Low Flow Channel Design Analysis for Rio Salado (Salt River), Arizona

MAPS

Prepared for

U.S. Army Corps of Engineers, Los Angeles District

WEST CONSULTANTS, INC.

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MAPS

Low Flow Channel Design Analysis for Rio Salado (Salt River), Arizona

MAPS

Prepared for

U.S. Army Corps of Engineers, Los Angeles District

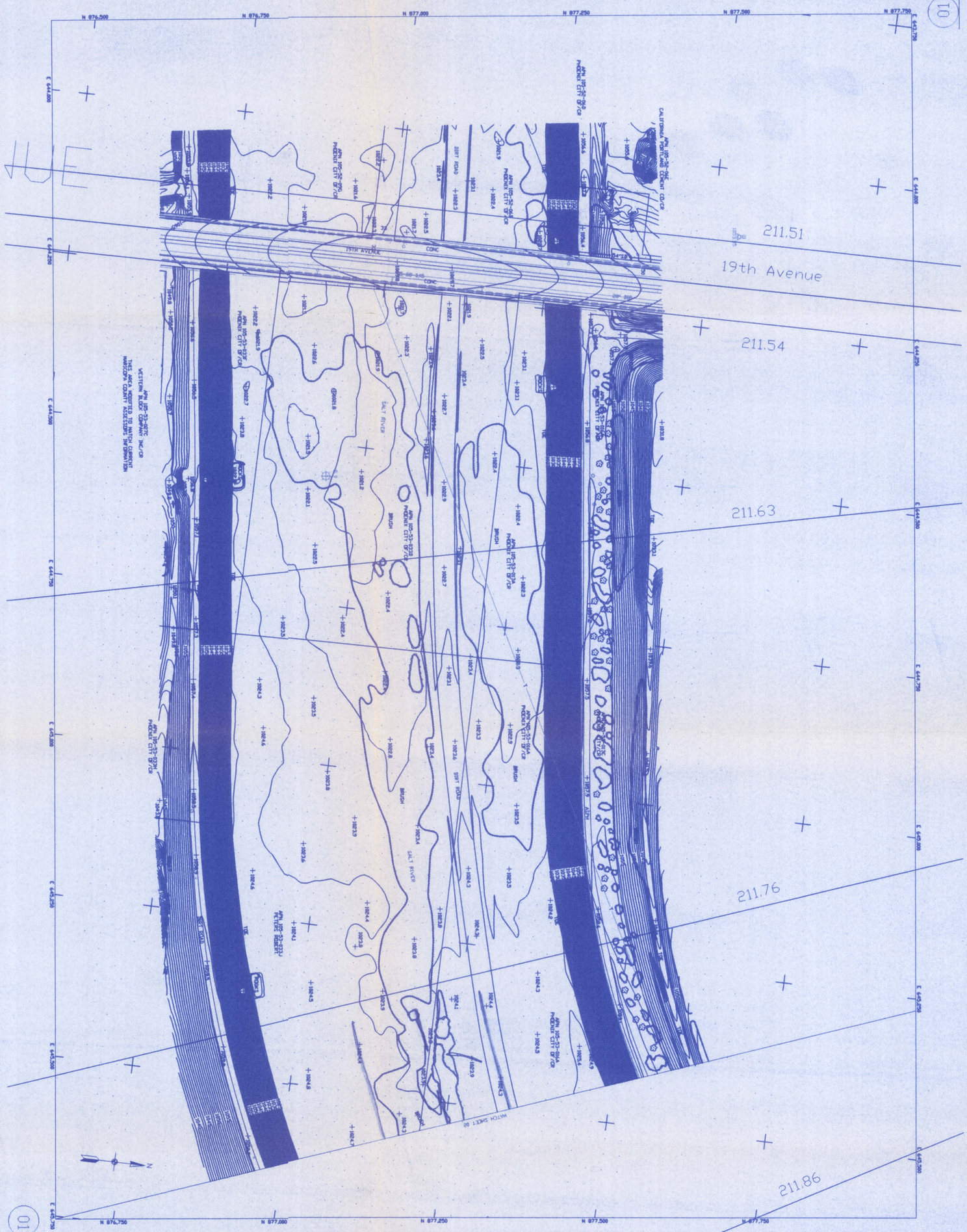
Prepared by

WEST CONSULTANTS, INC.

WEST Consultants, Inc.
4500 South Lakeshore Drive, Suite 210
Tempe, AZ 85282

Contract No. DACW09-97-D-0022
Delivery Order No. 0007

January 11, 2000



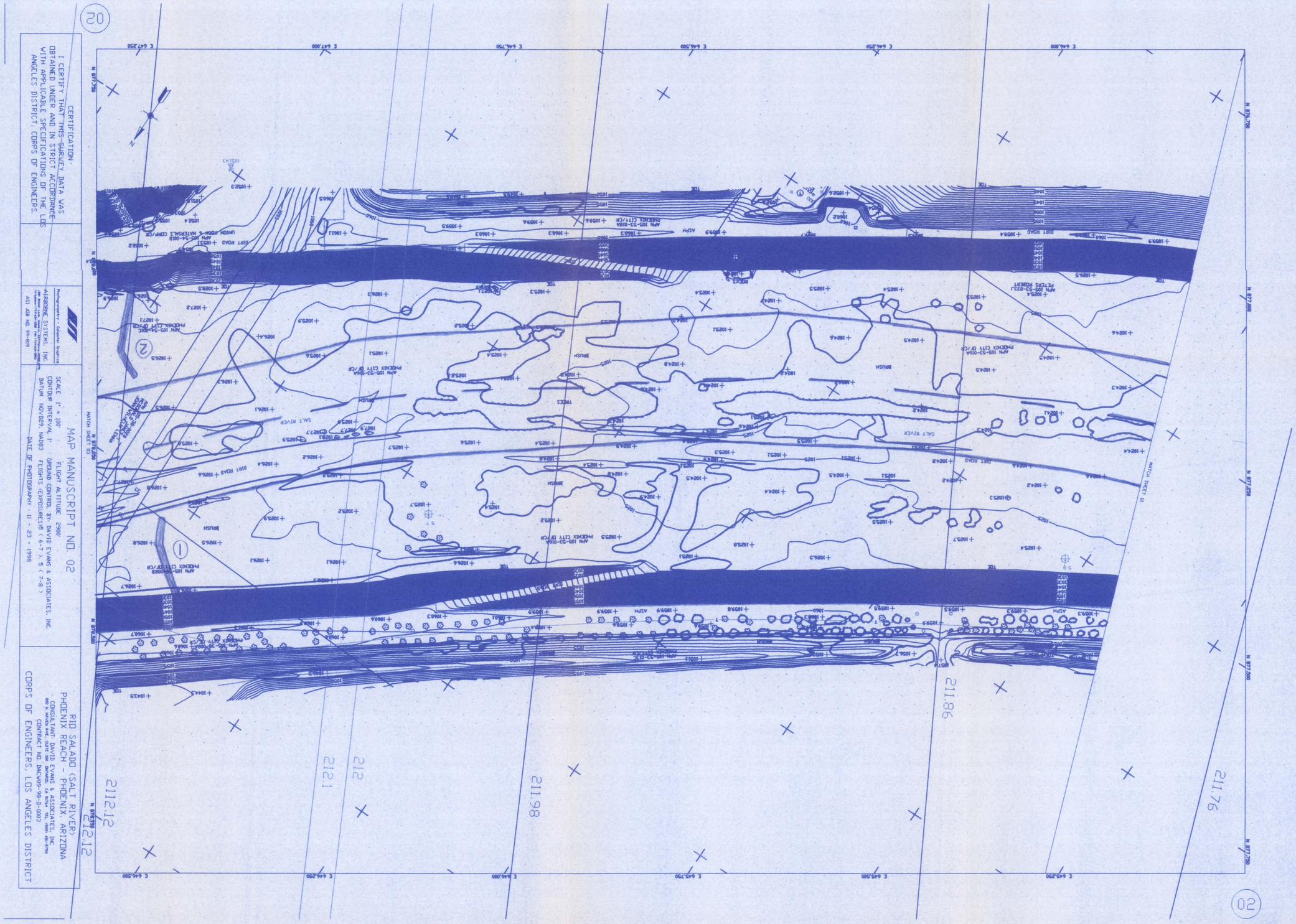
CERTIFICATION
I CERTIFY THAT THIS SURVEY DATA WAS OBTAINED UNDER AND IN STRICT ACCORDANCE WITH APPLICABLE SPECIFICATIONS OF THE LOS ANGELES DISTRICT, CORPS OF ENGINEERS.

