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Trip Generation Comparison
Parking Master Plan
Water Study
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Stormwater Waiver Application

RANCH GATE SUBDIVISION
WASTEWATER SYSTEM ANALYSIS REPORT

- Ranch Gate is a proposed semi-custom lot subdivision consisting of 34 lots on an approximate 40-acre parcel.
- The subdivision sewer system exits the site at three locations connecting to existing sewer mains in Ranch Gate Road and 128th Street.
- LOCATION: Northeast quarter of Section 11, T4N R5E, of the Gila and Salt River Meridian, at the southwest corner of 128th Street and Ranch Gate Road in Scottsdale, Arizona.

WASTEWATER FLOW CALCULATIONS

Average Daily Flow:

1. The average daily flow for RANCH GATE per house based upon the City of Scottsdale Design Standards is 2.5 people per dwelling unit and 100 gpd per capita equating to 250 gallons per day per dwelling unit.

2. The average daily flow for RANCH GATE is therefore:
   (250 gpd/du) x (34 du) = 8,500 gpd.

Maximum Daily Flow:

1. The peaking factor for maximum daily flow is 4.0.

2. The maximum daily flow for RANCH GATE is therefore:
   (4.0) x (8,500 gal/day) = 34,000 gal/day.

3. The sewer system is comprised of 8-inch PVC with a minimum slope of 0.0052-feet/foot and with a pipe capacity of 667,390 gpd. There is adequate pipe capacity for the proposed subdivision.

EXP. 9-30-16

- provide A point of connection to each of 3 Lots to the South.
- comply w/terms of the Facility Agreement
- extend Sewer Along 128th St Frontage.

Doug Mann 2.4.15

Accepted w/ Comments

3-ZN-2015
2/2/2015

RANCH GATE SUBDIVISION
WATER SYSTEM ANALYSIS REPORT

- Ranch Gate is a proposed semi-custom lot subdivision consisting of 34 lots on an approximate 40-acre parcel.
- The subdivision water system will have two sources from Ranch Gate Road and 128th Street to form a looped system.
- LOCATION: Northeast quarter of Section 11, T4N R5E, of the Gila and Salt River Meridian, at the southwest corner of 128th Street and Ranch Gate Road in Scottsdale, Arizona.

DOMESTIC WATER DEMAND CALCULATIONS

Average Daily Demand per Unit:

1. The average daily demand is 485.6 gallons per day per dwelling unit.
2. The average daily demand for RANCH GATE is therefore:
   485.6 gal/day/unit x (34 units) = 16,510.4 gal/day

Maximum Daily Demand per Unit:

1. The maximum day demand is equal to 2.0 times the average day demand
2. The Maximum daily demand for RANCH GATE is therefore:
   (16510.4 gal/day) x (2.0) = 33,020.8 gal/day

Peak Hour Demand per Unit:

1. The peak hour demand is equal to 3.5 times the average daily demand
2. The peak hour demand for RANCH GATE is therefore:
   (16510.4 gal/day) x (3.5) = 57,786.4 gal/day

Fire demand @ 1000 gpm

- provide A point of connection to each of 3 lots to the South.
- comply w/ terms of the Facility Payback Agreement.
- extend water Along 128th St Frontage.

Edman Feb. 2, 2015
Accepted w/ Comments

EXP. 9-30-16

3-ZN-2015
2/2/2015

FILE COPY

SWC of 128th Street and Ranch Gate Road

Traffic Impact Mitigation Analysis (TIMA)

Northeast Corner of Section 11,
Township 2 North, Range 5 East
in Scottsdale, Arizona

January 2015
CivTech Project No. 15-160

Prepared for:

K. Hovnanian Homes
20830 North Tatum Boulevard
Suite 250
Phoenix, Arizona 85050

Submittal to:

City of Scottsdale

By:

CivTech

10605 North Hayden Road, Suite 140
Scottsdale, Arizona 85260
480-659-4250

3-ZN-2015
2/2/2015

SWC OF 128TH STREET AND RANCH GATE ROAD
TRAFFIC IMPACT AND MITIGATION ANALYSIS

Northeast Corner of Section 11, Township 2 North, Range 5 East in Scottsdale, Arizona

Prepared for:

K. Hovnanian Homes
20830 North Tatum Boulevard
Suite 250
Phoenix, Arizona 85050

For Submittal to:
City of Scottsdale

Prepared By:

CivTech

CivTech, Inc.
10605 North Hayden Road
Suite 140
Scottsdale, Arizona 85260
(480) 659-4250

January 2015
CivTech Project No. 15-160

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EXECUTIVE SUMMARY

The proposed development is located in the northeast quadrant of Section 11, Township 2 North, Range 5 East in Scottsdale, Arizona. The development is planned to consist of 34 single family homes, accessed via Ranch Gate Road.

The proposed site plan includes one (1) main full access driveway to Ranch Gate Road. The main driveway is planned to be gated.

