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FLOOD CONTROL DISTRICT OF MARICOPA COUNTY

ARIZONA CANAL DIVERSION CHANNEL UTILITY CONFLICT, BRIDGE & DETOUR MASTER PLAN

INVENTORY PHASE

CONTRACT FCD 84-39

Registered Professional Engineer (Civil)
CERTIFICATE
8779
RAYMOND JOSEPH GIRARD
Date Signed 7/26/85
ARIZONA, U.S.A.

FLOOD CONTROL DISTRICT
RECEIVED
JUL 29 '85

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REMARKS			

MORRISON-KNUDSEN ENGINEERS
A MORRISON-KNUDSEN COMPANY

A118.609

MORRISON-KNUDSEN ENGINEERS, INC.
A MORRISON KNUDSEN COMPANY

SOUTHWEST DISTRICT OFFICE
10240 NORTH 31ST AVENUE, SUITE 213
PHOENIX, ARIZONA U.S.A. 85021-1357
PHONE: (602) 997-4050

MARK J. RATERMANN, P.E.
DISTRICT VICE PRESIDENT

0243A
5401

July 26, 1985

Flood Control District of Maricopa County
3335 West Durango Street
Phoenix, Arizona 85009

Attention: Edward A. Raleigh, P.E.
Project Engineer

Re: ACDC Utility Conflict Bridge and Detour
Masterplan Contract FCD 84-39

In compliance with the contract we herewith submit the Inventory Phase of the ACDC Utility Conflict, Bridge and Detour Masterplan within the City of Phoenix.

The information was provided by the Maricopa County Flood Control District, Utility Company records, As-Built Drawings, Field Surveys, and City of Phoenix Quarter Section Maps.

The Preliminary Engineering Phase Report is forthcoming.

It is a pleasure working with the Flood Control District and we appreciate their cooperation.

Yours truly,

Raymond J. Girard

Raymond J. Girard, P.E.
Project Engineer

RJG:sjs

0243A2

FLOOD CONTROL
DISTRICT OF
MARICOPA COUNTY

ARIZONA CANAL DIVERSION CHANNEL
UTILITY CONFLICT
MASTERPLAN INVENTORY PHASE

CONTRACT FCD 84-39

MORRISON-KNUDSEN ENGINEERS, INC.

Registered Professional Engineer
CERTIFICATE NO.
8779
RAYMOND JOSEPH
CONRAD
Date Signed 7/24/85
ARIZONA, U.S.A.

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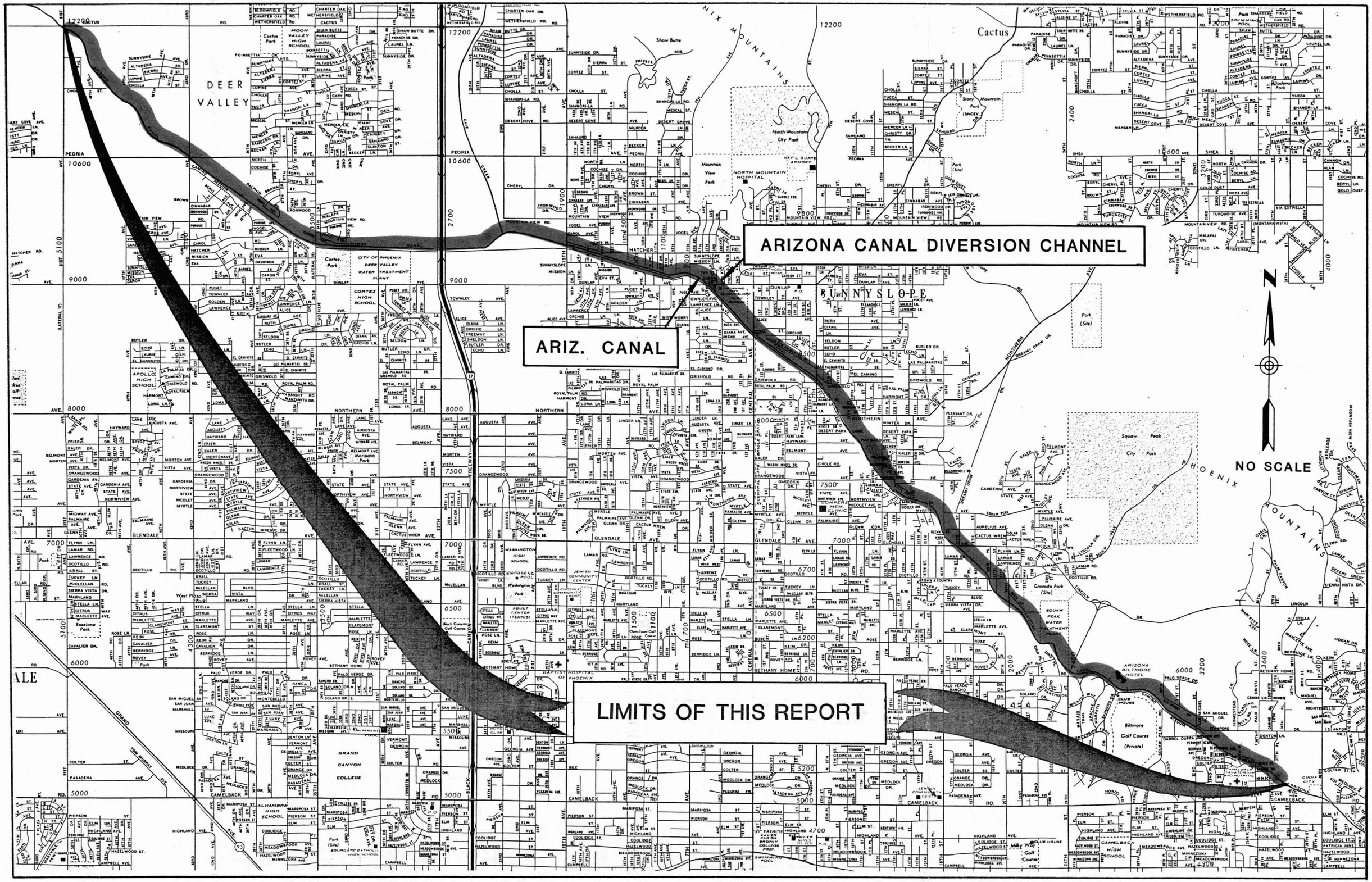
	DETOUR	

Registered Professional Engineer (Civil)
CERTIFICATE NO. 8779
RAYMOND JOSEPH GIRARD
Date Signed 7-26-85
ARIZONA, U.S.A.


ARIZONA CANAL DIVERSION CHANNEL
ARIZ. CANAL
LIMITS OF THIS REPORT
NO SCALE
N
DEER VALLEY
Cactus
BUNNYSLOPE
NIX MOUNTAINS
PHOENIX MOUNTAINS
Shaw Butte
North Mountain City Park
Squaw Peak City Park
Stony Mountain Park (UNDEV.)
Mountain View Park
NORTH MOUNTAIN HOSPITAL
Cortez Park
CITY OF PHOENIX DEER VALLEY WATER TREATMENT PLANT
CORTEZ HIGH SCHOOL
MOON VALLEY HIGH SCHOOL
APOLLO HIGH SCHOOL
GRAND CANYON COLLEGE
ALHAMBRA HIGH SCHOOL
WASHINGTON HIGH SCHOOL
JEWISH COMMUNITY CENTER
BAPTIST HOSPITAL OF PHOENIX
ARIZONA BILTMORE HOTEL
Biltmore Golf Course (Private)
Squaw Peak Water Treatment Plant
Grande Park (Site)
Park (Site)
Roeslane Park
West Plaza Terra Pool
Mariposa Park
Washington Park
Black Canyon Golf Course
Milky Way Golf Course
CAMELBACK HIGH SCHOOL
PEORIA
NORTHERN
GLENDALE
MOUNTAIN VIEW RD.
CAMELBACK
GRAND
CENTRAL
7th STREET
7th AVENUE
ARIZONA CANAL
CAVE CREEK
SUNNYSLOPE
HATCHER
LINCOLN
SHEA
MOUNTAIN VIEW RD.
NORTHERN
GLENDALE
CAMELBACK
PEORIA
12200
10600
9000
8000
7500
7000
6500
6000
5500
5000
4700
4300
3500
2700
2400
2000
1900
1100
700
500
400
3200
3600
4000
4709
5100
5200
6700
9800

I DEFINITION OF PROBLEM

The Arizona Canal Diversion Channel (ACDC) is designed to intercept storm water runoff from north of the Arizona Canal and convey it to Skunk Creek. The boundaries of this report within the City of Phoenix, extend from 51st Avenue to 38th Street. A portion of the ACDC, in this report will be an open channel having concrete lined vertical banks averaging 20 feet in depth, and being approximately 12 miles in length. At three locations, totaling approximately 1 3/4 miles in length, the ACDC will be a covered structure.

The ACDC being much deeper than the paralleling Arizona Canal, and passing through many established residential and industrial subdivisions, will conflict with most of the existing underground utilities within the right-of-way. These conflicting utilities will have to be addressed and plans prepared to relocate them. There will be locations where the ACDC will be crossing major streets, creating a need to know the topography of these sites for future bridge design.

II PURPOSE AND SCOPE

The ACDC is in the design and construct phase. The Flood Control District of Maricopa County has done a great deal of work on this project. The size and shape of the channel has been determined and the alignment and right-of-way established. Starting from the Skunk Creek on the west, portions of the channel and several of the bridges are under construction or design.

To complete the Masterplan two reports will be prepared and submitted for review. This report is the first and is called the Inventory Phase. The second report will be called the Preliminary Engineering Phase.

The Inventory Phase Report presents the location and specifics of all the utilities within the ACDC right-of-way. The utilities shown in plan and tabulated have been compiled from the maps and record drawings listed in the Appendix.

Overhead utility lines per se are not included in this inventory but the utility poles that carry these lines and fall within the right-of-way are, and may require relocation. Relocating the poles will result in relocating the overhead line.

Included are topographic maps for proposed bridge locations at 7th Avenue, Dunlap Avenue, Central Avenue, 7th Street, Northern Avenue, 12th Street, 16th Street, Glendale Avenue and 32nd Street. Along with the maps are soils report for each of these sites. Due to the realignment and enclosure of the Arizona Canal, and subsequent location of the ACDC in a box conduit, the Flood Control District has concluded that the Maryland Avenue and 24th Street crossings will not require bridges.

This report will be reviewed by the Maricopa County Flood Control District and the City of Phoenix.

The Preliminary Engineering Phase Report will build upon the Inventory phase report by including preliminary plans and cost estimates for relocating conflicting utilities. The preliminary bridge plans, bridge site topographic sheets and detour plans will be revised and updated to reflect review changes and construction costs.

III CONCLUSIONS AND RECOMMENDATIONS

This inventory of the conflicting utilities within the ACDC right-of-way will be the foundation of the Preliminary Engineering Report. Having completed an extensive investigation of the conflicts, the enormity of the project is felt.

This becomes evident by the great lengths of pipe, ducts and cable, along with the large number of related items as shown and listed in the Utility Quantity sheets.