Photogrammetry - Computer Graphics
AIRBORNE SYSTEMS, INC.
ASI JOB NO. 99-819

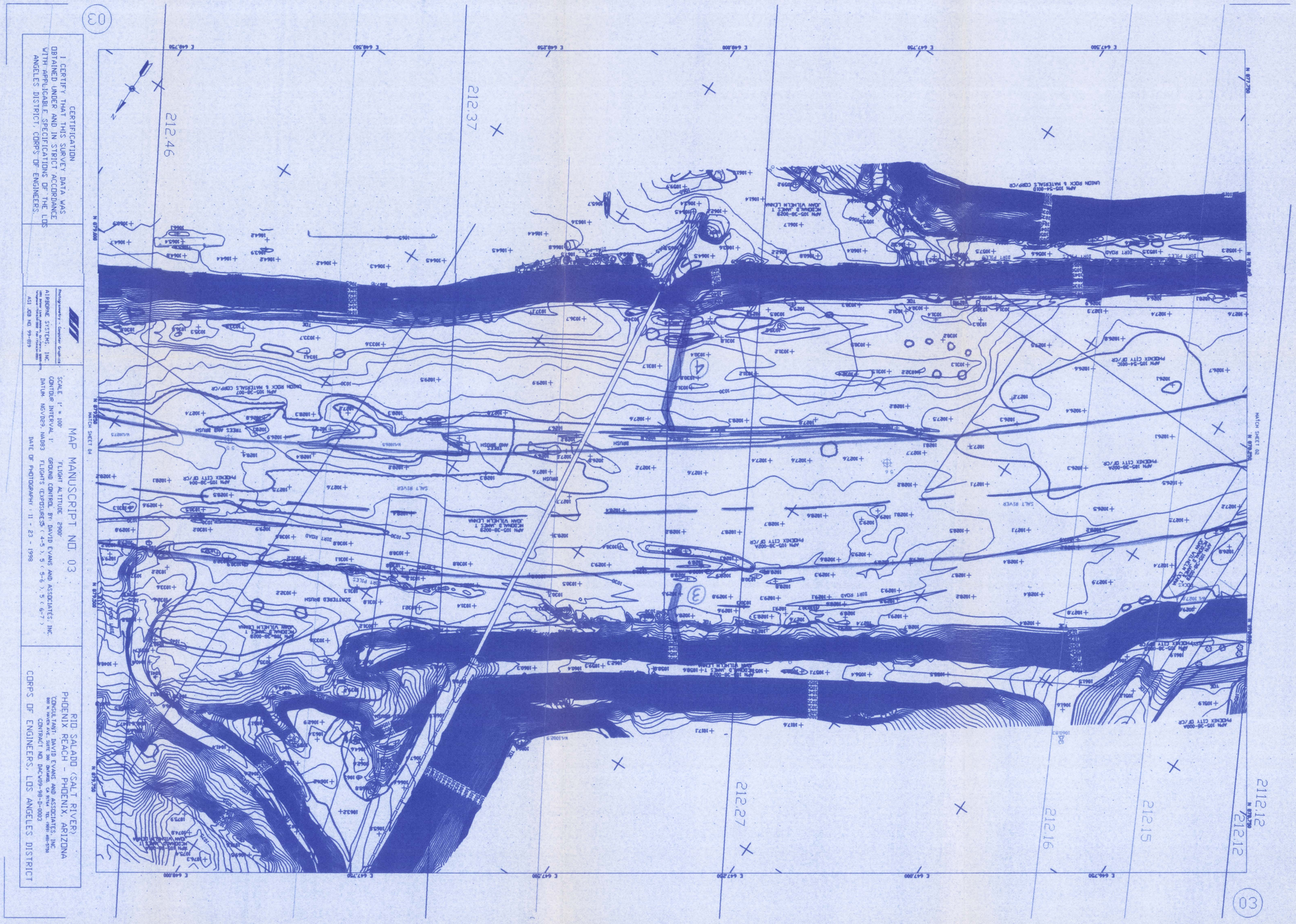
MAP MANUSCRIPT NO. 01

SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83
FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES) 5 (8-9), 5 (9-10)
DATE OF PHOTOGRAPHY : 11 - 23 - 1998

RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CONSULTANT: DAVID EVANS & ASSOCIATES, INC.
CONTRACT NO. DACW09-98-D-0003
CORPS OF ENGINEERS, LOS ANGELES DISTRICT



CERTIFICATION:
I CERTIFY THAT THIS SURVEY DATA WAS OBTAINED UNDER AND IN STRICT ACCORDANCE WITH APPLICABLE SPECIFICATIONS OF THE LOS ANGELES DISTRICT, CORPS OF ENGINEERS.
Photogrammetry - Computer Graphics
AIRBORNE SYSTEMS, INC.
ASI JOB NO. 99-819
SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83
MAP MANUSCRIPT NO. 02
FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES) 5 (6-7), 5 (7-8)
DATE OF PHOTOGRAPHY : 11 - 23 - 1998
RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CONSULTANT: DAVID EVANS & ASSOCIATES, INC.
CONTRACT NO. DACW09-98-D-0003
CORPS OF ENGINEERS, LOS ANGELES DISTRICT
MATCH SHEET 01
MATCH SHEET 03
SALT RIVER
DIRT ROAD
BRUSH
TREES
ASPH
211.76
211.86
211.98
212
212.1
212.12


03
212.46
212.37
212.27
212.16
212.15
212.12
2112.12
MAP MANUSCRIPT NO. 03
RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CORPS OF ENGINEERS, LOS ANGELES DISTRICT
CERTIFICATION
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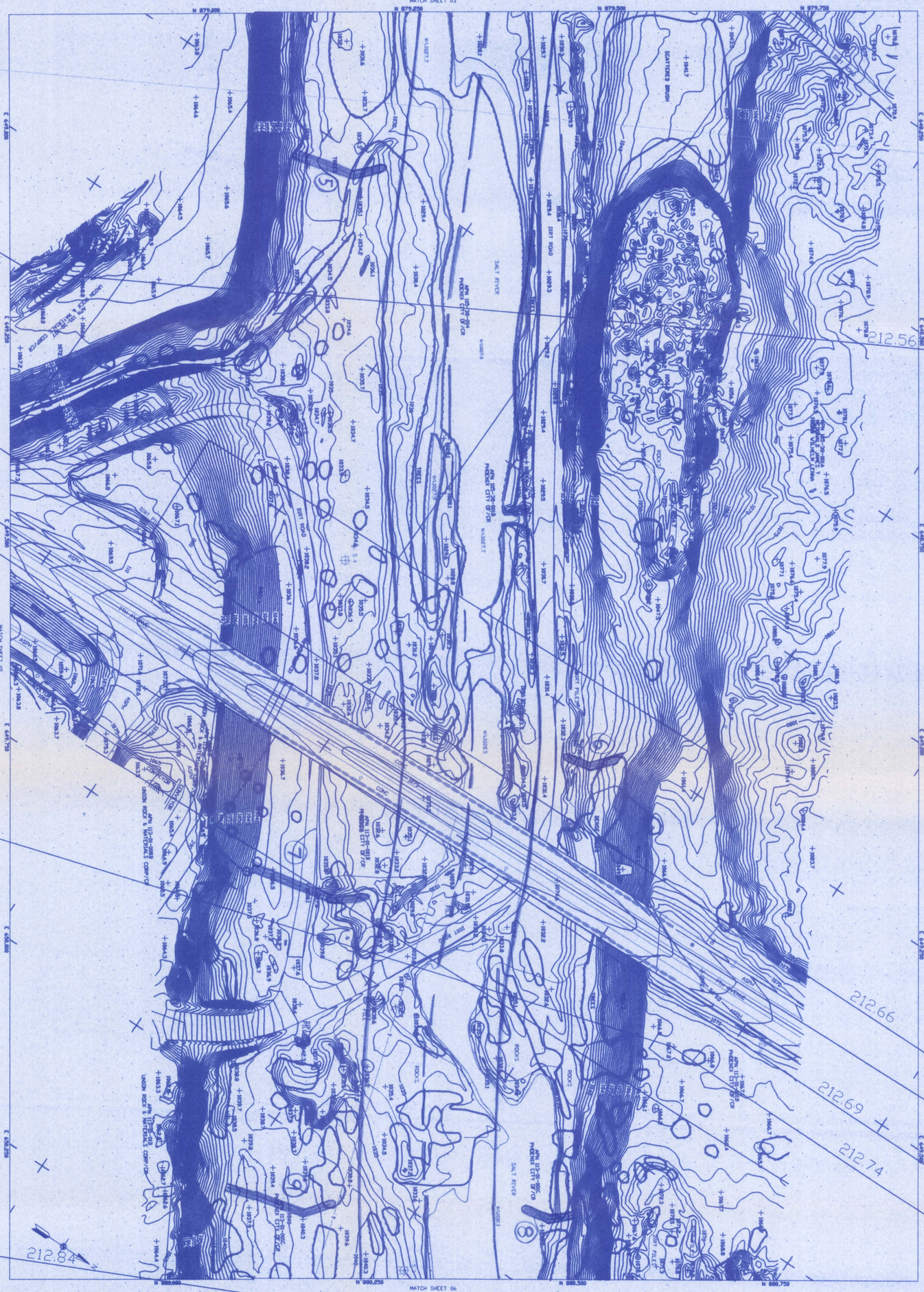
AIRBORNE SYSTEMS, INC.
ASI JOB NO. 99-819
SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83
FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS AND ASSOCIATES, INC.
FLIGHTS (EXPOSURES) (4-5), 5 (5-6), 5 (6-7)
DATE OF PHOTOGRAPHY : 11 - 23 - 1998
DIRT PILES
DIRT ROAD
SALT RIVER
MATCH SHEET 04
MATCH SHEET 02