The following conclusions and recommendations have been documented in this study:

General

- The developer should ensure that adequate sight distance is provided at the intersections to allow safe left and right turning movements from the development. Landscaping should be maintained at a maximum of three feet in height. To maintain sight distance, tree branches should be trimmed lower than seven feet and maintained to meet current acceptable landscape requirements.

Trip Generation

- The proposed residential development is anticipated to generate approximately 324 daily trips, of which, 26 trips are generated during the AM peak hour and 34 trips during the PM peak hour.

Capacity Analyses

- Without improvements to the existing intersections, all movements are anticipated to operate at LOS D or better during the peak hours with the exception of the eastbound left-turn at the Happy Valley Road and Alma School Road intersection. This intersection may be mitigated to improve the movement's LOS to B during both peak hours.
- The eastbound left-turn movement at the intersection of *Alma School Road and Happy Valley Road* is anticipated to operate at LOS E during the PM peak hour. This is due to the increase in regional background traffic within the study area. Without the trips generated by the proposed development, this movement will still operate at an unacceptable level of service, therefore, mitigation is not recommended as part of this study.

Auxiliary Lanes and Intersection Geometrics

- Ranch Road is a local road adjacent to the site and does not currently provide dedicated left-turn lanes for nearby driveways. A dedicated left-turn lane is not required approaching the site's main driveway.
- Only one of the three DSPM right-turn deceleration lane criteria is met, therefore a right-turn deceleration lane on Ranch Gate Road approaching the main driveway (Access A) is not required.

- It is recommended that all turn lanes provide at least the recommended storage lengths recommended in **Table 6**. No changes to existing turn lanes are recommended as part of the development.
- It is recommended that the site driveways be designed to meet the standards established by the City of Scottsdale in its DSPM. The driveway type typically required on a local residential/local collector roadway, which have been included in **Appendix G**.

INTRODUCTION

The proposed residential development is located in the southwest corner of the 128th Street and Ranch Gate Road intersection in Scottsdale, Arizona. The development consists of 34 single family homes, accessed via Ranch Gate Road. The vicinity of the site is shown in **Figure 1**.

CivTech Inc. was retained by K. Hovnanian Homes to perform a traffic impact and mitigation analysis (TIMA) for the proposed development.

PURPOSE OF REPORT AND STUDY OBJECTIVES

The purpose of this study is to address the traffic and transportation impacts of the proposed development on the surrounding streets and intersections. This TIMA was prepared for submittal to the City of Scottsdale. The specific objectives of the TIMA are:

1. To evaluate lane requirements on all existing roadways and at all existing intersections within the study area.
2. To determine future level of service for all proposed major intersections within the study area and recommend any capacity related improvements.
3. To determine necessary lane configurations at all major intersections within the proposed development to provide acceptable future levels of service.
4. To evaluate the need for future traffic control changes within the proposed development and at the major entry points.

STUDY REQUIREMENTS

The development is anticipated to generate substantially fewer vehicular trips than 100 trips during either peak hour which typically corresponds to a Category I TIMA. A Category I TIMA considers opening year traffic conditions at major intersections within a mile of the development. The study area for this TIMA includes the following intersections:

- Alma School Road and Happy Valley Road (over 2 miles away).
- 118th Street/Happy Valley Road and Ranch Gate Road

The study intersections will be analyzed in their existing conditions and opening year conditions during the weekday AM and PM peak hours. It is anticipated that the development will open in 2017. For purposes of this analysis, the development will be considered to be built-out upon opening.