Preliminary plans will be prepared for the relocation or replacement of any existing utility shown on the aerial photo sheets that are determined to be in conflict.

The continuing coordinating of efforts among the utility companies, the City of Phoenix and the Flood Control District will assure an expediant completion of this project.

IV COST ESTIMATE

The Preliminary Engineering report will address cost estimates for utility relocations and removals and bridge and detour construction.

V NARRARTIVE OF INVESTIGATION

The aerial photo plans show the location of existing utilities with relation to the ACDC right-of-way as provided by the Flood Control District. These utilities are identified and located by station and type. Further information is provided through additional commentary on these plans.

Data for this report was obtained from several sources of information, of which the following were very helpful:

- All utility records from various utility agencies.
- As-built plans of previous construction projects in the area of the ACDC.
- Quarter section maps furnished by the City of Phoenix.
- Several on-site field investigations to obtain data lacking from other sources.
- Salt River Project right-of-way maps.
- The Flood Control District of Maricopa County.

Definitions of Terms and Abbreviations

ABS - Acrylonitrile Butadiene Styrene
ACP - Asbestos Cement Pipe
C/E - Concrete Encased
CATV - Cable Television
CBL - Cable
CIP - Cast Iron Pipe
CLOS - Closure
CMP - Corrigated Metal Pipe
CO - Clean Out
CONC - Concrete
CULV - Culvert
D - Duct
DBL - Double
E - Electric
FH - Fire Hydrant
G - Gas
GALV - Galvanized Steel Pipe
HDWL - Headwall
MH - Manhole
MTD - Multi Tile Duct
PED - Pedestal
RCP - Reinforced Concrete Pipe
RGRCP - Rubber Gasket Reinforced Concrete Pipe
S - Sewer
SD - Storm Drain
T - Telephone
TRANS - Transformer
VCP - Vitrified Clay Pipe
W - Water
WM - Water Meter

UTILITY INVENTORY

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
460+16	158'L	CATV	CABLE			LF	610
699+97	20'R	CATV	PED			EA	1
700+48	68'L	CATV	CABLE			LF	2035
701+75	48'R	CATV	PED			EA	1
705+00	48'R	CATV	PED			EA	1
706+84	48'R	CATV	PED			EA	1
707+41	48'R	CATV	PED			EA	1
708+71	48'R	CATV	PED			EA	1
709+97	48'R	CATV	PED			EA	1
711+20	48'R	CATV	PED			EA	1
712+35	48'R	CATV	PED			EA	1
713+60	48'R	CATV	PED			EA	1
714+78	48'R	CATV	PED			EA	1
716+13	48'R	CATV	PED			EA	1
717+20	48'R	CATV	PED			EA	1
718+50	48'R	CATV	PED			EA	1
719+70	48'R	CATV	PED			EA	1
720+00	48'R	CATV	CABLE			LF	1035
720+97	48'R	CATV	PED			EA	1
722+25	48'R	CATV	PED			EA	1
723+55	48'R	CATV	PED			EA	1
724+68	48'R	CATV	PED			EA	1
725+98	48'R	CATV	PED			EA	1
727+10	48'R	CATV	PED			EA	1
727+76	48'R	CATV	PED			EA	1
727+96	31'R	CATV	PED			EA	1
772+43	72'L	CATV	CABLE		1 1/4"	LF	612
778+00	2'L	CATV	CABLE			LF	620
779+95	2'L	CATV	PED			EA	1
780+45	2'L	CATV	PED			EA	1
781+00	2'L	CATV	PED			EA	1
781+75	2'L	CATV	PED			EA	1
782+15	15'L	CATV	PED			EA	1
782+65	10'L	CATV	PED			EA	1
783+55	20'L	CATV	PED			EA	1
784+10	35'L	CATV	PED			EA	1
786+01	35'L	CATV	PED			EA	1
786+02	35'L	CATV	CABLE			LF	35
822+37	12'L	CATV	PED			EA	1
822+38	12'L	CATV	CABLE			LF	40
964+18	43'L	CATV	CABLE			LF	1227
964+36	10'L	CATV	PED			EA	1

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
404+21	20'L	E	CABLE			LF	1596
406+21	31'R	E	TRANS			EA	1
408+90	45'R	E	TRANS			EA	1
411+55	45'R	E	TRANS			EA	1
414+12	45'R	E	TRANS			EA	1
417+08	45'R	E	TRANS			EA	1
460+29	158'L	E	CABLE			LF	2420
461+52	52'R	E	TRANS			EA	1
464+93	52'R	E	TRANS			EA	1
468+25	52'R	E	TRANS			EA	1
470+50	52'R	E	TRANS			EA	1
473+30	52'R	E	TRANS			EA	1
475+82	52'R	E	TRANS			EA	1
478+97	52'R	E	TRANS			EA	1
481+68	20'L	E	TRANS			EA	1
484+10	62'L	E	TRANS			EA	1
484+12	50'L	E	CABLE			LF	1390
486+70	62'L	E	TRANS			EA	1
489+50	62'L	E	TRANS			EA	1
492+90	62'L	E	TRANS			EA	1
495+40	62'L	E	TRANS			EA	1
497+40	62'L	E	TRANS			EA	1
499+14	125'L	E	CABLE			LF	1395
499+15	130'L	E	TRANS			EA	1
501+50	48'R	E	TRANS			EA	1
503+00	48'R	E	TRANS			EA	1
507+72	48'R	E	TRANS			EA	1
513+25	130'L	E	TRANS			EA	1
513+75	155'L	E	CABLE			LF	1462
515+00	60'L	E	MH			EA	1
516+80	55'L	E	MH			EA	1
521+90	62'L	E	MH			EA	1
527+40	155'L	E	CABLE			LF	430
527+85	60'L	E	MH			EA	1
570+60	60'R	E	POLE	WOOD		EA	1
582+30	13'R	E	POLE	WOOD		EA	1
583+00	25'L	E	POLE	WOOD		EA	1
583+10	100'L	E	POLE	WOOD		EA	1
586+20	22'L	E	POLE	WOOD		EA	1
596+01	42'R	E	POLE	WOOD		EA	1

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
597+85	40'R	E	POLE	WOOD		EA	1
598+65	43'L	E	POLE	WOOD		EA	1
602+40	50'L	E	POLE	WOOD		EA	1
605+72	42'L	E	POLE	WOOD		EA	1
608+10	18'R	E	POLE	WOOD		EA	1
608+80	50'L	E	CABLE			LF	200
608+83	8'L	E	POLE	STEEL		EA	1
609+28	5'L	E	POLE	WOOD		EA	1
610+27	18'L	E	POLE	WOOD		EA	1
611+65	35'L	E	POLE	WOOD		EA	1
612+40	70'L	E	POLE	WOOD		EA	1
614+63	79'L	E	POLE	WOOD		EA	1
616+00	5'R	E	POLE	WOOD		EA	1
619+05	42'L	E	POLE	WOOD		EA	1
620+83	108'L	E	POLE	WOOD		EA	1
622+40	52'L	E	POLE	WOOD		EA	1
623+50	1'R	E	POLE	WOOD		EA	1
624+85	40'L	E	POLE	WOOD		EA	1
627+00	45'L	E	POLE	WOOD		EA	1
628+65	10'R	E	POLE	WOOD		EA	1
631+00	91'L	E	POLE	WOOD		EA	1
632+95	18'R	E	POLE	WOOD		EA	1
638+68	38'L	E	POLE	WOOD		EA	1
651+30	22'R	E	POLE	WOOD		EA	1
656+75	6'R	E/T	POLE	WOOD		EA	1
663+15	60'R	E	POLE	WOOD	12"	EA	1
664+70	27'L	E	POLE	WOOD		EA	1
670+80	28'L	E	POLE	WOOD		EA	1
672+88	38'R	E	POLE	WOOD		EA	1
675+09	6'R	E	POLE	WOOD	12"	EA	1
682+85	40'R	E	POLE	STEEL	24"	EA	1
682+85	50'L	E	CABLE			LF	1045
684+15	40'R	E	POLE	STEEL	24"	EA	1
686+00	40'R	E	POLE	STEEL	24"	EA	1
687+60	40'R	E	POLE	STEEL	24"	EA	1
696+25	30'L	E	POLE	WOOD	12"	EA	1
696+85	58'R	E	POLE	WOOD	12"	EA	1
701+70	58'R	E	POLE	WOOD	12"	EA	1
703+00	58'R	E	POLE	WOOD	12"	EA	1
704+73	58'R	E	POLE	WOOD	12"	EA	1

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
706+50	47'R	E	POLE	WOOD	12"	EA	1
708+00	47'R	E	POLE	WOOD	12"	EA	1
710+01	47'R	E	POLE	WOOD	12"	EA	1
711+78	47'R	E	POLE	WOOD	12"	EA	1
713+60	47'R	E	POLE	WOOD	12"	EA	1
715+30	47'R	E	POLE	WOOD	12"	EA	1
717+30	47'R	E	POLE	WOOD	12"	EA	1
719+20	47'R	E	POLE	WOOD	12"	EA	1
721+00	46'R	E/T	POLE	WOOD	12"	EA	1
722+96	46'R	E	POLE	WOOD	12"	EA	1
724+60	46'R	E	POLE	WOOD	12"	EA	1
726+47	46'R	E	POLE	WOOD	12"	EA	1
727+78	46'R	E	POLE	WOOD	12"	EA	1
727+96	15'R	E	POLE	WOOD	12"	EA	1
728+25	60'R	E	POLE	WOOD	12"	EA	1
729+74	35'R	E	POLE	WOOD	12"	EA	1
731+02	40'L	E	POLE	WOOD	12"	EA	1
731+80	28'L	E	POLE	WOOD	12"	EA	1
732+10	28'L	E	POLE	WOOD	12"	EA	1
733+60	28'L	E	POLE	WOOD	12"	EA	1
735+30	28'L	E	POLE	WOOD	12"	EA	1
736+74	28'L	E	POLE	WOOD	12"	EA	1
738+00	28'L	E	POLE	WOOD	12"	EA	1
741+40	40'R	E/T	POLE	WOOD	12"	EA	1
747+60	145'L	E	COND	230KV	8 5/8"	LF	240
747+68	1'R	E	SERV BOX			EA	1
750+00	145'L	E	COND	230KV	8 5/8"	LF	540
755+05	115'L	E	SERV BOX			EA	1
761+65	50'L	E	COND	230KV	8 5/8"	LF	150
779+04	40'L	E	CABLE			LF	110
780+10	4'R	E	TRANS			EA	1
782+42	10'L	E	TRANS			EA	1
782+43	9'L	E	CABLE			LF	220
783+72	45'L	E	TRANS			EA	1
785+59	33'R	E	POLE	WOOD		EA	1
800+58	38'R	E	POLE	WOOD		EA	
801+80	28'R	E	POLE	WOOD		EA	1
808+01	8'R	E	POLE	WOOD	12"	EA	1
818+37	78'L	E	POLE	WOOD	12"	EA	1
821+68	40'L	E	POLE	WOOD		EA	1