04



04

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Photogrammetry • Computer Graphics

AIRBORNE SYSTEMS, INC.
1801 Deere Lane, Anaheim, California 92806-5879
Telephone (714)630-3002 Fax (714)630-0803

ASI JOB NO. 99-019

MAP MANUSCRIPT NO. 04

SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83

FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES) 5 (3-4) 5 (4-5)

DATE OF PHOTOGRAPHY : 11 - 23 - 1998

RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA

CONSULTANT: DAVID EVANS & ASSOCIATES, INC
800 N. HAVEN AVE., SUITE 300 ONTARIO, CA 91764 TEL: (909) 481-5750

CONTRACT NO. DACW09-98-D-0003

CORPS OF ENGINEERS, LOS ANGELES DISTRICT

215

RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CONSULTANT: DAVID EVANS & ASSOCIATES, INC.
800 N. HAVEN AVE., SUITE 300 ONTARIO, CA 91764 TEL. (909) 483-5750
CONTRACT NO. DACW09-98-D-0003
CORPS OF ENGINEERS, LOS ANGELES DISTRICT

MAP MANUSCRIPT NO. 06

SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83
FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS: (EXPOSURES:9 (1-2), 5 (2-3).
DATE OF PHOTOGRAPHY: 11 - 23 - 1998

Photogrammetry • Computer Graphics
AIRBORNE SYSTEMS, INC.
1900 Brown Lane, Fresno, California 93706
Phone (209) 485-4700 Fax (209) 485-4700
ASI JOB NO. 99-819

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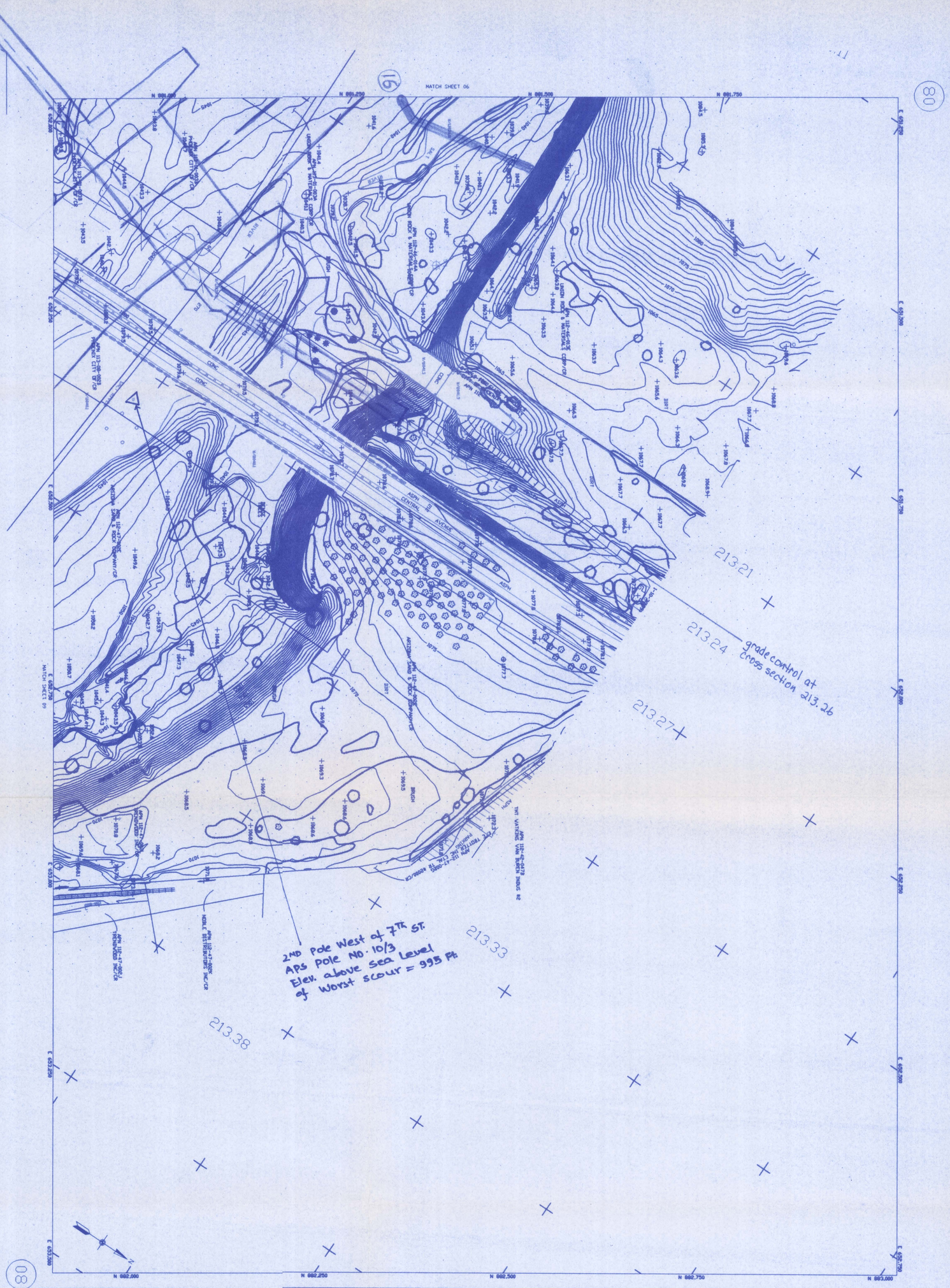
06



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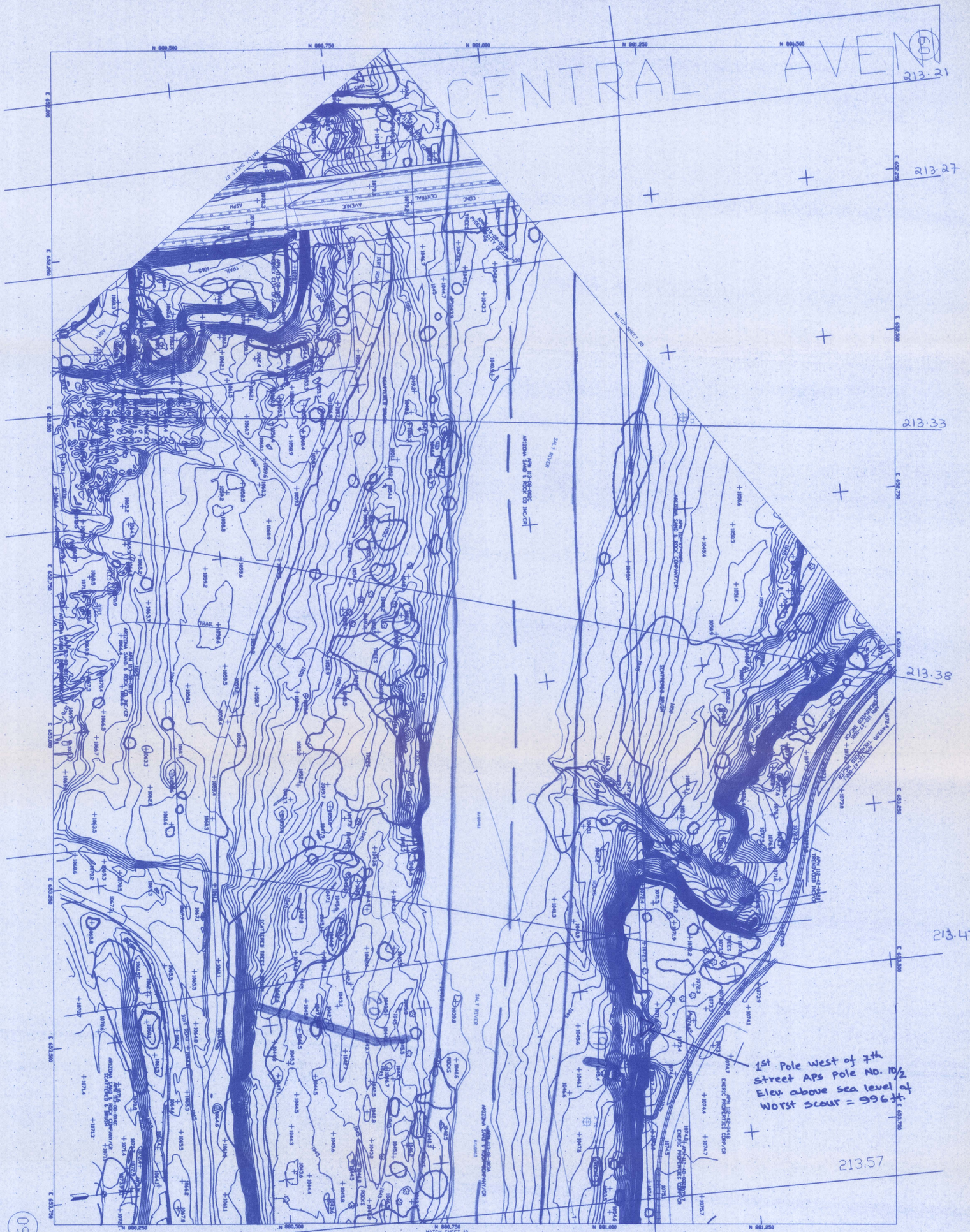
Photogrammetry - Computer Graphics
AIRBORNE SYSTEMS, INC.
1801 Defoor Lane, Anaheim, California 92805-6775
Telephone (714)634-3002 FAX (714)634-0983
ASI JOB NO. 99-819

