APPENDIX B

HYDRAULICS REPORT

Table of Contents

Section **Page**

B.1.0 BACKGROUND 1

B.2.0 DATA SOURCES 3

B.3.0 CHANNEL ANALYSES 5
B.3.1 Method Overview 5
B.3.2 Channel Analysis - Central Region 6
B.3.3 Channel Analysis - East Side Region 6
B.3.4 Channel Analysis - Mission Valley Region 6
B.3.5 Channel Analysis - Northeast Region 6
B.3.6 Channel Analysis - Northwest Region 7
B.3.7 Channel Analysis - West Central Region 7

B.4.0 CROSSING STRUCTURE ANALYSES 9
B.4.1 Method Overview 9
B.4.2 Crossing Structure Analysis - Central Region 10
B.4.3 Crossing Structure Analysis - East Side Region 10
B.4.4 Crossing Structure Analysis - Mission Valley Region 10
B.4.5 Crossing Structure Analysis - Northeast Region 11
B.4.6 Crossing Structure Analysis - Northwest Region 11
B.4.7 Crossing Structure Analysis - West Central Region 11

B.5.0 CONDUITS ANALYSES - CENTRAL REGION ONLY 13

LIST OF TABLES

Table B-1 Data Sources Used in Hydraulic Analysis 17
Table B-2 Channel Capacity Summary - Central Region 19
Table B-3 Channel Capacity Summary - East Side Region 21
Table B-4 Channel Capacity Summary - Mission Valley Region 23
Table B-5 Channel Capacity Summary - Northeast Region 25
Table B-6 Channel Capacity Summary - Northwest Region 29
Table B-7 Channel Capacity Summary - West Central Region 37
Table B-8 Culvert Capacity Summary - Central Region 41
Table B-9a Culvert Capacity Summary - East Side Region 43
Table B-9b Culvert Capacity Summary - East Side Region - IH-10 Corridor 45
Table B-10 Culvert Capacity Summary - Mission Valley Region 47
Table B-11 Culvert Capacity Summary - Northeast Region 49
Table B-12 Culvert Capacity Summary - Northwest Region 53
Table B-13 Culvert Capacity Summary - West Central Region 59
Table B-14 Conduit Capacity Summary - Central Region 63

LIST OF FIGURES

Figure B-1 Project Area 67
Figure B-2 Typical Cross-Sections - Case I and Case II 68
Figure B-3 Government Hills System - Channel and Crossing Return Period Capacities - Central Region 69
Figure B-4 Cebada System - Channel and Crossing Return Period Capacities - Central Region 70
Figure B-5 Dallas System - Channel and Crossing Return Period Capacities - Central Region 71
Figure B-6 Phelps Dodge System - Channel and Crossing Return Period Capacities - East Side Region 72
Figure B-7 Mesa Drain Upstream System - Channel and Crossing Return Period Capacities - East Side Region 73
Figure B-8 Interstate Highway 10 Corridor - Channel and Crossing Return Period Capacities - East Side Region 74
Figure B-9 Lomaland Basin System - Channel and Crossing Return Period Capacities - East Side Region 75
Figure B-10 Americas Basin System - Channel and Crossing Return Period Capacities - East Side Region 76
Figure B-11 Americas Ten Basin System - Channel and Crossing Return Period Capacities - East Side Region 77
Figure B-12 Basin A System - Channel and Crossing Return Period Capacities - Mission Valley Region 78
Figure B-13 Basin G System - Channel and Crossing Return Period Capacities - Mission Valley Region 79
Figure B-14 Mesa Drain Downstream System - Channel and Crossing Return Period Capacities - Mission Valley Region 80
Figure B-15 Fort Bliss Sump System - Channel and Crossing Return Period Capacities - Northeast Region 81
Figure B-16 Northeast Ponding System - Channel and Crossing Return Period Capacities - Northeast Region 82
Figure B-17 Range Dam System - Channel and Crossing Return Period Capacities - Northeast Region 83
Figure B-18 Doniphan System - Channel and Crossing Return Period Capacities - Northwest Region 84
Figure B-19 Enchanted Hills System - Channel and Crossing Return Period Capacities - Northwest Region 85
Figure B-20 Flow Paths System - Channel and Crossing Return Period Capacities - Northwest Region 86
Figure B-21 Keystone Dam System - Channel and Crossing Return Period Capacities - Northwest Region 87
Figure B-22 Montoya Drain System - Channel and Crossing Return Period Capacities - Northwest Region 88

Figure B-23 Oxidation Dam System - Channel and Crossing Return Period Capacities - Northwest Region 89
Figure B-24 Vinton System - Channel and Crossing Return Period Capacities - Northwest Region 90
Figure B-25 West Central System - Channel and Crossing Return Period Capacities - West Central Region 91

This page was intentionally left blank.

B.1.0 BACKGROUND

A hydraulic analysis was performed in order to identify drainage structures with capacity issues. The hydraulic efficiency of the structures in the El Paso area was analyzed as follows:

- Normal depth calculations were performed along all study reaches to estimate channel capacity.
- CulvertMaster calculations were performed at channel crossings to estimate crossing capacity.
- Previous Federal Emergency Management Agency (FEMA) Hydrologic Engineering Center-River Analysis System (HEC-RAS) models listed below were reviewed to identify potential capacity issues.
  - Northeast Channel No. 2 (FEMA, 2004)
- Conduits exhibiting poor performance were identified as part of the prioritization exercise performed in Task 2 of the Stormwater Master Plan (SMP), and capacities were estimated.
- Pump stations exhibiting poor performance were identified as part of the prioritization exercise performed in Task 2 of the SMP. The majority of the pump station analysis was conducted during the Alternatives Analysis phase, and is discussed further in Appendix D.

This appendix will present the basic methodologies associated with the calculations performed as part of the hydraulic evaluation process. An overview of the project area is provided on Figure B-1.

This page was intentionally left blank.

B.2.0 DATA SOURCES

Table B-1 lists the sources used in the hydraulic analysis, as well as the specific calculation(s) each source was used for.

This page was intentionally left blank.

B.3.0 CHANNEL ANALYSES

B.3.1 Method Overview

As part of the hydraulic study, channel capacities were analyzed for cross-sections located along each study channel using Manning's Normal Depth assumption. Channel geometry was estimated from a variety of sources including the previous Work Order 1 Study (URS Corporation [URS], 2007), the El Paso Water Utilities (EPWU) drainage layer, Texas Department of Transportation (TxDOT) contour data (TxDOT, 2004), City of El Paso Orthophotos (City of El Paso, 2006), existing HEC-RAS models (FEMA, 2004), and site visits. Generally, the Work Order 1 geometry was the primary data source utilized unless there was an obvious conflict with aerial imagery or contours. In these instances, the additional data sources listed above were used to verify accurate geometry. Cross-sections were analyzed along channels at locations of varying geometry or channel slope to estimate the capacity for the entire study channel. Capacity estimates were performed using Bentley FlowMaster, or an equivalent Normal Depth Method.

ArcView shapefiles were digitized to show the approximate cross-section locations corresponding to the capacities estimated for each of the regions studied. For each cross-section analyzed, the nearest downstream Hydrologic Engineering Center-Hydraulic Modeling System (HEC-HMS) flow node was identified. Each node has an associated 10, 25, 50, 100, and 500-year storm flow. Using functions created in Excel, the estimated cross-section capacity was compared with the downstream node's storm flows to interpolate an approximate return period corresponding to the channel capacity. In some instances, the nearest downstream flow node contained a large contributing watershed area that did not enter the channel until downstream of the cross-section being analyzed. In such cases, the downstream flows were sometimes scaled down using an area reduction factor equal to the area of the watershed contributing upstream of the cross-section, divided by the total watershed area contributing to the HMS flow node. This step was typically performed during the conceptual design phase where deemed appropriate in order to more accurately size proposed drainage structures.

Channels that were found to be potentially undersized to convey the 100-year storm event were classified as either Case I or Case II. Channels were denoted as Case I if floodwaters would be contained within the channel overbanks. Channels were denoted as Case II if floodwaters had the potential to exit the channel overbanks and enter adjacent watersheds. These classifications were used during the prioritization of projects, discussed in Appendix E. Figure B-2 illustrates Case I and Case II flooding scenarios.

B.3.2 Channel Analysis - Central Region

Channel flow capacities and associated return periods were calculated for the Central Region as described above in Section B.3.1. Plan sets for the Government Hills Channel were provided by EPWU (Parkhill, Smith, & Cooper, Inc. [PSC], January 2007a), to supplement Work Order 1 geometry. Site visits were also performed to determine channel geometries that were not available in Work Order 1.

Conduit flow capacities and associated return periods were also calculated for major large conduits. Conduits that have a diameter larger than 42 inches and are not the primary drainage structures were considered in the analysis. These conduits do not serve as drainage structures for streets, but rather as major storm water corridors from reservoirs to outlets. A hydraulic conduit analysis program called FlowMaster was used to estimate the return intervals. Results for the Central Region channel analysis are provided in Table B-2 and Figures B-3 through B-5 located at the end of this Appendix.

B.3.3 Channel Analysis - East Side Region

Channel flow capacities and associated return periods were calculated for the East Side Region as described in Section B.3.1. Additionally, FlowMaster was used to calculate the normal depth for each channel. Additional data was obtained from record drawings for channel data that was not available in Work Order 1. Results are provided in Table B-3 and Figures B-6 through B-11 located at the end of this Appendix.

B.3.4 Channel Analysis - Mission Valley Region

Channel flow capacities and associated return periods were calculated for the Playa and Mesa Drains in Mission Valley as described above. A bed profile drawing was created for both drains and the channel capacity was calculated at any location where there was a significant change in slope. Due to discrepancies in geometry among the various sources for many of the cross sections in Mission Valley, a site visit was necessary to obtain more precise measurements. Results are provided in Table B-4 and Figures B-12 through B-14 located at the end of this Appendix.

B.3.5 Channel Analysis - Northeast Region

Channel flow capacities and associated return periods were calculated for the Northeast Region as described above. Additional data was required at Electric Ditch Diversion Channel due to discrepancies in geometry among the various sources, so a site visit was performed to obtain more precise measurements. Additionally, the 2004 FEMA Flood Hazard HEC-RAS Model (FEMA, 2004) was used to approximate capacities along the Northeast Channel No. 2, utilizing the hydrologic flows from this study. Results for the Northeast Region channel analysis are provided in Table B-5 and Figures B-15 through B-17 located at the end of this Appendix.

B.3.6 Channel Analysis - Northwest Region

Channel flow capacities and associated return periods were calculated for the Northwest Region as described above. Due to the new development of the area around Flow Path No. 38, additional data was required. Data was gathered from the "West Hills Unit Twenty Three Off Site Drainage" as-builts and a site visit was performed to confirm the finding. Results are provided in Table B-6 and Figures B-18 through B-24 located at the end of this Appendix.

B.3.7 Channel Analysis - West Central Region

Flow capacities and associated return periods for the channels in the West Central Region were calculated as described above. Additional data was required for the beginning of Flow Path No. 20 due to inconsistencies in the geometry and flow path among the various data sources. A site visit was performed to confirm the flow path and obtain more precise measurements of the channel. Results are provided in Table B-7 and Figure B-25 located at the end of this Appendix.

This page was intentionally left blank.

B.4.0 CROSSING STRUCTURE ANALYSES

B.4.1 Method Overview

Initially, culvert capacities obtained from Work Order 1 (URS, 2007) were utilized for this analysis where available. However, culverts analyzed in Work Order 1 were modeled in CulvertMaster with the assumption that there was no tailwater present. In order to ascertain the effect of tailwater on the culverts included in this study, a downstream channel cross section was entered for each culvert into CulvertMaster and new capacities were estimated. Bridges were also analyzed in CulvertMaster. The area under the bridge was estimated and a culvert of equal cross-sectional flow area, matching the height and width of the bridge as much as possible, was entered into CulvertMaster. Crossing structure information was obtained from a variety of sources, including the Work Order 1 Study, the EPWU drainage layer (EPWU, 2008), as-builts, existing HEC-RAS Models, TxDOT topography (TxDOT, 2004), orthophotography (City of El Paso, 2006), and site visits.

CulvertMaster uses several parameters, including the upstream invert elevation, the downstream invert elevation, and slope to analyze a culvert. In some instances, survey data was available with the appropriate invert elevations upstream and downstream of the culverts as well as top of road elevations. Other culverts were missing this information, but did have inverts that were included as attributes to the "Conduit_Join_Selection.shp" or "Culverts_Selection.shp" shapefiles, which were originally provided by the City of El Paso. However, the inverts included in these shapefiles were based on a different vertical datum than the survey used. The datum adjustment for the City of El Paso inverts was approximately +10 feet when compared to the survey points. If information on the culvert inverts was not available, the slope of the culvert was assumed to match that of the channel.

As mentioned above, a parameter that is used by CulvertMaster to calculate tailwater depth is the channel geometry downstream of the culvert. This geometry was approximated based on the TxDOT topography and a representative cross-section was entered into CulvertMaster. The TxDOT topography vertical datum was found to be consistent with the survey utilized, but not the City of El Paso shapefiles. Therefore, in each case where inverts were not available from survey points, but were available in the City of El Paso shapefiles, the elevations from the downstream channel cross section were uniformly adjusted in CulvertMaster so that the bottom elevation matched the downstream invert elevation from the City of El Paso shapefiles.

As with the channel analysis described previously, ArcView shapefiles were digitized to show the approximate crossing locations. For each crossing analyzed, the nearest downstream HEC-HMS flow node was identified. Each node has an associated 10-, 25-, 50-, 100-, and 500-year design flow. Using functions created in Excel, the estimated cross-section capacity was compared with the downstream node's storm flows to interpolate an approximate return period corresponding to the channel capacity.

In some instances, the nearest downstream flow node contained a large contributing watershed area that did not enter the channel until downstream of the cross-section being analyzed. In such cases, the downstream flows were sometimes modified using an area reduction factor equal to the area of the watershed contributing to upstream of the crossing divided by the total watershed are contributing to the HMS flow node. This step was typically performed during the conceptual design phase where deemed appropriate in order to more accurately size proposed drainage structures.

B.4.2 Crossing Structure Analysis - Central Region

Crossing capacities and associated return periods were calculated for the Central Region as described above. Results are provided in Table B-8 and Figures B-3 through B-5 located at the end of this Appendix.

B.4.3 Crossing Structure Analysis - East Side Region

Crossing capacities and associated return periods were calculated for the East Side Region as described in Section B.4.1. Tailwater information was assumed to be the soffit elevation at the downstream end of the hydraulic structure. Headwater information was obtained from record drawings. If no record drawings were available, headwater was assumed to be the upstream soffit elevation plus one foot. Results are provided in Table B-9a and Figures B-6 through B-11 located at the end of this Appendix.

Culvert crossings along the IH-10 corridor between Robert E. Lee Road and eastern City limits were analyzed slightly differently than described above using CulvertMaster to identify any potential problems along the IH-10 corridor. Headwater elevation for culvert analysis was identified per record drawings or assumed to be the upstream soffit elevation plus one foot. Tailwater elevation for culvert analysis was assumed as the downstream soffit elevation. The culvert crossings were identified by TxDOT station number at the centerline of the structure and the centerline of the roadway with the use of record drawing information. Flows for each crossing were assumed as the complete watershed flow equally divided by the number of crossings in the watershed. This type of analysis is cursory in nature and further analysis on crossings identified as not “At Capacity” must be performed. The results of the analysis of the IH-10 crossings is provided in Table B-9b.

B.4.4 Crossing Structure Analysis - Mission Valley Region

Only crossings on the Playa and Mesa Drains were analyzed for the Mission Valley Region. These crossing capacities were calculated as described above. The crossing capacities were not associated with a specific return interval, but rather a percentage of the upstream channel capacity that could be passed. This method was more practical for the Mission Valley Region because the Playa and Mesa drains are both undersized. Results are provided in Table B-10 and Figures B-12 through B-14 located at the end of this Appendix.

B.4.5 Crossing Structure Analysis - Northeast Region

Crossing capacities and associated return periods were calculated for the Northeast Region as described above. Results are provided in Table B-11 and Figures B-15 through B-17 located at the end of this Appendix.

B.4.6 Crossing Structure Analysis - Northwest Region

Crossing capacities and associated return periods were calculated for the Northwest Region as described above. Results are provided in Table B-12 and Figures B-18 through B-24 located at the end of this Appendix.

B.4.7 Crossing Structure Analysis - West Central Region

Crossing capacities and associated return periods were calculated for the West Central Region as described above. Results are provided in Table B-13 and Figure B-25 located at the end of this Appendix.

This page was intentionally left blank.

B.5.0 CONDUITS ANALYSES - CENTRAL REGION ONLY

In addition to the channel and crossing analysis performed for the other regions, several significant conduits were analyzed in the Central Region. Conduit capacities were obtained from Work Order 1 where available. Work Order 1 used both CulvertMaster and FlowMaster to analyze conduits. Each conduit larger than 42 inches was re-analyzed along with any large conduits that were not previously analyzed. Information was gathered from as-built plan sheets provided by EPWU, TxDOT Plans, Work Order 1 data, and site visits.

FlowMaster uses several parameters, including the upstream invert elevation, the downstream invert elevation, and slope to analyze a conduit. In some instances, survey data was available with the appropriate invert elevations upstream and downstream of the conduits. Some conduits were missing this information, but did have inverts that were included as attributes to the "Culverts_Selection.shp" shapefile, which were originally provided by the City of El Paso. However, the inverts included in these shapefiles were based on a different vertical datum than the survey used. The datum adjustment to the City of El Paso inverts was approximately +10 feet when compared to the survey points.

For each conduit analyzed, the nearest upstream HEC-HMS flow node was identified. Each node has an associated 10-, 25-, 50-, 100-, and 500-year storm flow. Using functions created in Excel, the estimated conduit capacity was compared to the peak discharge of the selected node. The maximum capacity of the conduit was then correlated with a specific return period, interpolated between bounding storm events. The result is a return period associated with the conduit that can be used in design. Conduits that could not pass the 100-year storm flows were deemed undersized and further analysis was required.

Conduit capacities and associated return periods were calculated for the Central Region as described above. Results are provided in Table B-14 and Figures B-3 through B-5 located at the end of this Appendix B.

This page was intentionally left blank.

TABLES

This page was intentionally left blank.

Table B-1. Data Sources Used in Hydraulic Analysis

Source	Used For
Bentley, CulvertMaster.	Channel Analysis Conduit Analysis
Bentley, FlowMaster.	Crossing Analysis Channel Analysis
City of El Paso, 2006. Orthophotography.	Crossing Analysis Channel Analysis
El Paso Storm Water Utility, 2008. El Paso Drainage Layer (incomplete).	Crossing Analysis Channel Analysis
Mapping Alliance Partnership 6 (MAP 6) - FEMA, 2004. Flood Hazard Study.	Channel Analysis
Moreno Cardenas Inc. (MCi), February 2008. Drainage Study and Report (Existing Conditions) for Interstate Highway 10.	Crossing Analysis
Parkhill, Smith, & Cooper, Inc. (PSC), January 2007a. Government Hill Outfall Durazno Neighborhood. Storm 2006 Drainage Repairs Project.	Channel Analysis
Texas Department of Transportation (TxDOT), El Paso Office, 2004. Topography	Crossing Analysis Channel Analysis
URS Corporation (URS), 2007. Electronic Data-Appendix A - Tabulated Results, Table A-2 Hydraulics and Assessment Summary, Work Order 1.	Crossing Analysis Channel Analysis
URS, 2007. Electronic Data-Appendix I, Drainage System Evaluation and Audit Report, Drainage On-Call Services, Work Order 1	Crossing Analysis Channel Analysis
URS, 2008. Electronic Data - Appendix E, Dam Analysis Report, Drainage On-Call Services, Task 3 of Work Order 3.	Channel Analysis

This page was intentionally left blank.