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STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
831+56	27'L	E	POLE	WOOD		EA	1
849+13	28'L	E	POLE	WOOD	12"	EA	1
849+65	20'L	E	POLE	WOOD	12"	EA	1
850+02	35'R	E	POLE	WOOD	12"	EA	1
860+26	15'R	E	POLE	WOOD	12"	EA	1
866+68	19'L	E	POLE	WOOD	12"	EA	1
870+65	1'L	E	POLE	WOOD	12"	EA	1
872+51	21'L	E	POLE	WOOD	12"	EA	1
874+68	30'L	E	POLE	WOOD	12"	EA	1
876+55	22'L	E	POLE	WOOD	12"	EA	1
888+30	29'L	E	POLE	WOOD	12"	EA	1
895+65	35'R	E	POLE	WOOD	12"	EA	1
900+00	35'R	E	POLE	WOOD	12"	EA	1
905+92	3'L	E	POLE	WOOD	12"	EA	1
909+20	5'L	E	POLE	WOOD	12"	EA	1
919+33	35'R	E	CABLE			LF	67
925+02	6'R	E	POLE	STEEL		EA	1
932+00	8'L	E	POLE	STEEL		EA	1
932+00	40'L	E	CABLE			LF	150
938+78	22'L	E	POLE	STEEL		EA	1
939+38	21'L	E	POLE	STEEL		EA	1
940+00	22'L	E	POLE	STEEL		EA	1
940+57	22'L	E	POLE	STEEL		EA	1
940+59	10'L	E	POLE	STEEL		EA	1
941+14	20'L	E	POLE	STEEL		EA	1
947+04	14'L	E	POLE	STEEL		EA	1
947+38	5'L	E	POLE	STEEL		EA	1
964+13	15'L	E	POLE	WOOD	12"	EA	1
987+88	60'L	E	POLE	STEEL	6"	EA	1
987+98	36'L	E	POLE	STEEL	6"	EA	1
988+02	11'L	E	POLE	STEEL	6"	EA	1
988+37	85'L	E	POLE	STEEL	6"	EA	1
988+47	62'L	E	POLE	STEEL	6"	EA	1
988+54	40'L	E	POLE	STEEL	6"	EA	1
1006+80	188'L	E	POLE	WOOD	12"	EA	1
1007+40	100'L	E	POLE	WOOD	12"	EA	1
1007+85	29'L	E	POLE	WOOD	12"	EA	1

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
404+10	18'L	G	PIPE	ABS	2"	LF	1630
656+60	20'R	G	PIPE	ABS	1 1/4"	LF	70
662+50	50'L	G	PIPE		2"	LF	130
670+55	43'L	G	PIPE		2"	LF	88
696+75	45'R	G	PIPE		4"	LF	100
697+21	50'L	G	PIPE			LF	235
697+42	15'L	G	VALVE			EA	1
704+81	21'R	G	PIPE		1 1/4"	LF	450
704+82	20'R	G	PIPE		2"	LF	140
705+50	50'R	G	PIPE		1 1/4"	LF	1075
714+25	50'R	G	PIPE		2"	LF	575
720+00	50'R	G	PIPE		2"	LF	1100
730+55	25'R	G	VALVE		2"	EA	1
730+80	42'L	G	PIPE		4"	LF	100
750+00	155'L	G	PIPE		2"	LF	552
755+38	140'R	G	PIPE		4"	LF	300
772+26	61'L	G	PIPE	ABS	1 1/4"	LF	100
773+26	25'L	G	PIPE	ABS	1 1/4"	LF	195
775+13	78'L	G	PIPE	ABS	1 1/4"	LF	85
777+41	70'L	G	PIPE	ABS	1 1/4"	LF	52
786+17	35'L	G	PIPE	ABS	1 1/4"	LF	5
786+22	30'L	G	VALVE			EA	1
802+05	39'L	G	PIPE		2"	LF	68
820+21	35'L	G	PIPE		4"	LF	145
820+48	40'L	G	PIPE		2"	LF	256
866+47	35'R	G	PIPE		2"	LF	85
920+85	35'R	G	PIPE		2 1/2"	LF	20
934+70	35'R	G	PIPE		2"	LF	140
934+80	20'R	G	VALVE		2"	EA	1
964+09	36'L	G	PIPE	STEEL	2"	LF	93
964+17	10'L	G	PIPE	STEEL	2"	LF	663
993+84	35'L	G	PIPE	IN 4" casing	2"	LF	75

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STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
872+10	40'L	IRR	PIPE	TRPL/CONC	12"	LF	18
884+68	18'R	IRR	PIPE	CONC	18"	LF	20

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
398+56	85'L	S	PIPE	VCP	21"	LF	2210
398+80	70'L	S	MH			EA	1
399+15	65'L	S	MH			EA	1
401+10	75'L	S	MH			EA	1
402+32	73'L	S	MH			EA	1
403+52	41'L	S	MH			EA	1
404+20	6'L	S	PIPE	VCP	8"	LF	185
404+21	5'L	S	MH			EA	1
409+65	56'R	S	MH			EA	1
416+00	55'R	S	MH			EA	1
417+50	55'R	S	MH			EA	1
417+96	54'R	S	PIPE	VCP	8"	LF	123
417+97	55'R	S	MH			EA	1
419+67	55'R	S	MH			EA	1
420+00	56'R	S	PIPE	VCP	21"	LF	1420
425+50	56'R	S	MH			EA	1
431+60	56'R	S	MH			EA	1
437+75	56'R	S	PIPE	VCP	10"	LF	1325
441+10	56'R	S	MH			EA	1
442+07	56'R	S	MH			EA	1
442+07	56'R	S	PIPE	VCP	8"	LF	137
442+10	55'L	S	MH			EA	1
445+22	56'R	S	MH			EA	1
449+42	56'R	S	MH			EA	1
451+00	62'R	S	PIPE	VCP	10"	LF	1941
453+75	56'R	S	MH			EA	1
457+85	56'R	S	MH			EA	1
460+21	62'R	S	MH			EA	1
460+21	158'L	S	PIPE	VCP	8"	LF	220
461+40	70'R	S	PIPE	RGRCP	60"	LF	185
462+61	62'R	S	MH			EA	1
466+72	62'R	S	MH			EA	1
470+41	62'R	S	MH			EA	1
470+42	62'R	S	PIPE	VCP	8"	LF	127
470+43	62'R	S	PIPE	VCP	8"	LF	505
474+16	62'R	S	MH			EA	1
499+75	65'R	S	PIPE	VCP	12"	LF	1300
499+78	60'R	S	PIPE	VCP	8"	LF	92
499+78	65'R	S	MH			EA	1
500+80	60'R	S	PIPE	VCP	8"	LF	135

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
500+80	60'R	S	MH			EA	1
500+90	65'R	S	MH			EA	1
505+70	65'R	S	MH			EA	1
510+50	60'R	S	MH			EA	1
510+50	48'L	S	PIPE	VCP	12"	LF	2970
511+00	42'L	S	MH			EA	1
513+70	37'L	S	MH			EA	1
516+02	40'L	S	MH			EA	1
518+05	127'L	S	MH			EA	1
518+10	42'L	S	MH			EA	1
521+50	48'L	S	MH			EA	1
526+65	51'L	S	MH			EA	1
528+00	125'LT	S	MH			EA	1
528+15	51'L	S	MH			EA	1
528+15	52'L	S	PIPE	VCP	12"	LF	100
534+42	35'L	S	MH			EA	1
537+10	48'L	S	MH			EA	1
608+90	3'R	S	PIPE	VCP	10"	LF	565
611+90	38'L	S	MH			EA	1
615+52	170'R	S	PIPE	VCP	10"	LF	200
616+10	187'L	S	MH			EA	1
621+40	50'L	S	PIPE	VCP	8"	LF	100
628+30	50'L	S	PIPE	VCP	8"	LF	100
635+50	45'R	S	PIPE	VCP	8"	LF	100
638+80	50'L	S	PIPE	VCP	8"	LF	55
638+95	10'R	S	CLNOT		8"	EA	1
641+35	5'L	S	CLNOT		8"	EA	1
641+35	5'L	S	PIPE	VCP	8"	LF	45
645+65	35'L	S	MH			EA	1
656+40	45'R	S	PIPE	VCP	8"	LF	95
662+65	50'L	S	PIPE	VCP	8"	LF	150
663+00	41'R	S	MH			EA	1
663+42	75'R	S	PIPE	VCP	12"	LF	995
663+44	75'R	S	MH			EA	1
668+00	35'R	S	MH			EA	1
672+63	9'L	S	MH			EA	1
673+00	45'R	S	PIPE	VCP	15"	LF	140
673+05	40'R	S	MH			EA	1
673+10	5'R	S	MH			EA	1
696+40	50'L	S	PIPE	VCP	8"	LF	226

0194A10

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
696+90	12'R	S	MH			EA	1
697+45	40'L	S	MH			EA	1
699+45	54'R	S	MH			EA	1
699+46	54'R	S	PIPE	VCP	10"	LF	2450
702+40	54'R	S	MH			EA	1
705+32	54'R	S	MH			EA	1
705+85	54'R	S	MH			EA	1
707+00	54'R	S	MH			EA	1
710+65	54'R	S	MH			EA	1
715+00	54'R	S	MH			EA	1
719+50	54'R	S	MH			EA	1
720+00	54'R	S	PIPE	VCP	10"	LF	2114
724+05	54'R	S	MH			EA	1
730+38	40'R	S	MH			EA	1
730+95	6'R	S	MH			EA	1
730+97	42'R	S	PIPE	VCP	12"	LF	210
732+31	12'R	S	MH			EA	1
733+49	35'L	S	PIPE	VCP	8"	LF	11
733+50	35'L	S	MH			EA	1
736+70	12'R	S	MH			EA	1
736+87	12'R	S	PIPE	VCP	8"	LF	65
736+90	12'R	S	MH			EA	1
739+30	10'R	S	MH			EA	1
739+97	30'L	S	MH			EA	1
755+50	153'L	S	MH			EA	1
755+58	120'R	S	PIPE	VCP	12"	LF	280
770+26	55'L	S	PIPE	VCP	8"	LF	105
770+43	6'L	S	MH			EA	1
770+44	6'L	S	PIPE	VCP	8"	LF	756
773+26	6'L	S	MH			EA	1
773+27	7'L	S	PIPE	VCP	8"	LF	50
775+87	6'L	S	MH			EA	1
775+88	7'L	S	PIPE	VCP	8"	LF	50
778+00	5'L	S	PIPE	VCP	8"	LF	130
778+52	5'L	S	MH			EA	1
788+84	40'R	S	PIPE	VCP	8"	LF	170
789+04	40'R	S	PIPE	VCP	8"	LF	170
820+39	40'L	S	PIPE	VCP	12"	LF	180
822+00	40'R	S	MH			EA	1
822+72	35'R	S	MH			EA	1
822+76	30'R	S	MH			EA	1

