	Lgth	N°	Lgth	N°	Lgth	N°	Lgth	N°	Lgth	N°	Lgth
aa	¾	A	52	12-6	52	12-6	60	12-6	60	12-6	68	12-6	68	12-6
cc	½	Str.	56	25-3	37	25-3	56	29-3	37	29-3	56	33-3	37	33-3
dd	¾	D	24	18-0	24	18-0	28	18-0	28	18-0	32	18-0	32	18-0
ee	⌐	Str.	78	11-3	28	11-3	90	11-3	32	11-3	102	11-3	36	11-3

PART SIDE ELEVATION

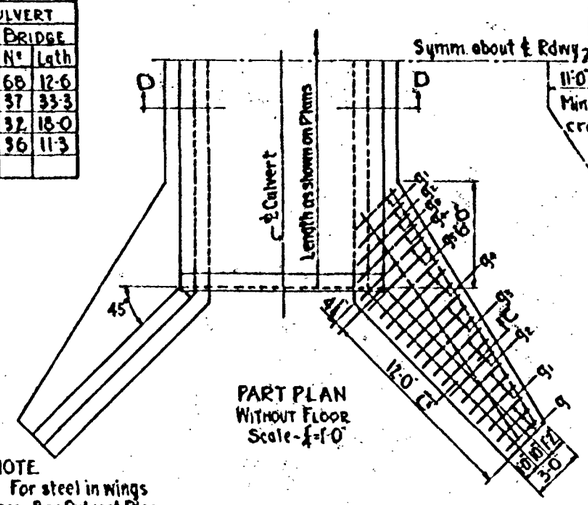


NOTE
All Wings-Box or Bridge Culvert
Vertical bars- ⅝ϕ @ 12 cts
Horizontal bars ½ϕ @ 12 cts



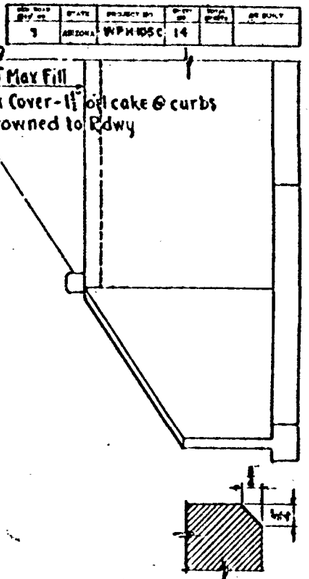
PART PLAN
WITH FLOOR
Scale - ¼"=1'0"

NOTE
For steel in footings see Bridge Culvert Plan
⅝ϕ bars @ 9" cts.



PART PLAN
WITHOUT FLOOR
Scale - ¼"=1'0"

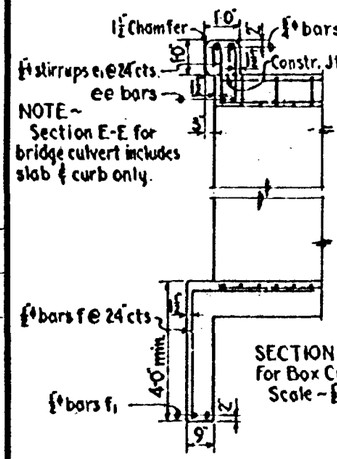
NOTE
For steel in wings see Box Culvert Plan.