Table B-2. Channel Capacity Summary - Central Region

CENTRAL REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
El Paso Rock Quarries	Irregular Geometry - 4pts			0.035	7000	Davis-Seaman Rd to Alabama	R_El_Paso_Rock_Quarries	50
El Paso Rock Quarries	15	2:1	7.9	0.045	4000	Near Alabama St	R_El_Paso_Rock_Quarries	50
Government Hills Channel	15	2:1	4	0.013	1800	Coldwell Elementary School	J_Gov Hills North Inflow	100
Government Hills Channel	Irregular Geometry - 6pts			0.013	1900	West of Boone Street	J_Gov Hills North Inflow	100
Government Hills Channel	10	2:1	4	0.013	1400	Altura Rd	J_Gov Hills North Inflow	100
Government Hills Channel	10	2:1	4	0.013	1400	US of Cumberland Dr	J_Gov Hills North Inflow	100
Government Hills Channel	10	2:1	4	0.013	1400	Between Chester and Oxford Ave.	J_Gov Hills North Inflow	100
Government Hills Channel	15	2:1	4	0.013	1700	Upstream of Hueco Ave.	J_Gov Hills North Inflow	100
Mckelligon Channel	Irregular Geometry - 6pts			0.04	6500	At McKelligon Canyon Road	J_McKelligon_Outflow	100
Mckelligon Channel	Irregular Geometry - 6pts			0.04	7900	Between Davis Seamon & McKelligon	J_McKelligon_Outflow	100
Pershing Discharge Channel	10	.65:0	15	0.012	8200	Pershing Outfall Channel	J_Gov Hills North Inflow	100
Pershing Discharge Channel	25	.5:1	8.75	0.016	8800	Pershing Outfall Near Gov. Hills Channel	J_Gov Hills North Inflow	100
Pollard Ditch	8	1:1	5	0.02	1400	Porter to Embankment	A_Pollard Ditch	25
Van Buren Discharge Channel	Irregular Geometry - 8pts			0.04	3100	West of Oklahoma Street	J_Van Buren Ditch Inflow	100
Van Buren Discharge Channel	15	1:1	5	0.035	2200	Parallel to Oklahoma St	J_Van Buren Ditch Inflow	100

Table B-2. Channel Capacity Summary - Central Region (Continued)

CENTRAL REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Van Buren Discharge Channel	Irregular Geometry - 6pts			0.038	5100	East of Alabama	J_Van Buren Ditch Inflow	100
Copia_Ditch	Irregular Geometry - 4pts			0.013	5200	Downstream of Savannah Street	J_Copia_Ditch_US	100
Copia_Ditch	Irregular Geometry - 4pts			0.013	3200	Downstream of Altura Avenue	J_Copia_Ditch_US	100
Copia_Ditch	Irregular Geometry - 4pts			0.013	3600	Downstream of Richmond Avenue	J_Copia_Ditch_US	100
Copia_Ditch	Irregular Geometry - 4pts			0.013	1600	Downstream of Louisville Ave	J_Copia_Ditch_US	100
Copia_Ditch	Irregular Geometry - 4pts			0.013	2700	Downstream of Lebanon Ave	J_Copia_Ditch_US	100
Copia_Ditch	Irregular Geometry - 4pts			0.035	300	50' NE of RR tracks	J_Copia_Ditch_US	100
Copia_Ditch	Irregular Geometry - 4pts			0.011	3100	Below RR tracks	J_Copia_Ditch_US	100

Table B-3. Channel Capacity Summary - East Side Region

EAST SIDE REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Bluff Channel Cross Section 1	10	1.5	4	0.013	1442.34	Beginning of Channel to Esther Lama Drive	9J	40
Bluff Channel Cross Section 2	12	1.33	6	0.013	3524.49	Esther Lama Drive to Drop at Old Basin	9J	>100
Bluff Channel Cross Section 3	35	2	9	0.013	6987.34	Drop at Old Basin to IH-10	9J	>100
Fort Bliss Spur Drain Cross Section 1	4	1.5	4	0.013	1014	Airway Boulevard to Robert E. Lee Boulevard	A-PD-1	>100
Fort Bliss Spur Drain Cross Section 2	4	1.5	4.5	0.013	964	Edgemere Boulevard to Railroad Crossing	A-PD-1	>100
Fort Bliss Spur Drain Cross Section 3	4	1.5	4	0.013	907	Railroad Crossing to Half-way IH-10	A-PD-1	>100
Fort Bliss Spur Drain Cross Section 4	4	1.5	3	0.013	1204	Half-way IH-10 to Upstream Culvert Crossing	A-PD-1	>100
Fort Bliss Spur Drain Cross Section 5	4	1.5	4.5	0.013	1460	Upstream Culvert Crossing to IH-10	A-PD-1	>100
Sunmount Channel	10	5	7	0.030	2720	W.H. Burges Drive to Viscount Boulevard	A_Sunmount	>100
Vanderbilt Channel	10	1.5	5	0.013	1817	Beginning of Channel to Jesuit Basin	A-LL-8	>100
RV Channel Cross Section 1	50	0	5.17	0.030	5184	Upstream Culvert Crossing at Pine Springs Drive	124A & 124E	>100
RV Channel Cross Section 2	20	1	4	0.013	3580	Pine Springs Drive to Rojas Drive	124JW	>100

Table B-3. Channel Capacity Summary - East Side Region (Continued)

EAST SIDE REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
RV Channel Cross Section 3	50	0	2.83	0.030	1324	Rojas Drive to RV Drive	124JW	>100
RV Channel Cross Section 4	30	2	4	0.013	3184	RV Drive to RV/Mercantile Channel Junction	124JW	>100
Mercantile Channel Cross Section 1	45.67	0	5	0.030	2049	Upstream Culvert Crossing at Mercantile Avenue	124C	>100
Mercantile Channel Cross Section 2	20	1	5	0.013	3998	Mercantile Avenue to Rojas Drive	124JE	>100
Mercantile Channel Cross Section 3	30	2	4.5	0.013	3033	Rojas Drive to RV/Mercantile Channel Junction	124JE	>100
Joe Battle Channel Cross Section 1	8	2	6	0.013	1212	Beginning of Channel to Channel Turn	A-AM-5	>100
Joe Battle Channel Cross Section 2	10	2	6	0.013	3689	Channel Turn to Pond	A-AM-5	>100
Peter Hurd Channel	6	1	3.5	0.013	622	Beginning of Channel to Vista del Sol Drive	A-AM-7	>100
Lorne Channel Cross Section 1	8	1	2.5	0.013	307	Limerick Road to Lorne Road	A-PD-6	25
Lorne Channel Cross Section 2	3	1	3	0.013	196	Lorne Road to Pond	A-PD-6	5

Table B-4. Channel Capacity Summary - Mission Valley Region

MISSION VALLEY REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Mesa Drain	15	2:1	9	0.03	750	Northloop	J_Mesa Drain w Phelps Dodge	<10
Mesa Drain	15	2:1	9	0.03	1375	Just East of Mauer	J_Mesa Drain w Lafayette Drw	10
Mesa Drain	15	1.5:1	10	0.03	1200	Just East of Lomaland	J_Mesa Drain w Lomaland	10
Playa Drain	12	2:1	7	0.013	645	Little Flower	J_Playa Drain w Basin A	10
Playa Drain	24	2:1	8	0.03	1275	End of Conduit U/S Knights	R_Playa Drain Conduit and A_Playa Drain B (Area Reduction)	65
Playa Drain	20	1.5:1	8	0.03	1000	U/S of Yarbrough	R_Playa Drain Conduit and A_Playa Drain B (Area Reduction)	50
Playa Drain	15	1.5:1	7	0.03	375	Whittier	R_Playa Drain Conduit and A_Playa Drain B (Area Reduction)	<10

This page was intentionally left blank.

Table B-5. Channel Capacity Summary - Northeast Region

NORTHEAST REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Bossworth	14	1	10	0.016	13000	Morningside Cir to Byron	A_Bossworth U/S	>100
Bossworth	10	2	5	0.035	1500	Byron to Dyer	J_Bossworth Ch D/S	>100
Bossworth	25	2	5	0.035	3300	Byron to Dyer - Section 2	J_Bossworth Ch D/S	>100
Corps of Engineers	14	1	30	0.035	65000	Edgar Park Ave - Mountain View Rd	J_Ft Bliss Div Ch U/S	>100
Diana Ditch	28	Irregular Geometry	4.8	0.016	814	X-Section 1	J_Diana Ditch D/S	10
Diana Ditch	9	Irregular Geometry	4.5	0.016	513	X-Section 2	J_Diana Ditch U/S	10
Electric Ditch Div	75	1	2	0.03	755	U/S McCombs East	J_Electric Ditch (Area Reduction)	100
Electric Ditch Div	50	1	4	0.03	1600	McCombs East	J_Electric Ditch	>100
Electric Ditch Div	30	Irregular Geometry	6.5	0.03	1200	D/S McCombs East	J_Electric Ditch	>100
Fort Bliss Div	15	2	10	0.04	6900	US to Dyer St	J_Ft Bliss Div Ch Dyer St	>100
Fusselman Out	Irregular Geometry			0.035	5000		S_Fusselman Dam	>100
Greenbelt Levee System	1000	4	5	0.04	46000	US 54	J_Green Belt Levee D/S	>100
Hondo Pass	60" Conduit	N/A	N/A	0.016	322	Mercury Street	A_Hondo Pass Ch	>100
Northgate Div	0	2	15	0.04	7900	US end to Ft Bliss	A_Northgate Div Ch	>100
Northgate Interceptor Ch	30	2/3	8	0.03	2400		A_Northgate Int Ch	>100
Northgate Outlet	10	0	3.67	0.016	491	W of Gateway S to GWS	J_Northgate Dam Out	>100
Northgate Outlet	15	1	10	0.035	3000	E of GWS to Ponding	J_Northgate Dam Out	>100

Table B-5. Channel Capacity Summary - Northeast Region (Continued)

NORTHEAST REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
PSB No 1	23	1	3	0.016	895	U/S end to Gateway S	J_PSB Ch1 Jct1	>100
PSB No 1	51	1	12.5	0.013	30000	Kenworthy Crossing	J_PSB Ch1 Jct2	>100
PSB No 1	57	1	13.5	0.013	37000	Capt Valtr St Crossing	J_PSB Ch1 Jct2	>100
PSB No 1	30	1	15	0.016	36000	Gateway S to McComb	J_PSB Ch1 Jct2	>100
PSB No 1	45	1	4	0.016	3600		J_PSB Ch 1 D/S	>100
PSB No 2	30	0	3	0.03	469	US of Gateway	J_PSB Ch 2 at Gateway	30
PSB No 2	15	1	12	0.02	4800	DS of Gateway	J_PSB Ch 2 at Rushing	>100
PSB No 2	10	1	15	0.03	3500	D/S of Sun Valley	J_PSB Ch 2 at Rushing	>100
PSB No 2	13	1.5	6.5	0.03	2400	D/S of Kentworthy	J_PSB Ch 2 at Rushing	>100
PSB No 2	26	1.5	6	0.03	2700	D/S of McCombs	J_PSB Ch 2 D/S	>100
PSB No 2	20	1	10	0.035	2500	Pambino Road	J_PSB Ch 2 D/S	>100
PSB No 2	Irregular Geometry			0.035	N/A	FEMA HEC-RAS Model	J_PSB Ch 2 D/S	100
PSB No 2	Irregular Geometry			0.035	N/A	FEMA HEC-RAS Model	J_PSB Ch 2 D/S	80
PSB No 2	Irregular Geometry			0.035	N/A	FEMA HEC-RAS Model	J_PSB Ch 2 D/S	10
PSB No 2	Irregular Geometry			0.035	N/A	FEMA HEC-RAS Model	J_PSB Ch 2 D/S	20
PSB No 2	Irregular Geometry			0.035	N/A	FEMA HEC-RAS Model	J_PSB Ch 2 D/S	100
PSB No 2	Irregular Geometry			0.035	N/A	FEMA HEC-RAS Model	J_PSB Ch 2 D/S	10
PSB No 2	Irregular Geometry			0.035	N/A	FEMA HEC-RAS Model	J_PSB Ch 2 D/S	100

Table B-5. Channel Capacity Summary - Northeast Region (Continued)

NORTHEAST REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
PSB No 2	Irregular Geometry			0.035	N/A	FEMA HEC-RAS Model	J_PSB Ch 2 D/S	40
PSB No 2	Irregular Geometry			0.035	N/A	FEMA HEC-RAS Model	J_PSB Ch 2 D/S	90
PSB No 2	Irregular Geometry			0.035	N/A	FEMA HEC-RAS Model	J_PSB Ch 2 D/S	100
Railroad Drive	8	3	8	0.03	1700	U/S of Threadgill	J_RR Drain U/S of Tobin (Area Reduction)	>100
Railroad Drive	50	1.5	6	0.03	2800	Threadgill to Statler	J_RR Dr U/S Statler Ch	>100
Railroad Drive	65	1.5	6	0.03	3600	Statler to Fort Bliss Sump	J_RR Ditch Downstream	>100
Range Dam Outlet	~18	Irregular Geometry	~4	0.016	600	Section 1	J_Army Ditch	>100
Range Dam Outlet	~12	Irregular Geometry	~5	0.016	800	Section 2	J_Army Ditch	>100
Range Dam Outlet	~33	Irregular Geometry	~7	0.016	1900	Section 3	J_Army Ditch	>100
Statler Ditch	11	Irregular Geometry	~4	0.013	136	X-Section 1	A_Statler Ditch	20
Sunrise	10	1	4	0.016	1100	Dyer to Diana	J_Sunrise Ch D/S	>100
Threadgill	~26	Irregular Geometry	~10	0.03	3000	Section 1	J_Tobin Drain D/S	>100
Threadgill	~21	Irregular Geometry	~4	0.016	865	Section 2	J_Tobin Drain D/S	20
Threadgill	~10	Irregular Geometry	~4	0.016	590	Section 3	J_Tobin Drain U/S Army Ditch	20
War Road	28	1	6	0.016	4800	DS end to Loma Rd	J_War Road Channel	>100
Western Fwy	43	1.5	6	0.035	2500	McComb Rd	J_W Fwy D/S	>100
Western Fwy	32	1	10	0.035	4500	DS end	J_W Fwy D/S	>100

This page was intentionally left blank.

Table B-6. Channel Capacity Summary - Northwest Region

NORTHWEST REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Arroyo 1A	Irregular Geometry			0.035	>1291	US of confluence with High Ridge Channel	A1A	>100
Arroyo 4	Irregular Geometry			0.016	>1141	DS of IH-10	A4_1	>100
Arroyo 4	Irregular Geometry			0.035	>1141	Gem St. to IH-10	A4_1	>100
Arroyo 4	Irregular Geometry			0.03	>1141	Desert Trail Rd. to Gem St.	A4_1	>100
Arroyo 4	Irregular Geometry			0.039	>1141	Mesa St. to Desert Trail Rd.	A4_1	>100
Arroyo 4	Irregular Geometry			0.04	>1141	Resler Dr. to Mesa St.	A4_1	>100
Arroyo 4	Irregular Geometry			0.035	>1141	Northwind Dr. to El Puente St.	A4_1	>100
Arroyo 4	Irregular Geometry			0.035	>1141	Broadmoor Dr to Northwind Dr.	A4_1	>100
Arroyo 5	Irregular Geometry			0.03	>1519	N. Resler Dr to Keystone Dam	A5_1	>100
Arroyo 5	Irregular Geometry			0.03	>1519	1500 ft DS of Mesa St. to N. Resler Dr.	A5_1	>100
Arroyo 5	Irregular Geometry			0.03	>1519	Mesa St. to 1500 ft DS of Mesa St.	A5_1	>100
Doniphan Ditch	10	1.7:1	3	0.03	160	Dona Ana County Rd. to outlet	DD_1	5
Doniphan Ditch	19	3:1	4.5	0.03	685	Frontera Rd. to Dona Ana County Rd.	DD_1	90
Doniphan Ditch	20	3:1 & 4:1	3.5	0.03	320	Bird Ave. to Frontera Rd.	DD_1	40
Doniphan Ditch	30	3.3:1	3	0.03	>242	Sunset Dr to Bird Ave.	DD_1	>100
Doniphan Ditch	Irregular Geometry			0.03	27	DS of White Spur Drain to Sunset Dr.	DD_1	25
Doniphan Ditch	Irregular Geometry			0.03	27	US of White Spur Drain	DD_3	2

Table B-6. Channel Capacity Summary - Northwest Region (Continued)

NORTHWEST REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Flow Path No. 38	Irregular Geometry			0.033	>896	300 ft US XS01 to confluence with Resler Channel	FPN38_1	>100
Flow Path No. 38	Irregular Geometry			0.032	>896	100 ft US XS02 to 300 ft US XS01	FPN38_1	>100
Flow Path No. 38	Irregular Geometry			0.035	>896	Desert Blvd. to 100 ft US XS02	FPN38_1	>100
Flow Path No. 38	Irregular Geometry			0.035	>896	Northwestern Dr. to Desert Blvd.	FPN38_1	>100
Flow Path No. 38	Irregular Geometry			0.035	>896	300 ft US XS05 to Northwestern Dr.	FPN38_1	>100
Flow Path No. 38	Irregular Geometry			0.03	>896	Confluence of FPN38A to 300 ft US XS05	FPN38_1	>100
Flow Path No. 38	10	1:1	4	0.016	>744	Corona Del Sol to confluence of FPN38A	FPN38_3	>100
Flow Path No. 38	Irregular Geometry			0.025	>744	Redd Rd. to Corona Del Sol	FPN38_3	>100
Flow Path No. 38	Irregular Geometry			0.035	>0.2	US of Redd Rd.	FPN38_4	>100
Flow Path No. 38A	Irregular Geometry			0.031	>1392	1000 ft US XS 1.0 to confluence with FPN38	FPN38A	>100
Flow Path No. 38A	Irregular Geometry			0.035	>1392	US of 1000 ft US XS 1.0	FPN38A	>100
Flow Path No. 38B	Irregular Geometry			0.031	>768	1000 ft US XS 2.0 to confluence with FPN38	FPN38B	>100
Flow Path No. 38B	Irregular Geometry			0.04	>768	US of 1000 ft US XS 2.0	FPN38B	>100
Flow Path No. 39A	Irregular Geometry			0.03	>2509	300 ft US XS 1.0 to confluence with UN23	FPN39A_1	>100
Flow Path No. 39A	Irregular Geometry			0.035	>2509	IH-10 to 300 ft US XS 1.0	FPN39A_1	>100
Flow Path No. 39A	Irregular Geometry			0.031	>2509	FPN39A_R to IH-10	FPN39A_1	>100
Flow Path No. 39A	Irregular Geometry			0.033	>2497.5	Resler Dr. to FPN39A_R	FPN39A_2	>100

Table B-6. Channel Capacity Summary - Northwest Region (Continued)

NORTHWEST REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Flow Path No. 39A	30	39.33:1 & 13.17:1	3	0.035	>2497.5	US of Resler	FPN39A_2	>100
Flow Path No. 39A Redirect	24	1.4:1	5.5	0.016	>2675	475 ft DS of XS 2.0 to confluence with FPN40	FPN40_2	>100
Flow Path No. 39A Redirect	Irregular Geometry			0.034	>2675	Confluence with FPN39A to 330 ft US of XS 1.0	FPN40_2	>100
Flow Path No. 40	Irregular Geometry			0.032	2000	150 ft US of XS 1.0 to confluence with Unnamed Stream No. 23	FPN40_1	15
Flow Path No. 40	Irregular Geometry			0.031	>4361.9	IH-10 to 150 ft US of XS 1.0	FPN40_1	>100
Flow Path No. 40	Irregular Geometry			0.033	>4361.9	Transmountain to IH-10	FPN40_1	>100
Flow Path No. 40	Irregular Geometry			0.03	>1891.4	US of Transmountain	FPN40_3	>100
Flow Path No. 42	Irregular Geometry			0.035	>937	200 ft US of XS 1.0 to IH-10	FPN42	>100
Flow Path No. 42	Irregular Geometry			0.033	>937	600 ft DS of XS 3.0 to 20 ft US of XS 1.0	FPN42	>100
Flow Path No. 42	Irregular Geometry			0.034	>937	600 ft DS of XS 4.0 to 600 ft DS of XS 3.0	FPN42	>100
Flow Path No. 42	Irregular Geometry			0.033	>937	600 ft DS of XS 5.0 to 600 ft DS of XS 4.0	FPN42	>100
Flow Path No. 42	Irregular Geometry			0.033	>937	US of 600 ft DS of XS 5.0	FPN42	>100
Flow Path No. 42 Trib 1	Irregular Geometry			0.035	>851	Confluence with Unknown 1 to IH-10	FPN42T1_1	>100
Flow Path No. 42 Trib 1	Irregular Geometry			0.035	>1788	Confluence with Unknown 1 to IH-10	FPN42T1_1	>100

Table B-6. Channel Capacity Summary - Northwest Region (Continued)

