

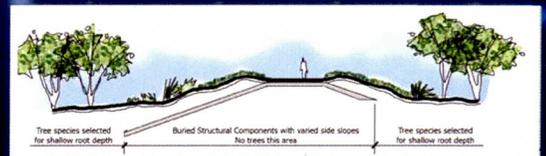
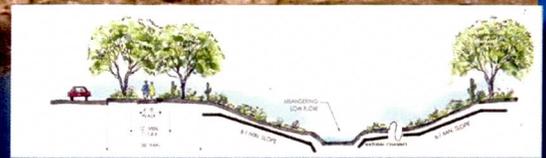
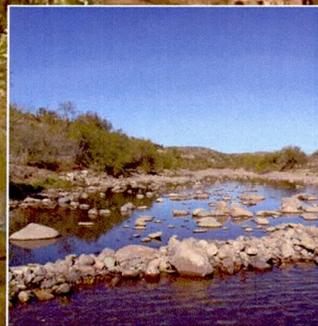
Upper New River Area Drainage Master Plan

June 2008



Contract FCD 2005C0
Stantec Project No. 18200

Volume Two of Two



Alternative Formulation Report



Stan

Upper New River ADMP Alternatives Formulation Report

Volume 2 of 2

PREPARED FOR:

FLOOD CONTROL DISTRICT
of
MARICOPA COUNTY

PREPARED BY:
STANTEC CONSULTING INC.

8211 South 48th Street
Phoenix, Arizona 85044
(602) 438-2200

June 2008

Stantec Consulting Inc.
Project No. 18200418
CONTRACT FCD 2005C020



Stantec

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Flood Control District
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Upper New River ADMP FCD 2005CO20 Effective 100-year Floodplain Limits with Location of Hydraulic Cross-Sections

Prepared By



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Phoenix, AZ U.S.A. 85044

Legend:

- Pebble Count Location
- FEMA Cross Section
- Roadway
- County Boundary
- New River ADMP Boundary
- FEMA Floodplain

Location Map:



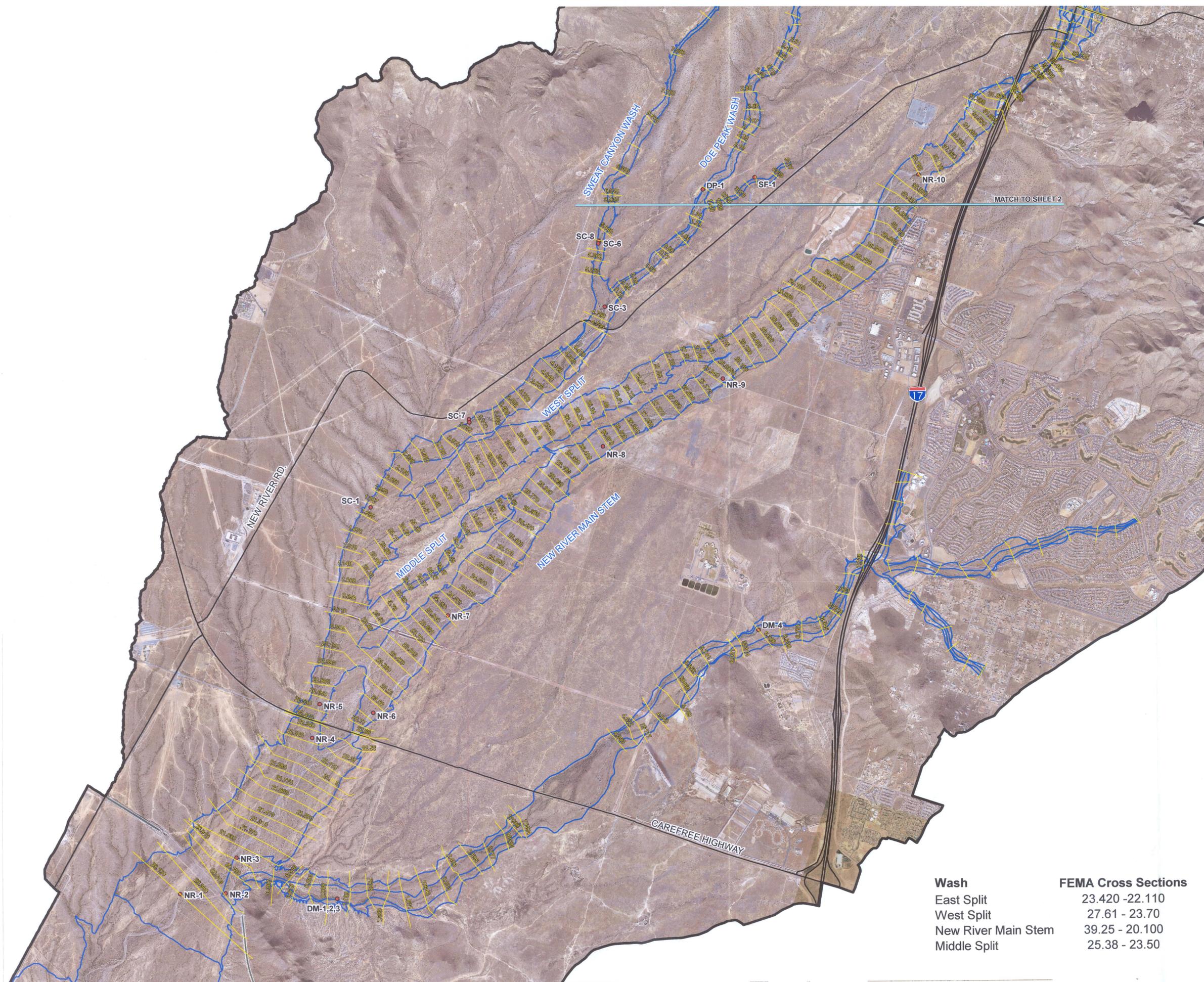
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Project No.
182000418

Prepared By:
AMG
February 2008

PLATE 5.1

Sheet 1 of 2



MATCH TO SHEET 2

Wash	FEMA Cross Sections
East Split	23.420 - 22.110
West Split	27.61 - 23.70
New River Main Stem	39.25 - 20.100
Middle Split	25.38 - 23.50



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Upper New River ADMP FCD 2005CO20 Effective 100-year Floodplain Limits with Location of Hydraulic Cross-Sections

Prepared By

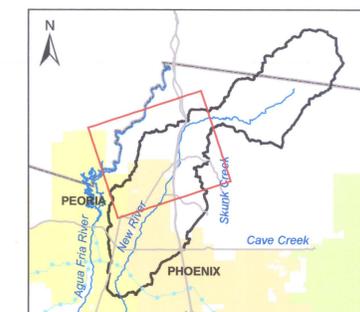


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Phoenix, AZ U.S.A. 85044

Legend:

- Pebble Count Location
- FEMA Cross Section
- Roadway
- County Boundary
- New River ADMP Boundary
- FEMA Floodplain

Location Map:

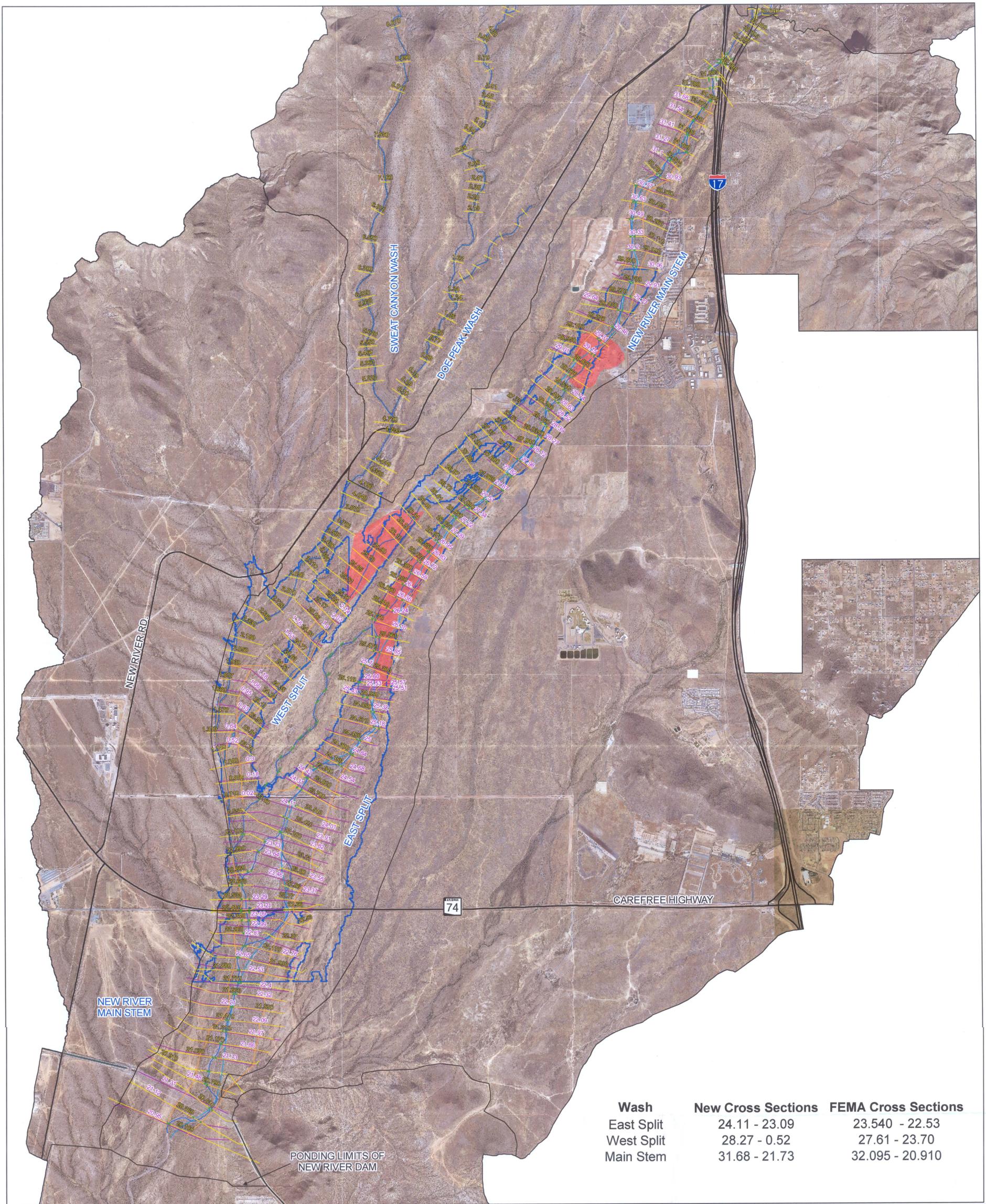


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Project No.
182000418

Prepared By:
AMG
February 2008

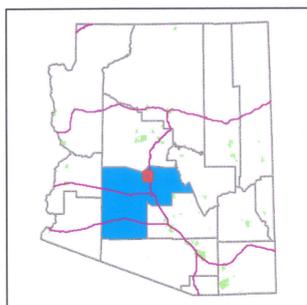




Wash	New Cross Sections	FEMA Cross Sections
East Split	24.11 - 23.09	23.540 - 22.53
West Split	28.27 - 0.52	27.61 - 23.70
Main Stem	31.68 - 21.73	32.095 - 20.910