0194A11

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
822+77	30'R	S	PIPE	VCP	12"	LF	73
831+35	35'R	S	PIPE	VCP	12"	LF	93
848+10	60'L	S	PIPE	VCP	8"	LF	265
849+17	8'R	S	MH			EA	1
849+78	25'R	S	MH			EA	1
916+50	35'R	S	PIPE	VCP	8"	LF	65
916+53	30'L	S	MH			LF	1
920+30	35'R	S	PIPE	VCP	15"	LF	110
920+70	26'R	S	MH			EA	1
937+95	35'R	S	PIPE	CIP	8"	LF	66
964+13	36'L	S	PIPE	VCP	8"	LF	96
964+22	15'L	S	MH			EA	1
964+24	15'L	S	PIPE	VCP	8"	LF	598
964+56	44'R	S	MH			EA	1
967+66	13'L	S	MH			EA	1
970+20	15'L	S	C.O.	VCP	8"	EA	1

0194A12

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
497+82	30'R	SD	PIPE	CONC	18"	LF	80
498+42	60'R	SD	STND/PIPE	CONC	48"	EA	1
500+73	70'L	SD	PIPE	RCP	18"	LF	138
527+10	10'R	SD	HDWL	CONC	10'x20'	EA	1
527+11	10'R	SD	PIPE	CONC	20"	LF	100
527+95	5'L	SD	PROPANE TNK			EA	1
528+20	10'R	SD	PUMP			EA	1
528+25	165'L	SD	PIPE	CONC	42"	LF	40
528+30	12'R	SD	INLET STRUCT	CONC		EA	1
528+32	165'L	SD	PIPE	CONC	42"	LF	40
528+52	132'L	SD	HDWL	CONC/WNGS	15'x15'	EA	1
540+20	18'R	SD	HDWL	CONC/WNGS	20'x8'x20'	EA	1
582+40	75'R	SD	PIPE	RCP	24"	LF	200
595+95	35'R	SD	PIPE	CMP	18"	LF	10
608+10	45'R	SD	HDWL			EA	1
608+10	45'R	SD	PIPE	RCP	18"	LF	5
610+58	12'R	SD	CB			EA	1
610+58	14'R	SD	PIPE	RCP	27"	LF	55
615+51	8'R	SD	CB			EA	1
615+51	10'R	SD	PIPE	RCP	69"	LF	55
615+58	8'R	SD	CB			EA	1
615+58	10'R	SD	PIPE	RCP	69"	LF	55
662+11	52'L	SD	PIPE	RCP	15"	LF	110
663+15	68'R	SD	PIPE	RCP	36"	LF	60
663+17	68'R	SD	HDWL			EA	1
671+60	28'R	SD	WET WELL			EA	1
671+60	28'R	SD	PIPE	RCP	15"	LF	78
671+61	29'R	SD	PIPE	RCP	24"	LF	90
672+60	25'L	SD	CB			EA	1
672+95	40'R	SD	WET WELL			EA	1
672+95	40'R	SD	PIPE	RCP	15"	LF	18
672+98	21'L	SD	CB			EA	1
677+72	50'L	SD	PIPE	CONC	8"	LF	100
701+83	61'R	SD	PIPE		14"	LF	125
717+95	61'R	SD	PIPE	CONC	12"	LF	85
727+70	65'L	SD	PIPE		12"	LF	150
730+31	61'R	SD	BOX CULV	DBL/CONC	8'x4'	LF	109
730+59	60'L	SD	PIPE	RGRCP	42"	LF	90
730+60	5'R	SD	MH			EA	1
730+61	4'R	SD	PIPE	RGRCP	12"	LF	80

0194A13

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
731+30	20'L	SD	PIPE	RCP	12"	LF	39
731+30	20'L	SD	CB	CONC		EA	1
731+40	30'R	SD	HDWL	CONC	18'x6'x6'	EA	1
731+59	18'R	SD	CB	CONC		EA	1
731+60	20'R	SD	PIPE	RCP	15"	LF	10
747+69	12'R	SD	PUMP			EA	1
747+69	20'R	SD	PIPE	RCP	27"	LF	30
747+71	10'R	SD	PIPE	RCP	27"	LF	82
747+73	40'R	SD	STAND PIPE	CONC	24"	EA	1
747+75	42'R	SD	PIPE	RCP	12"	LF	55
748+40	40'L	SD	HDWL	CONC		EA	1
754+70	10'L	SD	HDWL	CONC		EA	1
754+71	10'L	SD	PIPE	DBL/RGRCP	48"	LF	192
754+71	12'L	SD	PIPE	RCP	27"	LF	200
755+24	102'L	SD	PIPE	RCP	27"	LF	36
755+25	102'L	SD	MH			EA	1
755+28	102'L	SD	CB			EA	1
755+71	108'L	SD	MH			EA	1
756+70	10'R	SD	HDWL	CONC		EA	1
801+67	30'L	SD	CB	CONC		EA	1
831+25	22'R	SD	CB			EA	1
831+25	19'R	SD	PIPE	CONC	24"	LF	10
831+27	22'R	SD	PIPE	CONC	24"	LF	25
849+97	30'R	SD	CB			EA	1
857+71	25'R	SD	CB			EA	1
857+72	25'R	SD	PIPE	CONC	18"	LF	52
858+01	35'R	SD	MH			EA	1
858+01	36'R	SD	PIPE	CONC	27"	LF	10
858+24	25'R	SD	CB			EA	1
862+23	40'L	SD	PIPE	VCP	8"	LF	535
866+20	35'R	SD	PIPE	VCP	8"	LF	98
866+37	28'R	SD	MH			EA	1
866+70	17'L	SD	MH			EA	1
867+08	30'L	SD	MH			EA	1
867+09	30'L	SD	PIPE	VCP	8"	LF	380
886+50	40'L	SD	PIPE	CONC	14"	LF	10
945+57	12'L	SD	PIPE	CMP	24"	LF	50

0194A14

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
404+20	20'L	T	CABLE			LF	1596
405+50	15'R	T	CLOS			EA	1
406+90	40'R	T	CABLE			LF	115
406+91	40'R	T	CLOS			EA	1
408+19	40'R	T	CLOS			EA	1
409+49	40'R	T	CLOS			EA	1
410+75	40'R	T	CLOS			EA	1
412+05	40'R	T	CLOS			EA	1
413+45	40'R	T	CLOS			EA	1
414+81	40'R	T	CLOS			EA	1
416+20	40'R	T	CLOS			EA	1
417+75	40'R	T	CLOS			EA	1
460+22	70'L	T	CLOS			EA	1
460+28	158'L	T	CABLE			LF	2420
461+60	52'R	T	CLOS			EA	1
464+13	52'R	T	CLOS			EA	1
465+04	52'R	T	CLOS			EA	1
465+71	52'R	T	CLOS			EA	1
468+29	52'R	T	CLOS			EA	1
470+32	52'R	T	CLOS			EA	1
473+35	52'R	T	CLOS			EA	1
475+00	52'R	T	CLOS			EA	1
476+65	52'R	T	CLOS			EA	1
478+15	52'R	T	CLOS			EA	1
479+70	52'R	T	CLOS			EA	1
480+47	52'R	T	CLOS			EA	1
482+70	90'L	T	CABLE			LF	1515
484+22	62'L	T	CLOS			EA	1
485+55	62'L	T	CLOS			EA	1
486+70	62'L	T	CLOS			EA	1
488+37	62'L	T	CLOS			EA	1
489+60	62'L	T	CLOS			EA	1
490+75	62'L	T	CLOS			EA	1
492+20	62'L	T	CLOS			EA	1
493+50	62'L	T	CLOS			EA	1
494+70	62'L	T	CLOS			EA	1
495+80	62'L	T	CLOS			EA	1
497+20	62'L	T	CLOS			EA	1
499+25	50'L	T	CABLE			LF	1395
500+70	48'R	T	CLOS			EA	1

0194A15

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
502+28	48'R	T	CLOS			EA	1
503+90	48'R	T	CLOS			EA	1
505+11	48'R	T	CLOS			EA	1
506+22	48'R	T	CLOS			EA	1
507+90	48'R	T	CLOS			EA	1
509+10	48'R	T	CLOS			EA	1
510+20	48'R	T	CLOS			EA	1
511+89	6'L	T	CLOS			EA	1
553+60	65'R	T	CLOS			EA	1
553+70	60'L	T	CABLE			LF	425
662+80	55'R	T	CABLE			LF	1045
672+75	45'R	T	COND	20d/MTD/C/e	4"	LF	165
697+33	45'L	T	COND	6d/MTD/C/E	4"	LF	140
697+33	45'L	T	COND	CEM	3 1/2"	LF	140
697+35	45'L	T	COND	6d/MTD/C/E	4"	LF	140
697+40	45'L	T	COND	22d/PVC	4"	LF	160
699+30	50'R	T	COND			LF	150
755+82	160'L	T	COND	8d/TRANS	3 1/2"	LF	240
773+39	32'L	T	CABLE			LF	160
773+91	33'L	T	CLOS			EA	1
774+65	33'L	T	CLOS			EA	1
848+01	60'L	T	CABLE			LF	325
850+03	34'R	T	CLOS			EA	1
901+00	3'R	T	CABLE			LF	300
964+62	43'L	T	COND	6d	4"	LF	1256
968+61	3'L	T	MH			EA	1
974+00	28'L	T	CLOS			EA	1
974+00	27'L	T	CABLE			LF	204
993+80	35'L	T	COND	16d/ENCASED	4"	LF	75

0194A16

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
462+52	70'R	W	PIPE	ACP	12"	LF	165
533+05	425'L	W	PIPE		8"	LF	150
533+20	405'L	W	FH		6"	EA	1
533+25	403'L	W	VALVE		6"	EA	1
538+10	230'L	W	FH		6"	EA	1
538+15	228'L	W	VALVE		6"	EA	1
539+70	195'L	W	FH		6"	EA	1
539+75	193'L	W	VALVE		6"	EA	1
608+98	28'R	W	PIPE	ACP	12"	LF	82
609+32	28'R	W	PIPE	TRANSITE	2"	LF	548
609+50	35'R	W	VALVE		12"	EA	1
609+60	15'R	W	VALVE		8"	EA	1
609+60	15'L	W	PIPE	TRANSITE	8"	LF	1060
609+66	28'R	W	VALVE		8"	EA	1
615+53	165'L	W	PIPE	TRANSITE	2"	LF	200
621+59	50'L	W	PIPE	TRANSITE	2"	LF	60
625+38	105'L	W	FH		6"	EA	1
625+40	100'L	W	VALVE		6"	EA	1
635+20	45'R	W	PIPE	ACP	8"	LF	95
635+26	45'R	W	PIPE	CIP	8"	LF	95
635+27	16'R	W	VALVE		8"	EA	1
638+70	45'R	W	PIPE	GALV	2"	LF	95
641+41	15'R	W	PIPE	GALV	2"	LF	65
645+70	50'L	W	PIPE	GALV	2"	LF	52
650+70	65'L	W	PIPE	ACP	6"	LF	80
656+33	20'L	W	FH		6"	EA	1
656+35	20'L	W	VALVE		6"	EA	1
656+38	50'L	W	PIPE	ACP	6"	LF	62
662+23	52'L	W	PIPE	ACP	6"	LF	190
662+62	40'R	W	VALVE		6"	EA	1
662+70	50'L	W	PIPE	GALV	2"	LF	130
669+50	55'L	W	PIPE	ACP	4"	LF	170
671+95	45'R	W	PIPE	ACP	6"	LF	165
696+35	50'L	W	PIPE	ACP	4"	LF	173
696+45	50'L	W	PIPE	GALV	2"	LF	125
696+50	50'L	W	PIPE	ACP	6"	LF	155
696+80	20'L	W	VALVE			EA	1
696+81	20'L	W	PIPE	ACP	6"	LF	83
697+15	50'R	W	VALVE		4"	EA	1
697+18	20'R	W	VALVE		6"	EA	1