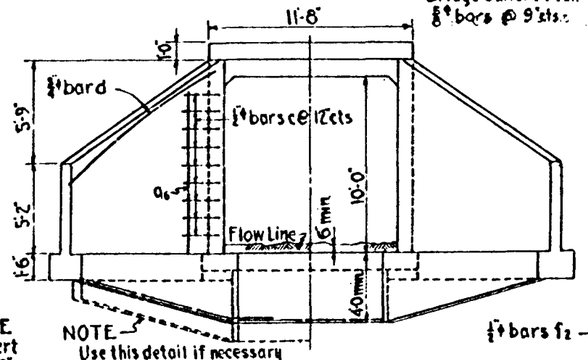
BOX CULVERT STEEL LIST

Mark	N°	Size	Lgth	Bend
Two Headwalls				
a	6	⅜ϕ	13-6	A1
a1	8	⌐	12-9	⌐
a2	8	⌐	11-9	⌐
a3	8	⌐	11-0	⌐
a4	8	⌐	10-0	⌐
a5	8	⌐	9-0	⌐
a6	8	½ϕ	9-3	Str
b	20	⌐	13-6	B
b1	4	⌐	11-6	⌐
b2	4	⌐	9-6	⌐
b3	4	⌐	7-6	⌐
b4	4	⌐	5-6	⌐
c	36	⌐	6-0	C
d	4	¾ϕ	14-0	Str
e	4	⌐	11-3	⌐
e1	12	½ϕ	5-3	E
f	10	⌐	7-0	F
f1	4	⌐	8-0	Str
f2	8	⌐	14-0	B
g	12	⅝ϕ	3-6	A
g1	16	⌐	4-0	⌐
g2	16	⌐	4-6	⌐
g3	16	⌐	5-0	⌐
g4	16	⌐	5-6	⌐
g5	8	⌐	6-0	⌐
h	12	½ϕ	16-0	Str

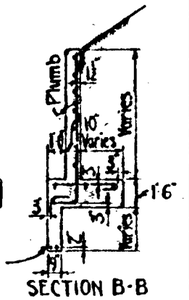
NOTE~
Bridge culvert headwall steel list same as box culvert except omit bars f, f1 & f2.



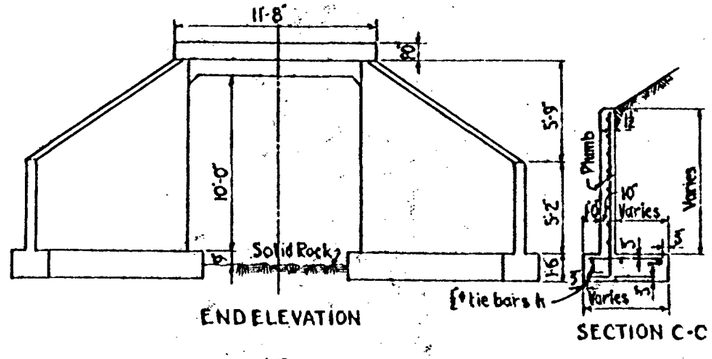
SECTION E-E
For Box Culvert
Scale - ¾"=1'0"



NOTE
Use this detail if necessary to lower cutoff wall.
Cutoff wall on both ends of culvert



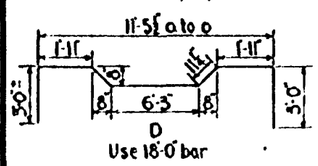
SECTION B-B



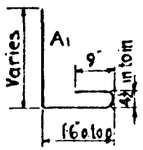
END ELEVATION

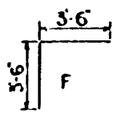
SECTION C-C

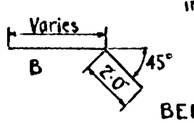
QUANTITIES					
10x10 CULVERT		LENGTH OF CULVERT			QUANTITY PER LIN FT OF BARREL
		25'6"	29'6"	33'6"	
Box	Class A Conc C.Y.	68.59	74.51	80.43	1.480 c.y.
	Reinf. Steel Lbs.	693.10	698.5	759.5	15.3.4 lbs
Bridge	Class A Conc C.Y.	59.51	64.71	69.91	1.301 c.y.
	Reinf. Steel Lbs.	505.5	548.5	591.0	10.7.4 lbs

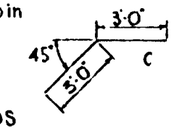


D
Use 18'-0" bar



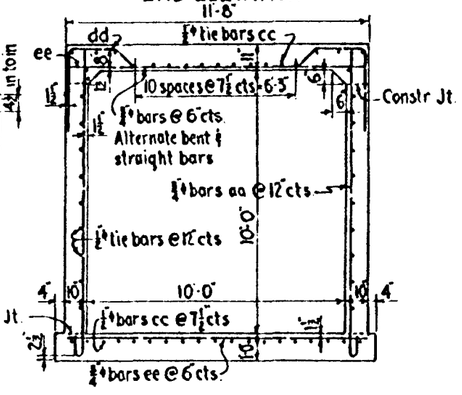




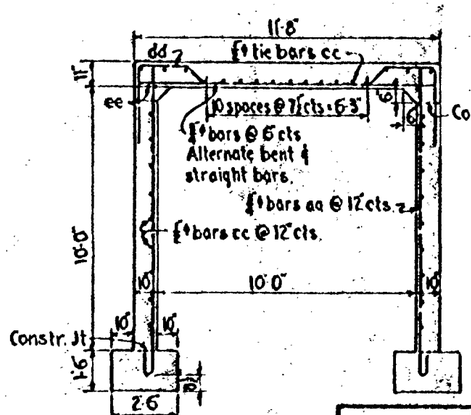


BENDS

END ELEVATION
11'-8"