PONDING LIMITS OF NEW RIVER DAM

Location Map



Notes:

Revision:	By	Appd	Date

Legend:

- FEMA Bank Stations
- New Bank Stations
- FEMA Cross Sections
- New Cross Sections
- FEMA Baseline
- New Baseline
- Pending Floodplain
- Sand & Gravel Operation



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Upper New River ADMP FCD 2005CO20 PLATE 5.2 Comparison of Cross Sectional Alignments



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Upper New River ADMP FCD 2005CO20 Manning's n-value Mapping

Prepared By:



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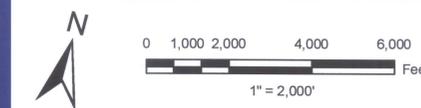
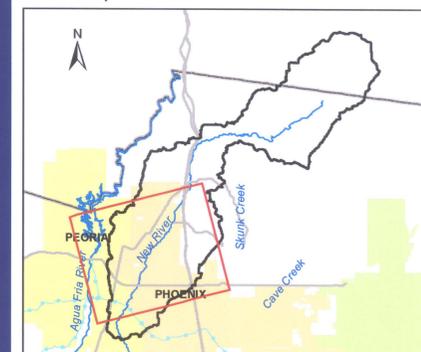
Legend:

- Sampling & Photograph Location
- ~ Roadway
- Manning's n-value
 - 0.045
 - 0.05
 - 0.055
 - 0.06
 - 0.065

Notes:

1. Photographic base map: Circa 200...foot pixel imagery provided by the Flood Control District of Maricopa County

Location Map:



Project No.

182000418

Prepared By:

MCG

February 2008

Revision:

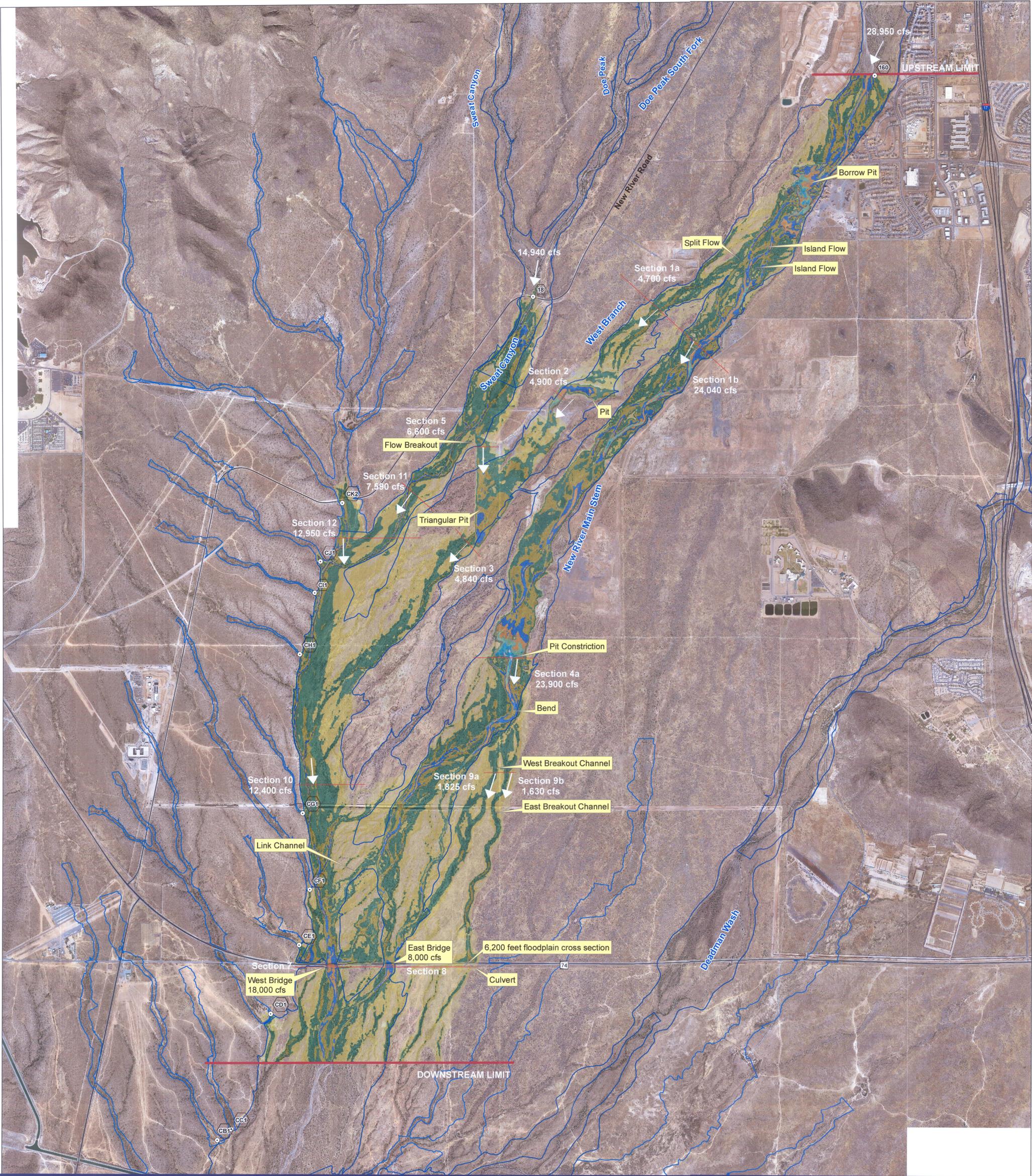
By	Appd.	Date

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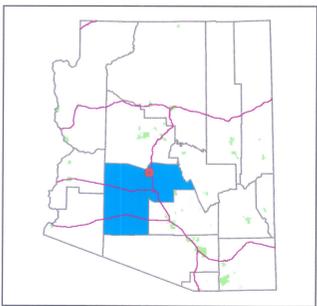
PLATE 5.4

Sheet 1 of 1

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Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By: _____ Revision: _____
IA _____
22 May 2007 _____
W:\active\182000418\GIS\Project36_48_ite\ekhar_map_2D_Depth.mxd By Appd Date



Legend:

- Concentration Point
 - Roadway
 - FEMA Floodplain
 - Pending Floodplain
 - Concentration Point ID
 - FP_CrossSections
 - FLO2D_Model Limit
- | Depth (ft) |
|------------|
| >12 |
| 10 - 12 |
| 8 - 10 |
| 6 - 8 |
| 4 - 6 |
| 2 - 4 |
| 1 - 2 |
| <1 |