NORTHWEST REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Flow Path No. 42 Trib 1	Irregular Geometry			0.031	>462	700 ft US of XS 2.0 to confluence with Unknown 1	FPN42T1_2	>100
Flow Path No. 42 Trib 1	Irregular Geometry			0.03	>462	600 ft US of XS 3.0 to 700 ft US of XS 2.0	FPN42T1_2	>100
Flow Path No. 42 Trib 1	Irregular Geometry			0.032	>462	600 ft US of XS 4.0 to 600 ft US of XS 3.0	FPN42T1_2	>100
Flow Path No. 42 Trib 1	Irregular Geometry			0.033	>462	US of 600 ft US XS 4.0	FPN42T1_2	>100
Flow Path No. 42A	Irregular Geometry			0.035	>197	US of IH-10	FPN42A	>100
Flow Path No. 43	Irregular Geometry			0.035	>1090	600 ft US of XS 1.0 to IH-10	FPN43	>100
Flow Path No. 43	Irregular Geometry			0.031	>1090	600 ft US of XS 2.0 to 600 ft US of XS 1.0	FPN43	>100
Flow Path No. 43	Irregular Geometry			0.035	>1090	600 ft US of XS 3.0 to 600 ft US of XS 2.0	FPN43	>100
Flow Path No. 43	Irregular Geometry			0.035	>1090	US of 600 ft US XS 3.0	FPN43	>100
Flow Path No. 45 (Vinton)	Irregular Geometry			0.03	660	DS of Doniphan Dr.	N/A	2
Flow Path No. 45 (Vinton)	Irregular Geometry			0.031	>6201	A P Ramirez St to Doniphan Dr.	N/A	>100
Flow Path No. 45 (Vinton)	Irregular Geometry			0.035	1020	Kiely Rd. to A P Ramirez St.	N/A	4
Flow Path No. 45 (Vinton)	Irregular Geometry			0.03	2910	IH-10 On-Ramp to Kiely Rd.	N/A	10
Flow Path No. 45 (Vinton)	Irregular Geometry			0.035	>6070	IH-10 to IH-10 On-Ramp	N/A	>100
Flow Path No. 45 (Vinton)	Irregular Geometry			0.035	1000	Tom Mays Dr. to IH-10 Off-Ramp	N/A	4

Table B-6. Channel Capacity Summary - Northwest Region (Continued)

NORTHWEST REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Flow Path No. 45 (Vinton)	Irregular Geometry			0.031	>2909	600 US XS 47.0 to Tom Mays Dr.	N/A	>100
Flow Path No. 45 (Vinton)	Irregular Geometry			0.03	>511	US of 600 ft US XS 47.0	N/A	>100
Flow Path No. 45A	Irregular Geometry			0.032	>1050	Kiely Rd to confluence with FP45	N/A	>100
Flow Path No. 45A	Irregular Geometry			0.032	>1050	Iron Dr. to Kiely Rd.	N/A	>100
Flow Path No. 45A	Irregular Geometry			0.032	630	200 ft US of XS 14.0 to Iron Dr.	N/A	20
Flow Path No. 45A	Irregular Geometry			0.03	550	Lovena Way to 200 ft US XS 14.0	N/A	10
Flow Path No. 45A	Irregular Geometry			0.03	>1050	IH-10 to Lovena Way	N/A	>100
Flow Path No. 45A	Irregular Geometry			0.015	120	US of IH-10	N/A	20
High Ridge	34	1:1	7	0.016	>3950	DS of Redd Rd.	HR_1	>100
High Ridge	12	1:1	4	0.016	>2187	Confluence with Arroyo 1 to Redd Rd.	HR_2	>100
High Ridge	6	1:1	4	0.016	>429	US of confluence with Arroyo 1	HR_3	>100
Montoya Drain	35	0.4:1	6.5	0.03	1930	Frontera Rd. to outlet	MD_1	80
Montoya Drain	36	1.8:1 & 1.3:1	6.5	0.035	1655	Confluence with White Spur Drain to Frontera Rd.	MD_1	50
Montoya Drain	32	1.5:1	7	0.035	>1090	Country Club Pl. to confluence with White Spur Drain	MD_2	>100
Montoya Drain	25	1.4:1	9	0.035	>1049	Redd Rd. to Country Club Pl.	MD_3	>100
Montoya Drain	25	0.8:1	9	0.035	>1049	US of Redd Rd.	MD_3	>100
Ojo de Agua	Irregular Geometry			0.02	>3412	DS of Lakehurst Rd.	ODA_1	>100

Table B-6. Channel Capacity Summary - Northwest Region (Continued)

NORTHWEST REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Ojo de Agua	20	2:1	6.5	0.016	>3412	Resler Dr. to Lakehurst Rd.	ODA_1	>100
Ojo de Agua	20	1:1	16	0.016	>3412	Westwind Dr. to Resler Dr.	ODA_1	>100
Ojo de Agua	19	1.33:1	9	0.016	>3412	Confluence with Via Serena to Westwind Dr.	ODA_1	>100
Ojo de Agua	10	1.33:1	4.5	0.016	>785	Via de La Paz Dr. to confluence with Via Serena	ODA_2	>100
Ojo de Agua	12	0.82:1	5.5	0.016	>785	US of Via de La Paz Dr.	ODA_2	>100
Resler Channel	Irregular Geometry			0.035	>3025	450 ft US XS 1.0 to confluence with FPN38	RC_1	>100
Resler Channel	Irregular Geometry			0.033	>3025	IH-10 to 450 ft US XS 1.0	RC_1	>100
Resler Channel	26	1:1	12.5	0.016	>3025	Northwestern Dr. to IH-10	RC_1	>100
Resler Channel	20	1:1	8.75	0.016	>3025	500 ft US XS 4.0 to Northwestern Dr.	RC_1	>100
Resler Channel	Irregular Geometry			0.035	>3025	Confluence with FPN39A to 500 ft US of XS 4.0	RC_1	>100
Resler Channel	Irregular Geometry			0.034	>1799	US of confluence with FPN39A	RC_2	>100
Ridge View	24	1:1	5	0.016	>1285	Desert Canyon Dr. to confluence with High Ridge	RV_1	>100
Ridge View	15	1:1	5.5	0.016	>1285	Franklin Hills St. to Desert Canyon Dr.	RV_1	>100
Ridge View	Irregular Geometry			0.035	>1285	US of Franklin Hills St.	RV_1	>100
Unknown 1	Irregular Geometry			0.035	>335	850 ft US XS 1.0 to confluence with FPN42T1	UN01	>100

Table B-6. Channel Capacity Summary - Northwest Region (Continued)

NORTHWEST REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Unknown 1	Irregular Geometry			0.033	>335	1000 ft US XS 2.0 to 850 ft US XS 1.0	UN01	>100
Unknown 1	Irregular Geometry			0.031	>335	US of 1000 ft US XS 2.0	UN01	>100
Unknown 2	Irregular Geometry			0.03	>395	Confluence with UN03 to IH-10	UN02_1	>100
Unknown 2	0	2:1 & 3:1	4	0.035	>78	500 ft US XS 2.0 to confluence with UN03	UN02_2	>100
Unknown 2	Irregular Geometry			0.035	>78	US of 500 ft US XS 2.0	UN02_2	>100
Unknown 3	Irregular Geometry			0.032	>238	600 ft US XS 1.0 to confluence with UN02	UN03	>100
Unknown 3	Irregular Geometry			0.032	>238	600 ft US XS 2.0 to 600 ft US XS 1.0	UN03	>100
Unknown 3	Irregular Geometry			0.035	>238	US of 600 ft US XS 2.0	UN03	>100
Unnamed Stream No. 23A	Irregular Geometry			0.035	>71	US of IH-10	UN23A	>100
Unknown 24	Irregular Geometry			0.03	>133	US of IH-10	UN024_1	>100
Unnamed Stream No. 24A	Irregular Geometry			0.031	>385	500 ft US XS 1.0 to IH-10	UN24A_1	>100
Unnamed Stream No. 24A	Irregular Geometry			0.03	>385	Confluence with UN24AT1 to 500 ft US XS 1.0	UN24A_1	>100
Unnamed Stream No. 24A	Irregular Geometry			0.03	>113	1000 ft US XS 2.0 to confluence with UN24AT1	UN24A_2	>100
Unnamed Stream No. 24A	Irregular Geometry			0.035	>113	US of 1000 ft US XS 2.0	UN24A_2	>100
Unnamed Stream No. 24A Trib 1	Irregular Geometry			0.03	>70	500 ft US XS 1.0 to confluence with UN24A	UN24A_T1	>100

Table B-6. Channel Capacity Summary - Northwest Region (Continued)

NORTHWEST REGION - CHANNEL CAPACITY SUMMARY								
Channel	**Bottom Width (ft)**	**Side Slopes (H:V)**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Unnamed Stream No. 24A Trib 1	Irregular Geometry			0.031	>70	US of 500 ft US XS 1.0	UN24A_T1	>100
Unnamed Stream No. 24B	Irregular Geometry			0.03	>290	1000 ft US XS 1.0 to IH-10	UN24B	>100
Unnamed Stream No. 24B	Irregular Geometry			0.031	>290	US of 1000 ft US XS 1.0	UN24B	>100
Unnamed Stream No. 24C	Irregular Geometry			0.035	>138	US of IH-10	UN24C	>100
Unnamed Stream No. 24D	Irregular Geometry			0.035	>54	US of IH-10	UN24D	>100
White Spur Drain	10	1.6:1	8	0.016	>832	Sunset Dr. to confluence with MD	WSD_1	>100
White Spur Drain	10	1.6:1	6	0.016	>832	375 ft US XS 2.0 to Sunset Dr.	WSD_1	>100
White Spur Drain	8	1.3:1	6	0.016	>1029	Doniphan Dr. to 375 ft US XS 2.0	WSD_1	>100
White Spur Drain	6	1.25:1	2.8	0.016	472	US of Doniphan Dr.	WSD_2	40

Table B-7. Channel Capacity Summary - West Central Region

WEST CENTRAL REGION - CHANNEL CAPACITY SUMMARY								
Channel/Cross-Section	**Bottom Width (ft)**	**Side Slopes**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Canterbury Channel	Irregular Geometry			0.026	>1009	200 ft US XS 1.0 to outlet	CBC_1	>100
Canterbury Channel	Irregular Geometry			0.026	>1009	IH-10 to 200 ft US XS 1.0	CBC_1	>100
Canterbury Channel	Irregular Geometry			0.034	>1009	200 ft US XS 3.0 to IH-10	CBC_1	>100
Canterbury Channel	Irregular Geometry			0.033	>1009	200 ft US XS 4.0 to 200 ft US XS 3.0	CBC_1	>100
Canterbury Channel	12.5	Vertical	9	0.016	>1009	Mesa St. to 200 ft US XS 4.0	CBC_1	>100
Canterbury Channel	11	1.5:1	7	0.016	>1009	Ridgecrest Dr. to Mesa St.	CBC_1	>100
Canterbury Channel	6.5	1:1	3.5	0.016	>1009	300 ft US XS 7.0 to Ridgecrest Dr.	CBC_1	>100
Canterbury Channel	6.5	1:1	4	0.016	>1009	Stanton St. to 300 ft US XS 7.0	CBC_1	>100
Canterbury Channel	Irregular Geometry			0.03	>1009	US of Stanton St.	CBC_1	>100
Flow Path No. 20	Irregular Geometry			0.035	2700	650 ft US of IH-10 to Rio Grande	FPN20_1	10
Flow Path No. 20	Irregular Geometry			0.016	>6318	500 ft US XS 2.0 to 650 ft US IH-10	FPN20_1	>100
Flow Path No. 20	Irregular Geometry			0.016	>6318	Confluence with Paragon Channel to 500 ft US XS 2.0	FPN20_1	>100
Flow Path No. 20	Irregular Geometry			0.016	>2949	IH-10 to confluence with Paragon Channel	FPN20_2	>100
Flow Path No. 20	Irregular Geometry			0.034	>2949	600 ft US XS 5.0 to IH-10	FPN20_2	>100
Flow Path No. 20	Irregular Geometry			0.03	>2949	500 ft US XS 6.0 to 600 ft US XS 5.0	FPN20_2	>100
Flow Path No. 20	Irregular Geometry			0.03	>2949	Mesa Park to 500 ft US XS 6.0	FPN20_2	>100
Flow Path No. 20	Irregular Geometry			0.04	>2949	Mesa St. to Mesa Park	FPN20_2	>100
Flow Path No. 21	13	Vertical	5	0.016	1375	300 ft US of Paisano to Rio Grande	FPN21_1	10

Table B-7. Channel Capacity Summary - West Central Region (Continued)

WEST CENTRAL REGION - CHANNEL CAPACITY SUMMARY								
Channel/Cross-Section	**Bottom Width (ft)**	**Side Slopes**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Flow Path No. 21	Irregular Geometry			0.03	>3434	Confluence with Canterbury Channel to 300 ft US of Paisano Dr.	FPN21_1	>100
Flow Path No. 21	Irregular Geometry			0.039	>2293	IH-10 to confluence with Canterbury Channel	FPN21_2	>100
Flow Path No. 21	Irregular Geometry			0.045	>2293	1000 ft US XS 4.0 to IH-10	FPN21_2	>100
Flow Path No. 21	Irregular Geometry			0.03	>2293	Okeefe Dr. to 1000 ft US XS 4.0	FPN21_2	>100
Flow Path No. 21	Irregular Geometry			0.029	>2293	US of Okeefe (Wallington) Dr.	FPN21_2	>100
Flow Path No. 23	Irregular Geometry			0.035	>3319	150 ft US of Paisano Dr. to Rio Grande	FPN23_1	>100
Flow Path No. 23	Irregular Geometry			0.037	>3319	Schuster Ave. to 150 ft US of Paisano Dr.	FPN23_1	>100
Flow Path No. 23	Irregular Geometry			0.031	>3319	Hawthorne St. to Schuster Ave.	FPN23_1	>100
Flow Path No. 23	Irregular Geometry			0.05	>3319	University Ave. to Hawthorne St.	FPN23_1	>100
Flow Path No. 23	27	Vertical	10	0.03	>3319	Mesa St. to University Ave.	FPN23_1	>100
Flow Path No. 23	16	Vertical	4	0.03	940	Campbell St. to Mesa St.	FPN23_1	7
Flow Path No. 23	Irregular Geometry			0.039	>3319	Virginia St. to Campbell St.	FPN23_1	>100
Flow Path No. 23	Irregular Geometry			0.048	>3319	US of Virginia St.	FPN23_1	>100
Paragon Channel	Irregular Geometry			0.016	>2975	350 Ds XS 2.0 to confluence with FPN20	PC_1	>100
Paragon Channel	Irregular Geometry			0.032	>2975	IH-10 to 350 ft DS XS 2.0	PC_1	>100
Paragon Channel	Irregular Geometry			0.029	>2975	400 ft US XS 3.0 to IH-10	PC_1	>100
Paragon Channel	Irregular Geometry			0.03	>2975	500 ft US XS 4.0 to 400 ft US XS 3.0	PC_1	>100
Paragon Channel	Irregular Geometry			0.034	>2975	500 ft DS XS 6.0 to 500 ft US XS 4.0	PC_1	>100
Paragon Channel	9	1:1	7	0.016	>2975	Mesa St. to 500 ft DS XS 6.0	PC_1	>100
Paragon Channel	11	0.07:1	10	0.016	>2975	530 ft US of XS 7.0 to Mesa St.	PC_1	>100

Table B-7. Channel Capacity Summary - West Central Region (Continued)

WEST CENTRAL REGION - CHANNEL CAPACITY SUMMARY								
Channel/Cross-Section	**Bottom Width (ft)**	**Side Slopes**	**Depth (ft)**	**Manning's n**	**Cross Section Capacity (cfs)**	**Cross Section Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Paragon Channel	Irregular Geometry			0.034	>2975	700 ft DS of Stanton St. to 530 ft US XS 7.0	PC_1	>100
Paragon Channel	11	0.7:1	10	0.016	>2975	Stanton St. to 700 ft DS of Stanton St.	PC_1	>100
Paragon Channel	Irregular Geometry			0.033	>2975	US of Stanton St.	PC_1	>100

This page was intentionally left blank.

Table B-8. Culvert Capacity Summary - Central Region

CENTRAL REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Copia Ditch	4-56 x 48-inch Box	45	7.29	405.77	Louisville Ave	J_Copia_Ditch_US	50
Copia Ditch	5-56 x 48-inch Box	45	7.99	546.32	Richmond Ave	J_Copia_Ditch_US	50
Copia Ditch	3-56 x 48-inch Box	45	8.78	343.79	Lebanon Ave	J_Copia_Ditch_US	50
Copia Ditch	3-76" x 48" CBC for 3-76" x 54" Arch	45	14.06	642.19	Savannah Ave	J_Copia_Ditch_US	50
Copia Ditch	3-36-inch Circular	56	14.31	202.36	Altura Ave	J_Copia_Ditch_US	50
Copia Ditch	1-24-inch Circular	13	4.95	11.66	50' NE of RR Tracks	J_Copia_Ditch_DS	50
Copia Ditch	1-72" x 43"CBC for 1-72" x 48" Arch	37	12.12	74.91	RR Tracks	A_Memorial_Park	50
Paisano Ditch	1-72" x 43"CBC for 1-72" x 48" Arch	340	7.55	41.46	Piedras St	J_Nixon_Cypress_to_Central	50
Paisano Ditch	2-24-inch Circular	25	8.92	53.1	100' E of Piedras St	J_Nixon_Cypress_to_Central	50
Paisano Ditch	1-60-inch Circular	132	11.79	200.53	San Marcial St	J_Nixon_Cypress_to_Central	100
Pollard Ditch	2-8x3 ft Box	20	14.72	288.81	RR Tracks	A_Pollard Ditch	58
Van Buren Ditch	6-6 x 5 ft Box	110	10.28	1344.86	Alabama St	J_Van Buren Ditch Inflow	25
Government Hills Channel	2-10 x 4 ft Box	76	11.31	339.59	Altura Ave	J_Gov Hills North Inflow	25
Government Hills Channel	2-8 x 4 ft Box	45	11.46	276.03	Hastings Drive	J_Gov Hills North Inflow	10
Government Hills Channel	2-8 x 3 Box	70	10.12	209.42	Cambridge Ave	J_Gov Hills North Inflow	10
Government Hills Channel	2-8 x 3 Box	75	10.6	227.07	Cumberland Ave	J_Gov Hills North Inflow	10
Government Hills Channel	2-8 x 3 Box	72	10.58	231.38	Chester Ave	J_Gov Hills North Inflow	10

Table B-8. Culvert Capacity Summary - Central Region (Continued)

CENTRAL REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Government Hills Channel	3-8 x 3 Box	70	10.42	348.27	Oxford Ave	J_Gov Hills North Inflow	50
Government Hills Channel	5-5 x 2.5 ft Box	70	8.03	201.92	Trowbridge Ave	J_Gov Hills North Inflow	10
Government Hills Channel	2-13.6 x 4.5 ft Box	42	10.84	535.03	Bliss Ave	J_Gov Hills North Inflow	100
Government Hills Channel	2-8 x 4 ft Box	502	13.27	353.92	Hueco Ave	J_Gov Hills North Inflow	50
Government Hills Channel	4-5.5 x 3.6 Box	44	10.95	867.6	Clifton Ave	J_Gov Hills North Inflow	100
Government Hills Channel	2-12.6 x 4.8 Box	42	12.32	1053.42	LaLuz Ave	J_Gov Hills North Inflow	100

Table B-9a. Culvert Capacity Summary - East Side Region

EAST SIDE REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Bluff Channel	1-10 x 5 ft Box	94	14	509	Esther Lama Drive	9J	2
Fort Bliss Spur Drain Channel	1-7 x 4 ft Box	97	17	304	Airway Boulevard	A-PD-1	5
Fort Bliss Spur Drain Channel	1-8 x 4 ft Box	168	5	144	Robert E. Lee Road	A-PD-1	2
Fort Bliss Spur Drain Channel	1-92.4 x 65-inch Arch	37	13	436	Railroad Crossing	A-PD-1	10
Fort Bliss Spur Drain Channel	2-6 x 4 ft Box	414	21	791	IH-10	A-PD-1	>100
Sunmount Channel	2-4.5 x 3 ft Box	154	10	258	Viscount Boulevard	A_Sunmount	30
RV Channel	6-6 x 4 ft Box	141	18	2062	Paseo Del Este Boulevard	124A & 124E	>100
RV Channel	3-48-inch Circular	103	14	390	Pine Springs Drive	124A & 124E	10
RV Channel	5-6 x 3 ft Box	141	8	729	Rojas Drive	124JW	5
RV Channel	3-6 x 3 ft Box	113	16	516	RV Drive	124JW	5
RV Channel	3-6 x 3 ft Box	40	8	414	St. Francis Street	124JW	5
Mercantile Channel	2-42 ft Conspan Bridge	256			Paseo Del Este Boulevard	124C	>100
Mercantile Channel	4-54-inch Circular	146	16	949	Mercantile Avenue	124C	40
Mercantile Channel	3-60-inch Circular	134	17	718	Rojas Drive	124JE	10
Joe Battle Channel	4-6 x 4 ft Box	61	12	1121	Painted Quail Place	A-AM-5	>100
Peter Hurd Channel	1-6 x 4 ft Box	127	17	189	Vista Del Sol Drive	A-AM-7	>100
Lorne Channel	1-8 x 2 ft Box	70	4	59	Lorne Road	A-PD-6	10

This page was intentionally left blank.