MAP MANUSCRIPT NO. 08

SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83
FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES: 2 (12-14), 5 (1-2)
DATE OF PHOTOGRAPHY : 11 - 23 - 1998

RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CONSULTANT: DAVID EVANS & ASSOCIATES, INC
800 N. HAVEN AVE., SUITE 300 ONTARIO, CA 91764 TEL. (909) 481-5750
CONTRACT NO. DACW09-98-D-0003
CORPS OF ENGINEERS, LOS ANGELES DISTRICT



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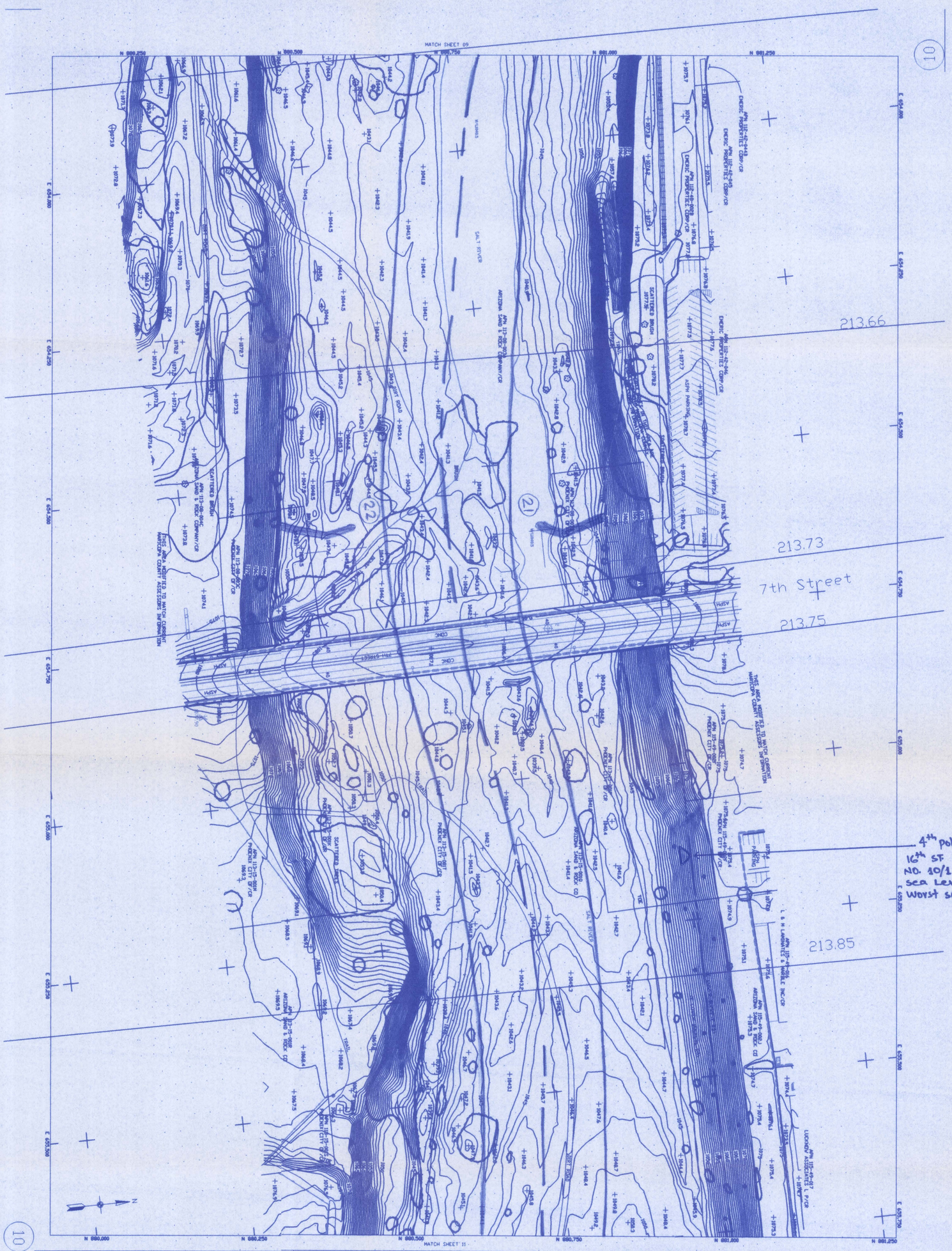
1891 Bitter Lane, Anaheim, California 92805-6775
Telephone: (714)634-3002 FAX: (714)634-0885
ASI JOB NO. 99-819

MAP MANUSCRIPT NO. 09
SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83
FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES): (11-14), 5 (1-2)
DATE OF PHOTOGRAPHY : 11 - 23 - 1998

RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CONSULTANT: DAVID EVANS & ASSOCIATES, INC
800 N. HAVEN AVE., SUITE 300 ONTARIO, CA 91764 TEL. (909) 481-5750
CONTRACT NO. DACW09-98-D-0003
CORPS OF ENGINEERS, LOS ANGELES DISTRICT



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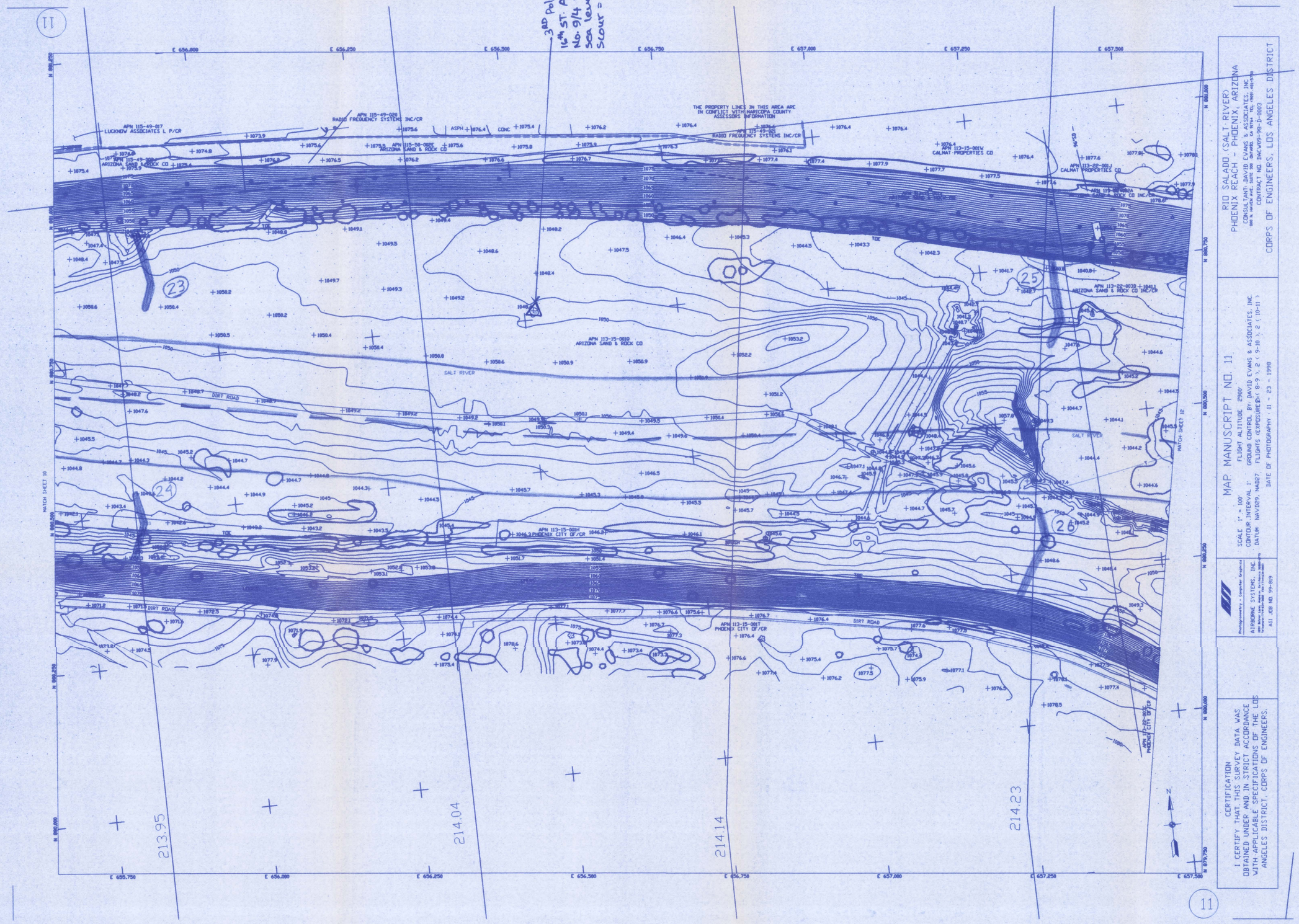
Photogrammetry - Computer Graphics
AIRBORNE SYSTEMS, INC.
ASI JOB NO. 99-819