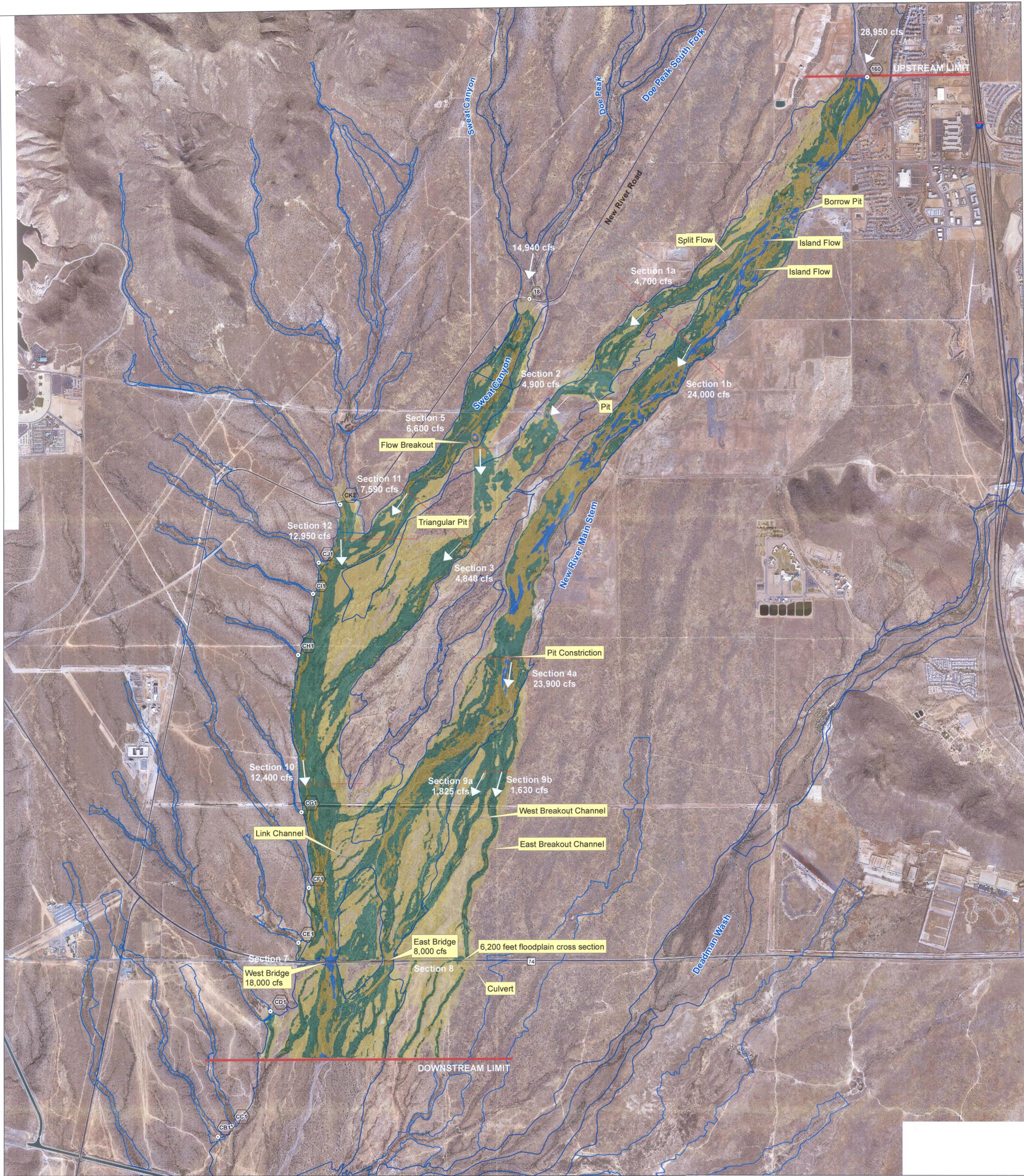


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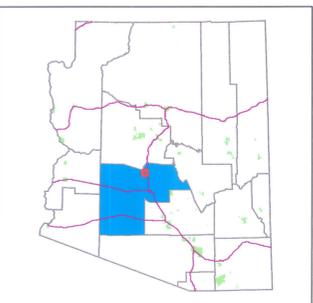
**Upper New River ADMP
FCD 2005CO20
Plate 6.1: FLO-2D Depth Plan**



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Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
 2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
- Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By: _____ Revision: _____
IA _____
23 May 2007
W:\active\182000418\GIS\Project\36_48_ifekhar_map_2d_velocity.mxd By Appd Date



Legend:

- Concentration Point
- Roadway
- Pending Floodplain
- FEMA Floodplain
- Concentration Point ID
- FP_CrossSections
- FLO2D_Model Limit

Velocity (ft/s)

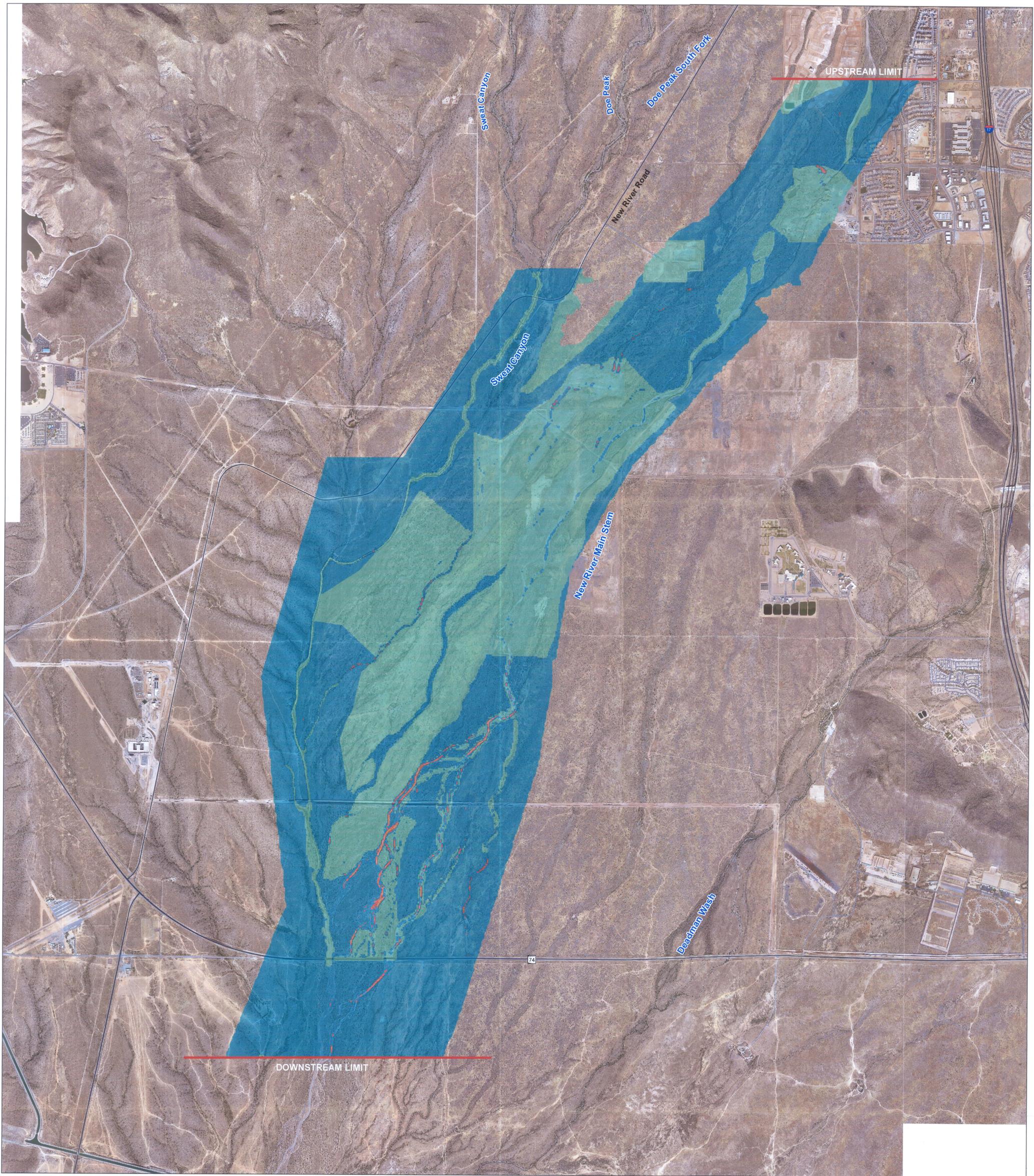


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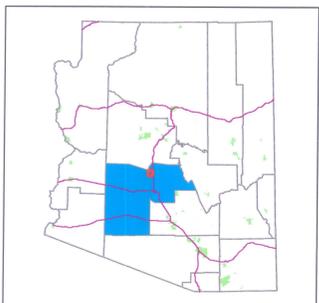
Upper New River ADMP
FCD 2005CO20
Plate 6.2: FLO-2D Velocity Plan



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Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County

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IA	
23 May 2007	

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Legend:

Manning's n

- 0.23 - 0.25
- 0.21 - 0.23
- 0.19 - 0.21
- 0.17 - 0.19
- 0.15 - 0.17
- 0.125 - 0.15
- 0.1 - 0.125
- 0.075 - 0.1
- 0.07 - 0.075

FLO2D_Model Limit

Roadway

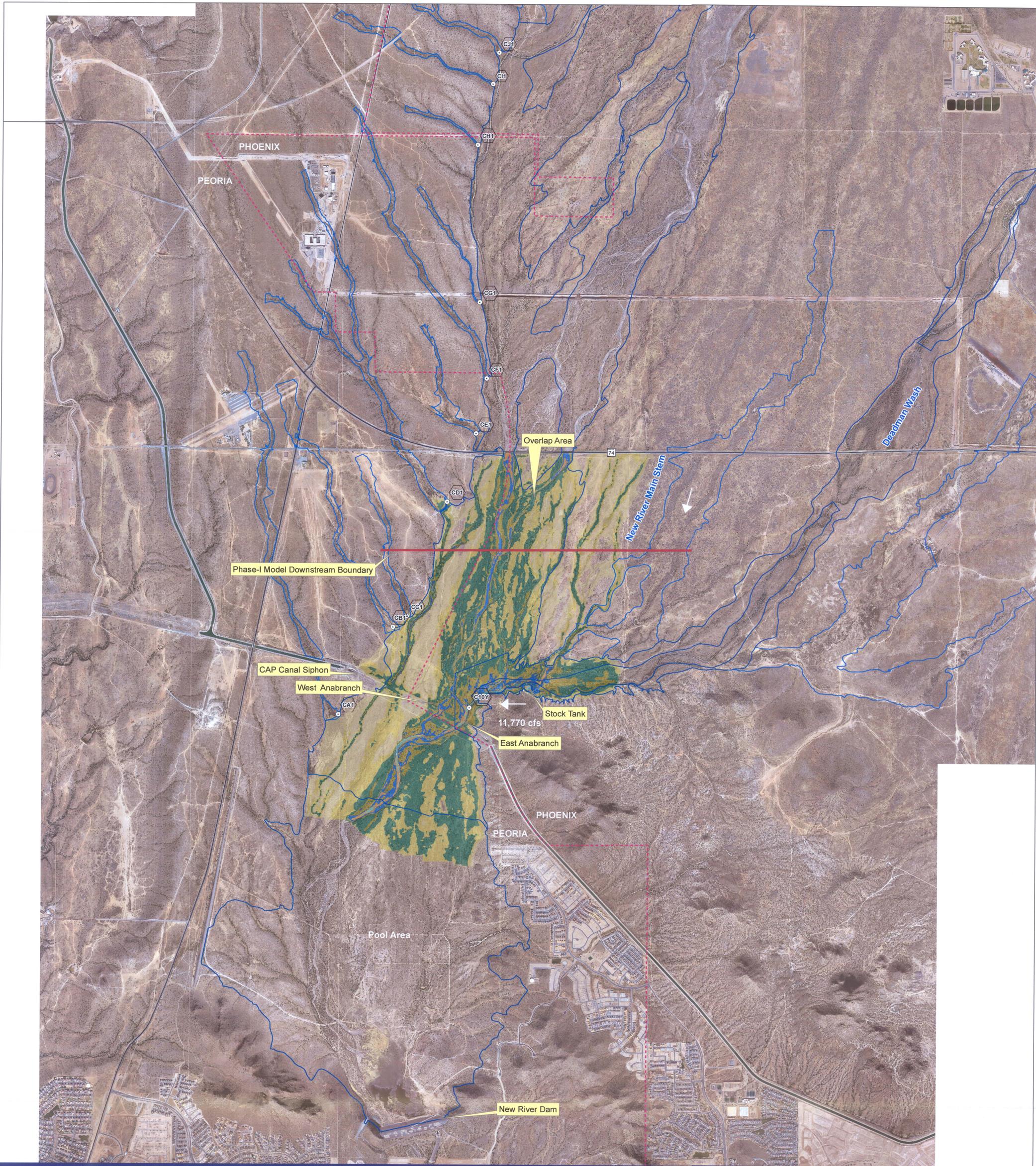


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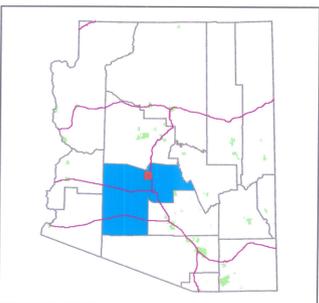
Upper New River ADMP
FCD 2005CO20
Plate 6.3: FLO-2D n-value plan