Table B-9b. Culvert Capacity Summary - East Side Region - IH-10 Corridor

EAST SIDE REGION - IH-10 CORRIDOR CULVERT CAPACITY SUMMARY							
Watershed ID	**Sta**	**Description**	**Length**	**Slope**	**Qcap (cfs)**	**Q_{100}exp (cfs) ***	**At Capacity**
PHELPS DODGE 1A	89+00	24" RCP	288.00	3.37%	23.62	80.93	No
	97+19	24" RCP	288.00	0.95%	22.30	80.93	No
	103+08	36" RCP	290.00	1.98%	56.26	80.93	No
	108+12	24" RCP	292.00	2.41%	23.54	80.93	No
EID 1	113+09	24" RCP	296.00	2.03%	23.50	34.70	No
	117+30	30" RCP	290.00	2.68%	38.03	34.70	Yes
	119+00	36" RCP	332.57	2.06%	76.26	34.70	Yes
	122+02	36" RCP	410.30	2.71%	85.56	34.70	Yes
	127+95	24" RCP	296.00	3.25%	23.61	34.70	No
	135+59	30" RCP	292.00	2.73%	38.04	34.70	Yes
	138+67	30" RCP	294.00	2.20%	37.95	34.70	Yes
	141+80	24" RCP	292.00	1.51%	23.46	34.70	No
	147+10	24" RCP	292.00	1.92%	23.50	34.70	No
	153+70.8	24" RCP	290.00	2.46%	23.54	34.70	No
	158+45	24" RCP	292.00	2.45%	23.54	34.70	No
EID 2	170+55	24" RCP	338.26	2.86%	34.25	47.67	No
	172+14	36" RCP	298.00	2.39%	56.29	47.67	Yes
	176+42	24" RCP	286.00	3.52%	23.63	47.67	No
RHL 1	182+70.4	30" RCP	288.00	3.70%	38.11	33.57	Yes
	187+74	3-30" RCP	353.46	2.74%	226.16	33.57	Yes
	197+15	24" RCP	358.38	4.58%	44.91	33.57	Yes
RHL 2	209+30	24" RCP	294.00	3.29%	23.61	15.57	Yes
	212+31.10	24" RCP	288.00	2.42%	23.54	15.57	Yes
	216+35	24" RCP	288.00	2.56%	23.55	15.57	Yes
EASTWOOD 2	221+63	2-30" RCP	309.69	2.73%	147.43	643.00	No
	235+09.12	2-30" RCP	303.17	2.17%	100.02	643.00	No
	237+13.77	3-36" RCP	292.00	2.10%	168.86	643.00	No
STLRHL	255+40.88	2-24" RCP	303.03	3.12%	47.20	143.70	No
	262+63.75	2-36" RCP	293.83	1.25%	156.00	143.70	Yes
	274+75	36" RCP	318.67	3.47%	108.94	143.70	No
CAROLINA DAM 2	296+00	24" RCP	290.00	1.51%	23.46	102.75	No
	301+68	3-36" RCP	302.32	2.44%	213.65	102.75	Yes
MESA DRAIN UP	312+06.45	3-24" RCP	305.05	1.83%	76.43	142.30	No
LOMALAND 10	322+25	24" RCP	286.00	2.49%	23.54	114.47	No
	326+50	24" RCP	286.00	1.68%	23.48	114.47	No
	333+02.88	3-24" RCP	286.00	1.21%	70.3	114.47	No
	337+58	4-30" RCP	288.00	0.99%	151.01	114.47	Yes
	347+61	10-30" RCP	350.73	1.86%	763.15	114.47	Yes
	367+12	30" RCP	288.00	2.17%	37.95	114.47	No
MESA DRAIN 3	370+50	24" RCP	286.00	2.50%	23.55	56.24	No
	379+65	24" RCP	290.00	1.47%	23.46	56.24	No
	385+85	3-24" RCP	295.97	2.17%	69.77	56.24	Yes
	393+16	24" RCP	336.12	2.04%	29.21	56.24	No
	401+16	5-30" RCP	303.15	1.64%	272.12	56.24	Yes
	410+21	2-24" RCP	287.00	2.40%	47.07	56.24	No
	416+75	2-30" RCP	297.88	2.62%	109.95	56.24	Yes

Table B-9b. Culvert Capacity Summary - East Side Region - IH-10 Corridor (Continued)

EAST SIDE REGION - IH-10 CORRIDOR CULVERT CAPACITY SUMMARY							
Watershed ID	**Sta**	**Description**	**Length**	**Slope**	**Qcap (cfs)**	**Q_{100}exp (cfs) ***	**At Capacity**
MESA DRAIN 4	424+44	24" RCP	286.00	4.58%	23.72	48.40	No
	429+00	24" RCP	290.00	5.17%	23.77	48.40	No
	433+75	24" RCP	286.00	6.22%	23.83	48.40	No
WS 9A	436+50	24" RCP	282.00	4.99%	23.76	37.00	No
	449+33.24	24" RCP	330.81	1.27%	26.55	16.00	Yes
WS 22	475+00	8'x4' CBC	215.48	1.67%	219.15	173.12	Yes
	482+00	54" RCP	184.42	1.70%	137.00	173.12	No
	487+00	42" RCP	186.00	1.82%	78.67	173.12	No
	498+83	6'x4' CBC	161.67	2.31%	164.36	173.12	No
	504+97	9'x5' CBC	190.15	0.86%	324.09	173.12	Yes
WS 77	510+67	3'-5'x5' MBC	164.66	1.51%	540.15	129.75	Yes
	518+72	48" RCP	164.00	0.88%	105.04	129.75	No
	529+43	4-48" RCP	336.00	2.64%	422.15	129.75	Yes
	536+00	30" RCP	324.00	3.34%	38.11	129.75	No
WS-90	542+18	30", 36", 42" RCP	520.00	1.63%	37.86	26.7	Yes
WS-100	547+17	2-8'x5' MBC	430.21	1.59%	576.16	72.7	Yes
	553+19	42" RCP	382.00	1.71%	78.67	72.7	Yes
WS-110	558+79	36" RCP	338.00	2.31%	56.29	37.93	Yes
	562+60	54" RCP	334.00	2.10%	137.15	37.93	Yes
	567+66	36" RCP	332.00	2.29%	56.29	37.93	Yes

* Q_{100}exp for each crossing was assumed as the complete watershed flow equally divided by the number of crossings in the watershed.

Table B-10. Culvert Capacity Summary - Mission Valley Region

MISSION VALLEY REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**Channel Cross Section**	**Percent of Channel Capacity Passed**
Playa Drain	1-36-inch Circular	47	18	124	Playa Drain and Crossing just DS of Yarbrough	Playa_CS_3	15%
Playa Drain	1-7 x 7 ft Box	125	14	696	Playa Drain and Zaragosa	Playa_CS_4	>100%
Playa Drain	1-10 x 9 ft Box	400	15	988	Playa Drain and Americas	Playa_CS_4	>100%
Mesa Drain	3-10 x 9 ft Box	52	6	1571	Mesa Drain and Bowman Irrigation Canal	Mesa_CS_1	>100%
Mesa Drain	3-10 x 8 ft Box	60	12	2942	Mesa Drain and Irrigation Canal DS of Yarbrough	Mesa_CS_2	>100%
Mesa Drain	4-10 x 10 ft Box	40	5	2195	Mesa Drain and Irrigation Canal at Zaragosa	Mesa_CS_3	>100%
Mesa Drain	4-10 x 9 ft Box	80	4	1400	Mesa Drain and Zaragosa	Mesa_CS_3	>100%
Mesa Drain	4-10 x 10 ft Box	60	8	3242	Mesa Drain and Irrigation Canal DS of Zaragosa (Near Earth #2)	Mesa_CS_3	>100%

This page was intentionally left blank.

Table B-11. Culvert Capacity Summary - Northeast Region

NORTHEAST REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Electric Ditch Diversion	3-8 x 4 ft Box	51	11	886	Woodrow Bean	J_Electric Ditch (Area Reduction)	>100
P.S.B. Channel No. 2	1-36-inch Circular	91	12	77	Sun Valley St	J_PSB Ch 2 at Rushing	10
P.S.B. Channel No. 2	2-48-inch Circular	61	15	240	Bon Aire St	J_PSB Ch 2 at Rushing	10
P.S.B. Channel No. 2	2-66-inch Circular	90	18	494	Kentworthy St	J_PSB Ch 2 at Rushing	20
P.S.B. Channel No. 2	3-8 x 3.6 ft Box	36	12	765	McCombs West	J_PSB Ch 2 D/S	30
P.S.B. Channel No. 2	3-8 x 5 ft Box	40	11	1057	McCombs East	J_PSB Ch 2 D/S	60
P.S.B. Channel No. 2	4-6 x 6 ft Box	430	27	2638	Gateway Freeway	J_PSB Ch 2 at Rushing	>100
Diana Ditch	3-8x3 ft Box	62	10	441	Maxwell Ave	A_Diana Ditch US Sunrise Ch	20
Diana Ditch	3-8 x 4 ft Box	76	9	514	Alps Dr	A_Diana Ditch US Sunrise Ch	20
Diana Ditch	4-8 x 4 ft Box	62	11	1360	Blueridge Dr	A_Diana Ditch US Sunrise Ch	>100
Diana Ditch	4-9 x 4 ft Box	60	12	999	Guadalupe Dr	J_Diana Ditch U/S	60
War Road Channel	1-8 x 5 ft Box	102	16	299	Marcus Uribe and MLK Jr Blvd	J_War Road Channel (Area Reduction)	>100
Diana Ditch	4-6 x 6 ft Box	90	11	1098	Tetons Dr	J_Diana Ditch D/S	10
Diana Ditch	4-10 x 3 ft Box	88	9	794	Hercules Ave	J_Diana Ditch D/S	10
Diana Ditch	5-10 x 3 ft Box	53	9	1014	Titanic Dr	J_Diana Ditch D/S	10
Diana Ditch	5-10 x 3 ft Box	53	9	1012	Atlas Ave/Luis Dr	J_Diana Ditch D/S	10
Diana Ditch	6-7 x 4 ft Box	267	10	1123	Railroad Dr	J_Diana Ditch and FB Div	10
Diana Ditch	5-10 x 3 ft Box	62	9	1045	Vulcan Ave	J_Diana Ditch D/S	10
Statler Ditch (AKA Mt. Everest Channel)	2-5 x 2 ft Box	81	6	71	Tetons Dr	A_Statler Ditch	10
Statler Ditch (AKA Mt. Everest Channel)	2-5 x 2 ft Box	81	6	71	Hercules Ave	A_Statler Ditch	10
Statler Ditch (AKA Mt. Everest Channel)	1-7 x 4 ft Box	131	9	180	Railroad Dr	J_RR Ditch at Statler Ditch	10

Table B-11. Culvert Capacity Summary - Northeast Region (Continued)

NORTHEAST REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
War Road Channel	2-9 x 6 ft Box	140	12	956	John Cunningham and MLK Jr Blvd	J_War Road Channel	>100
Statler Ditch (AKA Mt. Everest Channel)	1-66-inch Circular	33	14	304	Railroad Tracks	J_RR Ditch at Statler Ditch	10
Threadgill	1-8 x 5 ft Box	79	12	281	Sanders Ave	J_Tobin Drain U/S Army Ditch	10
Threadgill	3-6 x 3 ft Box	47	7	315	Wren Dr	J_Tobin Drain U/S Army Ditch	10
Threadgill	5-6 x 3 ft Box	52	7	527	Joe Herrera Dr	J_Tobin Drain D/S	10
Threadgill	5-6 x 3 ft Box	63	3	283	Raymond Telles Dr	J_Tobin Drain D/S	10
Threadgill	5-6 x 3 ft Box	50	6	506	Alps Dr	J_Tobin Drain D/S	10
Threadgill	5-6 x 3 ft Box	78	8	539	Hollings St	J_Tobin Drain D/S	10
Threadgill	4-6 x 3 ft Box	94	9	480	Hondo Pas Ave	J_Tobin Drain D/S	10
Threadgill	4-7 x 6.5 ft Box	112	13	2318	Railroad Dr	J_RR Drain U/S of Tobin	>100
Threadgill	3-96-inch Circular	30	18	2769	Railroad Tracks	J_Tobin Drain D/S	100
War Road Channel	1-5 x 2 ft Box	68	12	57	Loma Clara and MLK Jr Blvd	J_War Road Channel (Area Reduction)	>100
Northgate Outlet Channel	2-10 x 6 ft Box	72	9	1020	Diana Dr	J_Northgate Dam Out	>100
Northgate Outlet Channel	1-10 x 6 ft Box	493	22	510	W of Gateway South	J_Northgate Dam Out	>100
Railroad Dr	1-18-inch Circular	100	7	11	Falcon Ave	J_RR Drain U/S of Tobin (Area Reduction)	10
Railroad Dr	1-12-inch Circular	109	8	6	Waycross Ave	J_RR Drain U/S of Tobin (Area Reduction)	10
Railroad Dr	1-18-inch Circular	127	10	12	Wren Dr	J_RR Drain U/S of Tobin (Area Reduction)	10
Railroad Dr	1-18-inch Circular	114	7	10	Lexington Dr	J_RR Drain U/S of Tobin (Area Reduction)	10
Railroad Dr	1-8 x 4 ft Box	905	10	262	McCombs St	J_RR Drain U/S of Tobin (Area Reduction)	>100
Railroad Dr	5-8 x 4 ft Box	45	12	360	Julian Ave	J_RR Ditch Downstream	10
Railroad Dr	1-12-inch Circular	23	10	5	South of Falcon Ave	J_RR Drain U/S of Tobin (Area Reduction)	10
War Road Channel	1-36-inch Circular	149	12	83	Loma Real and MLK Jr Blvd	J_War Road Channel (Area Reduction)	>100

Table B-11. Culvert Capacity Summary - Northeast Region (Continued)

NORTHEAST REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Bossworth (AKA Clear View Channel)	3-36-inch Circular	61	11	149	Morningside Dr	A_Bossworth U/S	10
Bossworth (AKA Clear View Channel)	3-36-inch Circular	67	10	201	Byron St	A_Bossworth U/S	10
Bossworth (AKA Clear View Channel)	3-6 x 4 ft Box	101	19	739	Dyer	J_Bossworth Ch D/S	100
Western Freeway Channel	9-12.5 X 6 Box	167	8	5609	McComb Rd	J_W Fwy D/S	>100
P.S.B. Channel No. 2	1-48-inch Circular	440	8	103	Gateway Apt	J_PSB Ch 2 at Rushing	10
Range Dam Outlet (Army Ditch)	3-6 x 3 ft Box	119	12	316	Dyer Street	J_Army Ditch (Area Reduction)	>100
Range Dam Outlet (Army Ditch)	1-2 x 2 ft Box	49	11	43	Raymond Telles Dr	J_Army Ditch	10
Johnson Channel	1-48-inch Circular	66	8	50	Truman Ave.	A_Johnson Channel	10
Clearview Channel	4-60-inch Circular	147	21	1007	Alabama Ave.	A_Bossworth U/S	>100
P.S.B. Channel No. 1	6-9 x 7 ft Box	445	30	3627	Gateway South US 54	J_PSB Ch1 Jct2	>100
P.S.B. Channel No. 1	4-8 x 10 ft Box	44	20	3620	McCombs Rd	J_PSB Ch1 Jct3	>100

This page was intentionally left blank.

Table B-12. Culvert Capacity Summary - Northwest Region

NORTHWEST REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Arroyo 4	2-42-inch Circular	80	28	>114	Broadmoor St	A4_1	>100
Arroyo 4	1-30-inch Circular and 1-36-inch Circular	95	24	192	Westwind Dr	A4_1	10
Arroyo 4	1-54-inch Circular	172	29	296	Northwind Dr	A4_1	25
Arroyo 4	2-42-inch Circular	164	30	582	El Puente St	A4_1	40
Arroyo 4	2-48-inch Circular	1677	18	442	Resler Dr	A4_1	25
Arroyo 4	2-4 x 4 ft Box	484	24	415	Mesa St	A4_1	10
Arroyo 4	no existing information	NA	NA	NA	Desert Tr	A4_1	NA
Arroyo 4	no existing information	NA	NA	NA	Gem St	A4_1	NA
Arroyo 4	no existing information	NA	NA	NA	IH-10	A4_1	>100
Arroyo 5	1-6 x 4 ft Box	478	47	251	Mesa St	A5_1	7
Arroyo 5	2-6 x 6 ft Box	231	24	>1519	Resler Dr	A5_1	>100
Arroyo 5	no existing information	NA	NA	NA	IH-10	A5_1	NA
Doniphan Ditch	2-35 x 24-inch Arch	54	7	52	Bird Rd	DD_1	6
Doniphan Ditch	2-35 x 24-inch Arch	64	8	61	Frontera Rd	DD_1	4
Doniphan Ditch	2-6 x 4 ft Box	121	10	392	Sunland Park Rd	DD_1	25
Doniphan Ditch	2-36-inch Circular	111	7	62	Dona Ana County Rd	DD_1	2
Doniphan Ditch	no existing information	NA	NA	NA	Railroad 2	DD_1	NA
Doniphan Ditch	2-36-inch Circular	48	9	108	Power Station	DD_1	3
Doniphan Ditch	no existing information	NA	NA	NA	Railroad 1	DD_1	NA
Doniphan Ditch	no existing information	NA	NA	NA	Pedestrian Overpass	DD_1	NA
Flow Path No. 38	1-24-inch Circular	112	10	29	Playa del Sol St	FPN38_3	4
Flow Path No. 38	1-36-inch Circular	162	17	47	Corona del Sol St	FPN38_3	5
Flow Path No. 38	2-6 x 4 ft Box	81	15	365	Villa del Sol St	FPN38_3	30
Flow Path No. 38	6-10.5 x 3.5 ft Box	530	2	>46	Resler Dr	FPN38_1US	>100
Flow Path No. 38	3-8 x 7 ft Box	184	9	>896	Northwestern Dr	FPN38_1US	>100

Table B-12. Culvert Capacity Summary - Northwest Region (Continued)