MAP MANUSCRIPT NO. 10
SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83
FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES) 1 (10-11), 2 (11-12)
DATE OF PHOTOGRAPHY : 11 - 23 - 1998

RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CONSULTANT: DAVID EVANS & ASSOCIATES, INC
CONTRACT NO. DACW09-98-D-0003
CORPS OF ENGINEERS, LOS ANGELES DISTRICT



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PHOENIX REACH - PHOENIX, ARIZONA

CONSULTANT: DAVID EVANS & ASSOCIATES, INC
CONTRACT NO. DACW09-98-D-0003

CORPS OF ENGINEERS, LOS ANGELES DISTRICT

MAP MANUSCRIPT NO. 11

SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NAVD29, NAD27

FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES): (8-9), 2 (9-10), 2 (10-11)
DATE OF PHOTOGRAPHY : 11 - 23 - 1998

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AIRBORNE SYSTEMS, INC.
ASI JOB NO. 99-819

CERTIFICATION
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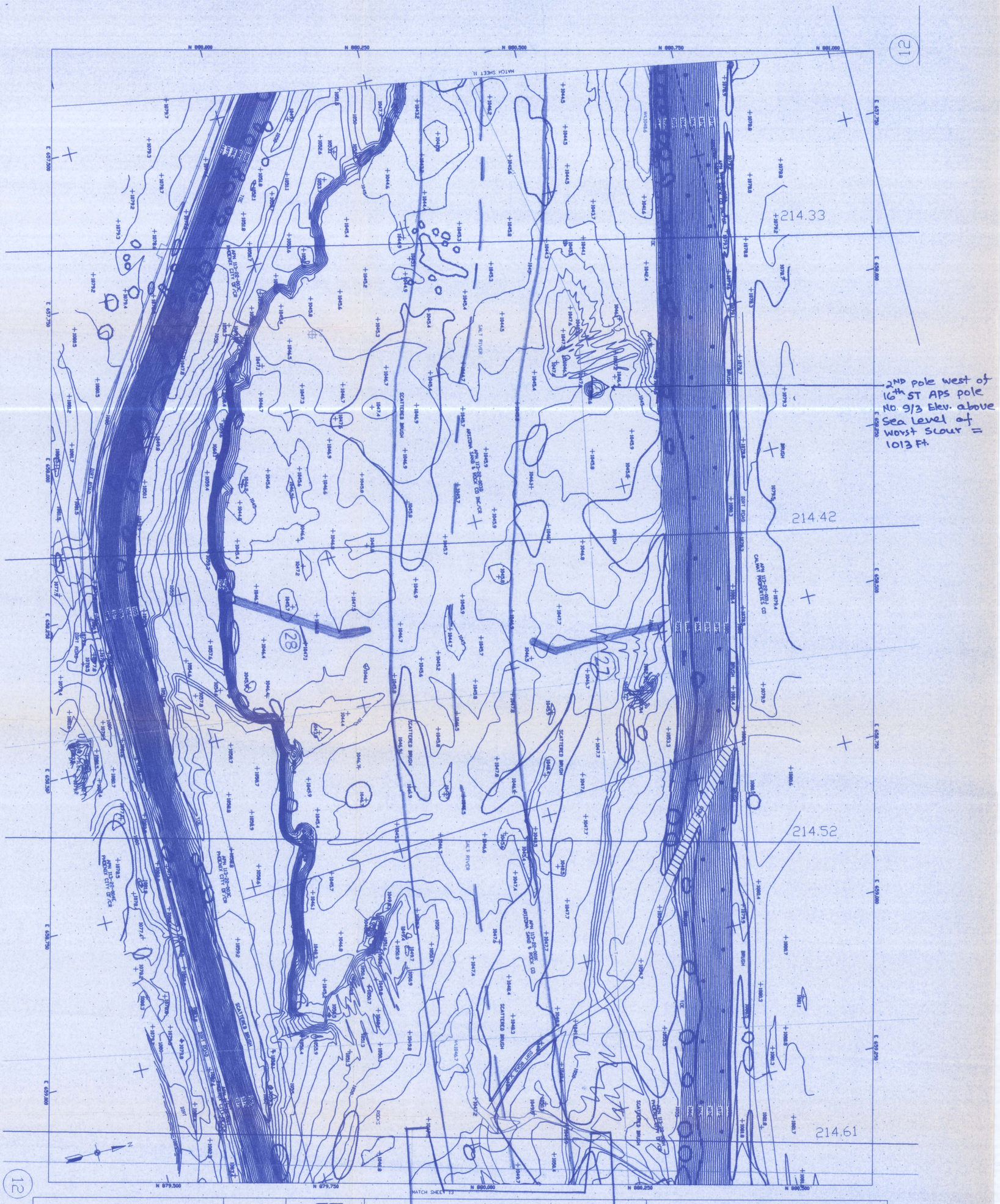

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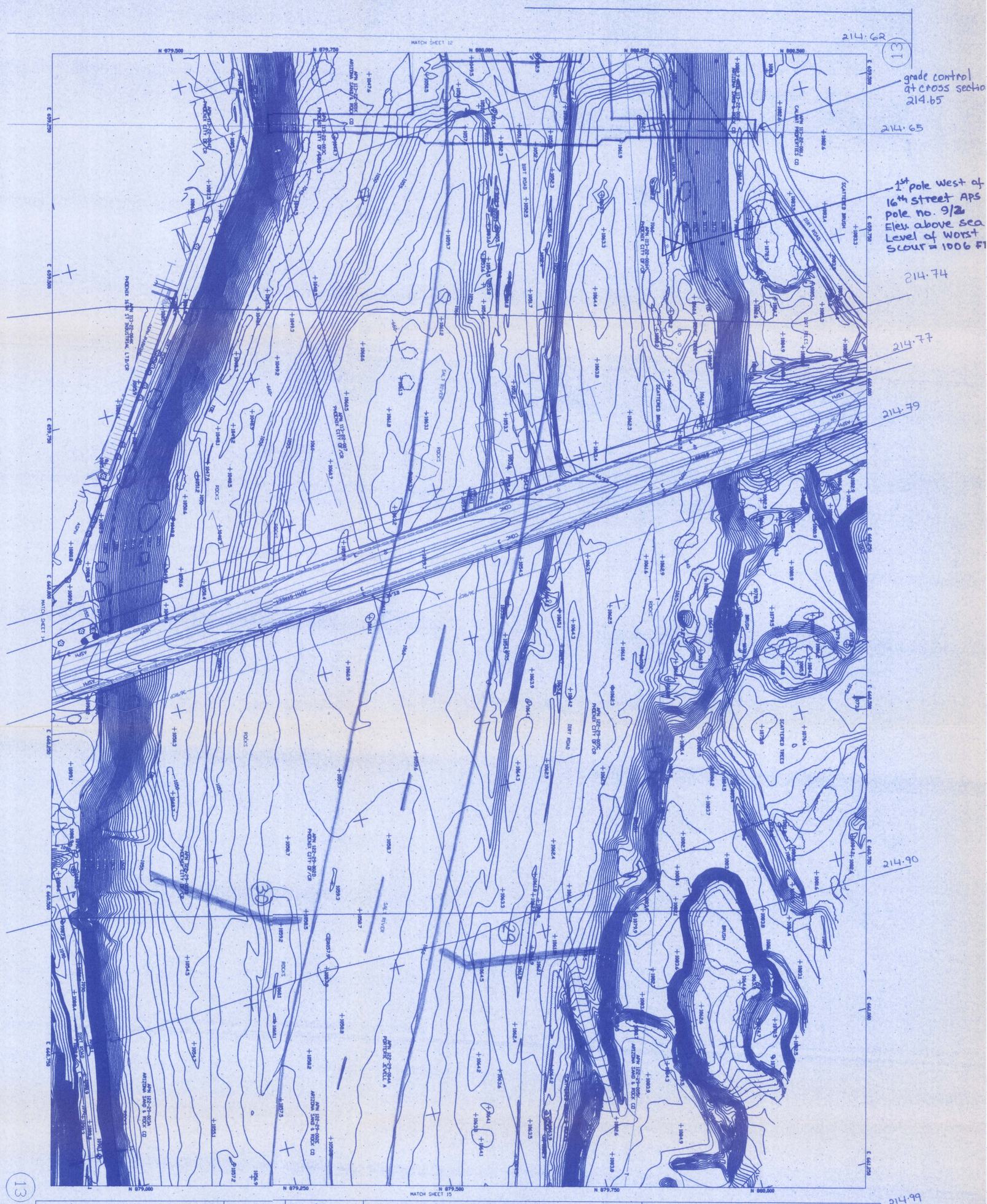
AIRBORNE SYSTEMS, INC.
1991 Belmar Lane, Anaheim, California 92805-6979
Telephone (714)634-3002 FAX (714)634-0557
ASI JOB NO. 99-819