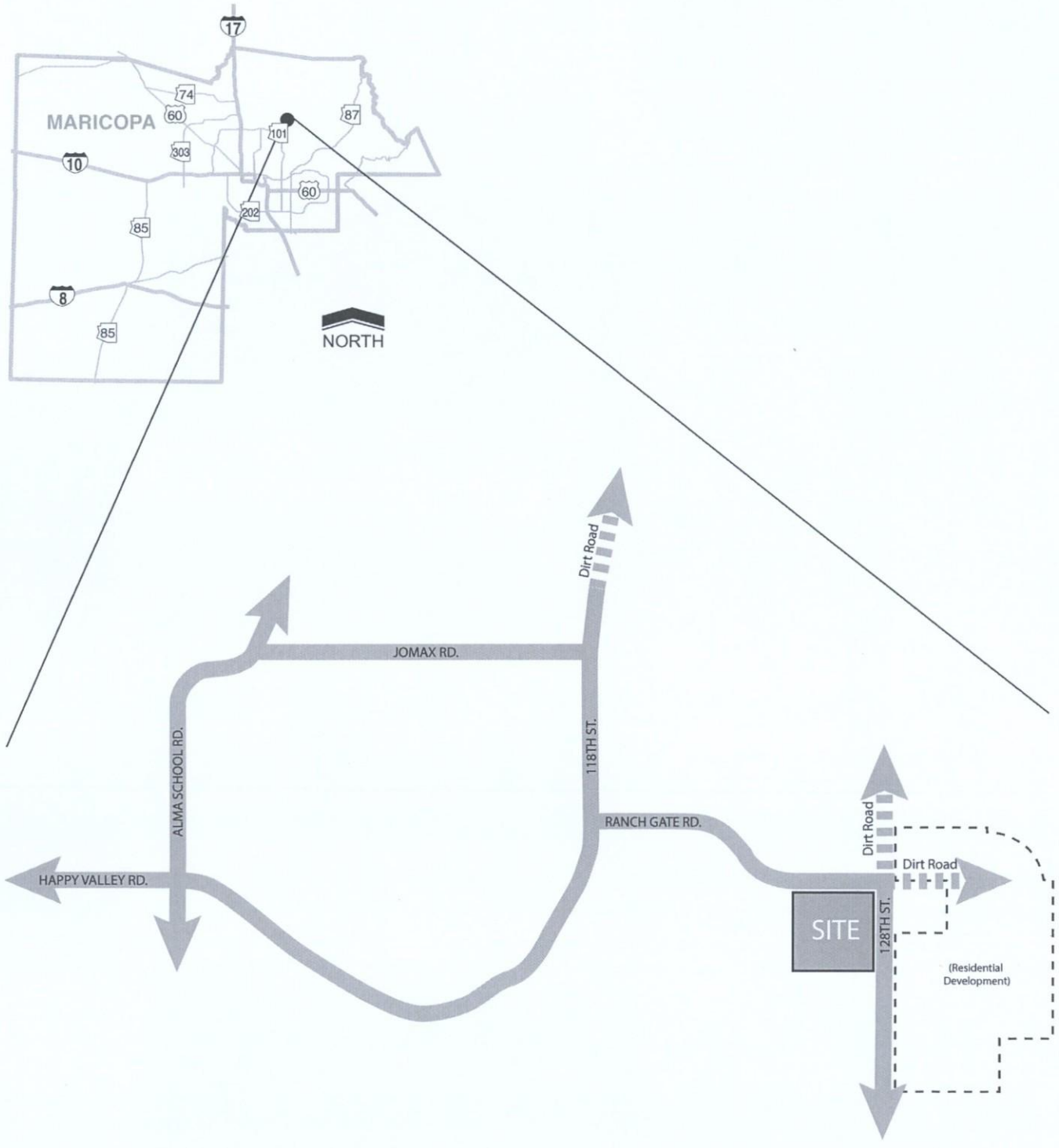

Figure 1: Vicinity Map

EXISTING CONDITIONS

EXISTING LAND USE

The SEC of 128th Street and Ranch Gate Road residential development, prepared by Kimely-Horn is located directly east of the site and has been included documented within this report herein. The site is mainly surrounded by vacant desert land. There are additional high-end and/or gated residential communities located within the study area.

EXISTING ROADWAY NETWORK

The existing roadway network within the study area includes Alma School Road, Happy Valley Road and Ranch Gate Road.

Alma School Road is classified as a rural, major collector within the vicinity of the site. Alma School Road provides 2 through lanes in each direction south of Jomax Road. North of Jomax Road, Alma School Road provides one lane in each direction. North of Pinnacle Peak Parkway, striping is used on northbound Alma School to transition it from two lanes to one to match the single northbound lane north of Jomax Road. It is expected that Alma School Road north of Jomax Road will eventually be improved with adjacent development by other developers to its ultimate 4-lane cross section with a raised median and the current striping at Jomax Road reconfigured. None of this is expected before the opening year of the proposed development, 2016. Alma School Road has a posted speed limit of 35 miles per hour (mph) near happy Valley Road, 40 mph near the site and 40 mph near Rio Verde Drive.

Happy Valley Road is classified as an east-west major collector between Scottsdale Road and Pima Road and a major rural arterial east if Pima Road per the City of Scottsdale 2010 roadway classification map. Happy Valley Road begins to the west at Scottsdale Road and continues to the east looping south then north, transitioning into 118th Street north of Ranch Gate Road. The current posted speed limit is 40-mph along Happy Valley Road within the vicinity of the site.

Ranch Gate Road is an east-west 2-lane collector roadway beginning from 118th Street/Happy Valley Road to 128th Street. Ranch Gate Road provides one (1) lane in each direction of travel with a current posted speed limit of 25-mph.

EXISTING INTERSECTION CONFIGURATIONS

The intersection of ***Alma School Road and Happy Valley Road*** is an all-way, four-legged intersection. The northbound approach consists of a single general purpose lane. The southbound approach consists of an exclusive left-turn lane, one (1) through lane and a dedicated right-turn lane. The east- and westbound approaches consist of an exclusive left-turn lane, one (1) through lane and a shared through/right-turn lane.

The intersection of ***118th Street/Happy Valley Road and Ranch Gate Road*** is a stop controlled "T-intersection" with stop control in the westbound approach. All approaches consist of a single shared general purpose lane.

Figure 2 depicts existing lane configurations and traffic controls of the study intersections.