NORTHWEST REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Flow Path No. 38	232 ft wide Bridge	142	4	>896	IH-10	FPN38_1US	>100
Flow Path No. 39A	4-15 x 5 ft Box	212	16	>2498	Resler Dr	FPN39A2US	>100
Flow Path No. 39A	110.7 ft wide Bridge	137	17	>2509	IH-10	FPN39A1US	>100
Flow Path No. 39A Redirect	1-23 x 9 ft Arch	126	19	2114	Northwestern Dr	FPN40_2US	50
Flow Path No. 40	4-6 x 6 ft Box and 3-7 x 4 ft Box	155	17	1517	Transmountain Rd	FPN40_3	60
Flow Path No. 40	150 ft wide Bridge	396	18	>4361	IH-10	FPN40_2US,FPN40_3	>100
Flow Path No. 42	114 ft wide Bridge	154	12	>937	IH-10	FPN42	>100
Flow Path No. 42A	2-54-inch Circular	351	15	>197	IH-10	FPN42A	>100
Flow Path No. 43	95 ft wide Bridge	140	10	>1090	IH-10	FPN43	>100
Flow Path No. 45	13-9 x 5 ft Box	39	17	5065	IH-10 Off-Ramp	NA (HEC-RAS)	50
Flow Path No. 45	158 ft wide Bridge	142	8	>6070	IH-10	NA (HEC-RAS)	100
Flow Path No. 45	13-9 x 5.3 ft Box	42	7	4610	IH-10 On-Ramp	NA (HEC-RAS)	40
Flow Path No. 45	Low Water Crossing	69	NA	NA	Quejette Rd	NA (HEC-RAS)	NA
Flow Path No. 45	2-8 x 3 ft Box	43	11	303	Kiely Rd	NA (HEC-RAS)	1
Flow Path No. 45	Low Water Crossing	32	NA	NA	Vinton Rd	NA (HEC-RAS)	NA
Flow Path No. 45	4-36-inch Circular	67	16	348	Ap Ramirez St	NA (HEC-RAS)	1
Flow Path No. 45	2-6 x 6 ft Box	70	16	915	Doniphan Dr	NA (HEC-RAS)	3
Flow Path No. 45	68 ft wide Bridge	19	16	3555	Railroad	NA (HEC-RAS)	20
Flow Path No. 45	no existing information	NA	NA	NA	Tom Mays Dr.	NA (HEC-RAS)	NA
Flow Path No. 45	no existing information	NA	NA	NA	De Alva Dr.	NA (HEC-RAS)	NA
Flow Path No. 45A	3-54-inch Circular	341	16	>189	IH-10	NA (HEC-RAS)	>100
Flow Path No. 45A	5-48-inch Circular	73	17	>788	Lovena Way	NA (HEC-RAS)	>100
Flow Path No. 45A	2-30-inch Circular	61	11	66	Railroad 4	NA (HEC-RAS)	1
Flow Path No. 45A	1-30 x 48-inch Ellipse	128	13	73	Railroad 3	NA (HEC-RAS)	1
Flow Path No. 45A	1-24-inch Circular	72	8	22	Railroad 2	NA (HEC-RAS)	0
Flow Path No. 45A	1-48-inch Circular	76	13	115	Railroad 1	NA (HEC-RAS)	2

Table B-12. Culvert Capacity Summary - Northwest Region (Continued)

NORTHWEST REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Flow Path No. 45A	3-30-inch Circular	38	9	116	Iron Dr	NA (HEC-RAS)	2
Flow Path No. 45A	2-30-inch Circular	47	8	71	Kiely Rd	NA (HEC-RAS)	1
High Ridge	2-8 x 4 ft Box	79	19	705	Franklin Hills St	A1A,HR3	10
High Ridge	2-8 x 4 ft Box	77	20	776	Franklin Crest Dr	A1A,HR3	20
High Ridge	48 ft wide Bridge	85	23	>3950	Redd Rd	HR1,LDE1	>100
High Ridge	67 ft wide Bridge	120	16	>3950	Resler Dr	HR1,LDE1	>100
Montoya Drain	1-18-inch Circular	64	9	16	Montoya Dr	MD_3	1
Montoya Drain	50 ft wide Bridge	72	4	>1049	Redd Rd	MD_3	>100
Montoya Drain	1-24-inch Circular	178	8	23	Railroad	MD_3	1
Montoya Drain	1-36-inch Circular	75	11	74	Mulberry Ave	MD_3	2
Montoya Drain	1-36-inch Circular	59	11	76	Lindbergh St	MD_3	3
Montoya Drain	no existing information	NA	NA	NA	Country Club 2	MD_3	NA
Montoya Drain	no existing information	NA	NA	NA	Country club 1	MD_3	NA
Montoya Drain	no existing information	NA	NA	NA	Golf 2	MD_3	NA
Montoya Drain	no existing information	NA	NA	NA	Golf 1	MD_3	NA
Montoya Drain	no existing information	NA	NA	NA	Golfcart Crossing 5	MD_3	NA
Montoya Drain	no existing information	NA	NA	NA	Golfcart Crossing 4	MD_3	NA
Montoya Drain	no existing information	NA	NA	NA	Golfcart Crossing 3	MD_3	NA
Montoya Drain	no existing information	NA	NA	NA	Golfcart Crossing 2	MD_3	NA
Montoya Drain	no existing information	NA	NA	NA	Golfcart Crossing 1	MD_3	NA
Montoya Drain	1-48-inch Circular	88	12	144	Lombardy Ave	MD2,C2	5
Montoya Drain	1-48-inch Circular	73	12	145	Sunset Dr	MD2,C2	5
Montoya Drain	64 ft wide Bridge	50	8	1040	Turnstone Dr	MD2,WSD1	20

Table B-12. Culvert Capacity Summary - Northwest Region (Continued)

NORTHWEST REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Montoya Drain	59 ft wide Bridge	5	7	1490	Pedestrian Overpass	MD2,WSD1	40
Montoya Drain	45 ft wide Bridge	32	9	1150	Frontera Rd	MD2,WSD1	25
Montoya Drain	1-72-inch Circular	140	10	160	Sunland Park Rd	MD2,WSD1	2
Montoya Drain	1-96-inch Circular	74	10	235	Racetrack 2	MD2,WSD1	3
Montoya Drain	60 ft wide Bridge	17	7	>2155	Racetrack 1	MD2,WSD1	>100
Montoya Drain	57 ft wide Bridge	44	7	>2155	Dona Ana County Rd	MD2,WSD1	>100
Montoya Drain	3-5 x 5 ft Box	45	11	660	Unknown	MD2,WSD1	10
Ojo de Agua	1-16 x 5 ft Box	102	20	>785	Via de la Paz Dr	ODA2	>100
Ojo de Agua	2-6 x 4 ft Box	98	24	657	Via Descanso Ln	ODA2	60
Ojo de Agua	1-9 x 9 ft Box	88	29	1287	Loma de Cristo Dr	ER1,ODA1	20
Ojo de Agua	1-9 x 8 ft Box	161	22	1021	Westwind Dr	ER1,ODA1	10
Ojo de Agua	1-30 x 14 ft Arch	190	26	>3412	Resler Dr	ER1,ODA1	>100
Ojo de Agua	49 ft wide bridge	46	17	>3412	Lakehurst Rd	ER1,ODA1	>100
Resler Channel	58 ft wide Bridge	12	14	>3025	Pedestrian Overpass	RC2cUS	>100
Resler Channel	59 ft wide Bridge	121	17	>3025	Resler Dr	RC2cUS	>100
Resler Channel	4-10 x 8 ft Box	105	21	>3025	Northwestern Dr	RC2cUS	>100
Resler Channel	112 ft wide Box	140	16	>3025	IH-10	RC2cUS	>100
Ridge View	2-9 x 5 ft Box	119	16	>1285	Franklin Hills St	RV_1	>100
Ridge View	2-8 x 6 ft Box	82	21	960	Shelby Ridge	RV_1	40
Ridge View	2-6 x 4 ft Box	110	25	880	Desert Canyon Dr	RV_1	40
Unknown 2	3-48-inch Circular	360	15	>395	IH-10	UN02_1OUT	>100
Unnamed Stream 23A	1-4 x 4 ft Box	340	16	>71	IH-10	UN23A	>100
Unnamed Stream 24	2-48-inch Circular	369	17	>133	IH-10	UN24A2	>100

Table B-12. Culvert Capacity Summary - Northwest Region (Continued)

NORTHWEST REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Unnamed Stream 24A	3-60-inch Circular	385	13	>385	IH-10	UN24A1OUT	>100
Unnamed Stream 24B	2-60-inch Circular	340	16	>290	IH-10	UN24B	>100
Unnamed Stream 24C	no existing information	NA	NA	138.3	IH-10	UN24C	NA
Unnamed Stream 24D	no existing information	NA	NA	54.4	IH-10	UN24D	NA
White Spur Drain	2-7 x 4 ft Box	76	15	>620	Doniphan Dr	WSD_2	>100
White Spur Drain	50 ft wide Bridge	9	7	960	Railroad	DD3,WSD2	80
White Spur Drain	30 ft wide Bridge	31	5	>1029	Love Rd	DD3,WSD2	>100
White Spur Drain	35 ft wide Bridge	53	12	>907	Sunset Dr	WSD_1, WSD1_1	>100
White Spur Drain	3-48-inch Circular	66	9	345	River Bend Dr	WSD_1, WSD1_1	8

This page was intentionally left blank.

Table B-13. Culvert Capacity Summary - West Central Region

WEST CENTRAL REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Canterbury Channel	2-10 x 5.5 ft Arch	72	10	>605	Stanton St	CBC_1	>100
Canterbury Channel	2-10 x 5.5 ft Arch	51	11	>666	Ridgecrest Dr	CBC_1	>100
Canterbury Channel	5-4 x 4 ft Box	138	11	>757	Mesa St	CBC_1	>100
Canterbury Channel	2-6 x 6 ft Box	538	24	>757	Wallington Dr	CBC_1	>100
Canterbury Channel	3-6 x 6 ft Box	401	14	>1009	IH-10	CBC_1	>100
Flow Path No. 20	1-72-inch Circular	82	18	345	Zenith Dr	FPN20_2	6
Flow Path No. 20	3-4 x 4 ft Box	2040	28	375	Mesa St	FPN20_2	4
Flow Path No. 20	no existing information	NA	NA	NA	Mesa Park	FPN20_2	NA
Flow Path No. 20	1-228-inch Circular	398	17	>2949	IH-10	FPN20_2	>100
Flow Path No. 20	no existing information	NA	NA	NA	Unknown	FPN20_1US	NA
Flow Path No. 20	no existing information	NA	NA	NA	Factory1	FPN20_1US	NA
Flow Path No. 20	no existing information	NA	NA	NA	Railroad 1	FPN20_1US	NA
Flow Path No. 20	no existing information	NA	NA	NA	Railroad 2	FPN20_1US	NA
Flow Path No. 20	5-8 x 3 ft Box	186	17	1050	Paisano Dr	FPN20_1US	4
Flow Path No. 21	1-98 x 63-inch Ellipse	60	22	430	Okeefe Dr	FPN21_2	5
Flow Path No. 21	2-4 x 4 ft Box	770	18	579	Mesa St	FPN21_2	7
Flow Path No. 21	1-15.5 x 10 ft Box	470	41	>2293	IH-10	FPN21_2	>100
Flow Path No. 21	no existing information	NA	NA	NA	Railroad 3	FPN21_2	NA

Table B-13. Culvert Capacity Summary - West Central Region (Continued)

WEST CENTRAL REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Flow Path No. 21	no existing information	NA	NA	NA	Railroad 2	FPN21_2	NA
Flow Path No. 21	no existing information	NA	NA	NA	Railroad 1	FPN21_OUT	NA
Flow Path No. 21	2-6 x 5 ft Box	150	9	500	Paisano Dr	FPN21_OUT	4
Flow Path No. 23	no existing information	NA	NA	NA	Robinson Ave	FPN23_1	NA
Flow Path No. 23	2-72-inch Circular	71	14	610	Campbell St	FPN23_1	4
Flow Path No. 23	2-10 x 5 ft Box	52	15	700	Kansas St	FPN23_1	5
Flow Path No. 23	2-12.5 x 5.5 ft Box	400	24	1250	Mesa St and Stanton St	FPN23_1	9
Flow Path No. 23	2-84-inch Circular	71	17	1200	Oregon St	FPN23_1	8
Flow Path No. 23	1-141.8 x 91.3-inch Arch	86	29	1460	University Ave	FPN23_1	10
Flow Path No. 23	no existing information	NA	NA	NA	FPN23 CV Building 3	FPN23_1	NA
Flow Path No. 23	no existing information	NA	NA	NA	FPN23 CV Hawthorn	FPN23_1	NA
Flow Path No. 23	no existing information	NA	NA	NA	FPN23 CV Building 2	FPN23_1	NA
Flow Path No. 23	no existing information	NA	NA	NA	FPN23 CV Walkway	FPN23_1	NA
Flow Path No. 23	no existing information	NA	NA	NA	FPN23 CV Building 1	FPN23_1	NA
Flow Path No. 23	1-168-inch Circular	1766	26	>2987	IH-10 and Schuster Ave	FPN23_1	>100
Flow Path No. 23	no existing information	NA	NA	NA	Railroad	FPN23_1	NA

Table B-13. Culvert Capacity Summary - West Central Region (Continued)

WEST CENTRAL REGION - CULVERT CAPACITY SUMMARY							
Channel	**Shape/Size**	**Length (ft)**	**Velocity (ft/s)**	**Culvert Capacity (cfs)**	**Culvert Location**	**HMS Node ID**	**Interpolated Return Interval (years)**
Flow Path No. 23	6-8 x 3 ft Box	42	12	1100	US of Paisano Dr	FPN23_1	8
Flow Path No. 23	4-7 x 7 ft Box	182	20	2700	Paisano Dr	FPN23_1	50
Flow Path No. 23	4-6 x 4 ft Box	43	13	940	DS of Paisano Dr	FPN23_1	7
Paragon Channel	2-6 x 4 Box	252	24	>595	Stanton St	PC_1	>100
Paragon Channel	5-6 x 4 ft Box	303	24	>1488	Mesa St	PC_1	>100
Paragon Channel	5-8 x 8 ft Box	309	17	>2975	IH-10	PC_1	>100

This page was intentionally left blank.

Table B-14. Conduit Capacity Summary - Central Region

CENTRAL REGION - CONDUIT CAPACITY SUMMARY							
System	**Name**	**Type**	**Dimensions**	**Length (ft)**	**Pressurized**	**Capacity (cfs)**	**Comment**
Government Hills Channel	Government Hills Discharge 90-inch	Pipe	90-Inch Diameter	9308	Yes	350	
Cebada	Cebada Discharge Conduits	Box	2 (6x 4)	5452	No	540	Capacity is based on Brock & Bustillos, Inc. Report
Dallas	Eastern Discharge Conduit	Box	6 x 5	2395	No	360	Capacity is maximum capacity from MCi Report
Dallas	Western Discharge Conduit	Box	7 x 5	4964	No	441	Capacity is maximum capacity from MCi Report

This page was intentionally left blank.

FIGURES

This page was intentionally left blank.

Legend

- HECRAS-Modeled Stream
- Master Plan Regional Area
- Drainage System
- Major Road
- Railroad
- State Boundary
- County Boundary
- Corporate Boundary
- Military Boundary
- Park Boundary

Elevation:

- 7,001 - 7,180
- 6,751 - 7,000
- 6,501 - 6,750
- 6,251 - 6,500
- 6,001 - 6,250
- 5,751 - 6,000
- 5,501 - 5,750
- 5,251 - 5,500
- 5,001 - 5,250
- 4,751 - 5,000
- 4,501 - 4,750
- 4,251 - 4,500
- 4,001 - 4,250
- 3,751 - 4,000
- 3,517 - 3,750

N

0 1.5 3 Miles

1 : 190,080 or 1 inch = 3 miles

Project Area

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-1

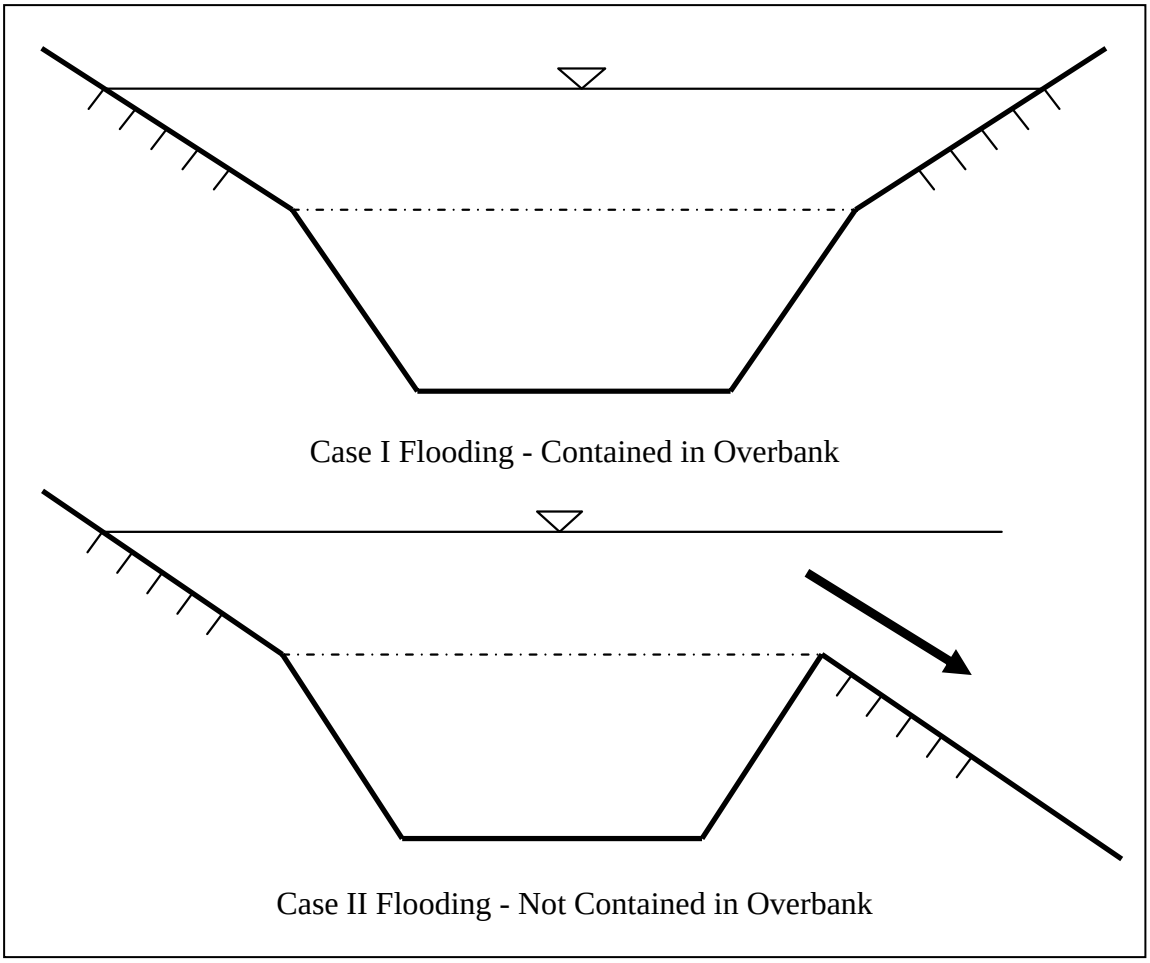
EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

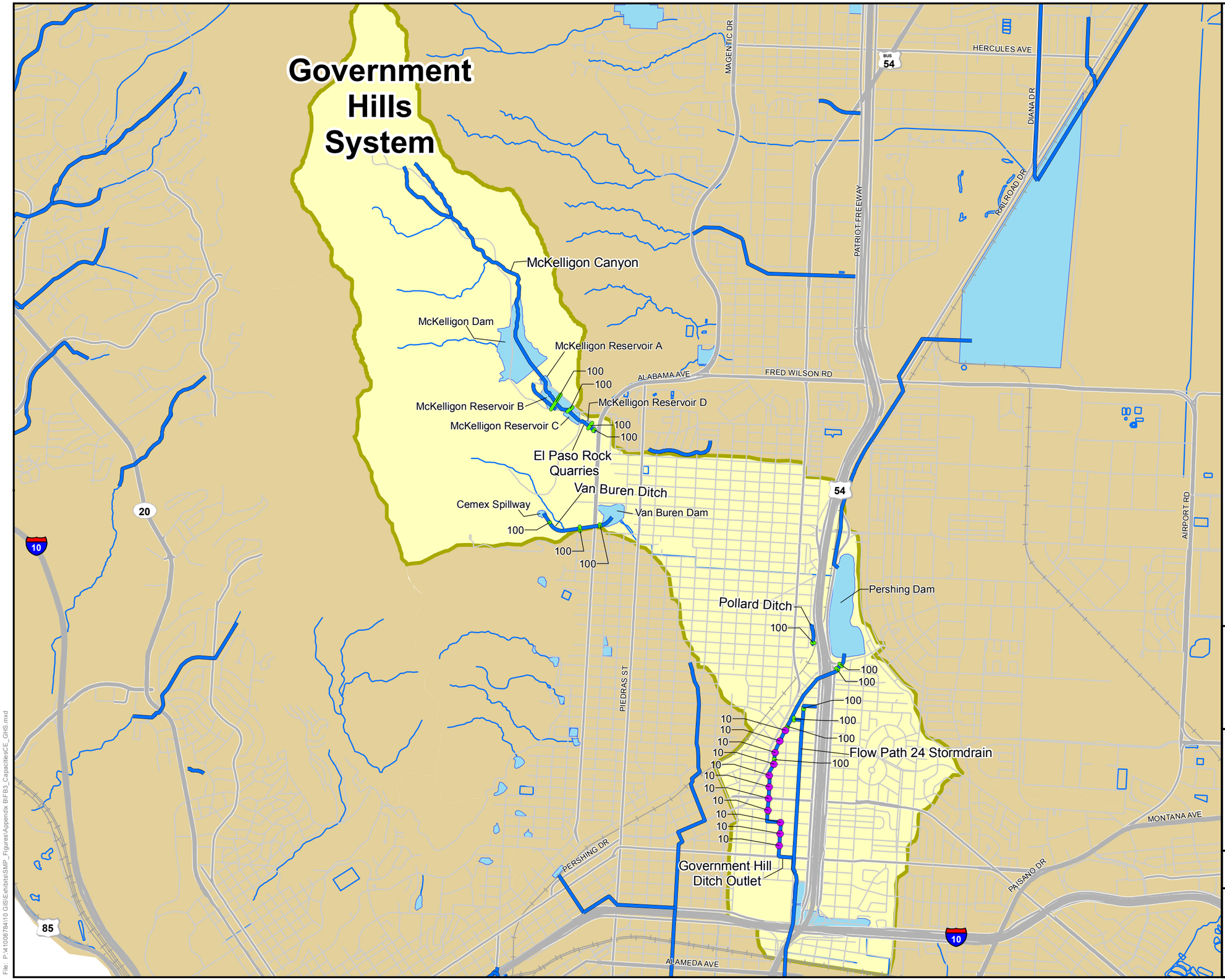
URS MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\GIS_Projects\EPWU\MXD\FinalReport\FB1_ProjectArea.mxd