0194A17

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
697+19	20'R	W	PIPE	STEEL	6"	LF	150
697+49	70'L	W	VALVE		6"	EA	1
697+59	50'L	W	FH		6"	EA	1
698+61	65'R	W	PIPE	STEEL	6"	LF	70
699+50	61'R	W	PIPE	STEEL	6"	LF	145
699+62	40'R	W	PIPE	ACP	6"	LF	740
705+11	40'R	W	VALVE		6"	EA	1
706+03	54'L	W	FH		6"	EA	1
706+03	55'L	W	VALVE		6"	EA	1
730+10	39'L	W	PIPE	CIP	8"	LF	98
730+33	20'R	W	VALVE		8"	EA	1
730+35	38'L	W	PIPE	STEEL	20"	LF	94
730+97	42'L	W	PIPE	ACP	12"	LF	870
734+80	31'L	W	FH			EA	1
734+80	22'L	W	PIPE	CIP	6"	LF	9
734+81	24'L	W	VALVE		6"	EA	1
735+20	42'L	W	PIPE	ACP	4"	LF	380
735+31	20'L	W	VALVE		12"	EA	1
738+11	37'L	W	VALVE		4"	EA	1
738+11	45'L	W	PIPE	ACP	4"	LF	25
738+50	31'L	W	FH		6"	EA	1
738+50	24'L	W	VALVE		6"	EA	1
738+51	22'L	W	PIPE	CIP	6"	LF	9
773+30	21'L	W	PIPE	ACP	6"	LF	310
785+43	40'R	W	PIPE	ACP	8"	LF	85
788+67	40'R	W	PIPE	ACP	4"	LF	180
821+34	40'L	W	PIPE	ACP	8"	LF	162
821+76	21'L	W	PIPE	ACP	6"	LF	15
821+77	23'L	W	VALVE		6"	EA	1
821+83	35'L	W	FH		6"	EA	1
822+40	28'L	W	WM		1"	EA	1
822+45	35'R	W	PIPE	ACP	6"	LF	120
822+57	17'R	W	VALVE		8"	EA	1
832+06	12'L	W	PIPE	CIP	6"	LF	38
864+22	10'R	W	PUMP			EA	1
864+23	3'L	W	PIPE	RCP	24"	LF	28
864+24	11'R	W	PIPE	RCP	8"	LF	12
866+32	35'R	W	PIPE	GALV	12"	LF	88
866+90	35'R	W	PIPE	STEEL	20"	LF	85
885+60	40'L	W	PIPE	RCP/C/E	60"	LF	70

0194A17

STATION	OFFSET	UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
893+00	2'L	W	INLET	STRUCTURE		EA	1
899+40	35'L	W	PIPE	RCP	66"	LF	200
964+06	36'L	W	PIPE	ACP	12"	LF	1310
964+21	5'L	W	PIPE	CIP	4"	LF	1310
964+25	7'L	W	VALVE		4"	EA	1
966+30	30'R	W	VALVE		12"	EA	1

UTILITY QUANTITIES

UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
CATV	CABLE			LF	5594
CATV	PED			EA	30
E	CABLE			LF	10485
E	COND	230KV	8 5/8"	LF	930
E	MH			EA	4
E	POLE	WOOD		EA	88
E	POLE	STEEL	6"	EA	6
E	POLE	STEEL	24"	EA	4
E	POLE	STEEL		EA	11
E	SERV BOX			EA	2
E	TRANS			EA	27
G	PIPE			LF	235
G	PIPE		1 1/4"	LF	1525
G	PIPE		2 1/2"	LF	20
G	PIPE		2"	LF	3134
G	PIPE		4"	LF	645
G	PIPE	ABS	2"	LF	1630
G	PIPE	ABS	1 1/4"	LF	507
G	PIPE	IN 4" CASING	2"	LF	75
G	PIPE	STEEL	2"	LF	756
G	VALVE			EA	2
G	VALVE		2"	EA	2
IRR	PIPE	TRPL/CONC	12"	LF	18
IRR	PIPE	CONC	18"	LF	20
S	C.O.	VCP	8"	EA	3
S	MH			EA	84
S	PIPE	CIP	8"	LF	66
S	PIPE	RGRCP	60"	LF	185
S	PIPE	VCP	10"	LF	8595
S	PIPE	VCP	12"	LF	6201
S	PIPE	VCP	15"	LF	250
S	PIPE	VCP	21"	LF	3630
S	PIPE	VCP	8"	LF	4926
SD	BOX CULV	DBL/CONC	8'x4'	LF	109
SD	CB			EA	13
SD	HDWL	CONC	10'x20'	EA	1
SD	HDWL	CONC/WNGS	15'x15'	EA	1
SD	HDWL	CONC/WNGS	20'x8'x20'	EA	1
SD	HDWL			EA	1
SD	HDWL			EA	1
SD	HDWL	CONC	18'x6'x6'	EA	1
SD	HDWL	CONC		EA	1
SD	HDWL	CONC		EA	1
SD	HDWL	CONC		EA	1
SD	INLET STRUCT CONC			EA	1
SD	MH			EA	7
SD	PIPE		12"	LF	150
SD	PIPE		14"	LF	125
SD	PIPE	CMP	18"	LF	10
SD	PIPE	CMP	24"	LF	50
SD	PIPE	CONC	8"	LF	100
SD	PIPE	CONC	12"	LF	85
SD	PIPE	CONC	14"	LF	10
SD	PIPE	CONC	18"	LF	132
SD	PIPE	CONC	20"	LF	100
SD	PIPE	CONC	24"	LF	75

UTILITY	ITEM	TYPE	SIZE	UNIT	QUANTITY
SD	PIPE	CONC	27"	LF	10
SD	PIPE	CONC	42"	LF	80
SD	PIPE	DBL/RGRCP	48"	LF	384
SD	PIPE	RCP	12"	LF	94
SD	PIPE	RCP	15"	LF	216
SD	PIPE	RCP	18"	LF	143
SD	PIPE	RCP	24"	LF	290
SD	PIPE	RCP	27"	LF	403
SD	PIPE	RCP	36"	LF	60
SD	PIPE	RCP	69"	LF	110
SD	PIPE	RGRCP	12"	LF	80
SD	PIPE	RGRCP	42"	LF	90
SD	PIPE	VCP	8"	LF	1013
SD	PROPANE TNK		EA	1	
SD	PUMP			EA	2
SD	STAND PIPE	CONC	24"	EA	1
SD	STND/PIPE	CONC	48"	EA	1
SD	WET WELL			EA	2
T	CABLE			LF	9500
T	CLOS			EA	48
T	COND			LF	150
T	COND	16d/ENCASED	4"	LF	75
T	COND	20d/MTD/C/e	4"	LF	165
T	COND	22d/PVC	4"	LF	160
T	COND	6d	4"	LF	1256
T	COND	6d/MTD/C/E	4"	LF	280
T	COND	8d/TRANS	3 1/2"	LF	240
T	COND	CEM	3 1/2"	LF	140
T	MH			EA	1
W	FH			EA	10
W	INLET	STRUCTURE		EA	1
W	PIPE		8"	LF	150
W	PIPE	ACP	12"	LF	2427
W	PIPE	ACP	4"	LF	928
W	PIPE	ACP	6"	LF	1920
W	PIPE	ACP	8"	LF	342
W	PIPE	RCP/C/E	60"	LF	70
W	PIPE	CIP	4"	LF	1310
W	PIPE	CIP	6"	LF	56
W	PIPE	CIP	8"	LF	193
W	PIPE	GALV	12"	LF	88
W	PIPE	GALV	2"	LF	467
W	PIPE	RCP	24"	LF	28
W	PIPE	RCP	66"	LF	200
W	PIPE	RCP	8"	LF	12
W	PIPE	STEEL	20"	LF	179
W	PIPE	STEEL	6"	LF	365
W	PIPE	TRANSITE	2"	LF	808
W	PIPE	TRANSITE	8"	LF	1060
W	PUMP			EA	1
W	VALVE			EA	1
W	VALVE		12"	EA	3
W	VALVE		4"	EA	3
W	VALVE		6"	EA	13
W	VALVE		8"	EA	5
W	WM		1"	EA	1

A T L Testing Laboratories

A Division of R & D Engineering Associates, Inc.

Engineers • Geologists

Boyd Smith, P.E. Donald E. Green, P.E.

ATL JOB NO.: F-0385102 JULY 7, 1985

REPORT
OF
FOUNDATION SOIL INVESTIGATION

FOR

MORRISON - KNUDSEN ENGINEERING, INC.

PROJECT

ELEVEN BRIDGE SITES
FOR
THE
A. C. D. C.

Registered Professional Engineer (Civil)
CERTIFICATE NO. 9995
DONALD E. GREEN
Date Signed 7/8/85
ARIZONA, U.S.A.

3130 North 27th Avenue • Phoenix, Arizona 85017 • Telephone (602) 252-3975

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Engineers • Geologists

Boyd Smith, P.E. Donald E. Green, P.E.

I N D E X

1.0 SCOPE.....1

FIELD INVESTIGATION.....1

3.0 DISCUSSION & RECOMMENDATIONS.....2

3.2 Bridge Foundations.....4

LOGS OF BORINGS

Registered Professional Engineer
CERTIFICATE NO. 9995
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REPORT
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MORRISON - KNUDSEN ENGINEERS, INC.

PROJECT

ELEVEN BRIDGE SITES
FOR
THE
A. C. D. C.

1.0 SCOPE

This investigation was undertaken to define adequate foundation support for the eleven Bridge Sites on the above referenced project.

2.0 FIELD INVESTIGATION

The field investigation consisted of advancing 2 to 3 borings at each bridge site location to a sufficient depth to define adequate founding for each structure. The borings are 4-inches in diameter and were advanced with a Mobil B-50 Rotary Drill Rig. The sub-soils were classified by cuttings received at the collar of the bore holes. Bulk samples were secured to

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verify the field classification by laboratory analyses.

The auger borings were supplemented with both continuous and standard penetration tests. The continuous penetration tests consisted of advancing a 2-inch diameter blunt-nosed penetrometer with repeated blows of a 140-pound drop weight. This resistance is indicated on the attached "Logs of Borings" under the column headed "CONT". The standard penetration tests were conducted with a 2-inch O.D. Split Barrel Sampler, advanced by the same effort as the continuous penetration test. These results are noted on the attached "Logs of Borings" under the column headed "SPT". Both results are expressed in the number of blows from the 140-pound drop weight to advance the penetrometer a distance of 1-foot.