EXISTING TRAFFIC VOLUMES

Existing turning movement count data presented within this report were taken from the *SEC 128th Street and Ranch Gate Road TIMA* report, prepared by Kimely-Horn, May 2014. The existing 2014 traffic counts used for the time periods in this study are shown on **Figure 3**. The traffic counts for the recorded volumes are provided in **Appendix B**.

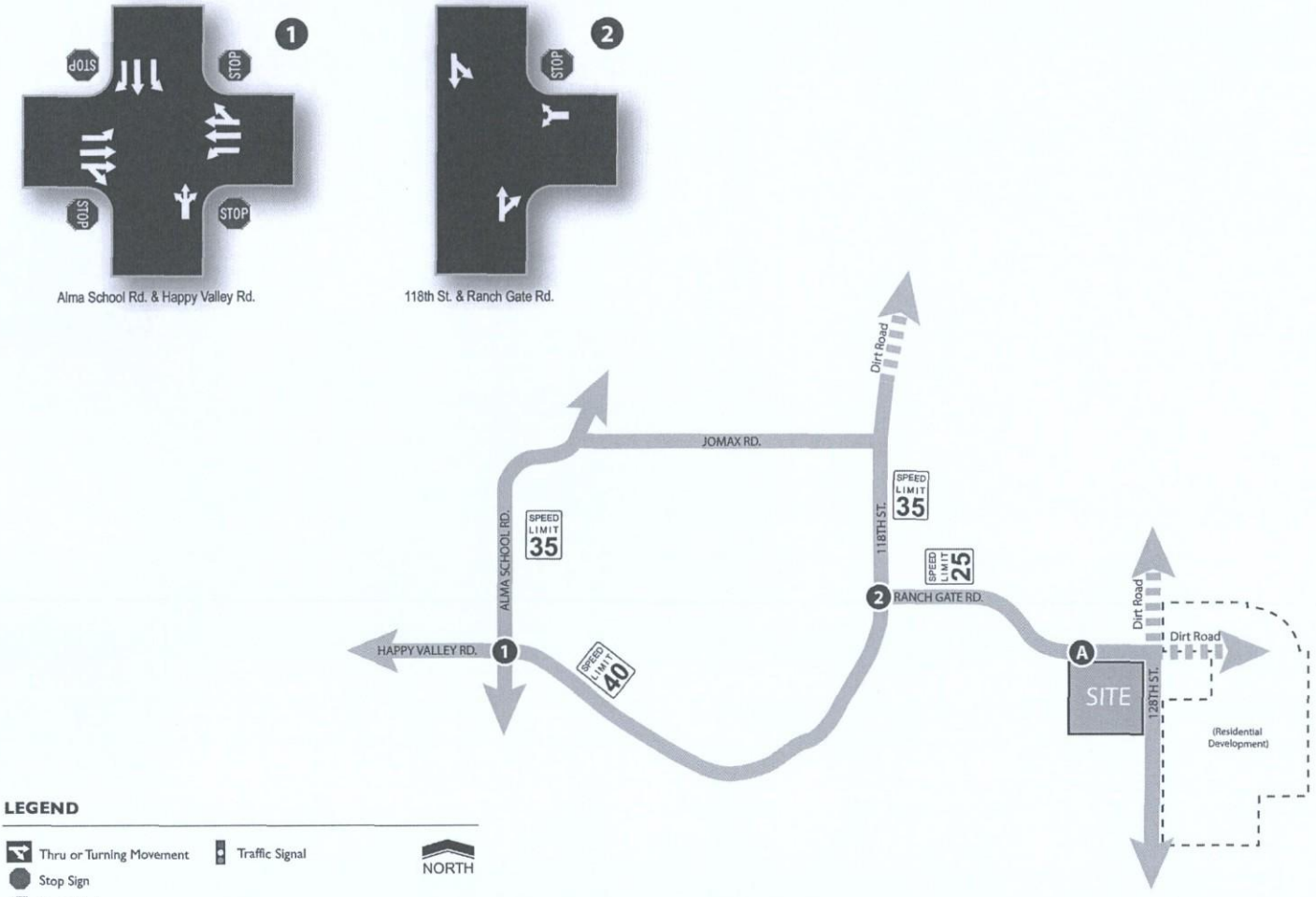

Figure 2: Existing Lane Configurations and Stop Controls

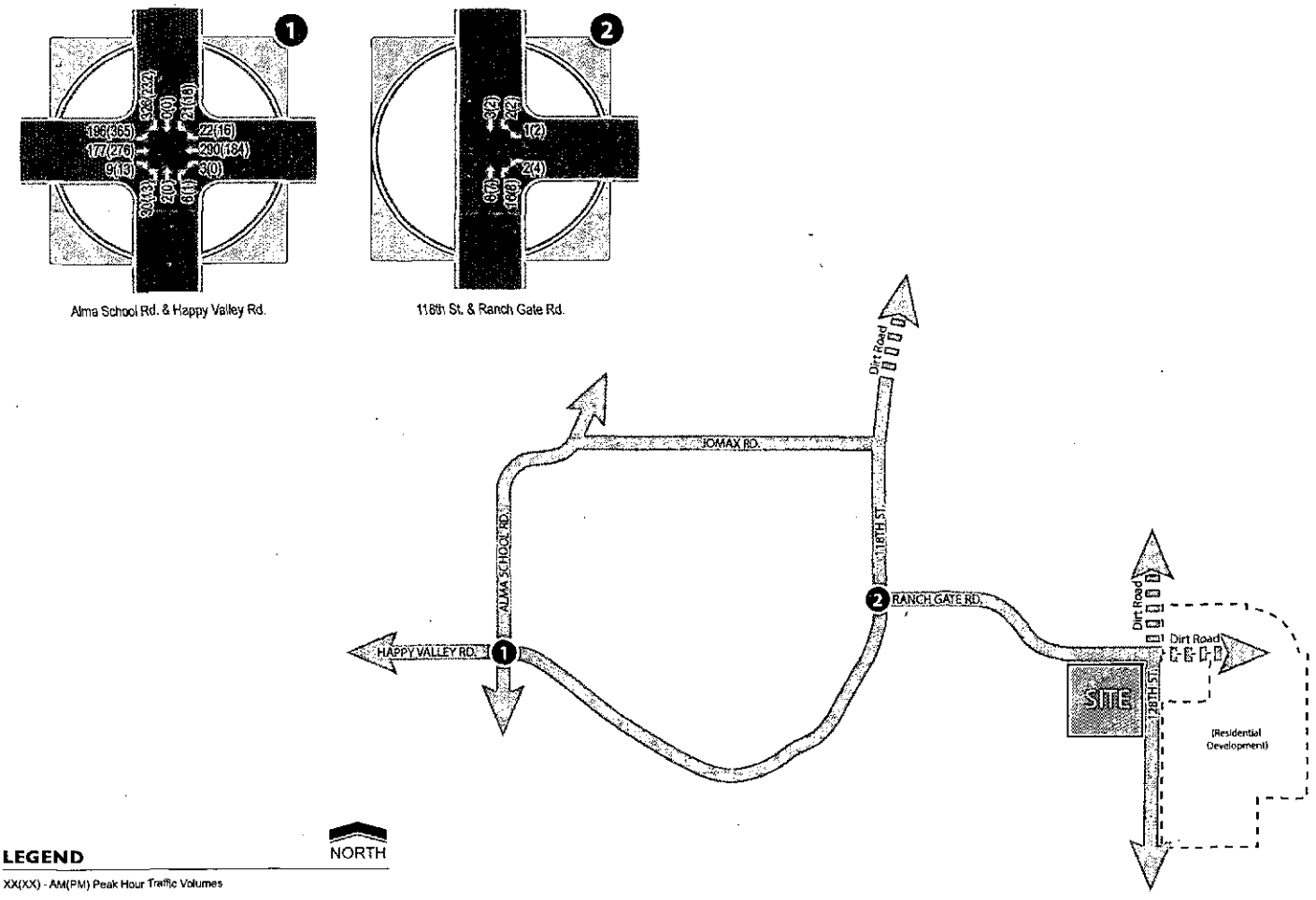

Figure 3: Existing Traffic Volumes

INTERSECTION CAPACITY ANALYSIS

The concept of level of service (LOS) uses qualitative measures that characterize operational conditions within the traffic stream. The individual levels of service are described by factors that include speed, travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations A through F, with LOS A representing the best operating conditions and LOS F the worst. Each level of service represents a range of operating conditions. Levels of service for intersections are defined in terms of delay ranges. **Table 1** lists the level of service criteria for signalized and unsignalized intersections.

Table 1 – Level of Service Criteria

Level of Service	Control Delay (seconds/vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10	≤ 10