Figure B-2 Typical Cross-Sections - Case I and Case II





Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Goverment Hills System
- Other Drainage Systems

N

0 1,500 3,000 Feet

1 : 36,000 or 1 Inch = 3,000 Feet

Government Hills System Channel and Crossing Return Period Capacities Central Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-3

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS

MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\41008784110 GIS\Exhibits\SMP_Figures\Appendix B\FB3_CapacitiesCE_GHS.mxd

Cebada System

Fort Boulevard Reservoir
Upper Memphis Dam
Lower Memphis Dam
Altura Avenue Dam
Upper Kentucky Dam
Lower Kentucky Dam
Scenic Drive Dam
San Diego Dam
Ohio Street Reservoir
Tremont Reservoir
Magnolia Reservoir
Magnolia Conduit
Upper Louisiana Drive Dam
Lower Louisiana Drive Dam
Connecting Conduit
Cebada Reservoir
Cebada Discharge Conduit
East Discharge Conduit
Copia Ditch
100
PIEDRAS ST
PERSHING DR
TEXAS AVE
COTTON ST
MESA DR
BORDER HWY
10
54
62
110
20
85

Legend

- Conduit Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Cebada System
- Other Drainage Systems

N

0 1,000 2,000 Feet

1 : 24,000 or 1 Inch = 2,000 Feet

Cebada System Channel and Crossing Return Period Capacities Central Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-4

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
URS
MCi consulting engineers
THE CITY OF EL PASO TEXAS

File: P:\410087841\0 GIS\Exhibits\SMP_Figures\Appendix B\FB4_Capacities\CE_CS.mxd

Dallas System

Dam No 8

Dam No 9

Dam No 10

Cotton Dallas Basin

Franklin Campbell Basin

West Discharge Conduit

100

PERSHING DR

COTTON ST

TEXAS AVE

10

20

62

Legend

- Conduit Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Dallas System
- Other Drainage Systems

N

0 500 1,000 Feet

1 : 12,000 or 1 Inch = 1,000 Feet

Dallas System
Channel and Crossing Return Period Capacities
Central Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-5

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS

MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\41008784\10 GIS\Exhibits\SMP_Figures\Appendix B\FB5_CapacitiesCE_DS.mxd

Phelps Dodge System

Fort Bliss Spur Drain

Sunmount Channel

Lorne Channel

North Loop Detention Basin

Phelps Dodge Basin

HERCULES AVE
DIANA DR
RAILROAD DR
AIRPORT RD
PURPLE HEART MEMORIAL HWY
MONTANA AVE
EDGEMERE BLVD
PAISANO DR
VISCOUNT BLVD
HAWKINS BLVD
MCRAE BLVD
YARBROUGH DR
LEE TREVINO DR
GEORGE DIETER DR
TURNER RD
PEBBLE HILLS BLVD
SAUL KLEINFELD DR
JOE BATTLE
MONTWOOD DR
ALAMEDA AVE
BORDER HWY
FONSECA DR
NORTH LOOP DR
IH-10
BUS 54
180
62
375
10
20

Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Phelps Dodge System
- Other Drainage Systems

N

0 2,000 4,000 Feet

1 : 48,000 or 1 Inch = 4,000 Feet

Phelps Dodge System Channel and Crossing Return Period Capacities East Side Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-6

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS

MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410\87\94\10 GIS\Exhibits\SMP_Figures\Appendix B\FB6_CapacitiesEE_PD.mxd

Mesa Drain Upstream System

Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Mesa Drain Upstream System
- Other Drainage Systems

N

0 1,000 2,000 Feet

1 : 24,000 or 1 Inch = 2,000 Feet

Mesa Drain Upstream System Channel and Crossing Return Period Capacities East Side Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-7

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410087841\0 GIS\Exhibits\SMP_Figures\Appendix B\FB7_CapacitiesEE_MDU.mxd

Interstate Highway 10 Corridor

MONTANA AVE
EDGEMERE BLVD
AIRWAY BLVD
VISCOUNT BLVD
PEBBLE HILLS BLVD
MCRAE BLVD
YARBROUGH DR
SAUL KLEINFELD DR
MONTWOOD DR
ZARAGOZA RD
JOE BATTLE
LEE TREVINO DR
GEORGE DIETER DR
HAWKINS BLVD
ALAMEDA AVE
DELTA DR
FONSECA DR
NORTH LOOP DR
SUMAC DR
BORDER HWY
PELLICANO DR
ROJAS DR
AMERICAS AVE

100
100
100
100
100
100
100
100

Fort Bliss Spur Drain
Lafayette Draw Channel
Burnham Channel
Bluff Channel
Mercantile Channel

10
20
10

Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Interstate Highway 10 Corridor
- Other Drainage Systems

N

0 2,000 4,000 Feet

1 : 48,000 or 1 Inch = 4,000 Feet

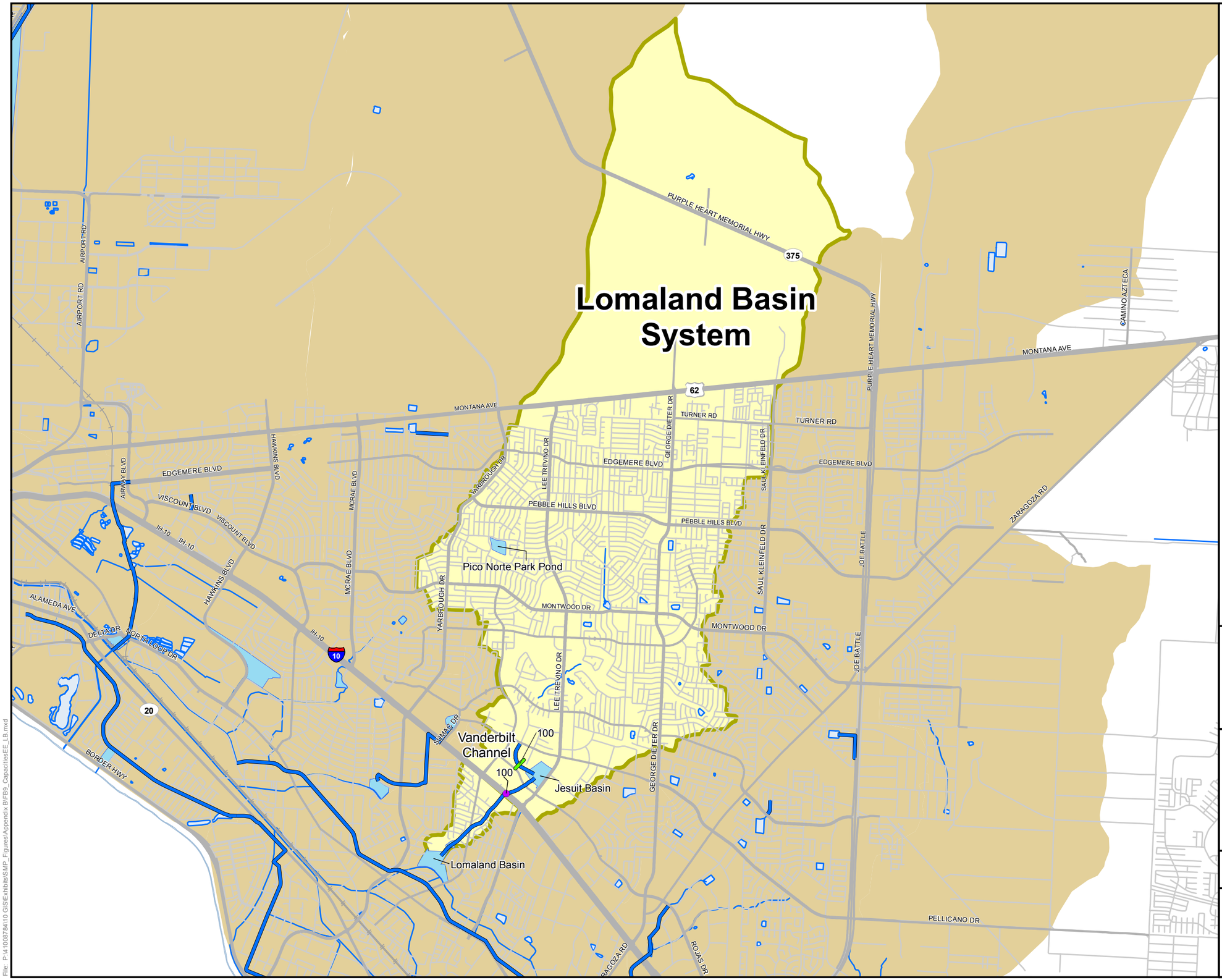
Interstate Highway 10 Corridor Channel and Crossing Return Period Capacities East Side Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-8

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
URS
MCi consulting engineers
THE CITY OF EL PASO TEXAS

File: P:\x1\10878\x10\GIS\Exhibits\SMP_Figures\Appendix B\FB8_CapacitiesEE_PD.mxd



Legend

- Channel Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Lomaland Basin System
- Other Drainage Systems

N

0 2,500 5,000 Feet

1 : 60,000 or 1 Inch = 5,000 Feet

Lomaland Basin System Channel and Crossing Return Period Capacities East Side Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-9

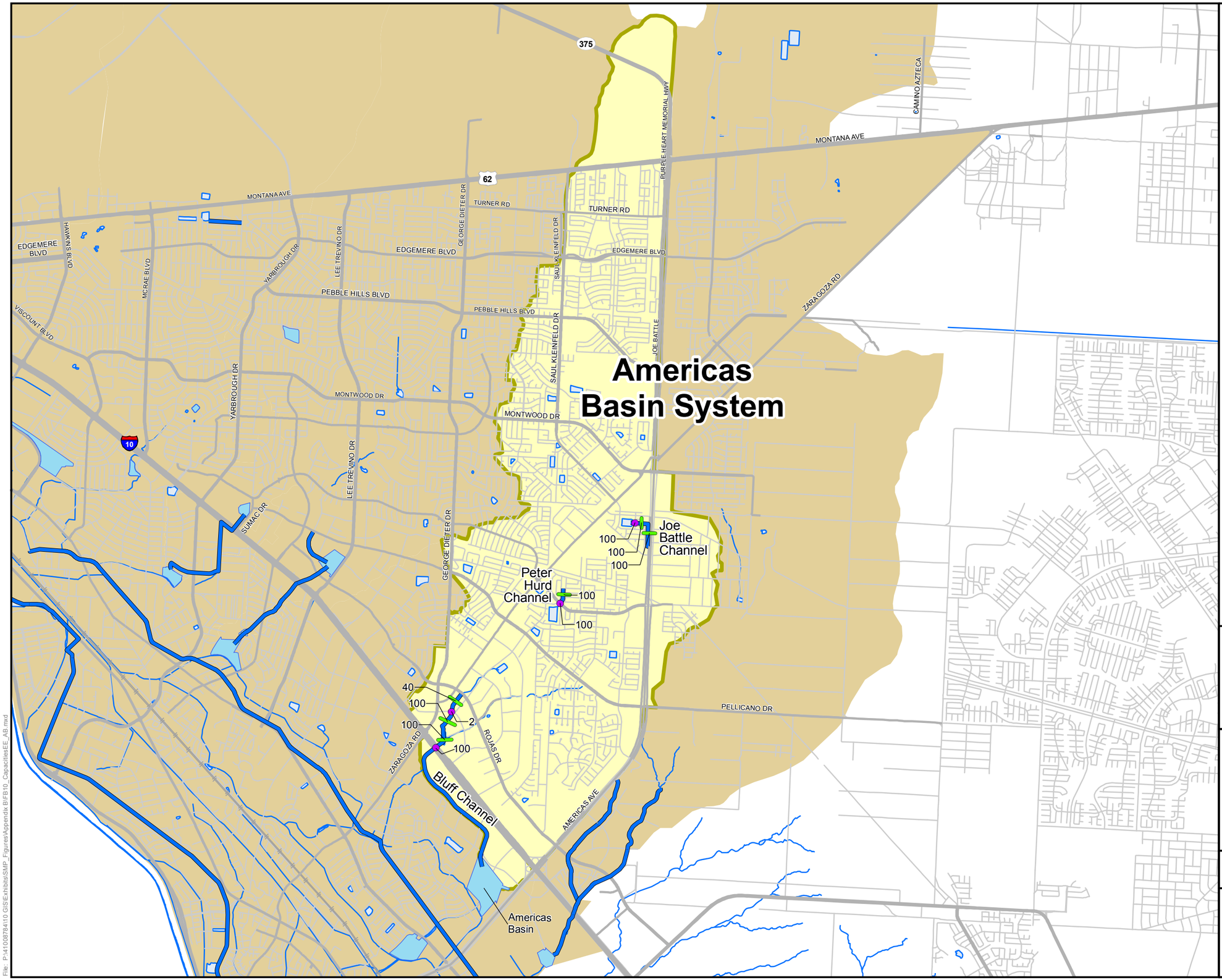
EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS

MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\4100878410 GIS\Exhibits\SMP_Figures\Appendix B\FB9_CapacitiesEE_LB.mxd



Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Americas Basin System
- Other Drainage Systems

N

0 2,500 5,000 Feet

1 : 60,000 or 1 Inch =5,000 Feet

Americas Basin System Channel and Crossing Return Period Capacities East Side Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-10

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\4100878410 GIS\Exhibits\SMP_Figures\Appendix B\FB10_CapacitiesEE_AB.mxd

Americas Ten Basin System

PELLICANO DR

JOE BATTLE

ROJAS DR

AMERICAS AVE

HORIZON BLVD

RV Channel

Mercantile Channel

Mercantile Channel

Mercantile Channel

100 100 100 100 100 10 100 100 100 5 100 5 100 10 100 100 100 40 100

Americas Ten Basin

Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Americas Ten Basin System
- Other Drainage Systems

N

0 1,000 2,000 Feet

1 : 24,000 or 1 Inch = 2,000 Feet

Americas Ten Basin System Channel and Crossing Return Period Capacities East Side Region

El Paso Stormwater Master Plan

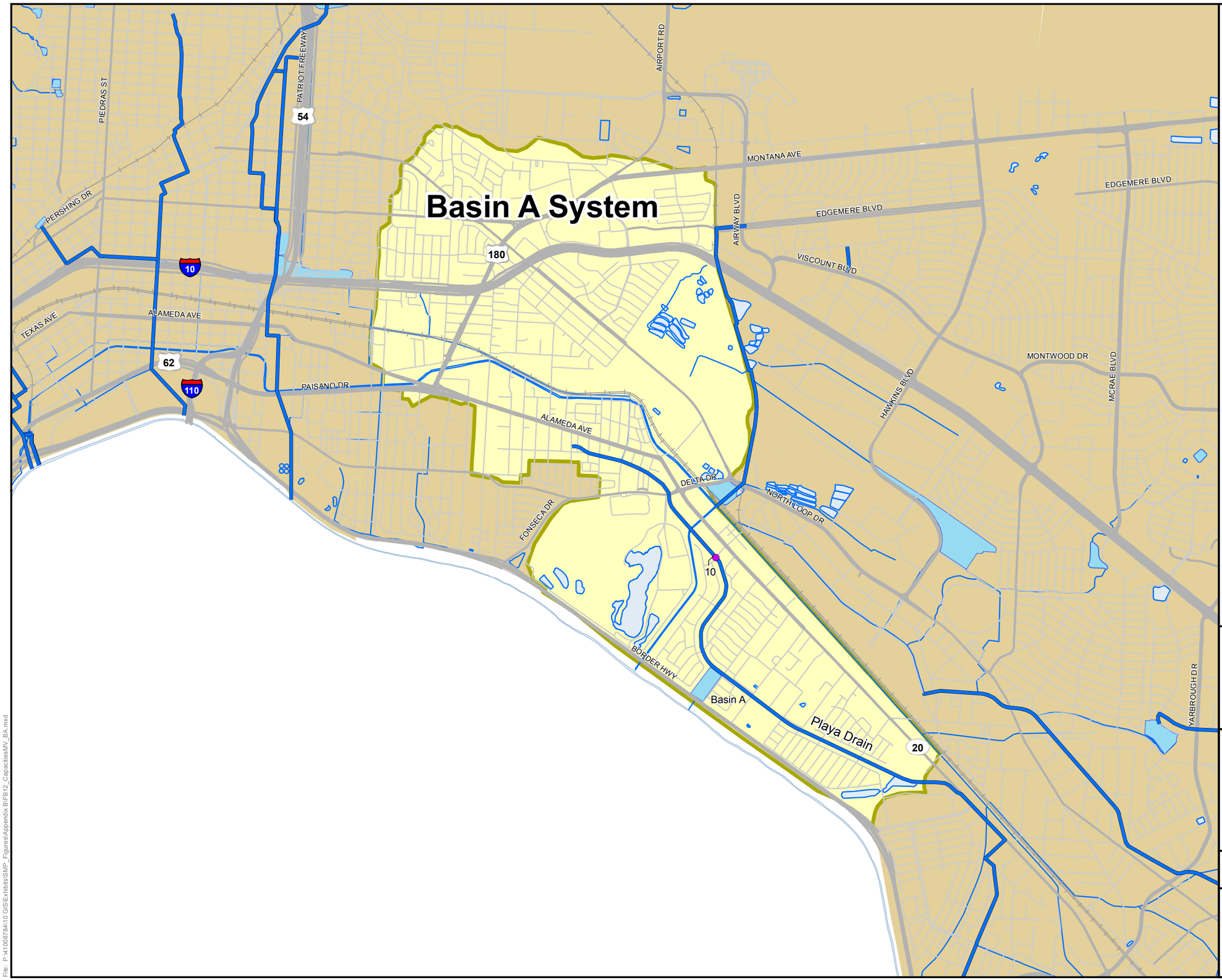
Date: 03/05/2009 | Figure B-11

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410\0878410.GIS\Exhibits\SMP_Figures\Appendix B\FB11_CapacitiesEE_ATB.mxd



Legend

- Crossing Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Basin A System
- Other Drainage Systems

N

0 1,500 3,000 Feet

1 : 36,000 or 1 Inch = 3,000 Feet

Basin A System
Channel and Crossing Return Period Capacities
Mission Valley Region