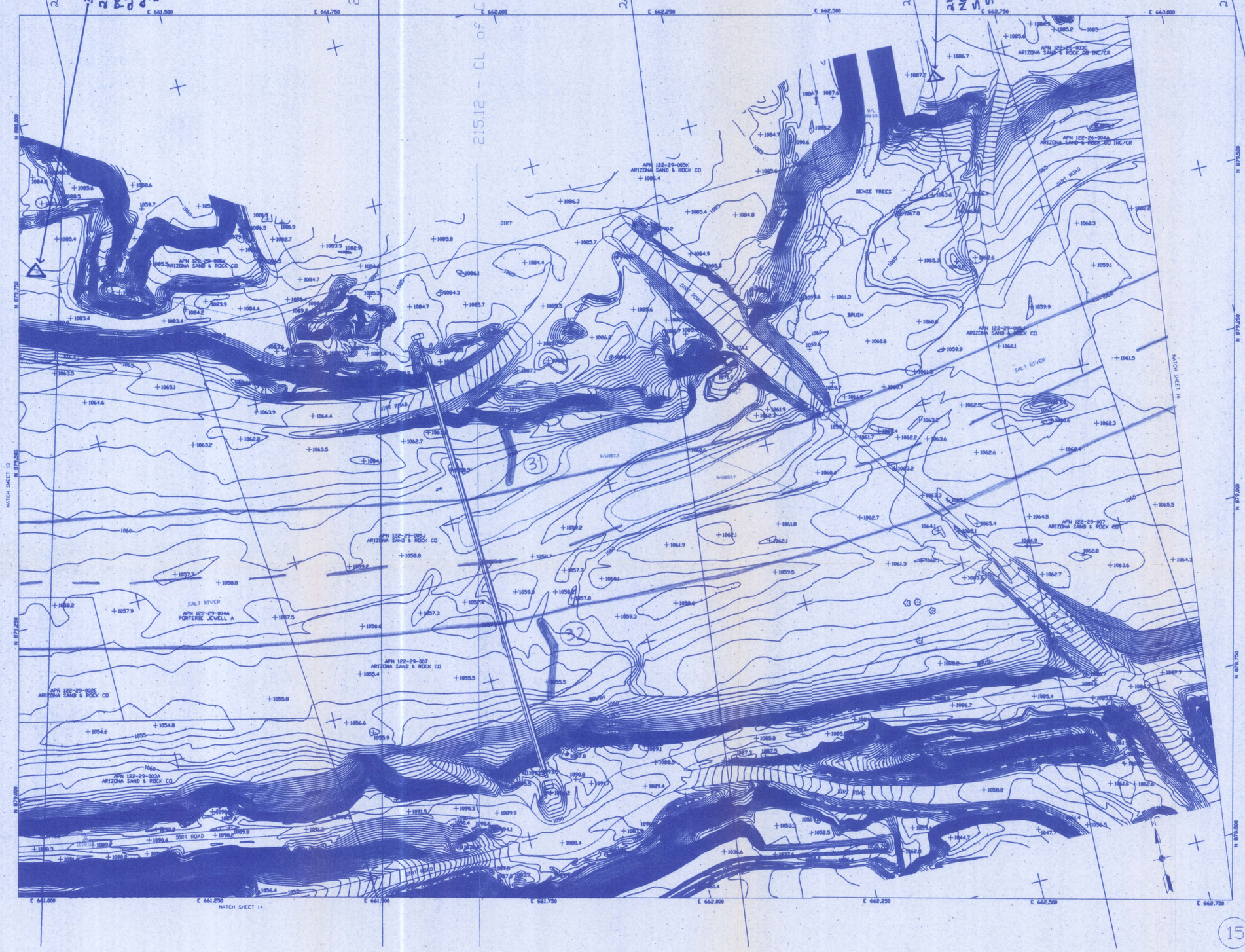
MAP MANUSCRIPT NO. 12
SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83
FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES): 1 (6-7), 2 (7-8), 2 (8-9)
DATE OF PHOTOGRAPHY : 11 - 23 - 1998

RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CONSULTANT: DAVID EVANS & ASSOCIATES, INC
800 N. HAVEN AVE., SUITE 300 ONTARIO, CA 91764 . TEL (909) 481-5750
CONTRACT NO. DACW09-98-D-0003
CORPS OF ENGINEERS, LOS ANGELES DISTRICT



13

CERTIFICATION		MAP MANUSCRIPT NO. 13	RIO SALADO (SALT RIVER) PHOENIX REACH - PHOENIX, ARIZONA
I CERTIFY THAT THIS SURVEY DATA WAS OBTAINED UNDER AND IN STRICT ACCORDANCE WITH APPLICABLE SPECIFICATIONS OF THE LOS ANGELES DISTRICT, CORPS OF ENGINEERS.	Photogrammetry - Computer Graphics AIRBORNE SYSTEMS, INC. ASI JOB NO. 99-819	SCALE 1" = 100' CONTOUR INTERVAL 1' DATUM NGVD29, NAD83 FLIGHT ALTITUDE 2900' GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC. FLIGHTS (EXPOSURES) 2 (5-6), 2 (6-7) DATE OF PHOTOGRAPHY : 11 - 23 - 1998	CONSULTANT: DAVID EVANS & ASSOCIATES, INC 800 N. HAVEN AVE., SUITE 300 ONTARIO, CA 91764 TEL. (909) 481-5750 CONTRACT NO. DACW09-98-D-0003 CORPS OF ENGINEERS, LOS ANGELES DISTRICT



RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA

CONSULTANT: DAVID EVANS & ASSOCIATES, INC
800 N. NEVADA AVE. SUITE 300 DAYTONA, CA 91764 TEL. (909) 481-5750
CONTRACT NO. DACW09-98-D-0003

CORPS OF ENGINEERS, LOS ANGELES DISTRICT

MAP MANUSCRIPT NO. 15

SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83

FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES:2 (3-4), 2 (4-5))
DATE OF PHOTOGRAPHY : 11 - 23 - 1998