B	> 10-20	> 10-15
C	> 20-35	> 15-25
D	> 35-55	> 25-35
E	> 55-80	> 35-50
F	> 80	> 50

Source: Exhibit 18-4 and Exhibit 19-1, Highway Capacity Manual 2010

Peak hour capacity analyses were conducted for the study intersections based on existing intersection configurations and traffic volumes. All intersections have been analyzed using the methodologies presented in the *Highway Capacity Manual* (HCM), using Traffix software. The overall and approach levels of service are reported for signalized intersections. The resulting levels of service for the existing conditions are summarized in **Table 2**. The existing conditions analyses have been included in **Appendix C**.

Table 2 – Existing (2014) Level-of-Service Summary

ID	Intersection	Traffic Control	Approach	Existing AM(PM) LOS		
				Left	Thru	Right
1	Alma School Road & Happy Valley Road	All-way stop	NB	B(B)	B(B)	B(B)
			SB	B(B)	-(-)	C(B)
			EB	C(D)	B(B)	B(B)
			WB	B(A)	B(B)	B(B)
			Overall	**C(B)**		
2	118th Street/Happy Valley Road & Ranch Gate Road	1-way stop (WB)	NB	-(-)	A(A)	A(A)
			SB	A(A)	A(A)	-(-)
			WB	A(A)	-(-)	A(A)
			Worse Case	**A(A)**		

As seen in **Table 2**, all study intersection movements currently operate at LOS C or better during the peak hours.