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Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By:	Revision:	Date:
IA		
September 2007		

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Legend:

- Concentration Point
 - Roadway
 - FEMA Floodplain
 - Pending Floodplain
 - Concentration Point ID
 - Corporate Boundary
- | Depth (ft) |
|------------|
| >12 |
| 10 - 12 |
| 8 - 10 |
| 6 - 8 |
| 4 - 6 |
| 2 - 4 |
| 1 - 2 |
| <1 |

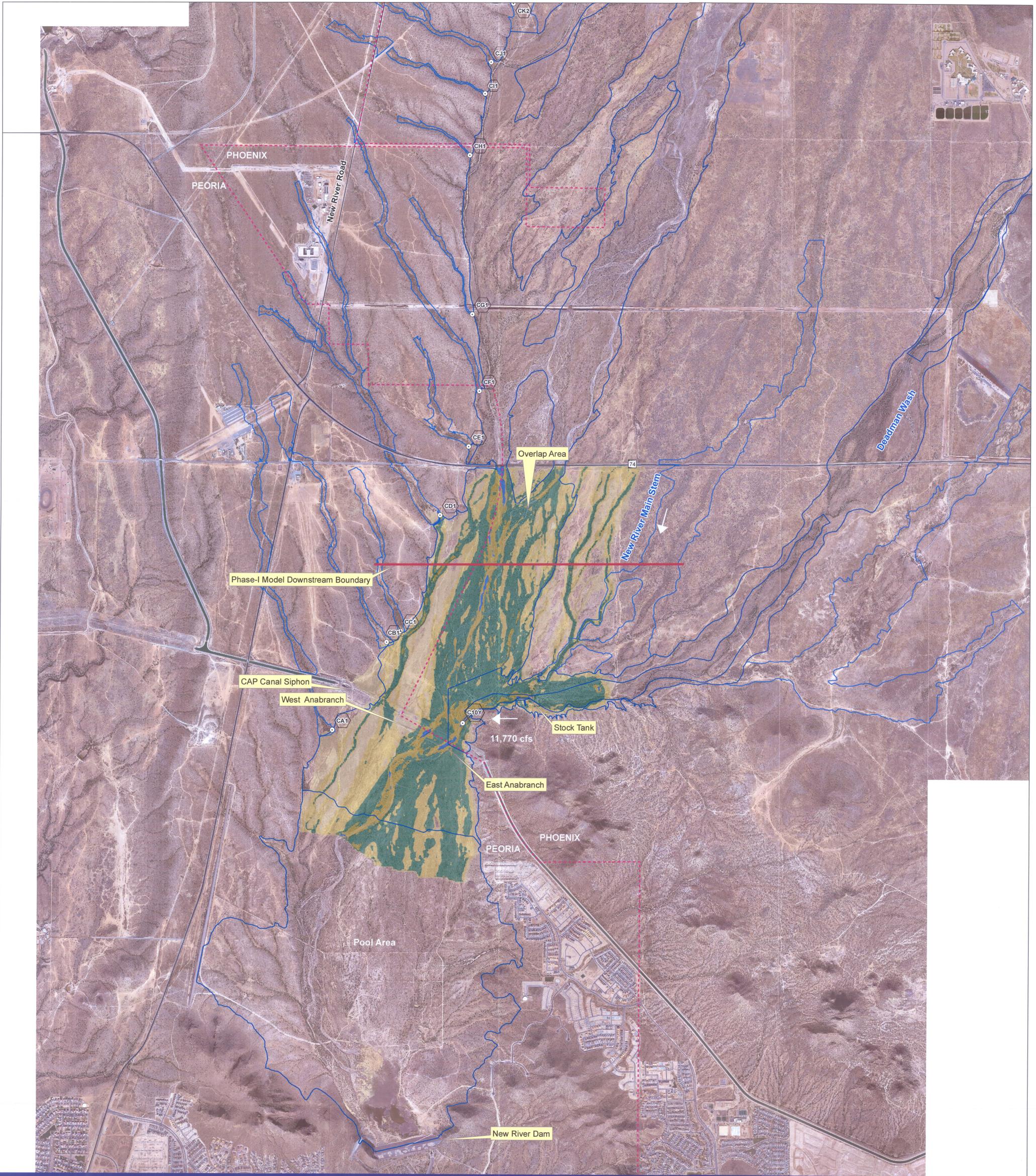


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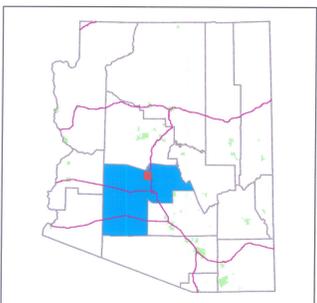
**Upper New River ADMP
FCD 2005CO20
Plate 6.4: FLO-2D Depth Plan
(Extension Model)**



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Phoenix, AZ U.S.A. 85044



Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By: _____ Revision: _____
IA _____
September 2007 _____
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Legend:

- Concentration Point
- Roadway
- FEMA Floodplain
- Pending Floodplain
- Concentration Point ID
- - - Corporate Boundary

Velocity (ft/s)

- 12 - 14
- 10 - 12
- 8 - 10
- 6 - 8
- 4 - 6
- 2 - 4
- 1 - 2
- <1



1" = 1000'

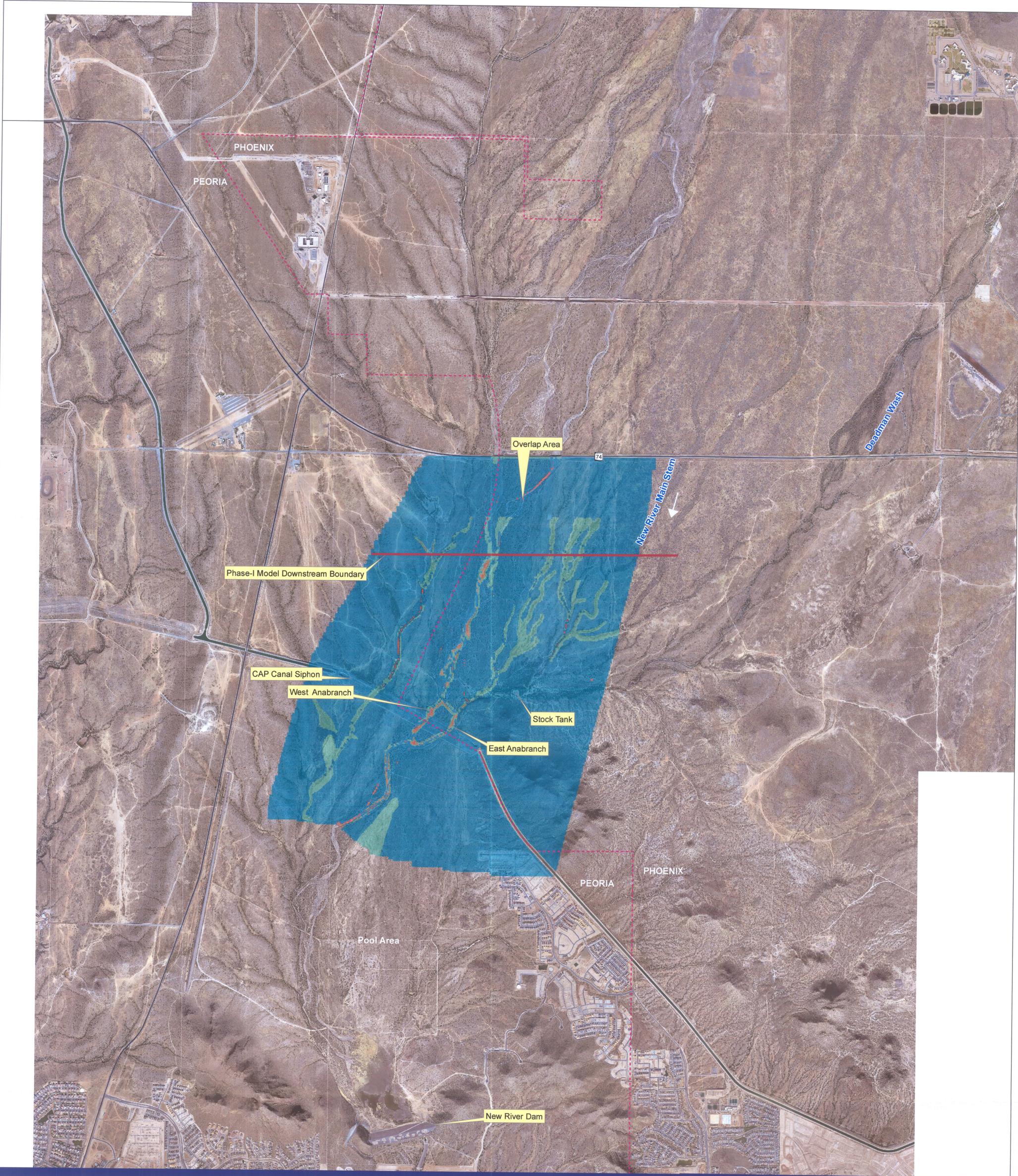


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Phoenix, AZ 85009

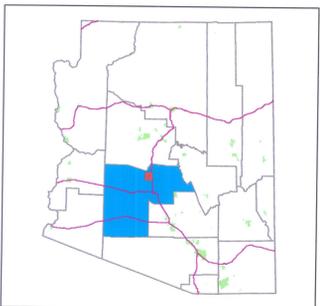
**Upper New River ADMP
FCD 2005CO20
Plate 6.5: FLO-2D Velocity Plan
(Extension Model)**