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AIRBORNE SYSTEMS, INC.
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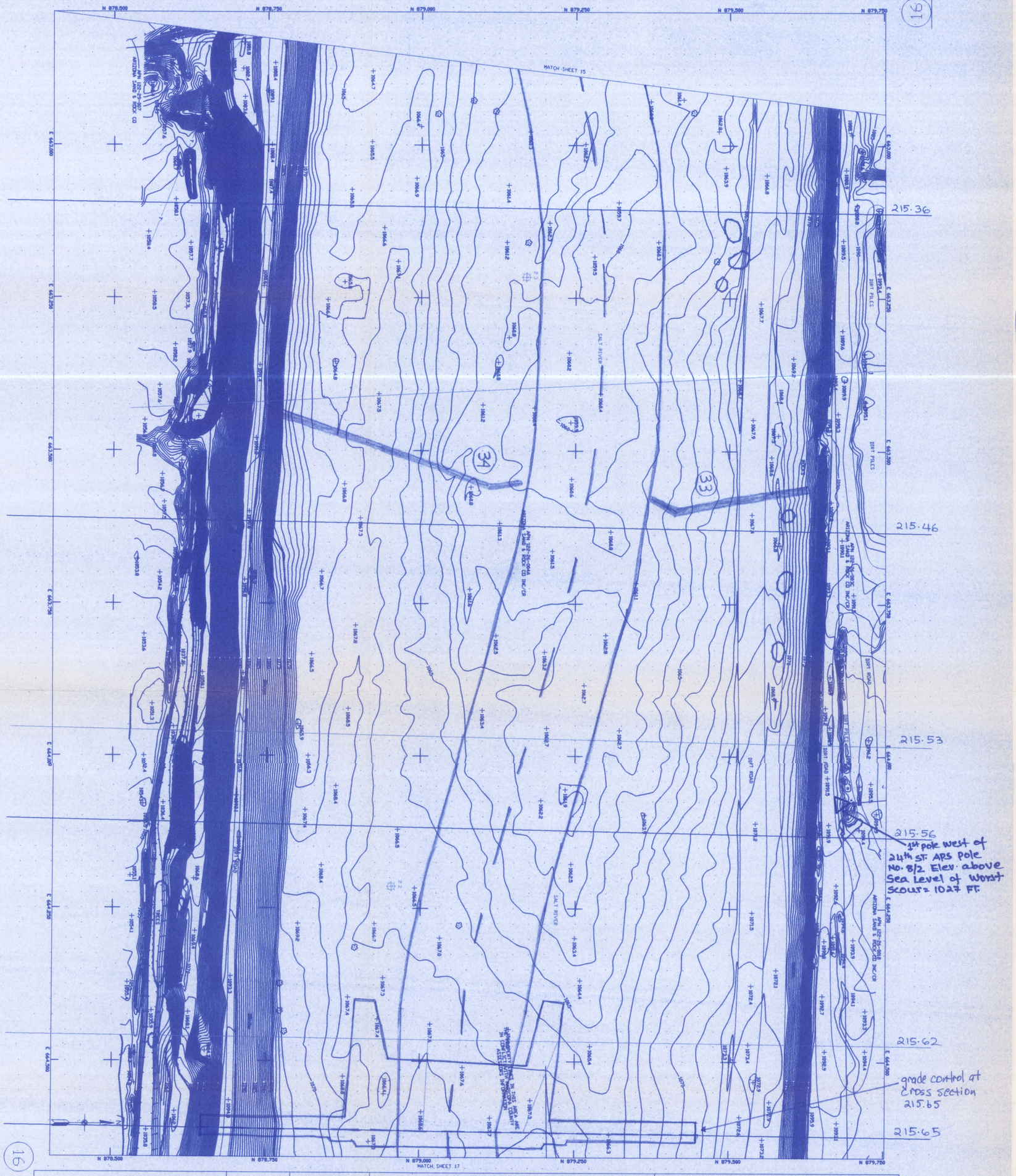
13 of 16



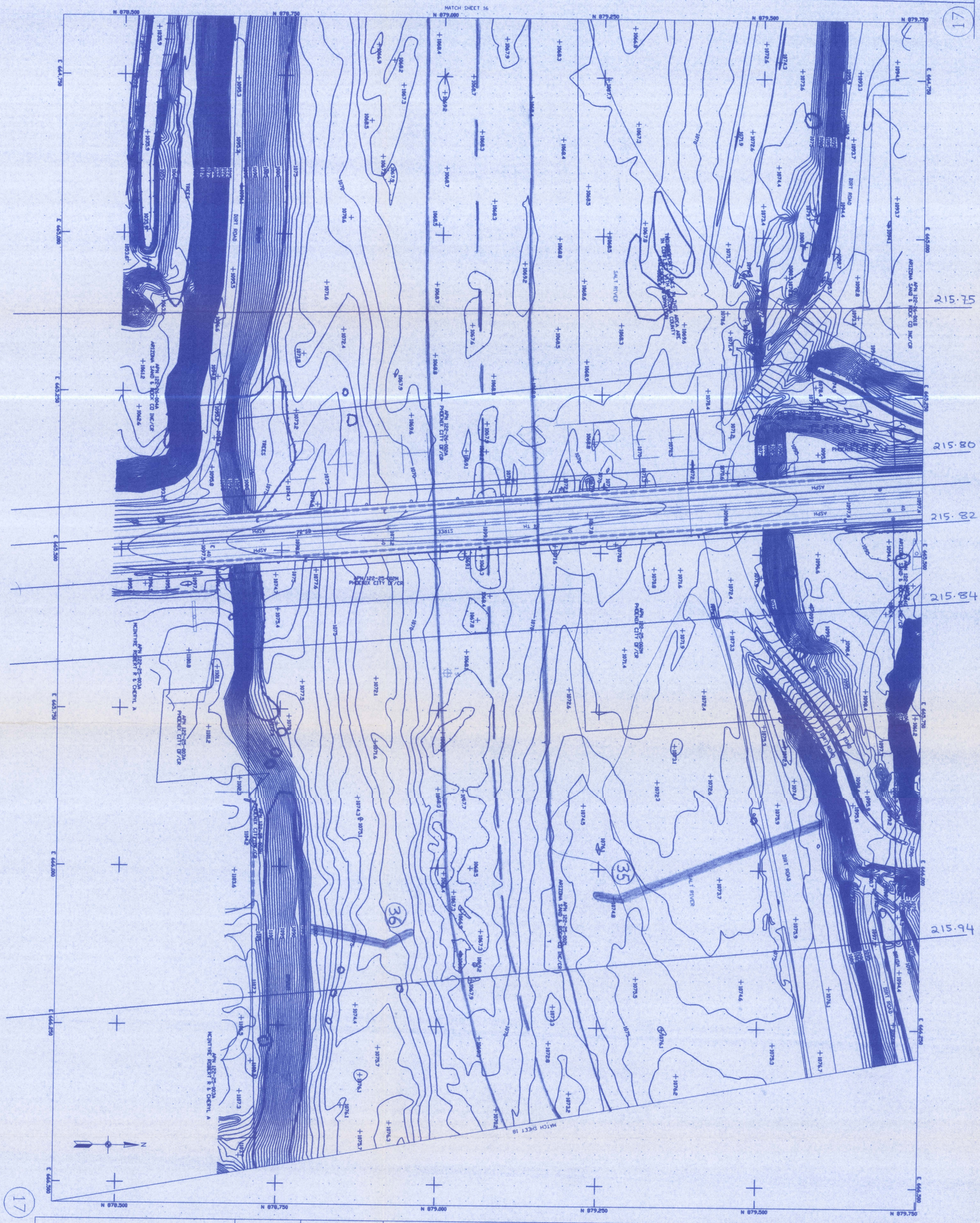
16

CERTIFICATION
I CERTIFY THAT THIS SURVEY DATA WAS OBTAINED UNDER AND IN STRICT ACCORDANCE WITH APPLICABLE SPECIFICATIONS OF THE LOS ANGELES DISTRICT, CORPS OF ENGINEERS.

Photogrammetry - Computer Graphics
AIRBORNE SYSTEMS, INC.
ASI JOB NO. 99-819

MAP MANUSCRIPT NO: 16
SCALE : 1" = 100'
CONTOUR INTERVAL 1'
DATUM: NGVD29, NAD83
FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES): (1-2), 2 (,2-3), 3 (3-4)
DATE OF PHOTOGRAPHY : 11 - 23 - 1998

RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CONSULTANT: DAVID EVANS & ASSOCIATES, INC
CONTRACT NO. DACW09-98-D-0003
CORPS OF ENGINEERS, LOS ANGELES DISTRICT