The results of the soil classification, penetration tests and the location of each boring is indicated on the "Logs of Boring", included herewith.

3.0 DISCUSSION AND RECOMMENDATIONS

3.1 Structural Considerations - It is understood each structure will be a single span bridge that will cross the A. C. D. C. The design of the structure is such there will be vertical walls at each abutment. The soil structure will be supported with a diaphragm wall.

The sub-soil conditions will not permit the driving of piling from the surface. Therefore, pre-boring will be required for the installation of pipe pile where sub-soil conditions will even permit the pre-boring. All pile should have closed end sections and be driven with a mandrel At some locations, the only feasible method of providing foundation support will be through the use of spread footings, due to the presence of strata of calichified sand, gravel, cobbles and small boulders. In these conditions, modifications to the diaphragm wall may have to be made to allow for some lateral load contribution from the spread footing.

Due to the extensive pre-boring required at locations where piles may be used, the allowable bearing values more approximates those for drilled-cast-in-place pile than driven piling. Therefore, capacities of greater than 20 tons per pile have not been considered.

The pre-boring should allow for an annular area around the pile of at least 2-inches. This void should be filled with sand slurry to provided, at least, minimal lateral support for the pile.

The bearing values and types of footings recommended herein consider limiting settlements to 1-inch.

3.2 - Bridge Foundations

3.2.1 - Bridge No. 1 - 7th Avenue

Spread footings may rest upon a calichified stratum of sand and gravel at a depth of -15 feet. The allowable bearing capacity for a 10-feet wide footing is 5.6 tons per square foot.

Pipe piling may be set below -25-feet with pre-boring to within 3-feet of anticipated tip elevation. The allowable capacity at this site is 20 tons per pile on a 24-inch diameter pile.

The average modulus of subgrade reaction to a depth of 35-feet at this location is 720 kips per square foot.

3.2.2 - Bridge No. 2 - Dunlap Avenue

Spread footings are not considerable feasible at this site. Therefore, pipe piling should be set at -35-feet, with pre-boring to within 3-feet of tip elevation. The allowable capacity is 20-tons for a 24-inch diameter pipe pile.

The average modulus of subgrade reaction to a depth of 35-feet is 630 kips per square foot.

3.2.3 - Bridge No. 3 - Central Avenue

Spread footings are not considered feasible at this site. Therefore, pipe piling should be installed to a depth of -32-feet or more. Pre-boring should be considered to within 3-feet of the pile tip elevation. The design capacity is 20 tons

for a 24-inch diameter pile.

The average modulus of subgrade reaction to a depth of 35-feet is 770 kips per square foot.

3.2.4 - Bridge No. 4 - 7th Street

Spread footings are not considered to be feasible for this site. Therefore, pipe piles should be installed with tip elevations at a minimum of -30-feet. Pre-boring will be required to within 3-feet of anticipated tip elevation. The 20 ton capacity may be developed with a pipe that has a diameter of 24-inches.

The average modulus of subgrade reaction to a depth of 35-feet is 885 kips per square foot.

3.2.5 - Bridge No. 5 - Northern Avenue

Spread footings may be used at this location that bear upon a highly calichified stratum at -15-feet. The allowable contact pressure for a 10-feet wide footing is 5.6 tons per square foot.

Pipe piles may be installed to bear upon a clayey sand and gravel at depths of -31-feet or more. The design load is 20 tons for a 24-inch diameter pipe pile.

The average modulus of subgrade reaction to a depth of 35-feet is 630 kips per square foot.

3.2.6 - Bridge No. 6 - 12th Street

Spread footings may be utilized at this site at depths varying from -12-feet at Station to -20-feet at Station 12+28. It is not anticipated sub-soil conditions will permit the pre-boring that will be necessary to install the pipe piling. The allowable bearing value for a 10-feet wide footing is 5.6 tons per square foot.

The average modulus of subgrade reaction to a depth of 30-feet is 720 kips per square foot.

3.2.7 - Bridge No. 7 - 16th Street

Pile installation is not considered feasible at this location. The strongly cemented strata below -10-feet will resist the pre-boring and driving of piling. Therefore, the use of spread footings are recommended. These footings may bear upon the strongly calichified layer at depths below -10-feet. The allowable bearing capacity a 10-feet wide footing is 5.0 tons per square foot.

The average modulus of subgrade reaction to a depth of 35-feet is 720 kips per square foot.

3.2.8 - Bridge No. 8 - Glendale Avenue

The use of pile foundations are not considered feasible at this site due to a shallow calichified stratum. Therefore, the use of spread footings are recommended for use. The footings

should bear at a minimum of -6-feet. The allowable bearing capacity for a 10-feet wide footing is 3.8 tons per square foot.

The average modulus of subgrade reaction to a depth of 35-feet is 930 kips per square foot.

3.2.9 - Bridge No. 9 - Maryland Avenue

Piling are not recommended at this location due to a strongly calichified stratum at -5-feet. Therefore, spread footings should be designed to bear upon this stratum at a minimum depth of -6-feet. The allowable bearing capacity for a 10-feet wide footing is 3.8 tons per square foot.

The average modulus of subgrade reaction to a depth of 35-feet at this location is 930 kips per square foot.

3.2.10 - Bridge No. 10 - 24th Street

Spread footings should be designed at this location to bear upon a calichified stratum at a depth of -6-feet. The allowable bearing capacity for a 10-feet wide footing is 3.8 tons per square foot.

The average modulus of subgrade reaction to a depth of 35-feet at this location is 930 kips per square foot.

3.2.11 - Bridge No. 11 - 32nd Street

Spread footings should be used at this location. They should bear upon a calichified stratum at -6-feet. The allowable bearing capacity for a 10-feet wide footing is 3.8 tons per

square foot.

The average modulus of subgrade reaction to depth of 35 feet at this location is 930 kips per square foot.

Respectfully submitted,
ATL TESTING LABORATORIES

Registered Professional Engineer (Civil)
CERTIFICATE NO. 9995
DONALD E. GREEN
Date Signed 7/9/85
ARIZONA, U.S.A.

Donald E. Green, P.E.

VI CONSTRUCTION IMPACT

The utility relocation and bridge construction will inconvenience the people who travel the roads where construction will take place. These people will encounter delays, dust or mud and detours until the work is complete and the damaged and removed pavement is replaced. The people who live in the vicinity of the construction will be subjected to increased noise, dust or mud and access problems normal to construction. There will be no long term impact because when the construction is done no one will feel or see any difference.

APPENDIX

LIST OF UTILITY COMPANIES

Salt River Project
P.O. Box 52025
Phoenix, AZ 85072-2025

Mountain Bell Telephone & Telegraph Co.
3033 N. 3rd Street
Phoenix, AZ 85012

Southwest Gas Corporation
P.O. Box 52075
Phoenix, AZ 85072-2075

Times-Mirror Television, Inc.
17602 N. Black Canyon Highway
Phoenix, AZ 85023

Arizona Public Service Co.
P.O. Box 21666
Phoenix, AZ 85036

Salt River Valley Water Users Association
P.O. Box 52025
Phoenix, AZ

City of Phoenix
Water and Wastewater Department
125 E. Washington Street
Phoenix, AZ 85004

LIST OF MAPS & RECORD DRAWINGS

ACDC UTILITY MASTERPLAN

Engineer 1/4 Sec.	Sewer 1/4 Sec.	Water 1/4 Sec.	Gas 1/4 Sec.	Electric 1/4 Sec.	Telephone 1/4 Sec.	Cable 1/4 Sec. 3-21	1/4 Sec. Map No.	
QE 1	QS 1	QW 1	QG 1	QEL 1	QT 1	QTV 1	30-17	51AV-47AV
QE 2	N/A	N/A	QG 2	N/A	QT 2	N/A	29-17	51AV-47AV
QE 3	QS 3	QW 3	QG 3	QEL 3	QT 3	QTV 3	29-18	47AV-43AV
QE 4	QS 4	QW 4	QG 4	QEL 4	QT 4	QTV 4	29-19	43AV-39AV
QE 5	QS 5	QW 5	QG 5	QEL 5	QT 5	QTV 5	28-19	43AV-39AV
QE 6	QS 6	QW 6	QG 6	QEL 6	QT 6	QTV 6	28-20	39AV-35AV
QE 7	QS 7	QW 7	QG 7	QEL 7	QT 7	QTV 7	27-20	39AV-35AV
QE 8	QS 8	QW 8	QG 8	QEL 8	QT 8	QTV 8	27-21	35AV-31AV
QE 9	QS 9	QW 9	QG 9	QEL 9	QT 9	N/A	27-22	31AV-B1kC
QE 10	QS 10	QW 10	QG 10	QEL 10	QT 10	N/A	27-23	B1kC-23AV
QE 11	QS 11	QW 11	QG 11	QEL 11	QT 11	N/A	27-24	23AV-19AV
QE 12	QS 12	QW 12	QG 12	QEL 12	QT 12	QTV 12	27-25	19AV-15AV
QE 13	QS 13	QW 13	QG 13	QEL 13	QT 13	QTV 13	27-26	15AV-7 AV
QE 14	QS 14	QW 14	QG 14	QEL 14	QT 14	QTV 14	27-27	7 AV-CENT
QE 15	QS 15	QW 15	QG 15	QEL 15	QT 15	QTV 15	26-27	7 AV-CENT
QE 16	QS 16	QW 16	QG 16	QEL 16	QT 16	QTV 16	26-28	CENT-7 ST
QE 17	QS 17	QW 17	QG 17	QEL 17	QT 17	QTV 17	25-28	CENT-7 ST
QE 18	QS 18	QW 18	QG 18	QEL 18	QT 18	QTV 18	25-29	7 ST-12ST
QE 19	QS 19	QW 19	QG 19	QEL 19	QT 19	QTV 19	24-29	7 ST-12ST
QE 20	QS 20	QW 20	QG 20	QEL 20	QT 20	QTV 20	24-30	12ST-16ST
QE 21	QS 21	QW 21	QG 21	QEL 21	QT 21	QTV 21	23-29	7 ST-12ST
QE 22	QS 22	QW 22	QG 22	QEL 22	QT 22	QTV 22	23-30	12ST-16ST
QE 23	QS 23	QW 23	QG 23	QEL 23	QT 23	N/A	23-31	16ST-20ST
QE 24	QS 24	QW 24	QG 24	QEL 24	QT 24	QTV 24	22-31	16ST-20ST
QE 25	QS 25	QW 25	QG 25		QT 25	QTV 25	22-32	20ST-24ST
QE 25a	QS 25a	QW 25a	QG 25a	QEL 25a	QT 25a	QTV 25a	21-31	16ST-20ST
QE 26	QS 26	QW 26	QG 26		QT 26	QTV 26	21-32	20ST-24ST
QE 27	QS 27	QW 27	QG 27		QT 27	QTV 27	21-33	24ST-28ST
QE 28	QS 28	QW 28	QG 28		QT 28	QTV 28	20-33	24ST-28ST
QE 29	QS 29	QW 29	QG 29		QT 29	QTV 29	20-34	28ST-32ST
QE 30	QS 30	QW 30	QG 30		QT 30	QTV 30	20-35	32ST-36ST
QE 31	QS 31	QW 31	QG 31		QT 31	QTV 31	19-35	32ST-36ST
QE 32	QS 32	QW 32	QG 32		QT 32	QTV 32	19-36	36ST-40ST

HYDRAULIC PLAN & PROFILE

FROM CORP OF ENGINEERS

PP1	STA 341+80.29	to	STA 370+07.89	51st Ave. - Cactus
PP2	STA 370+07.89	to	STA 404+87.25	
PP3	STA 404+87.25	to	STA 404+00	43rd Ave.
PP4	STA 440+00	to	STA 470+00	39th Ave.
PP5	STA 470+00	to	STA 505+00	35th Ave.
PP6	STA 505+00	to	STA 540+00	29th Ave.
PP7	STA 540+00	to	STA 575+00	Blk. Canyon Hwy.
PP8	STA 575+00	to	STA 610+00	19th Ave.
PP9	STA 610+00	to	STA 645+00	15th Ave.
PP10	STA 645+00	to	STA 680+00	7th Ave.
PP11	STA 680+00	to	STA 715+00	Central Ave.
PP12	STA 715+00	to	STA 750+00	7th St.
PP13	STA 750+00	to	STA 785+00	12th St.
PP14	STA 785+00	to	STA 820+00	14th St.
PP15	STA 820+00	to	STA 855+00	16th St.
PP16	STA 855+00	to	STA 890+00	Maryland
PP17	STA 890+00	to	STA 925+00	24th St.
PP18	STA 925+00	to	STA 960+00	
PP19	STA 960+00	to	STA 995+00	32nd St.