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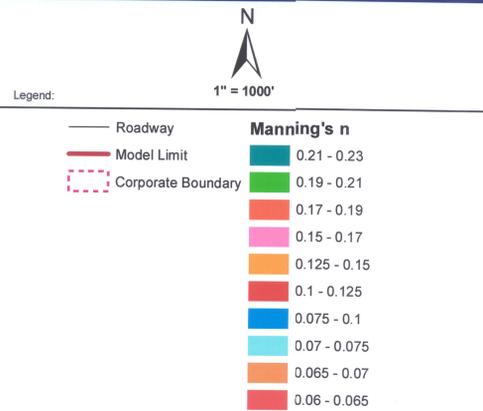
Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

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 September 2007 _____
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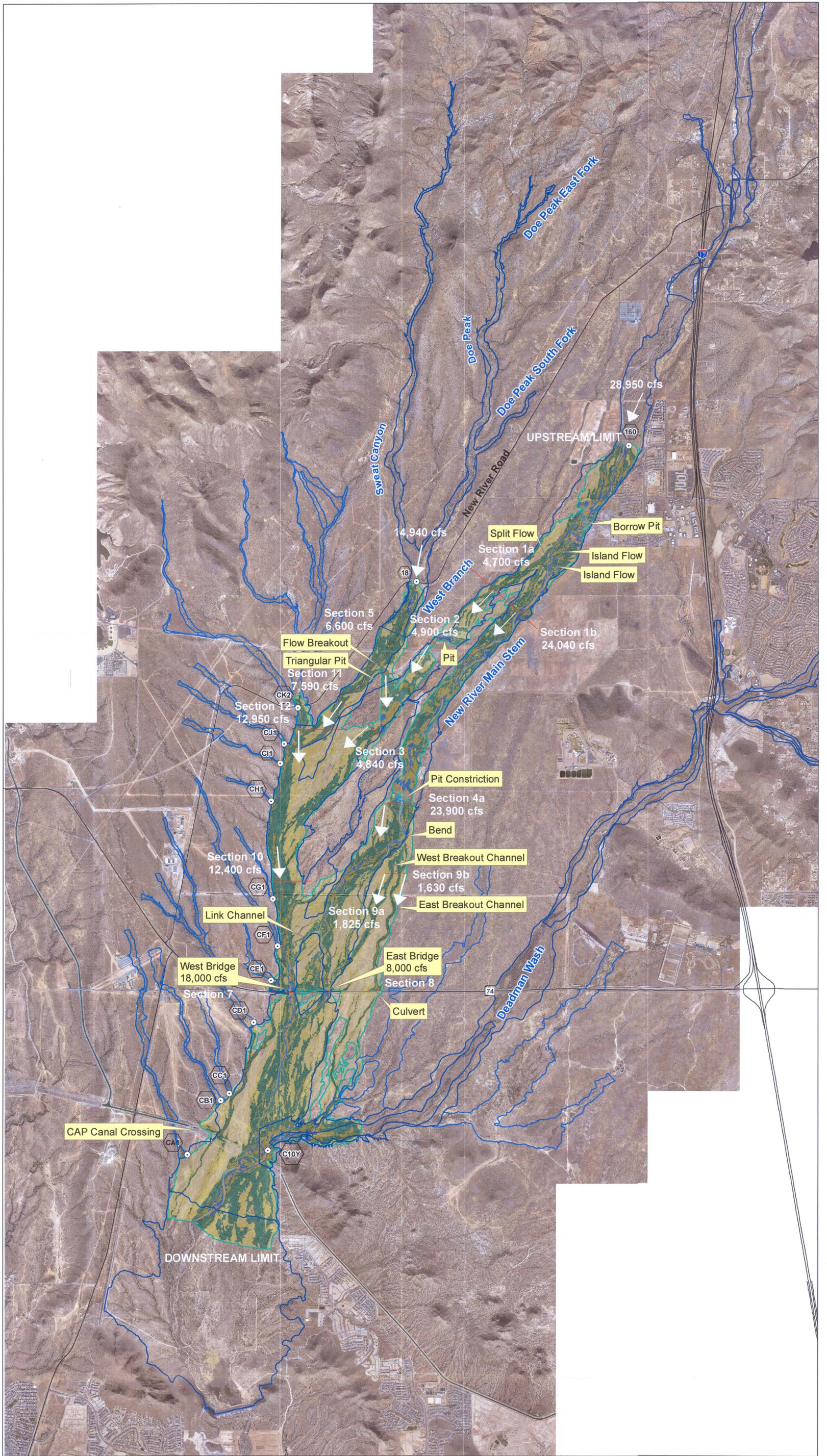


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Phoenix, AZ 85009

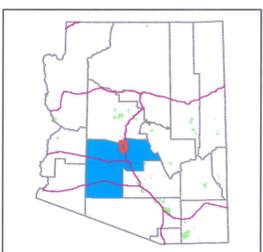
**Upper New River ADMP
FCD 2005CO20
Plate 6.6: FLO-2D n-value plan
(Extension Model)**



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Phoenix, AZ U.S.A. 85044



Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By:	Revision:	By	Date
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November 2007			

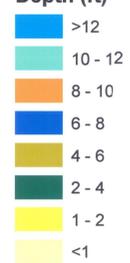
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Legend:

- Concentration Point
- Roadway
- FEMA Floodplain
- FLO-2D Floodplain
- Pending Floodplain
- Concentration Point ID

Depth (ft)

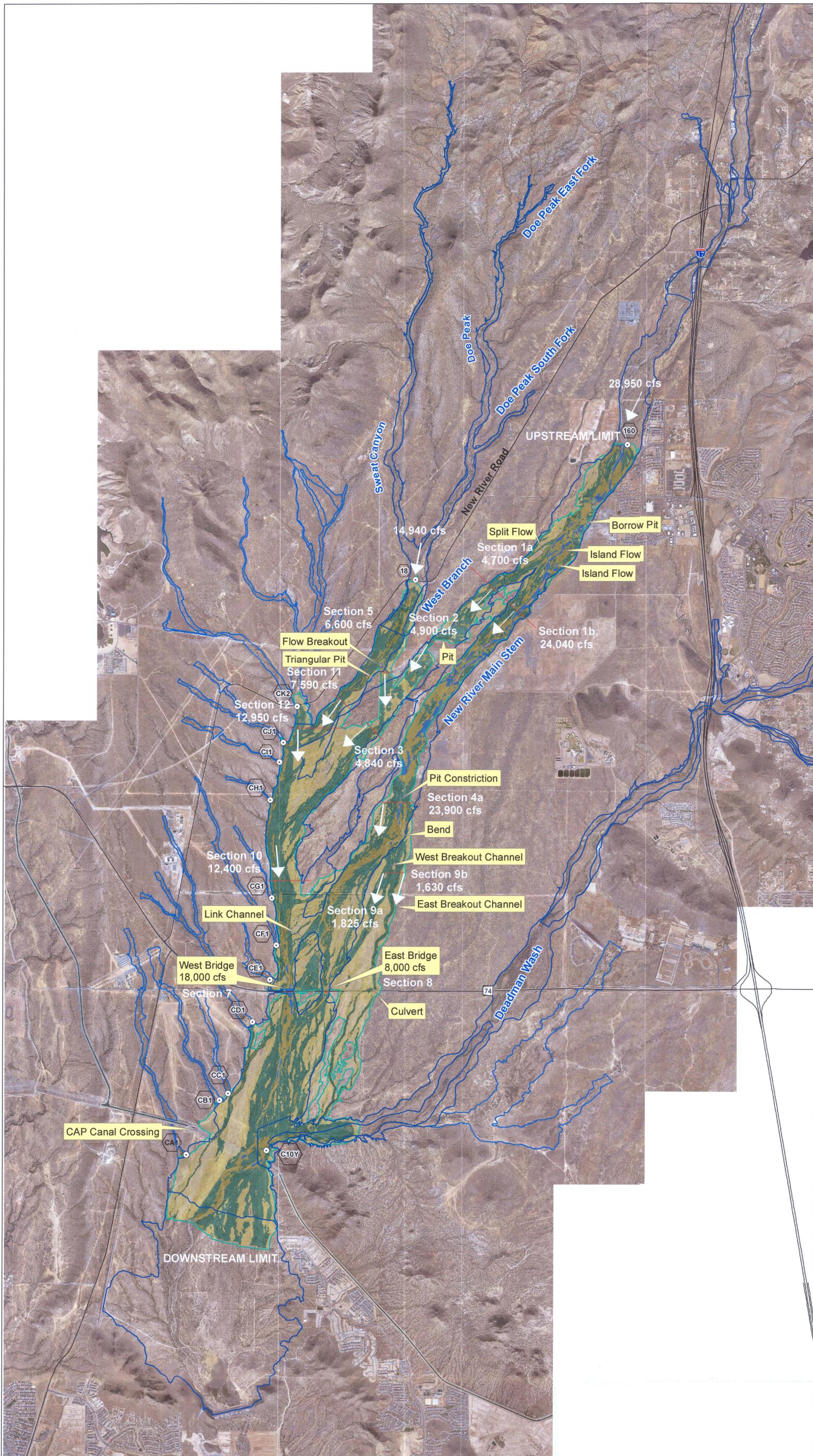


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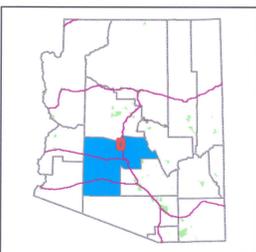
Upper New River ADMP
FCD 2005CO20
Plate 6.7: FLO-2D Depth Plan
(Existing Condition)