SECTION A-A
Scale - ¾"=1'0"



SECTION D-D
Scale - ¾"=1'0"

REDUCED SIZE
DO NOT SCALE

DESIGN SPECIFICATIONS~
AASHO 1944 & Revisions to June 1946
Loading Class - H20-S16-44

NOTE~ Use on all Projects after Feb. 1, 1948
This detail traced from C1-10-1a
ALL CONCRETE CLASS A

			DATE
LAYOUT			
DESIGN			
ARCHITECTURE			
DRAWN	R.C. & H.		12-3-46
TRACED	R.C. W.		12-22-46
CHECKED	L.E.P. (?)		1-9-47
SHEET NO.		OF	

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION
STANDARD
1 SPAN 10'-0" x 10'-0" CULVERT
BOX & BRIDGE
C1-10-1a
DRAWING NUMBER

STATE ENGINEER
CERTIFICATE EXPIRES
ARIZONA
BRIDGE ENGINEER

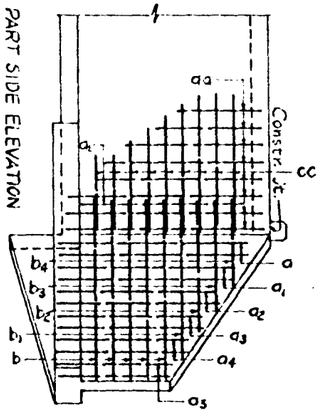
			PROJECT NO.		
9	ARIZONA		WPH 105 C	14	