PROPOSED DEVELOPMENT

The proposed residential development is located in the southwest corner of 128th Street and Ranch Gate Road in Scottsdale, Arizona. The development is planned to consist of 34 single family residential homes, accessed via Ranch Gate Road. The layout of the site is illustrated in **Figure 4**.

SITE ACCESS

As shown in **Figure 4**, the proposed site plan includes one (1) main full access driveway (Access A) providing direct access to Ranch Gate Road. The main entrance is anticipated to be a gated entry to the proposed development.

Figure 4: Site Plan and Access

PROPOSED TRIP GENERATION AND COMPARISON

Generated trips were estimated for the proposed development utilizing the data given in the Institute of Transportation Engineers (ITE) *Trip Generation, 9th Edition* and the methodology discussed in the ITE *Trip Generation Handbook, 2nd Edition*. The ITE *Trip Generation* contains data collected by various transportation professionals for a wide range of different land uses. The data are summarized in the report and average rates and equations have been established that correlate the relationship between an independent variable that describes the development size and generated trips for each categorized land use. The report provides information for daily and peak hour trips. **Table 3** summarizes the trip generation for the proposed residential development. Detailed calculations are included within **Appendix D**.

Table 3 – Trip Generation

Land Use	LUC	Size		Weekday Generated Trips						
				Daily	AM Peak Hour			PM Peak Hour		
		Quantity	Units	Total	In	Out	Total	In	Out	Total
Single Family Homes	210	34	DUs	324	7	19	26	21	13	34

The proposed residential development is anticipated to generate approximately 324 daily trips, of which, 26 trips are generated during the AM peak hour and 34 trips during the PM peak hour.

TRIP DISTRIBUTION AND ASSIGNMENT

Daily trips for the proposed residential use was distributed using the project trip distribution patterns presented within the Kimely-Horn TIMA report, which has been documented within this report. **Table 4** and **Figure 5** display the trip distribution percentages applied in the analyses. Distribution percentages excerpts from the Kimely-Horn TIMA report have been included in **Appendix E**.

Table 4 – Trip Distribution

Roadway	Direction (To/From)	Trip Distribution
118th Street	North	20%
Happy Valley Road	West	80%
Total	**Total**	**100%**

The percentages shown in **Table 4** and **Figure 5** were applied to the trips generated to determine the site traffic at the intersections within the study area. Site generated traffic are depicted in **Figure 6**.