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Phoenix, AZ U.S.A. 85044



Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By:	Revision:
IA	
November 2007	

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Legend:

- Concentration Point
- Roadway
- FEMA Floodplain
- FLO-2D Floodplain
- Pending Floodplain
- CD1 Concentration Point ID

Velocity (ft/s)

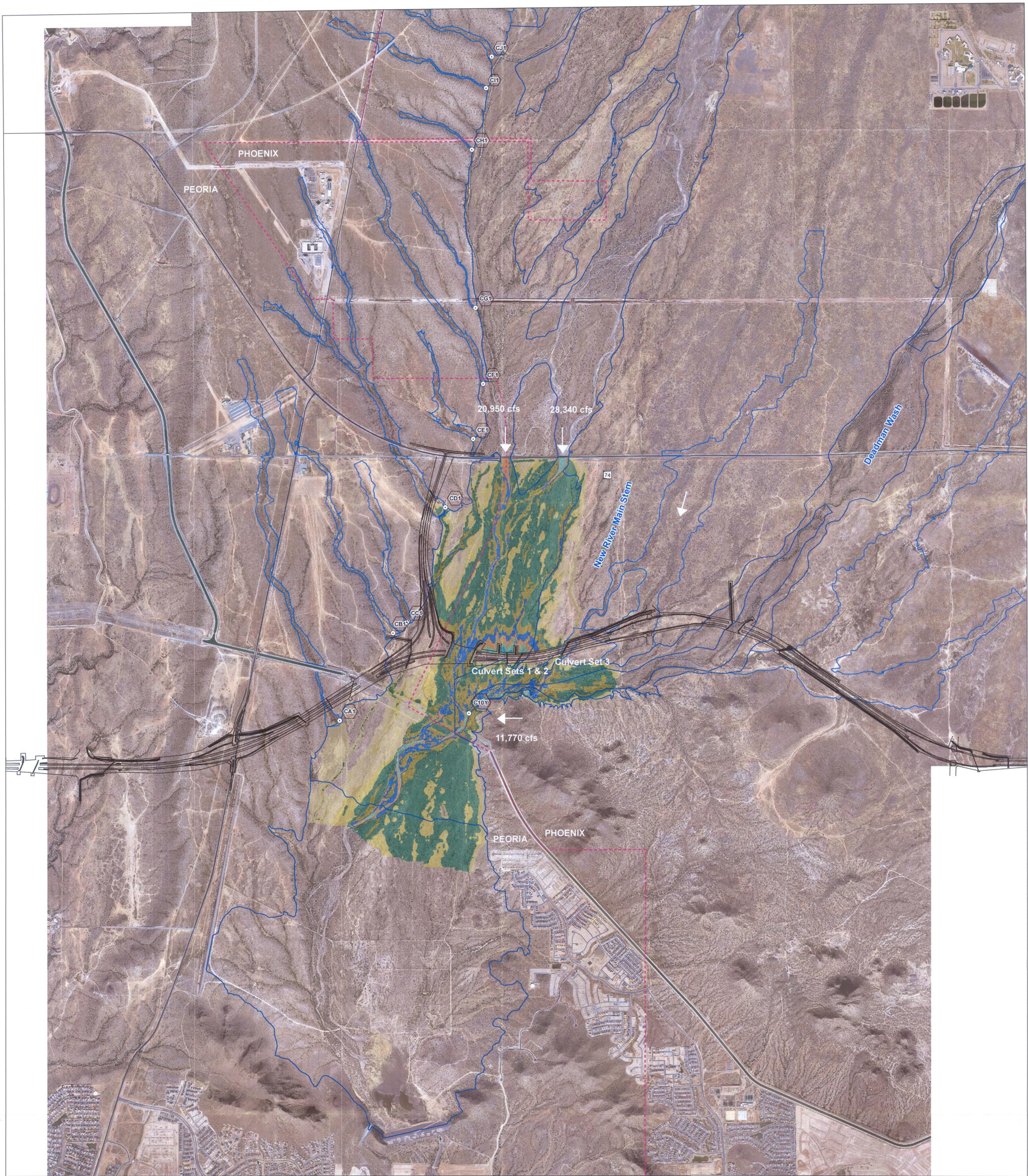


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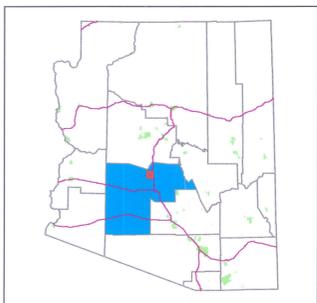
Upper New River ADMP
FCD 2005CO20
Plate 6.8: FLO-2D Velocity Plan
(Existing Condition)



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Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By:	Revision:
IA	
November 2007	
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Legend:

- Concentration Point
- Roadway
- FEMA Floodplain
- Pending Floodplain
- Concentration Point ID
- Corporate Boundary

Depth (ft)

- >12
- 10 - 12
- 8 - 10
- 6 - 8
- 4 - 6
- 2 - 4
- 1 - 2
- <1

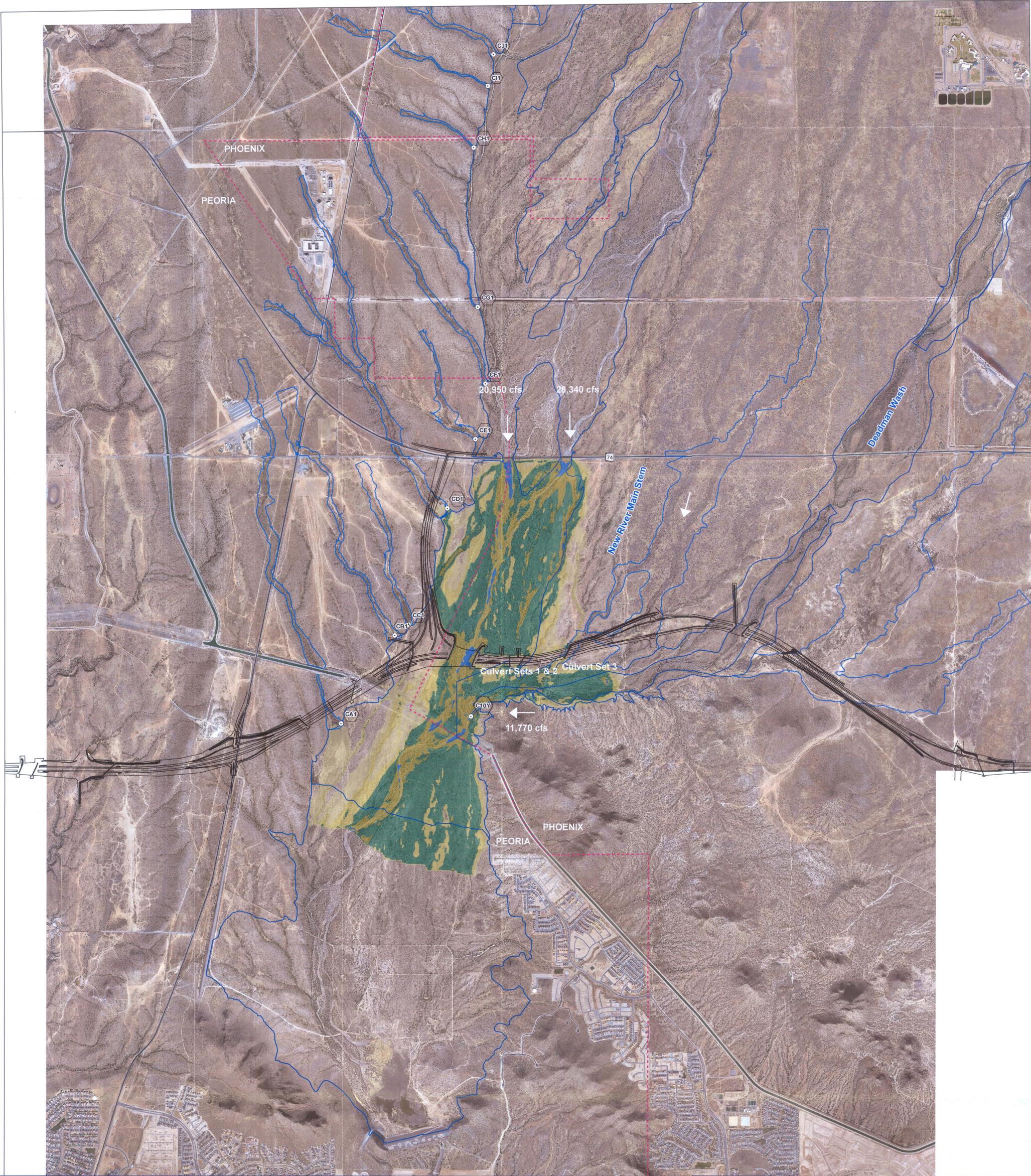


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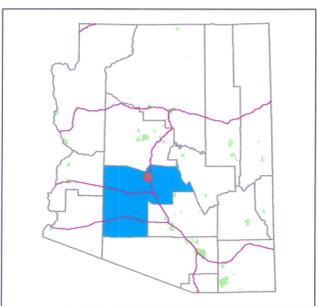
**Upper New River ADMP
FCD 2005CO20
Plate 9.1: FLO-2D Depth Plan
(Alternative 1)**



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Phoenix, AZ U.S.A. 85044



Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By:	Revision:
IA	
November 2007	
By	Appd Date

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Legend:

- Concentration Point
 - Roadway
 - FEMA Floodplain
 - Pending Floodplain
 - ⬡ Concentration Point ID
 - ⬡ Corporate Boundary
- | Velocity (ft/s) |
|-----------------|
| 12 - 14 |
| 10 - 12 |
| 8 - 10 |
| 6 - 8 |
| 4 - 6 |
| 2 - 4 |
| 1 - 2 |
| <1 |