Received 3-8-85

Aerial Photos - Flown 3-4-85

Flight No. 1 Sheets 1-13 - From 40th Street & Camelback on the East to the Arizona Biltmore on the West, including Bridge No. 11 on 32nd Street.

Flight No. 2 Sheets 1-7 - From Arizona Biltmore on the East to 24th Street on the West, including Bridge No. 10.

Flight No. 3 Sheets 1-16 - From 24th Street on the East (Bridge No. 10) to West of 16th Street (Bridge No. 7), including Bridges No. 8 & 9.

Flight No. 4 Sheets 1-6 - From 16th Street on the East to West of 12th Street (Bridge No. 6).

Flight No. 5 Sheets 1-7 - From 12th Street on the East to 7th Street on the West. Includes Bridges 4, 5, 6 & 7.

Flight No. 6 Sheets 1-7 - Central Avenue on the West (Bridge No. 3) to East of 7th Street (Bridge No. 4).

Flight No. 7 Sheets 1-7 - From 7th Avenue on the West to East of Central Avenue. Includes Bridges No. 1, 2, & 3.

Flight No. 8 Sheets 1-14 - From Dunlap & 7th Avenue on the East to the Cave Creek Wash on the West, Includes Bridges 1 & 2.

Flight No. 9 Sheets 1-12 - From Cave Creek Wash on the East to 35th Avenue North of Dunlap.

Flight No. 10 Sheets 1-15 - From approximately 47th Avenue on the West to 35th Avenue North of Dunlap on the East.

Flight No. 11 Sheets 1-10 - From Cactus Road & 51st Avenue on the West to Peoria & 45th Drive.

Received 3-8-85

No.

BR 1-1 #30173-30205 [1969]
7th Ave. - Dunlap to Hatcher Road
Sheets 3 of 11, 4 of 11
City of Phoenix Project BR 68205.00 (GT) No AS-Built Data

S 1-2 # 1-8215-8242 City of Phoenix Project S-5727 (BI)
Sewer - 7th Ave. Osborn Road to Arizona Canal
Sheet 28 of 28 As-Built 1958? No A/B sent
The new 12" VCP is called to be connected to Exist. 12" VCP
Project No. of Exist. unknown at this time.

S 1-3 Sanitary Sewer Improvement District
#14629-14725 City of Phoenix No. S-59056
Bounded by Cheryl Drive, Arizona Canal, 7th St. & 7th Ave.
Sheet 87 on 7th Ave.

SD,P 1-4 #49000-49044 City of Phoenix No. P-73109.00 As-Built 2-25-77
7th Ave. Northern Ave. to Dunlap Ave. (Incl. S.D. & Irr.)
Sheet 27 of 44 has Storm Drain North of Exist. Canal.
This paving project ends at the North Curb Return of Dunlap on 7th Ave. The paving should tie in to an exist. paving project.

S 2-1 #45560-45562 As-built 2-15-603 Project S-722181.01
Dunlap Ave. & Arizona Canal Poor Quality
But ladden w/utilities 1 of 3 thru 3 of 3

P,Irr 2-2 #232-34-23252 City of Phoenix Proj. No. P59135.02 GT (State Job)
As-Built 6/24/65
Sheet 12, 13, 14 Dunlap Ave. 7th Ave. to Central

P 3-1 #1-9998-10008 - Sheet 2 & 3 Paving on Central north of AZ Canal.

P 3-2 #1-8281 -Central Ave. Paving - Earll to Dunlap Sheet 22 of 34

P 3-3 #37636-37640 PA-66007.01 Landscaping N. Central Sheet 2 of 5

BR 3-4 #43810-43819 Proj. BR-71111 Bridge on Central Ave. over AZ Canal
Sheet 3 of 10 & 2 of 10

Received 3-26-85

No.			
W	1-5	As-built 2-25-187	Project W-63003(BI) Sheets 20 of 33 9th Ave., North of AZ Canal & West of Bridge 1.
W	AB14-2	As-built 2-6-2532	4" Waterline north of Dunlap, by Bridge 2.
W	34-1	As-built 2-6-2583	"SKYLINE VISTA" Griswold Rd. between 8th St. & 8th Pl.
W	AB16-25	As-built 2-6-2607	"Northtown" 6" water along Canal East of Central Ave. (Bridge 3).
W	8-1	As-built 2-6-1912	Sheet 1 of 2-6" CIP on Glendale @ Bridge 8.
W	98-1	As-built 6-69-12	6" CIP at 18th Place & Ocotillo 1/4 mile South of Glendale between Bridge 8 & 9.
W	AB29-2	As-built 2-6-165	4" CIP at Alta Vista Drive & Canyon Drive West of 32nd Street Bridge 11.
IRR	AB26-1	As-built 6-74-64	Diversion Structure West of 24th Street.
W	AB19-1	As-built 6-72-25	6" ACP 11th Street & Belmont Ave. & Kaler Drive NW of Bridge No. 6.
W	AB19-2	As-built 6-72-26	Belmont Ave. between 11th Street and 12th Street NW of Bridge No.6.
W	AB30-2	As-built 2-15-549	Project W-73070.00 Sheet 4 12" Waterline on 32nd Street Bridge 11, Sheet 5 & 6 Staford Drive from 32nd Street Eastwardly.
W	10-1	As-built 2-15-40A	66" Water Crossing Canal at 24th Street Bridge No. 10.
W	910-1	As-built 2-15-40D	60" Water Crossing Canal, Canal West of 24th Street Project W-5733-1.
W	3-6	As-built 15-82-27	Project W-79249.00 Sheets 9 of 11 6" Water crossing Central Ave. at Ruth Ave. Bridge No.3.
W	4-1 & 9-1	As-built 2-6-2761	Project W-58100 (Formally a portion of W-5865(BI) 6" Water on 7th Street crossing Canal Bridge No. 4 20" Water on Maryland St. crossing Bridge No. 9.
W	4-2 & 7-1	As-built 2-15-41	Project W-60019 Sheet 14 & 15 12" ACP running East of Bridge No. 4, Sheet No. 13 - Brigde No. 4 Sheet No. 2 - 6" ACP @ Bridge No. 7 on 16th St.
W	9-2	As-built 2-15-650	Project W-75143.00 Sheet 3 20th Street & Maryland - Bridge No. 9.

Received 3-14-85

No.			
S	AB30-3	As-built 7-71-19	Sheet 2 of 2 8" Sewer on Stanford Drive, East of 32nd Street.
S	AB30-1	As-built 2-7-1239A	8" Sewer on Stanford Drive, @ 32nd Street connects with As-built 7-7-19. Also As-built 2-7-1239 (Item 11-2).
S	11-2	As-built 2-7-1239	8" Sewer on 32nd Street @ Stanford Drive. Cross ref. to Item 111-2.
S	11-3	As-built 2-15-135	Proj. S-62161(BI) and S-62163(B) Sheet 3 of 7. 10" VCP crossing @ 32nd Street- Bridge 11.
S	AB29-1	As-built 7-78-12	Sheets 3 & 4 8" Sewer crossing canal in ARiz. Biltmore Estates between Bridges 10 & 11.
S	AB27-1	As-built 7-80-49	Sheet 2 - 8" VCP in Biltmore area between Bridges 10 & 11.
S	AB27-2	As-built 2-15-446	Proj. S-70246.01(BI) Sheets 3, 4, 5 & 6. 15" VCP along North Canal bank East of 24th Street.
S	10-2	As-built 7-74-27	Sheet 3 12" VCP on 24th St. @ Bridge 10.
S	10-3	As-built 2-15-328	Proj. S-66229.00(BI) Sheet 26-12" VCP crossing canal on 24th St. Bridge 10.
S	89-2	As-built 2-15-444	Proj. S-70018.00 Sheet 3 of 4-8" VCP on 18th Place, North of AZ canal between Bridges 8 & 9.
S	89-3 9-3	As-built 2-7-832A	Sheet 2 of 6-8" sewer line on 20th St. North of canal, then along canal to Maryland.
S	9-4	As-built 2-7-503	Sht. 4-8" VCP xing canal at Maryland, Bridge 9.
S	9-5	As-built 7-73-06	Proj. W-71054.00(BI) 8" Sewer line reloction - Maryland Ave. East of 20th ST. (extended).
S	8-2	As-built 2-15-203	Pro. S-63261.00(BI) Sht. 9-12" VCP San. Sewer on Glendale Ave. from AZ Canal to past 17th St. cross ref. 7-3
S	6-1	As-built 2-7-779	8" sewer crossing canal at 12th St. Bridge 6
S	5-1	As-built 2-15-215	Proj. S-63262(BI) 12" sewer crossing AZ Canal @ Northern Ave. Bridge 5.
S	AB19-5	As-built 2-7-114	8" VCP crossing AZ Canal between Bridges 5 & 6.