Neg. Made 7/31/47

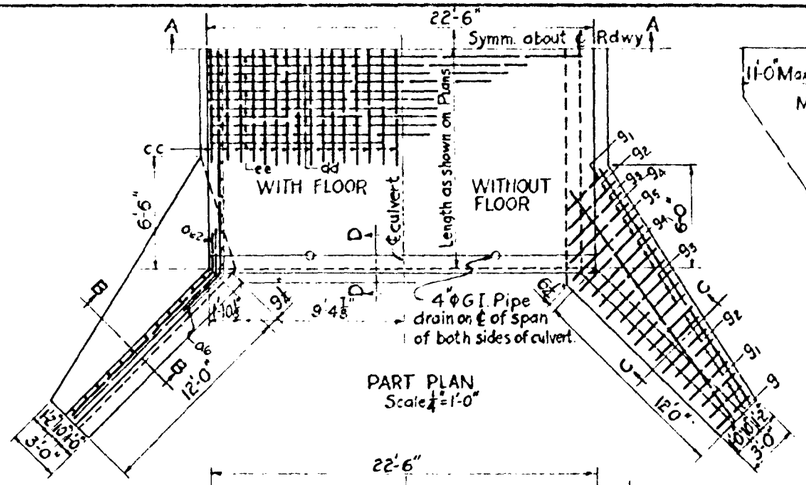
℄ Negative - 1-22-47

SHEET NO.	STATE	PROJECT NO.	SHEET NO.	TOTAL SHEETS	AS BUILT
7	ARIZONA	NRS 17	10		

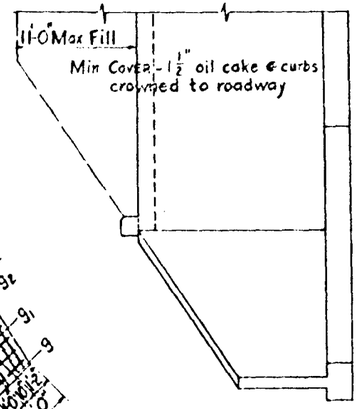
PART SIDE ELEVATION



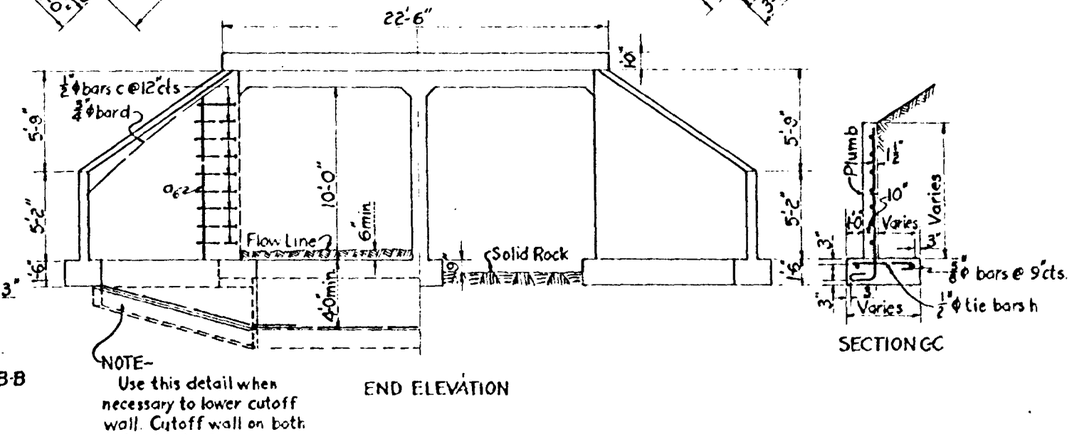
NOTE-
All Wings - Box or Bridge Culvert
Vertical bars $\frac{7}{8}$"ϕ @ 12"cts.
Horizontal bars $\frac{5}{8}$"ϕ @ 12"cts.



PART PLAN
Scale ¼"=1'-0"



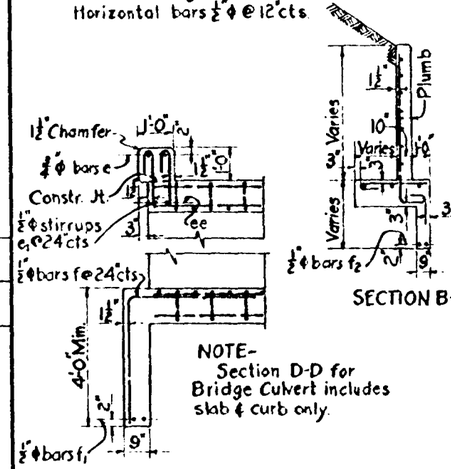
PART SIDE ELEVATION



NOTE-

END ELEVATION

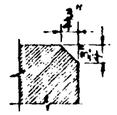
SECTION GG



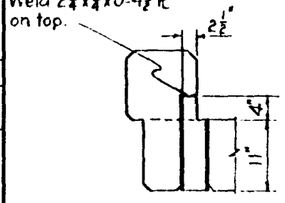
NOTE-
Section D-D for Bridge Culvert includes slab ℄ curb only.

SECTION D-D
Scale ½"=1'-0"
FOR BOX CULVERT

SECTION B-B

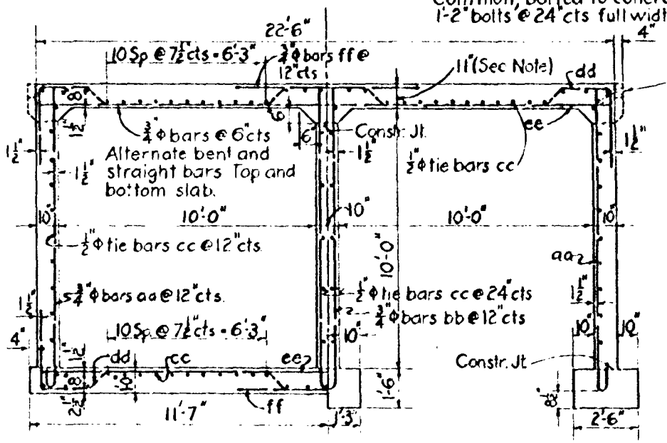


Chamfer all exposed corners thus unless otherwise noted



DRAIN PIPE DETAIL
Scale 1"=1'-0"

For Culvert @ Finished Grade
4"x8" Douglas Fir (Coast Region) Select Common, bolted to concrete with ⅝" x 1'-2" bolts @ 24"cts full width of Roadway



SECTION A-A
Scale ⅜"=1'-0"

NOTE-
When culvert is at finished grade top slab shall be 11"ϕ curb and 1'-0½"ϕ ℄ of roadway and pavement seats shall be added.