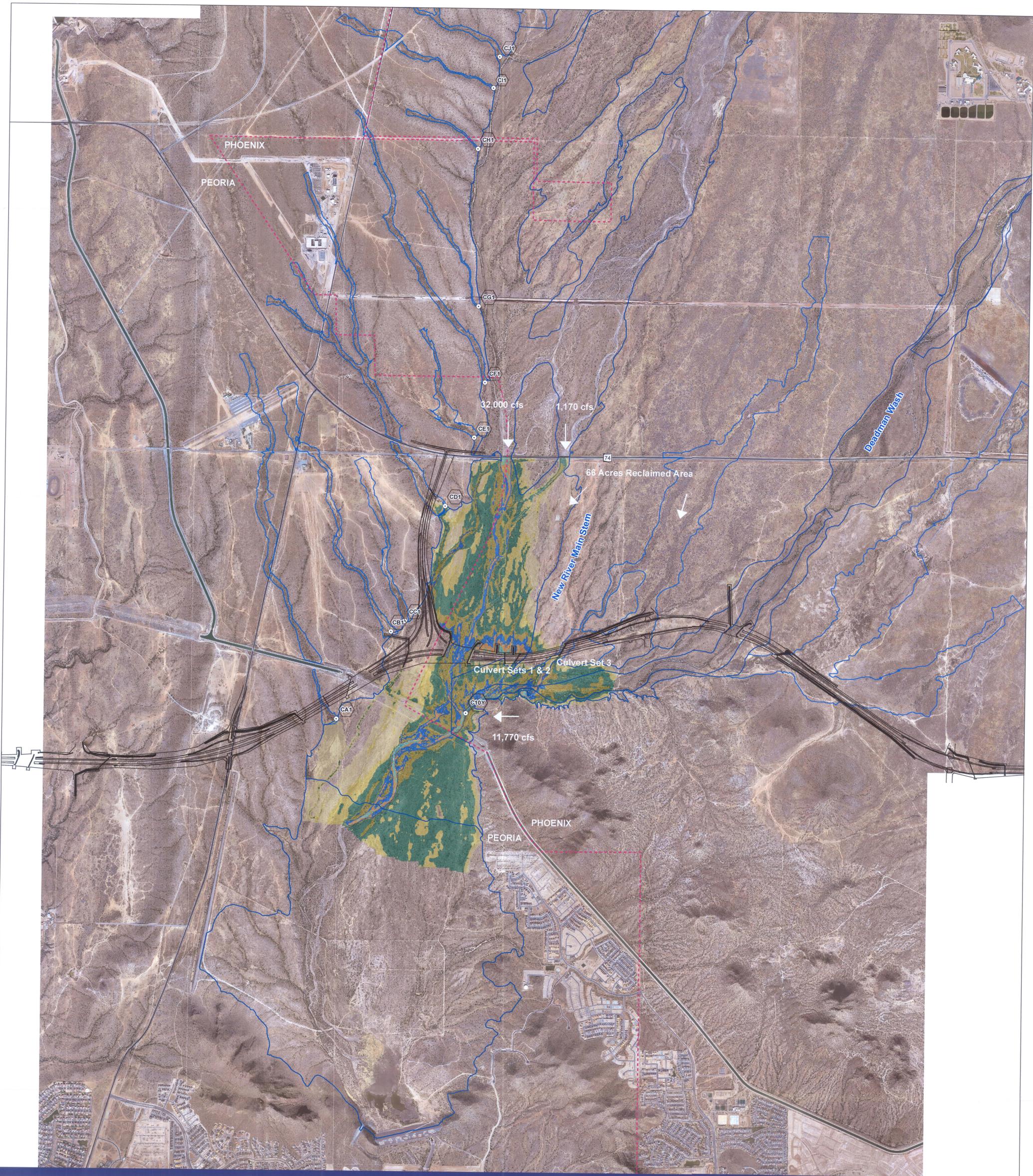


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Phoenix, AZ 85009

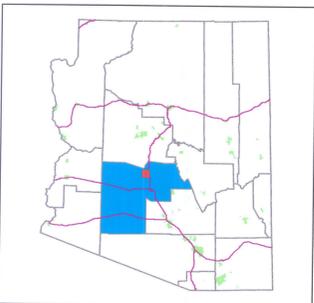
**Upper New River ADMP
FCD 2005CO20
Plate 9.2: FLO-2D Velocity Plan
(Alternative 1)**



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Phoenix, AZ U.S.A. 85044



Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By: _____ Revision: _____
 November 2007 _____
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Legend:

- Concentration Point
- Roadway
- FEMA Floodplain
- Pending Floodplain
- Concentration Point ID
- Corporate Boundary

Depth (ft)

- >12
- 10 - 12
- 8 - 10
- 6 - 8
- 4 - 6
- 2 - 4
- 1 - 2
- <1

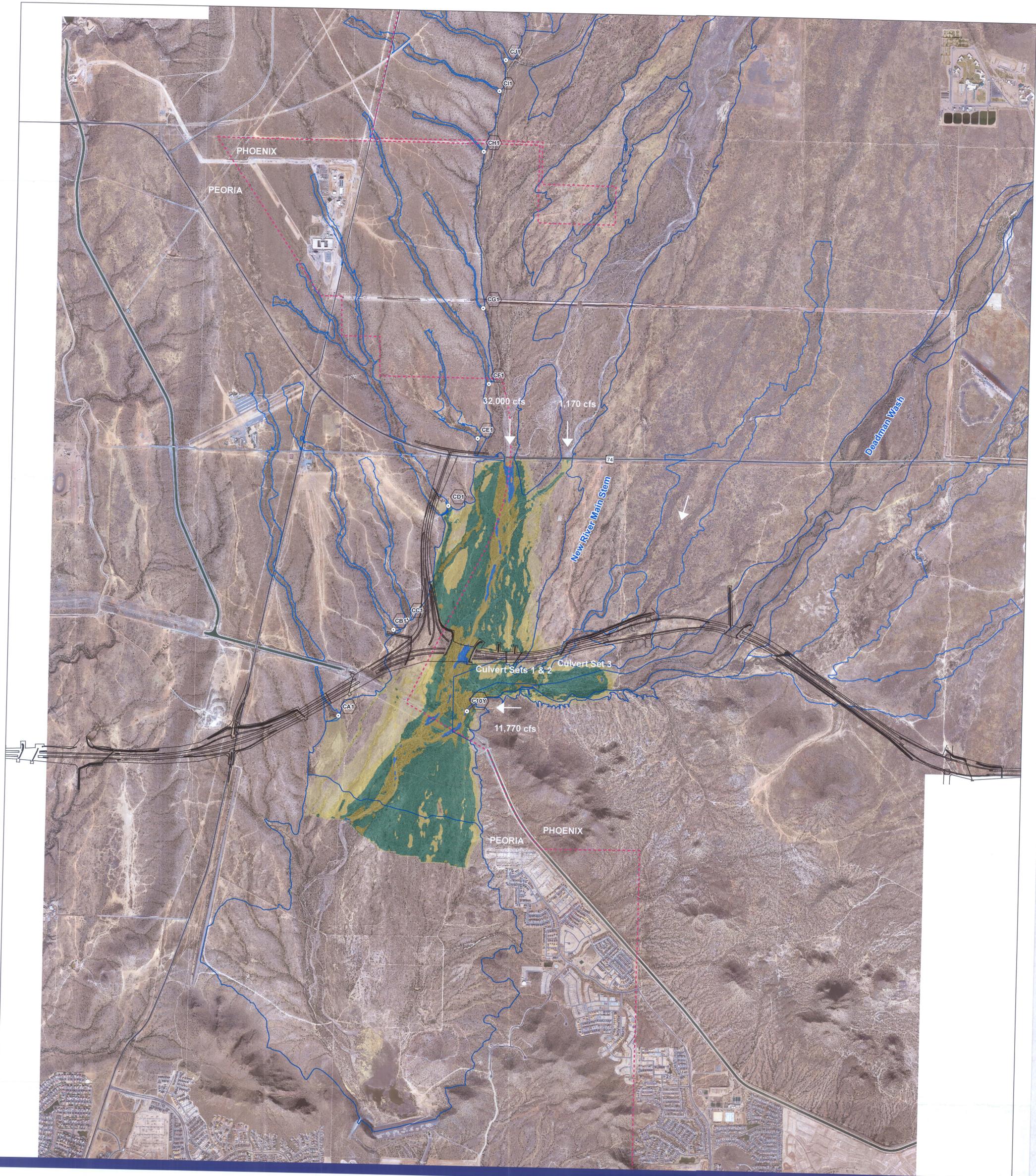


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 Phoenix, AZ 85009

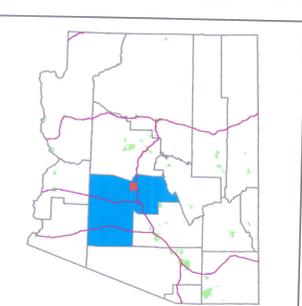
**Upper New River ADMP
 FCD 2005CO20
 Plate 9.3: FLO-2D Depth Plan
 (Alternative 2)**



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 Phoenix, AZ U.S.A. 85044



Location Map



- Notes:
1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
 2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By: IA
 Revision: _____
 November 2007

W:\active\182000418\GIS\Project36_48_itekhhar_map_2D_Velocity_Alt_2.mxd By Appd Date

Legend:

- Concentration Point
- Roadway
- FEMA Floodplain
- Pending Floodplain
- CD1 Concentration Point ID
- Corporate Boundary

Velocity (ft/s)

- 12 - 14
- 10 - 12
- 8 - 10
- 6 - 8
- 4 - 6
- 2 - 4
- 1 - 2
- <1



1" = 1000'