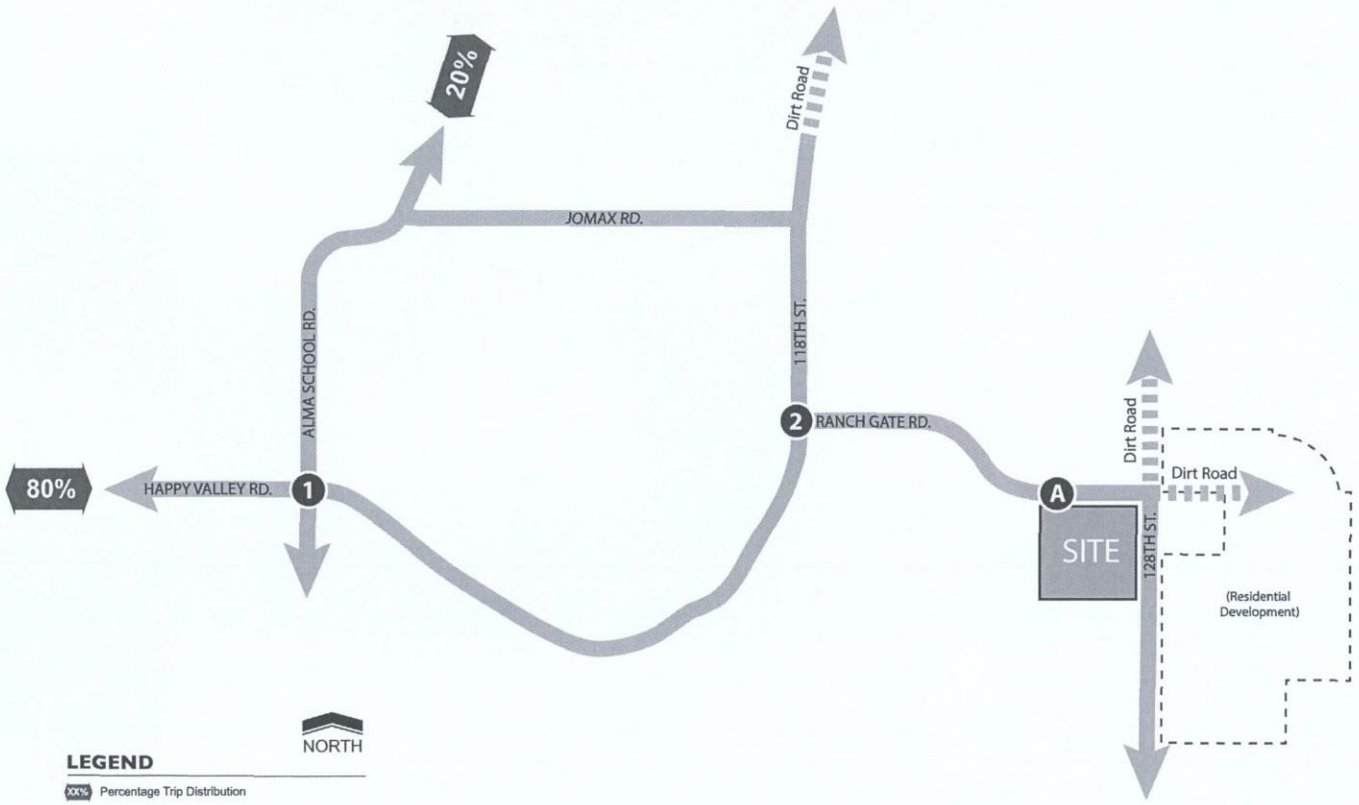

Figure 5: Trip Distribution

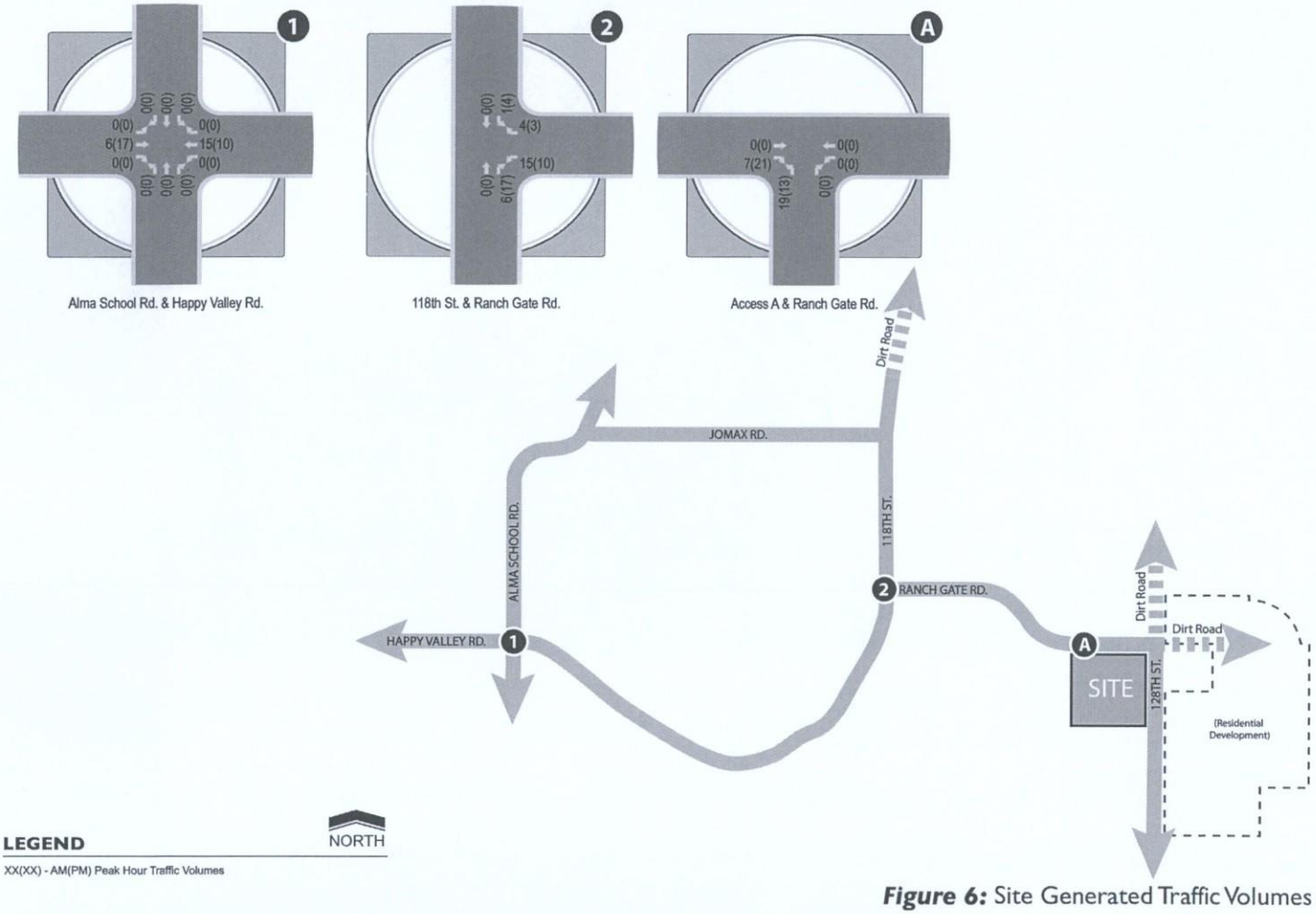

Figure 6: Site Generated Traffic Volumes

FUTURE BACKGROUND TRAFFIC

Do to the rural location of the proposed site it was anticipated that the growth within the study area would come primarily from future planned developments within the study area. Therefore, the total projected horizon year 2017 traffic from the Kimely-Horn study was used as future background growth to