El Paso Stormwater Master Plan

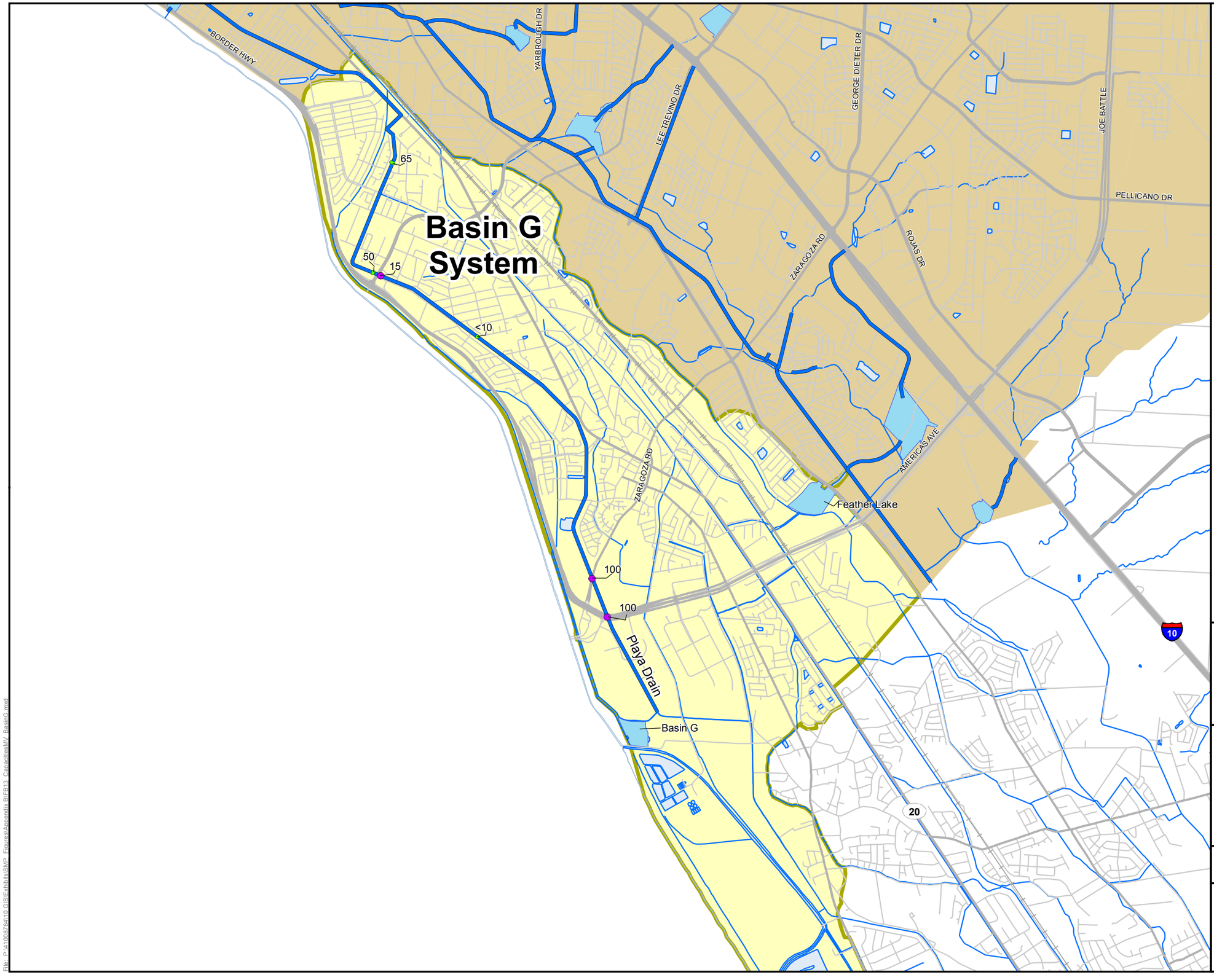
Date: 03/05/2009 | Figure B-12

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410087&410 GIS\Exhibits\SMP_Figures\Appendix B\FB12_CapacitiesMV_BA.mxd



Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Basin G System
- Other Drainage Systems

N

0 2,000 4,000 Feet

1 : 48,000 or 1 Inch = 4,000 Feet

Basin G System Channel and Crossing Return Period Capacities Mission Valley Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-13

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

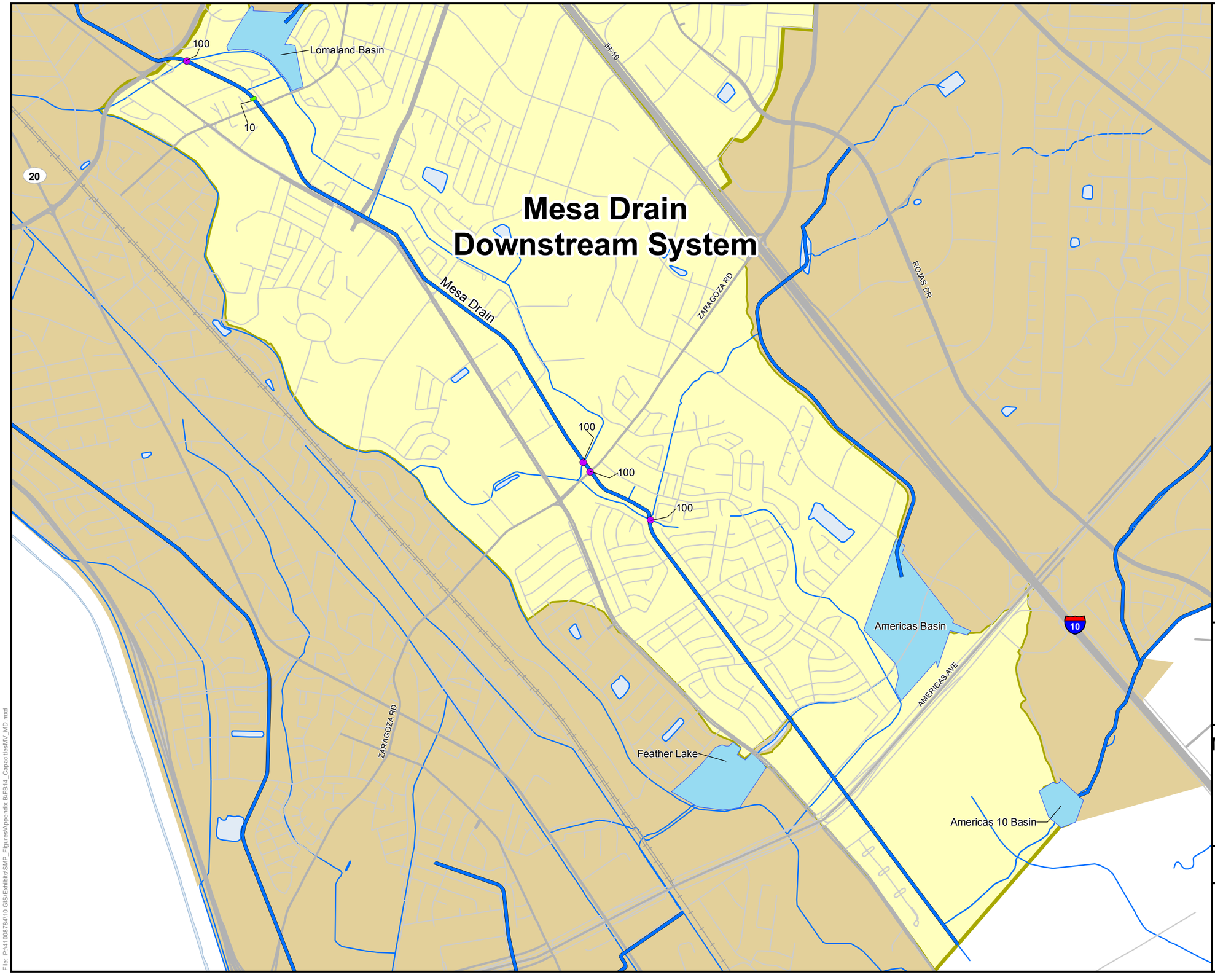
URS

MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410\87841\0 GIS\Exhibits\SWP_Figures\Appendix B\FB13_CapacitiesMV_BasinG.mxd

Mesa Drain Downstream System



Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Mesa Drain Downstream System
- Other Drainage Systems

N

0 1,000 2,000 Feet

1 : 24,000 or 1 Inch = 2,000 Feet

Mesa Drain Downstream System Channel and Crossing Return Period Capacities Mission Valley Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-14

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS

MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\41009784\10 GIS\Exhibits\SMP_Figures\Appendix B\FB14_CapacitiesMV_MD.mxd

Fort Bliss Sump System

Range Dam Outlet Channel
Range Basin
Northgate Diversion Channel
Hondo Pass Channel
Hondo Pass Basin
Amber Basin
Sunrise Dam
Mountain Park Dam
Sunrise Basin
Sunrise Channel
Tobin Drain
Railroad Dr. Channel
Statler Ditch
Diana Ditch
Fort B. Diversion Channel
Clearview Channel
Bossworth Channel
Fort Bliss Sump
Keltner Dam
Johnson Channel
Fort Bliss Outfall Conduit

375
54
BUS 54

Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Fort Bliss Sump System
- Other Drainage Systems

N

0 1,500 3,000 Feet

1 : 36,000 or 1 Inch = 3,000 Feet

Fort Bliss Sump System Channel and Crossing Return Period Capacities Northeast Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-15

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
URS
MCi consulting engineers
THE CITY OF EL PASO TEXAS

File: P:\410087841\0 GIS\Exhibits\SMP_Figures\Appendix B\FB15_CapacitiesNE_FBS.mxd

Northeast Ponding System

Northhills Dam

MARTIN LUTHER KING JR BLVD

Western Freeway Channel

Greenbelt Levee System

Northeast Channel No. 1

Northeast Channel No. 2

KENNWORTHY DR

SALEM DR

SEAN HAGGERTY DR

SUN VALLEY DR

FAIRBANKS DR

MCCOMBS ST

DYER ST

RAILROAD DR

Northeast Ponding

54

375

100 <100 10 20 30 40 60 80 90

Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Northeast Ponding System
- Other Drainage System

N

0 1,000 2,000 Feet

1 : 24,000 or 1 Inch = 2,000 Feet

Northeast Ponding System Channel and Crossing Return Period Capacities Northeast Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-16

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS

MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410087\410 GIS\Exhibits\SMP_Figures\Appendix B\FB16_CapacitiesNE_NEP.mxd

Range Dam System

SALEM DR
SUN VALLEY DR
FAIRBANKS DR
375
Fusselman Dam
Northgate Interceptor Channel
100
Electric Ditch Diversion
Range Dam
DIANA DR
Northgate Outlet Channel
Northgate Dam
MAGENTIC DR
54
DYER ST
BUS 54

Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Range Dam System
- Other Drainage Systems

N

0 1,000 2,000 Feet

1 : 24,000 or 1 Inch = 2,000 Feet

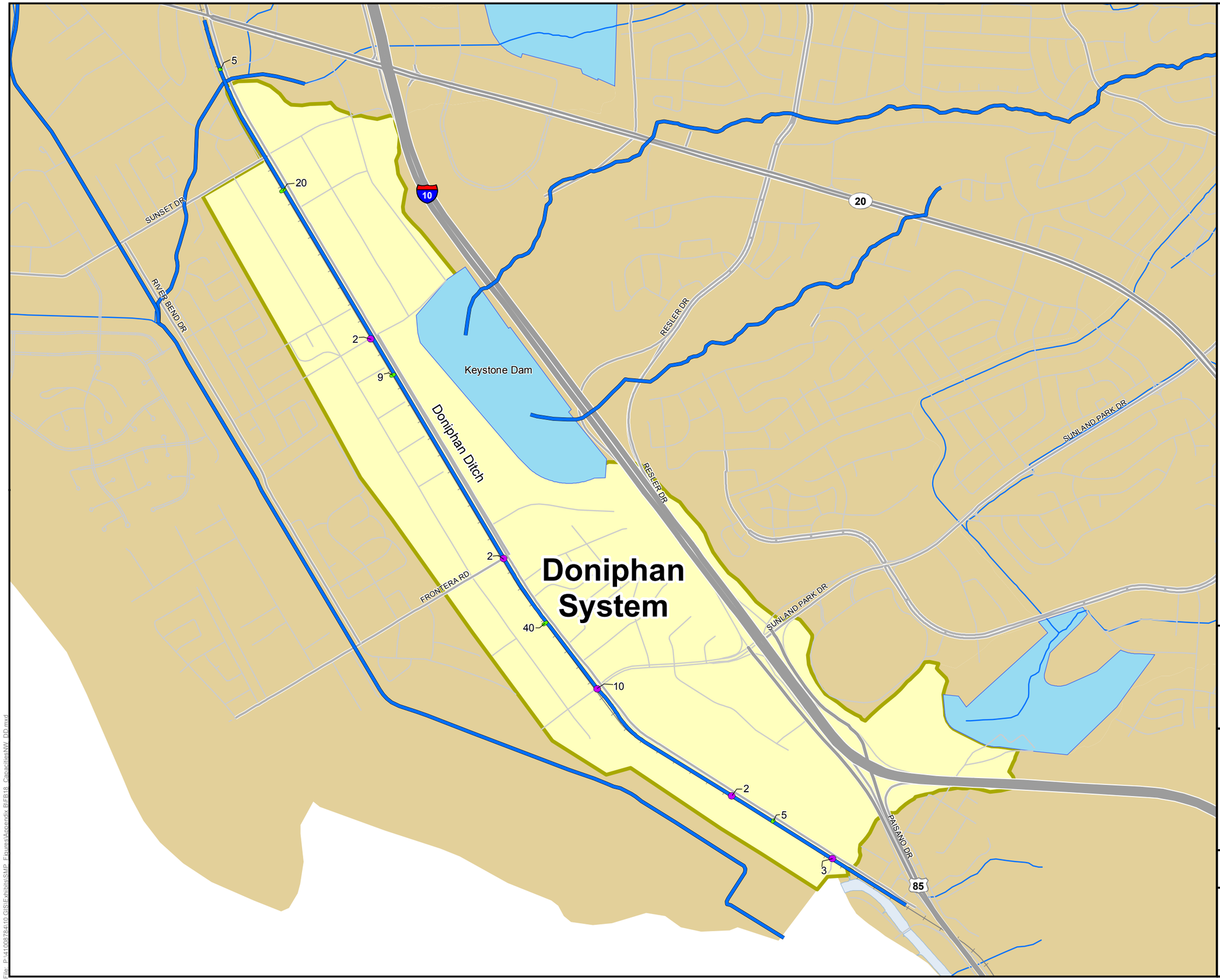
Range Dam System Channel and Crossing Return Period Capacities Northeast Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-17

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
URS
MCi consulting engineers
THE CITY OF EL PASO TEXAS

File: P:\41008784\10 GIS\Exhibits\SMP_Figures\Appendix B\FB17_CapacitiesNE_RD.mxd



Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Doniphan System
- Other Drainage Systems

N

0 750 1,500 Feet

1 : 18,000 or 1 Inch = 1,500 Feet

Doniphan System Channel and Crossing Return Period Capacities Northwest Region

El Paso Stormwater Master Plan

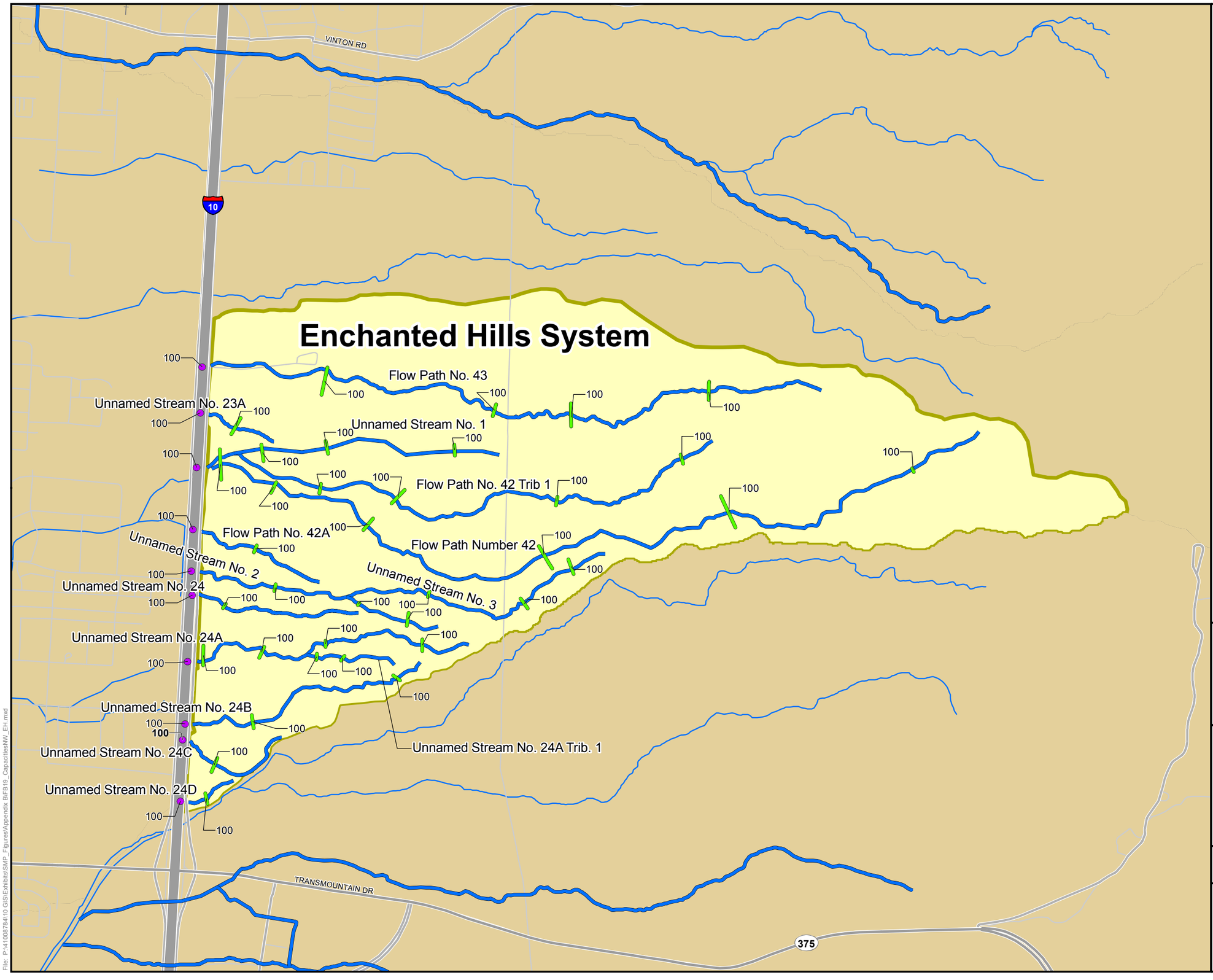
Date: 03/05/2009 | Figure B-18

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410878\410 GIS\Exhibits\SMP_Figures\Appendix B\FB18_ChannelNW_DP.mxd



Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Enchanted Hills System
- Other Drainage Systems

N

0 1,000 2,000 Feet

1 : 24,000 or 1 Inch = 2,000 Feet

Enchanted Hills System Channel and Crossing Return Period Capacities Northwest Region