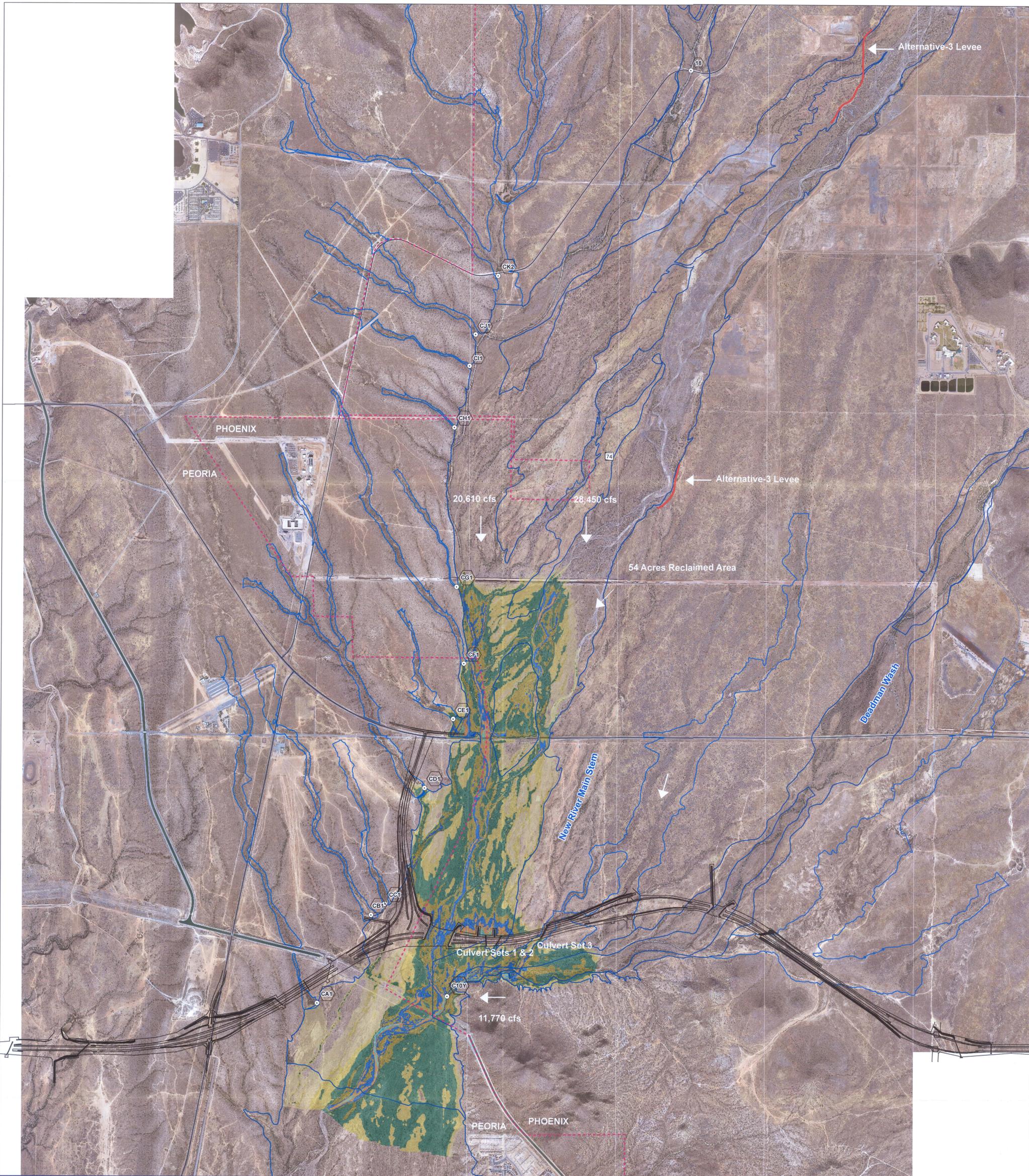


Flood Control District of Maricopa County
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 Phoenix, AZ 85009

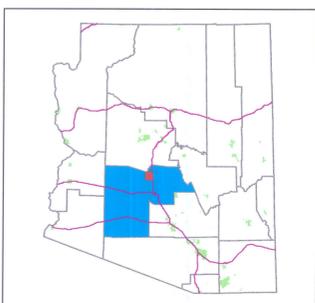
Upper New River ADMP
 FCD 2005CO20
 Plate 9.4: FLO-2D Velocity Plan
 (Alternative 2)



Stantec Consulting Inc.
 8211 S. 48th Street
 Phoenix, AZ U.S.A. 85044



Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By: IA
5 November 2007
Revision: _____
By: Appd Date

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Legend:

- Concentration Point
- Roadway
- FEMA Floodplain
- Pending Floodplain
- Concentration Point ID
- Corporate Boundary

Depth (ft)

- >12
- 10 - 12
- 8 - 10
- 6 - 8
- 4 - 6
- 2 - 4
- 1 - 2
- <1

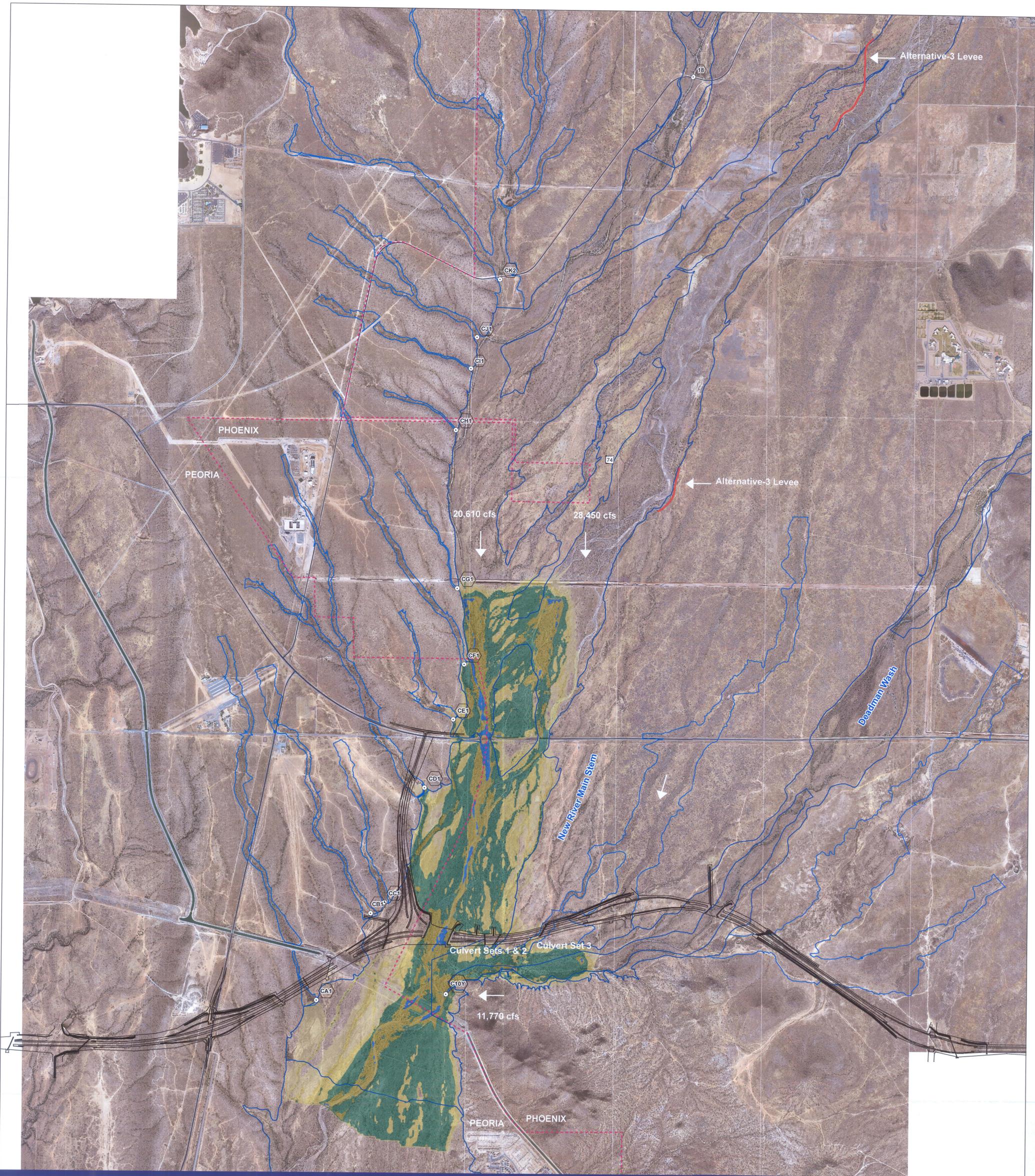


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of Maricopa County
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Phoenix, AZ 85009

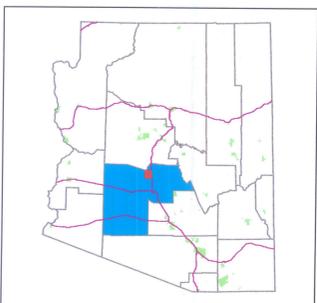
**Upper New River ADMP
FCD 2005CO20
Plate 9.5: FLO-2D Depth Plan
(Alternative 3)**



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Phoenix, AZ U.S.A. 85044



Location Map



Notes:

1. Aerial photographic base: Circa 2006, provided by the Flood Control District of Maricopa County
2. Mapping: Circa 2005, provided by the Flood Control District of Maricopa County
Scale: 1 inch = 200 feet at 2-foot C.I.
1 inch = 400 feet at 4-foot C.I.

Prepared By: _____ Revision: _____
 IA _____
 November 2007 _____
 W:\active\182000418\GIS\Project\36_48_iftkhar_map_2D_Velocity_Alt_3.mxd By Appd Date

Legend:

- Concentration Point
- Roadway
- FEMA Floodplain
- Pending Floodplain
- ⬢ Concentration Point ID
- ⋯ Corporate Boundary

Velocity (ft/s)



Flood Control District of Maricopa County
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 Phoenix, AZ 85009

**Upper New River ADMP
 FCD 2005CO20
 Plate 9.6: FLO-2D Velocity Plan
 (Alternative 3)**



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