CERTIFICATION
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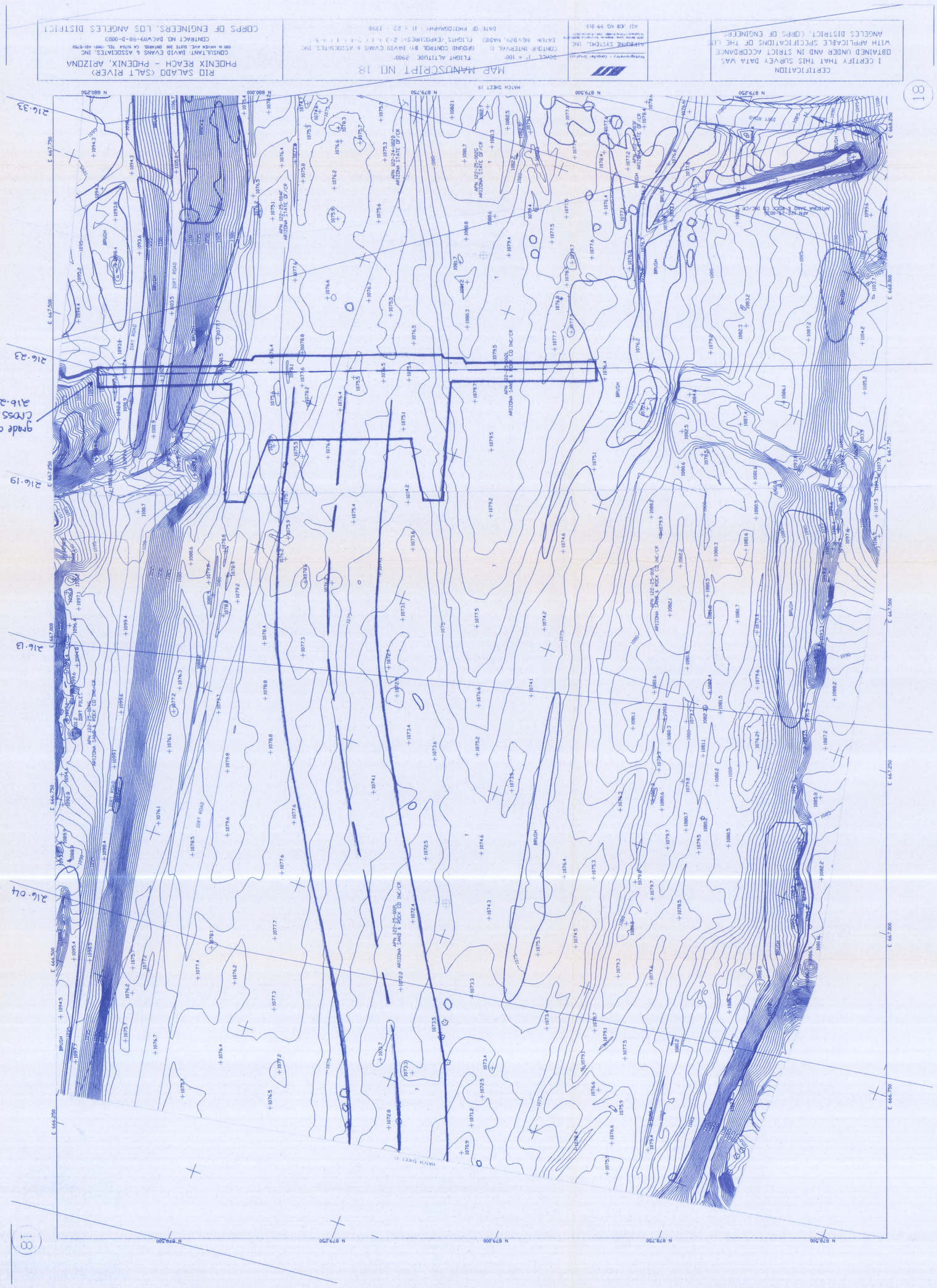
Photogrammetry - Computer Graphics
AIRBORNE SYSTEMS, INC.
1801 Bethel Lane, Anaheim, California 92805-6175
Telephone (714)634-3002 FAX (714)634-0863
ASI JOB NO. 99-819

MAP MANUSCRIPT NO. 17
SCALE 1" = 100'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83
FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES): (4-5), 1 (5-6), 2 (1-2)
DATE OF PHOTOGRAPHY : 11 - 23 - 1998

RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CONSULTANT: DAVID EVANS & ASSOCIATES, INC.
800 N. HAVEN AVE., SUITE 300 ONTARIO, CA 91764 TEL. (909) 481-5750
CONTRACT NO. DACW09-98-D-0003
CORPS OF ENGINEERS, LOS ANGELES DISTRICT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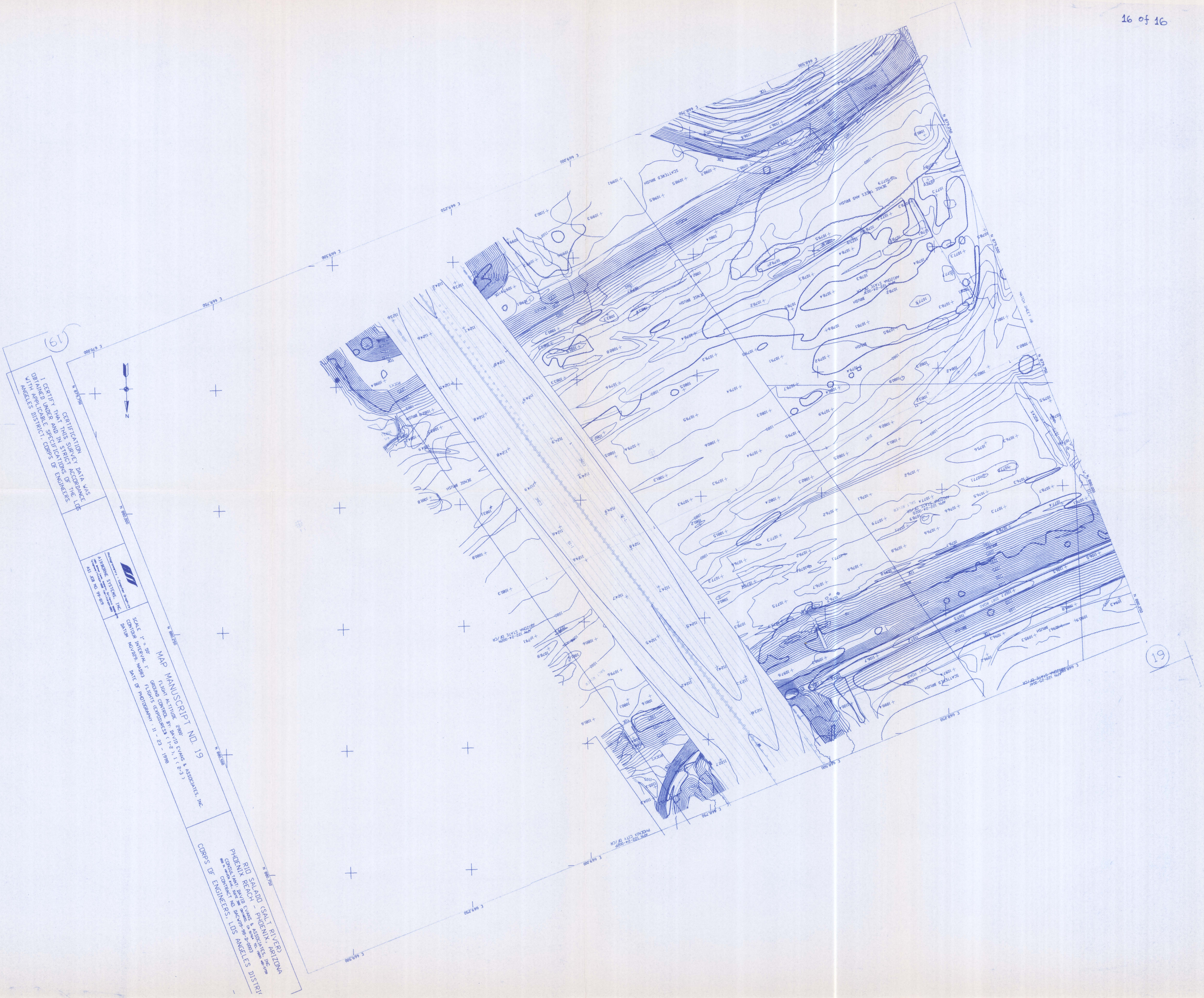
MAP MANUSCRIPT NO. 18
RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CORPS OF ENGINEERS, LOS ANGELES DISTRICT
grade control at cross section 216.23
216.33
216.23
216.19
216.13
216.04
DIRT ROAD
BRUSH
MATCH SHEET 19
MATCH SHEET 17
18


19
CERTIFICATION
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AIRBORNE SYSTEMS, INC.
ASI JOB NO. 99-819
MAP MANUSCRIPT NO. 19
SCALE 1" = 50'
CONTOUR INTERVAL 1'
DATUM NGVD29, NAD83
FLIGHT ALTITUDE 2900'
GROUND CONTROL BY: DAVID EVANS & ASSOCIATES, INC.
FLIGHTS (EXPOSURES) (1-2), 1 (2-3)
DATE OF PHOTOGRAPHY: 11 - 23 - 1998
RIO SALADO (SALT RIVER)
PHOENIX REACH - PHOENIX, ARIZONA
CONSULTANT: DAVID EVANS & ASSOCIATES, INC
CONTRACT NO. DACW09-98-D-0003
CORPS OF ENGINEERS, LOS ANGELES DISTRI
N
19