El Paso Stormwater Master Plan

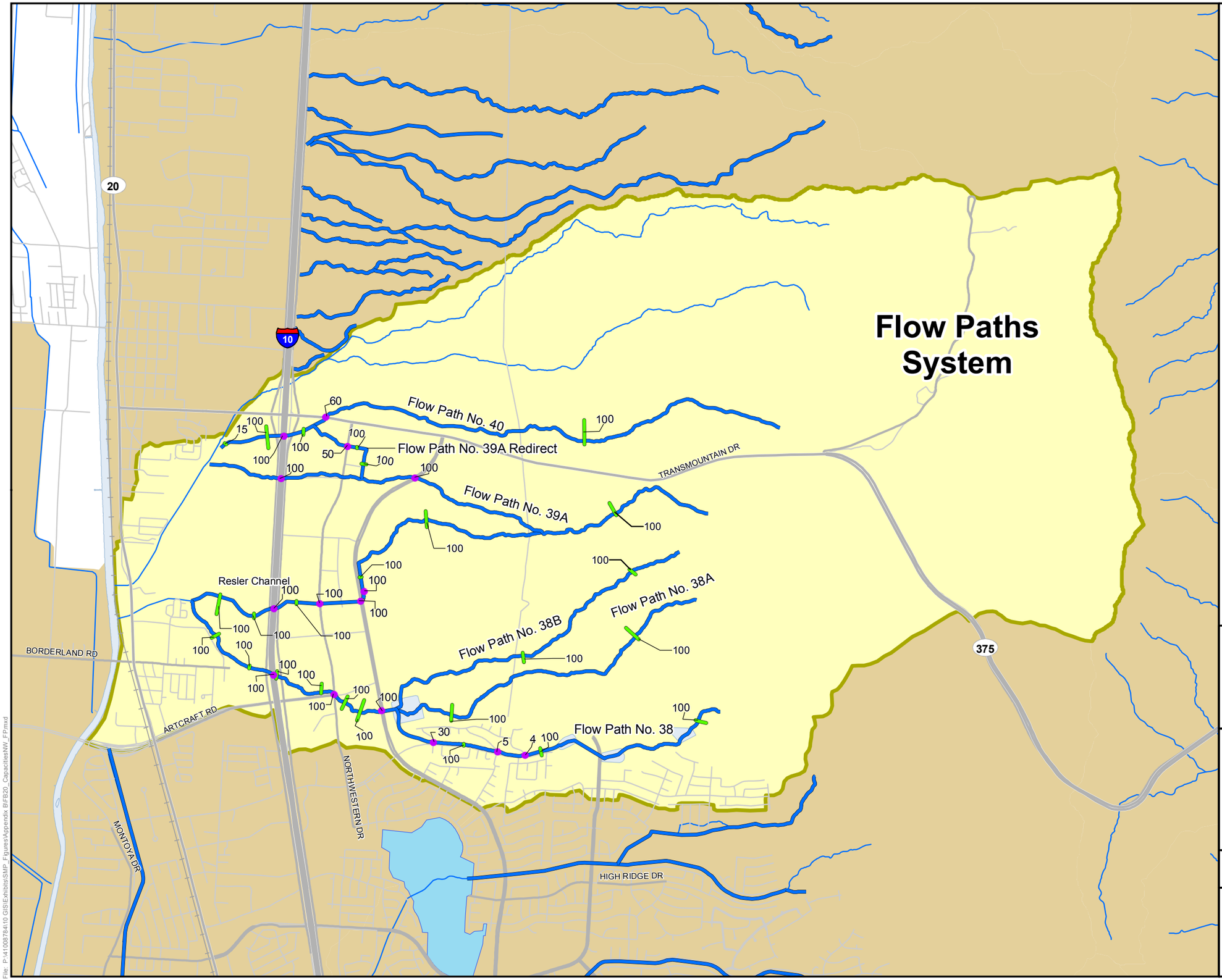
Date: 03/05/2009 | Figure B-19

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410078410 GIS\Exhibits\SMP_Figures\Appendix B\FB19_CapacitiesNW_EH.mxd



Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Flow Paths System
- Other Drainage Systems

N

0 1,500 3,000 Feet

1 : 36,000 or 1 Inch = 3,000 Feet

Flow Paths System Channel and Crossing Return Period Capacities Northwest Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-20

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410087841\0 GIS\Exhibits\SMP_Figures\Appendix B\FB20_CapacitiesNW_FP.mxd

Keystone Dam System

BORDERLAND RD
ARTCRAFT RD
NORTHWESTERN DR
HIGH RIDGE DR
SUNSET DR
RIVER BEND DR
FRONTERA RD
SHADOW MOUNTAIN DR
SUNLAND PARK DR

Mulberry Dam
Thorn Dam
Mesa Dam
Keystone Dam

Ridgeview Channel
High Ridge Channel
Arroyo 1A
Ojo de Agua
Arroyo 4
Arroyo 5

10
20
85
260
375

Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Dam/Basin
- Water Body
- Keystone Dam System
- Other Drainage Systems

N

0 1,500 3,000 Feet

1 : 36,000 or 1 Inch = 3,000 Feet

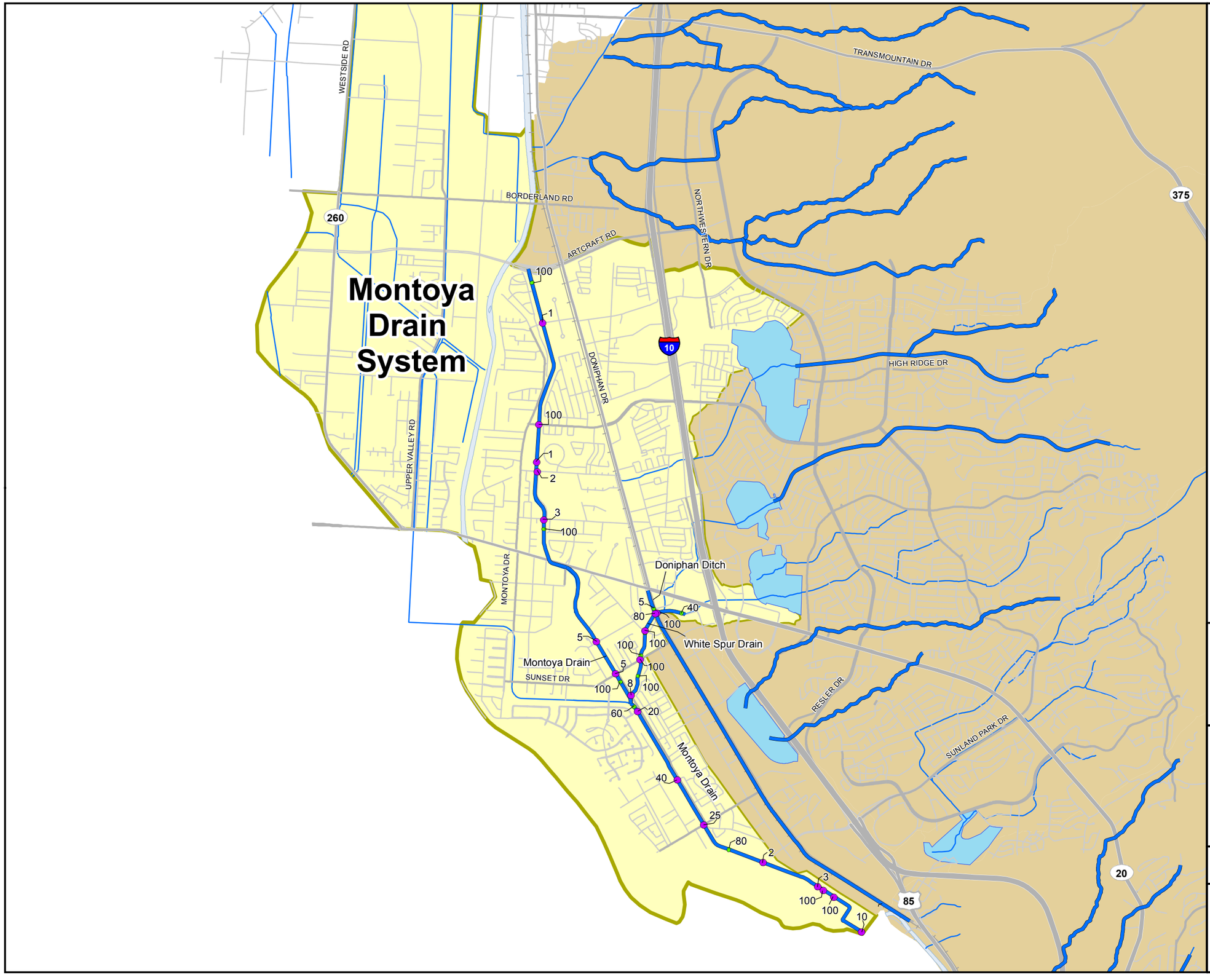
Keystone Dam System Channel and Crossing Return Period Capacities Northwest Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-21

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD
URS
MCi consulting engineers
THE CITY OF EL PASO TEXAS

File: P:\410087\410 GIS\Exhibits\SMP_Figures\Appendix B\FB21_CapacitiesNW_KD.mxd



Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- Montoya Drain System
- Other Drainage Systems

N

0 2,000 4,000 Feet

1 : 48,000 or 1 Inch = 4,000 Feet

Montoya Drain System Channel and Crossing Return Period Capacities Northwest Region

El Paso Stormwater Master Plan

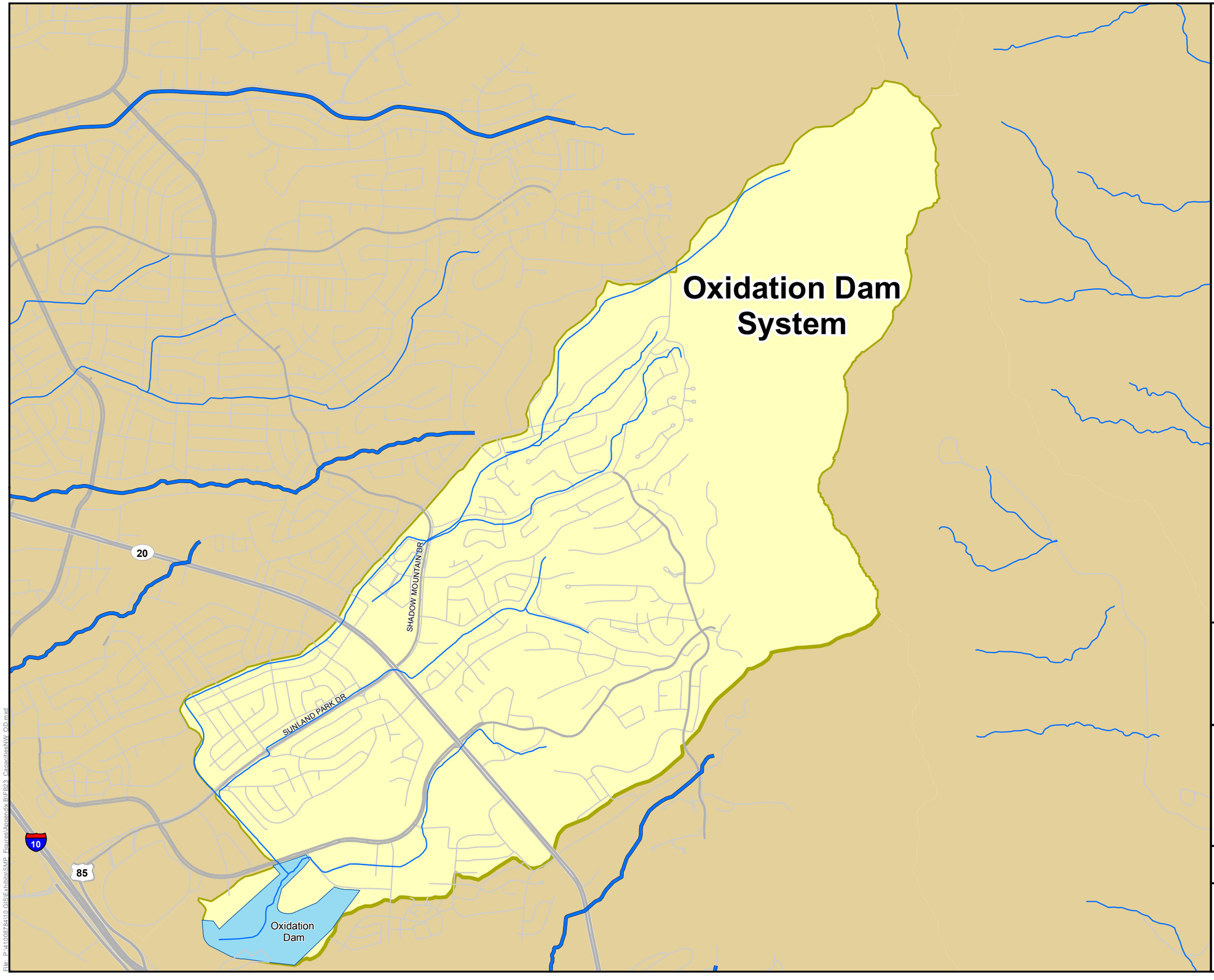
Date: 03/05/2009 | Figure B-22

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\41008784\10 GIS\Exhibits\SMP_Figures\Appendix B\FB22_CapacitiesNW_MD.mxd



Legend

- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Oxidation Dam System
- Other Drainage Systems

N

0 1,000 2,000 Feet

1 : 24,000 or 1 Inch = 2,000 Feet

Oxidation Dam System Channel and Crossing Return Period Capacities Northwest Region

El Paso Stormwater Master Plan

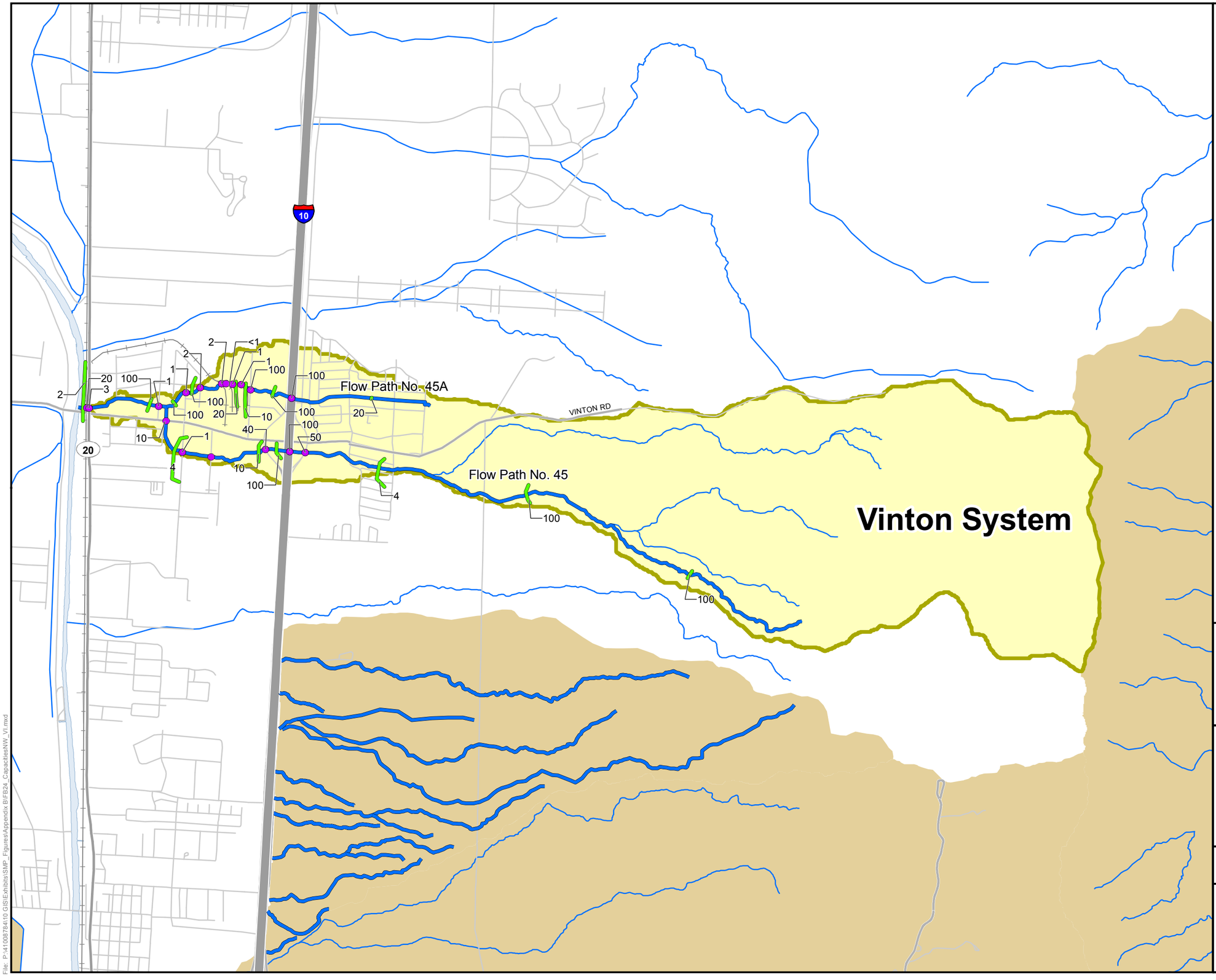
Date: 03/05/2009 | Figure B-23

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410\087\84\10 GIS\Exhibits\SMP_Figures\Appendix B\FB23_CapacitiesNW_OD.mxd



Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Water Body
- Vinton System
- Other Drainage Systems

N

0 1,500 3,000 Feet

1 : 36,000 or 1 Inch = 3,000 Feet

Vinton System Channel and Crossing Return Period Capacities Northwest Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-24

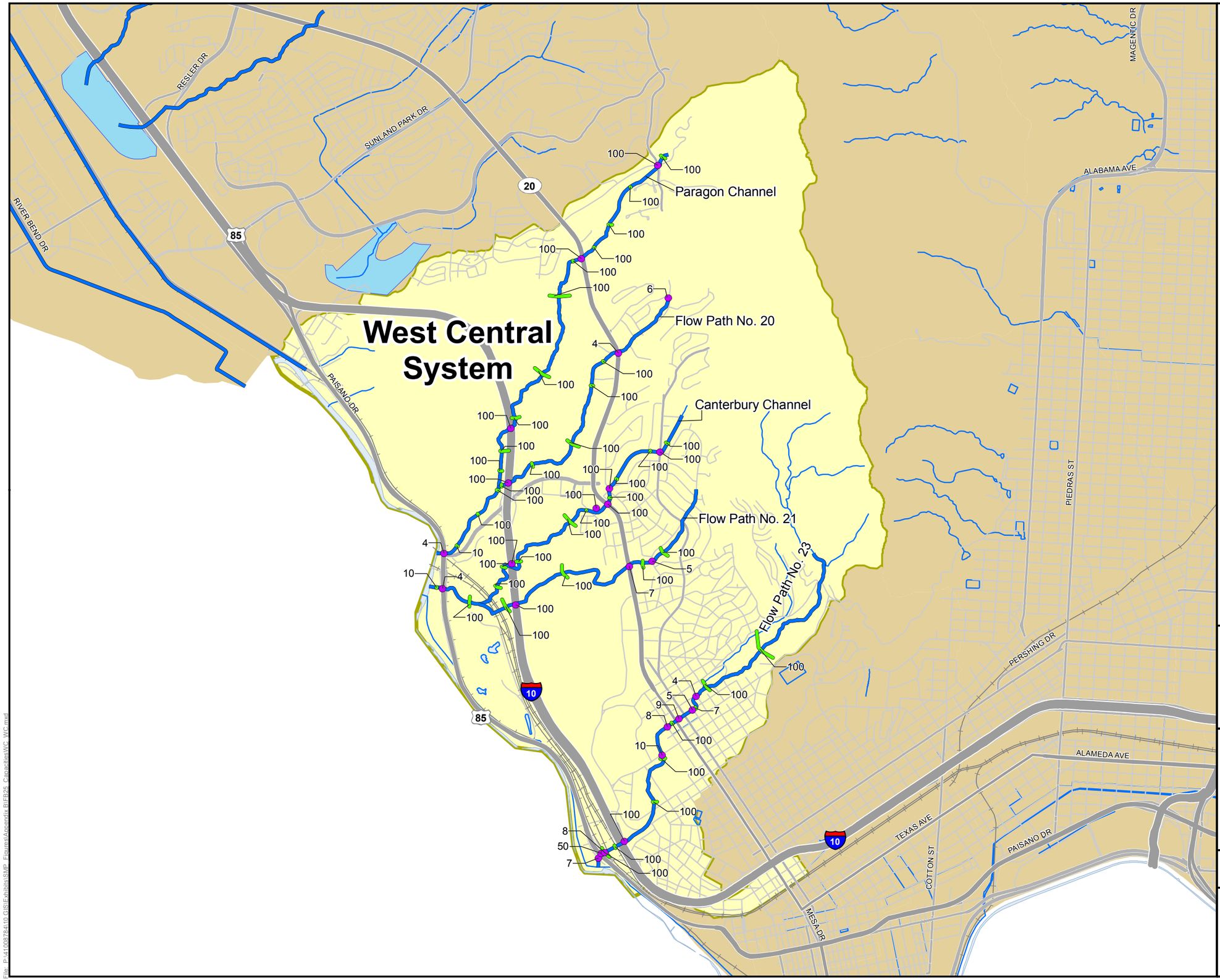
EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS

MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410087841\0 GIS\Exhibits\SMP_Figures\Appendix B\FB24_CapacitiesNW_VI.mxd



Legend

- Crossing Capacity
- Channel Capacity
- Study Reach
- Streamline
- Major Road
- Minor Road
- Railroad
- Dam/Basin
- Water Body
- West Central System
- Other Drainage Systems

N

0 1,500 3,000 Feet

1 : 36,000 or 1 Inch = 3,000 Feet

West Central System Channel and Crossing Return Period Capacities West Central Region

El Paso Stormwater Master Plan

Date: 03/05/2009 | Figure B-25

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

URS MCi consulting engineers

THE CITY OF EL PASO TEXAS

File: P:\410\07\7410 GIS\Exhibits\SMP_Figures\Appendix B\FB25_CapacitiesWC_WC.mxd