Received 3-8-85

No.			
S	4-3	Proj. S-5728B(BI)	Sht. 9-12" VCP crossing Canal on 7th St.
S	7-2	As-built 2-8-72	Proj.S-5729 B Sht. 12-12" VCP crossing canal on 16th St.
S	1-6	Proj. S-5727B	Sht. 7-12" VCP crossing canal on 7th Ave.
S	4-4	As-built 2-8-69	Proj. S-5728(BI) 12" VCP crossing canal at 7th St. Bridge 4.
S	45-1	As-built 2-7-437	Sht. 2-10" VCP North of canal on Griswold Rd., East of 7th St. between Bridges 4 & 5.
S	2-4	As-built 2-115-618	Proj. S-72218.00 Shts. 22 & 23-18" VCP Dunpal @ AZ canal.
S	12-1 & 2-5	As-built 2-7-793	Proj. 59155.46(BI) Sht.21 12" VCP runs along North bank of Canal eastwardly between 7th Ave. Bridge and Dunlap Ave. bridge.
S	2-6	As-built 2-7-762	12" sewer along Dunlap between 3rd Dr. & 2nd Dr. East of Bridge 2.
S	56-4	As-built 7-72-28-2A	8" sewer North of Canal between Bridges 5 & 6.
S	56-5	As-built 7-72-161-2A	8" sewer North of Canal between Bridges 5 & 6.
S	23-	Proj. S-59056	Shts. 2, 3, 4, 5, 6, 16,31,32 & 42 - 8" VCP North of Dunlap and on Dunlap to Central. Bridges 2 & 3.
S		Proj. S-59069	8" VCP along North bank of AZ Canal and between 12th Ave. & 7th Ave.
S		Proj. S-63261.00(BI)	Shts. 7 & 8 continuing 12" VCP along and bank between Bridges 7 & 8.

Received 3-22-85

IRR,S	4-5	#29063-29067	Proj. ST. 62021.02(BI) sheet 24 thru 28 Comb. Irr. & Storm Sewer.
P&SD	4-6	#29010-29102	Proj. P-64014.00(GT) sheet 62 & 63 Paving on 7th St. up to AZ Canal.
P&SD	4-7	#23497-23498	P-64014.02(GT) sheet 3,4,16 & 17 Paving & Storm Drain w/plan & profile AZ Canal to Dunlap Ave.
P	4-8	#11819, 11820 & 11823	As-built date: 9-48 Grading plans of 7th St. @ canal & AZ Canal Bridge.
P	5-2	#52506-52508 & 52501	Proj. P-74242.00 Sheet 1,6,7,&8 Paving plans on Northern Ave. over exist. Bridge.
SD	5-3	#52520	Proj. P-74242.00 Sheet 19 Storm Drain on Northern Ave. @ exist. Bridge.
SD	5-4	#52530-52532	Project P-74242.00 Sheets 29,30 & 31.
SD	5-5	#52535-52536	Project P-74242.00 Sheet 34 & 35 Concrete Box Culvert crossing Northern Ave.
SD	5-6	#52542	Project P-74242.00 Sheet 41 Headwall & retaining wall.
BR	5-7	#52552-52562	Proj. BR-74242.01 "Northern Ave. Bridge over AZ Canal" Sheet 1,2,3,4 & 8.
S	5-8	#19647-19648	Project S-63262(BI) Northern Ave. trunk sewer over exist. Bridge.
P,SD	8-3	#31839	Pro. P-69208.00(GT) Sht. 4a Paving from Az Canal to East of 17th St/ plus storm drain crossing Glendale Ave.
S	7-3	#19015-19016	As-built 2-15-203 Proj. S-63261.00(BI) Sht. 3 & 4-12" VCP crossing 16th St. @ AZ Canal cross ref. 8-2.
W	7-4	#15477 & 15494	Pro.W-61086(BI) Sht. 14 & 31 - 8" water line on Glendale & North of 16th St.
P	7-5	#77668-77670	Pro. P-79156.00 Shts. 6,7 & 8 Paving on 16th St. North of Glendale.
BR	7-6	#73986-73989	Pro. BR-799510/BR-79156.01 Bridge widening at 16th St. over AZ. Canal.
W	7-7	#75258-75259	As-built 15-83-15 Proj. W-81269.00 Sht. 2 & 3 8" Water Line on 16th St. between Glendale Ave. &

Received 3-22-85

P	6-2	#64945	N.P.-76187.00(I.D.) Sht.44-12th St. North of AZ Canal.
SD	67-1	#64932	N.P.-76187.00(I.D.) Sht. 31-14th ST. North of AZ Canal Sht. 9-Storm Drain, sump pump details on 14th St.
P	10-4	#28008-28014	Pro. P-64341.00(GT) Shts. 19-25 Paving on 24th St. Parkway between Camelback Rd. & Lincoln Dr. Sht. 59-Median Island details.
P	10-5	#53176	Paving on 24th St. North of AZ Canal Sht. 3.
ST	11-4	#29506	Pro. ST-64334.04(BI) Sht 36 30" RCP on 32nd St. South of AZ Canal.
ST	11-5	#25505-25506	Pro. ST-64334.02(BI) Sht. 2&3 "AZ Canal Diversion Structure" @ Bridge 11.
BR	11-6	#59779-59790	Pro. BR-75180.04 "Widening of North 32nd St. Bridge over AZ Canal."
P	11-7	#69444 & 69446	Pro. P-75180.09 Sht. 3 Paving @ intersection of 32nd St. & Stanford Dr. Sht 5 & 19 "Traffic Signal Foundation" 32nd St. & Stanford Dr.
P	11-8	#68544-68545	Pro. P-75180.03 (Phase II) Sht. 4 & 5 32nd St. South and North of AZ Canal.

Received 3-27-85

W	AB13-3	As-built 2-15-187	Pro. W-63003(BI) Sht. 20 - 6" Waterline on 9th Ave. South of Hatcher Rd. to AZ Canal.
W	AB13-2	As-built 2-15-679	Pro. W-78045.00 & W-78046.00 Shts 30,31,31 & 33 - 6" Waterline South of Hatcher Rd. toward Az Canal on 11th Ave., 12th Ave., 13th Ave. & 14th Ave.
W	AB12-1	As-built 2-6-1261	Sht. 27 - 8" Waterline south of Hatcher Rd. toward AZ Canal on 15th Ave.
W	AB10-1	As-built 6-78-46	Shts. 1-3 12" WaterLine on 23rd Ave. from Cheryl Ave. to AZ Canal.
W	AB9-2	As-built 15-82-05	Pro. W-80087.00 Sht 10 of 10 8" Waterline on 31st Ave. from Peoria Ave. to AZ Canal.
W	AB5-1	As-built 15-82-03	Pro. W-80351.00 Shts. 9,10 & 11 24" Waterline crossing AZ Canal at 39th Ave.
S	AB5-4 AB6-1	As-built 7-71-119	Shts. 2,3,4,5,6 & 8 10" & 8" San. Sewer along AZ Canal South of Peoria Ave
S	AB5-2	As-built 7-72-192	Shts. 1 & 2 8" VCP San. Sewer North of AZ Canal on North Lane connecting to 10" Sewer on As-built 7-71-119.
S	AB3-1	As-built 2-15-437	Pro. S-69062 Shts 3-9 21" San. Sewer along north side of AZ Canal from 43rd Ave. to 47th Ave.
S	AB5-3	As-built 7-72-31	Sht. 2 8" VCP San. Sewer north of San. Sewer north between 39th Lane & 39th Ave. connects to 10" VCP from AS-built 7-71-119.
S	AB8-1	As-built 7-70-104	Shts. 7A & 9 8" San. Sewer north of AZ Canal from 35th Ave. to 34th Lane then north to Carol Ave.
S	AB8-2 AB9-1	As-built 7-74-01	Shts 4-1 through 4-9 12" VCP San Sewer along AZ Canal from 35th to 29th Ave.
S	AB12-2 AB13-1	As-built 2-15-178	Pro. S-59069 Shts 56,57,61,63,78,79,81,83 & 84 10" & 8" San. Sewer from 19th Ave. to Hatcher to 15th Ave. and AZ Canal. Also between Hatcher Rd. & AZ Canal on 14th Ave., 13th Ave., 12th Ave., 11th Ave., 10th Ave. Also north of Canal from 9th Ave. to 7th Ave.

Received 5-1-85

AB	24thST		Proj. ST 65280(BI) Sheet 37 - 27" Pipe Crossing AZ Canal @ 19th Ave. ST 66112.00 Sheet 37A - Installation of curb opening and connecting pipe to above project.
BR	10-6	#26194-26202	Proj. P-64341.01(GT) Sheets 2 & 4 - 24th Street Parkway Bridge over AZ Canal.
BR	8-4	#32466-32474	Proj. BR-70223.00(GT) - Glendale Ave. Bridge Sheets 2,3 & 4.
BR	7-8	#30757-30761	16th Street Bridge - Sheets 1a,2 & 3.
BR	2-7	#18956-18962	Proj. P-59135.04 - West Dunlap Bridge.
BR	4-9	#19824-19833	BR-64121(GT) - 7th Street AZ Canal Bridge.

T	2-8		Main Underground Conduit Plans AZ Canal & Dunlap Sheet 3.
T	3-7	AZ-0749	Conduit Construction Plan-AZ Canal & Central Ave.
T	5-9	A1-0709	Mtn. Bell Conduit Construction Plans @ AZ Canal Bridge.
T	5-10		Main Underground Conduit Plans AZ Canal & Northern Sheet 29.

LIST OF SALT RIVER PROJECT
LICENSES TO USE PROJECT
RIGHT-OF-WAY

C.S.R - A4736-23	LIC. NO. 20559	7/27/77
C.S.R - 97296-26	LIC. NO. 16094	11/18/68
C.S.R - 95670-24	LIC. NO. 15334	8/5/66
C.S.R - 95621-26	LIC. NO. 15324	7/21/66
C.S.R - 96135-6	LIC. NO. 15277	12/23/65
C.S.R - 94451-6	LIC. NO. 14721	1/26/65
C.S.R - 9255-6	LIC. NO. 13678	1/4/63
C.S.R - 90361-6	LIC. NO. 12593	8/10/60
C.S.R -	LIC. NO. 2055	2/24/31
C.S.R - 84196-6	LIC. NO. 9690	9/16/55

April 29, 1985

The following Arizona Canal Right-of-Way was provided by SRP

BK Pg		
181-7	SEC. 30 T.3N R3E	19th Ave.-7th Ave.
151-8	S.E 1/4 SEC. 30T3N R3E	19th Ave.-7th Ave.
132-23	SEC 25 T3N, R3E	27th Ave-19th Ave.
	Part of SW 1/4 Sec 29 T3N, R3E	Showing Encroachment of Foothill Acres Subdivision
128-30	SEC 28, T3N, R2E	
128-35	SEC 27,T3N, R2E	43rd Ave.-35th Ave.
132-37	SEC 26,T3N, R2E	35th Ave.-27th Ave.
128-31	SEC 22, T3N, R2E	43rd & Peoria
128-32	SEC 21,T3N, R2E	51st Ave.-43rd Ave.
128-38	SEC 20,T3N, R2E	51st Ave. & Cactus
172-31	SEC 11 & 14,T2N, R3E	24th St.-32nd St.

SALT RIVER PROJECT ELECTRICAL PLANS

1/4 Sec.	SRP Map No.
QSR 1	21-10
QSR 1	21-04
QSR 4	21-16
QSR 4	21-06
QSR 8	26-12
QSR 10	25-11
QSR 24	10-06
QSR 26	10-10
QSR 26	10-16
QSR 27	11-13
QSR 28	14-03
QSR 28	14-04
QSR 29	14-02
QSR 29	14-08
QSR 30	13-05
QSR 30	13-12
QSR 31	13-11
QSR 32	13-16