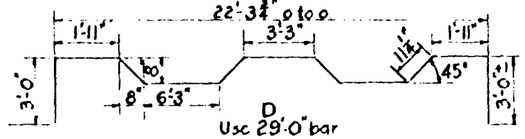
BARREL STEEL

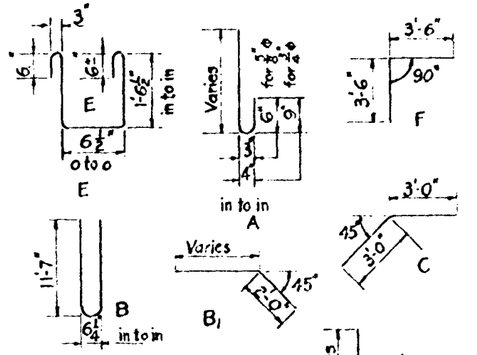
ALL CULVERT LENGTHS			25'-6" CULVERT				29'-6" CULVERT				33'-6" CULVERT			
			BOX		BRIDGE		BOX		BRIDGE		BOX		BRIDGE	
Mark	Size	Bend	No	Lgth.	No	Lgth.	No	Lgth.	No	Lgth.	No	Lgth.	No	Lgth.
aa	¾"ϕ	A	52	12'-6"	52	12'-6"	60	12'-6"	60	12'-6"	68	12'-6"	68	12'-6"
bb	″	B	26	23'-9"	26	23'-9"	30	23'-9"	30	23'-9"	34	23'-9"	34	23'-8"
cc	¾"ϕ	Str.	100	25'-3"	64	25'-3"	100	28'-3"	64	29'-3"	100	33'-3"	64	33'-3"
dd	¾"ϕ	D	48	29'-0"	24	29'-0"	56	29'-0"	28	29'-0"	64	29'-0"	32	29'-0"
ee	″	Str.	54	22'-3"	28	22'-3"	62	22'-3"	32	22'-3"	70	22'-3"	36	22'-3"
ff	″	″	50	6'-0"	24	6'-0"	58	6'-0"	28	6'-0"	66	6'-0"	32	6'-0"

QUANTITIES

10 x 10 CULVERT		LENGTH OF CULVERT			QUANTITY PER LIN FT OF BARREL
		25'-6"	29'-6"	33'-6"	
BOX	Class A Conc C.Y.	99.50	109.77	120.03	2.566 C.Y.
	Reinf. Steel Lbs.	10630	11890	13145	313.5#
BRIDGE	Class A Conc C.Y.	81.32	89.82	98.32	2.125 C.Y.
	Reinf. Steel Lbs.	7640	8455	9270	204.4#
ADD FOR SLAB @ FIN GR C.Y.		1.73	2.02	2.31	

BENDS





BOX CULVERT STEEL LIST

Mark	No	Size	Length	Bend
TWO HEADWALLS				
a	8	¾"ϕ	13-6	A
a1	8	″	12-9	″
a2	8	″	11-9	″
a3	8	″	11-0	″
a4	8	″	10-0	″
a5	8	″	9-0	″
a6	8	¾"ϕ	9-3	Str.
b	20	″	13-6	B
b1	4	″	11-6	″
b2	4	″	9-6	″
b3	4	″	7-6	″
b4	4	″	5-6	″
c	36	″	6-0	C
d	4	¾"ϕ	14-0	Str.
e	4	″	22-3	″
e1	24	½"ϕ	5-3	E
f	20	″	7-0	F
f1	4	″	19-0	Str.
f2	8	″	14-0	B1
g	12	⅝"ϕ	3-6	A
g1	16	″	4-0	″
g2	16	″	4-6	″
g3	16	″	5-0	″
g4	16	″	5-6	″
g5	8	″	6-0	″
h	12	½"ϕ	16-0	Str.

NOTE-
Bridge culvert headwall steel list same as box culvert except omit bars f, f1 and f2

DRAWN FOR 25'-6" LENGTH

Design specifications AASHO 1944 & Revisions to June 1946.
Loading Class H20-S16-44

REDUCED SIZE DO NOT SCALE

NOTE - Use on all Projects after Feb 1, 1948
This detail traced from C1-10-2a

ALL CONCRETE CLASS A

		DATE
V-POLT		
DESIGN		
ARCHITECTURE		
DRAWN	L.E.M.	3-11-48
TRACED	C.E.T.	6-8-48
CHECKED	(illegible)	6-20-48

ARIZONA HIGHWAY DEPARTMENT
BRIDGE DIVISION STANDARD

2 SPAN 10'-0" x 10'-0" CULVERT BOX AND BRIDGE

C1-10-2a
DRAWING NUMBER

BRIDGE ENGINEER

DATE	FOR	DATE	NO.
5-27-48			
6-1-48			
6-20-48			