this study. Background volumes projections used within this study were included in **Appendix E**. The opening year 2107 background traffic volumes are illustrated in **Figure 7**.

TOTAL TRAFFIC

Total traffic was determined by adding the site generated traffic to the projected background traffic for horizon year 2017. Total AM and PM peak hour traffic for horizon year 2017 is shown in **Figure 8**.

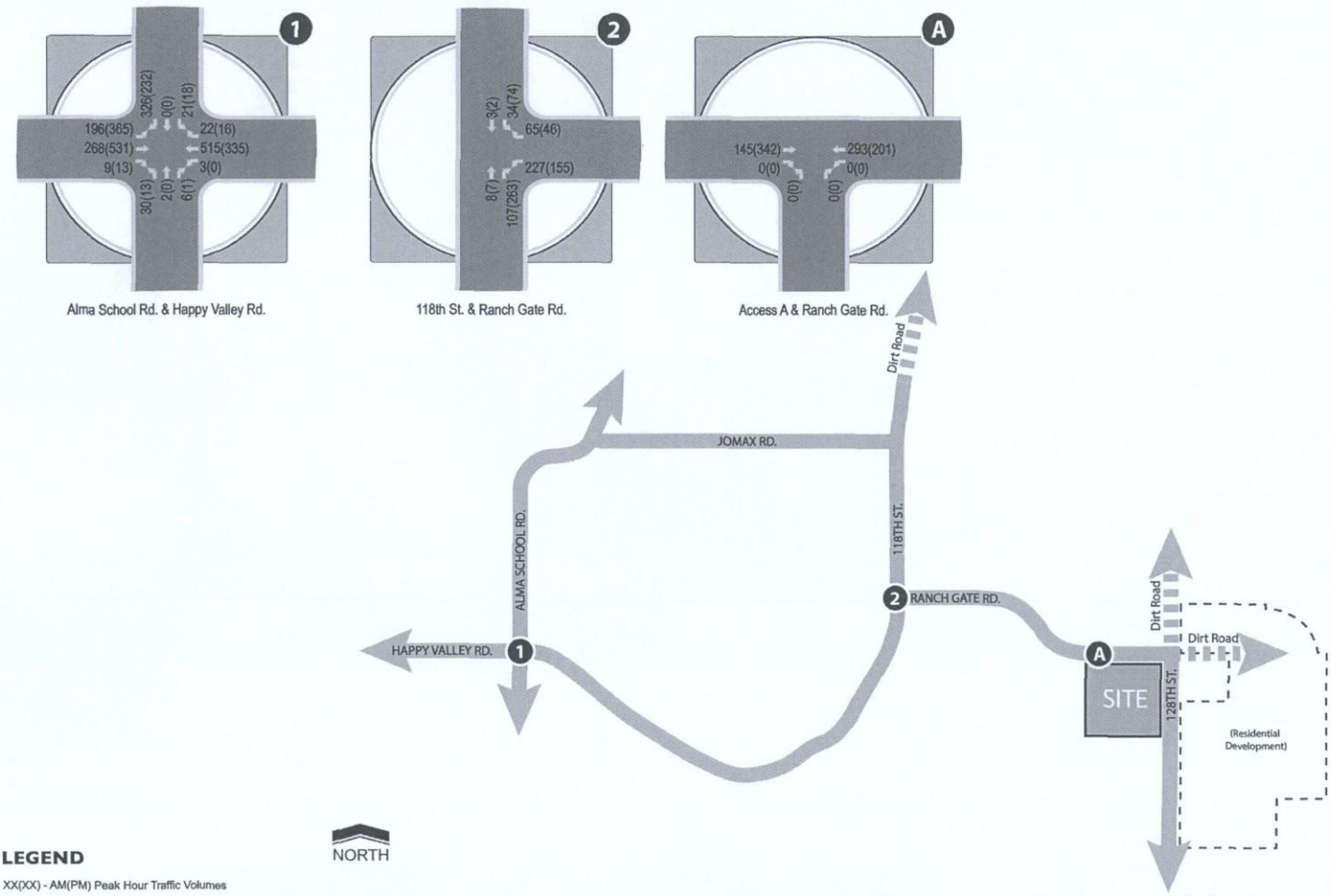

Figure 7: 2017 Background Traffic Volumes

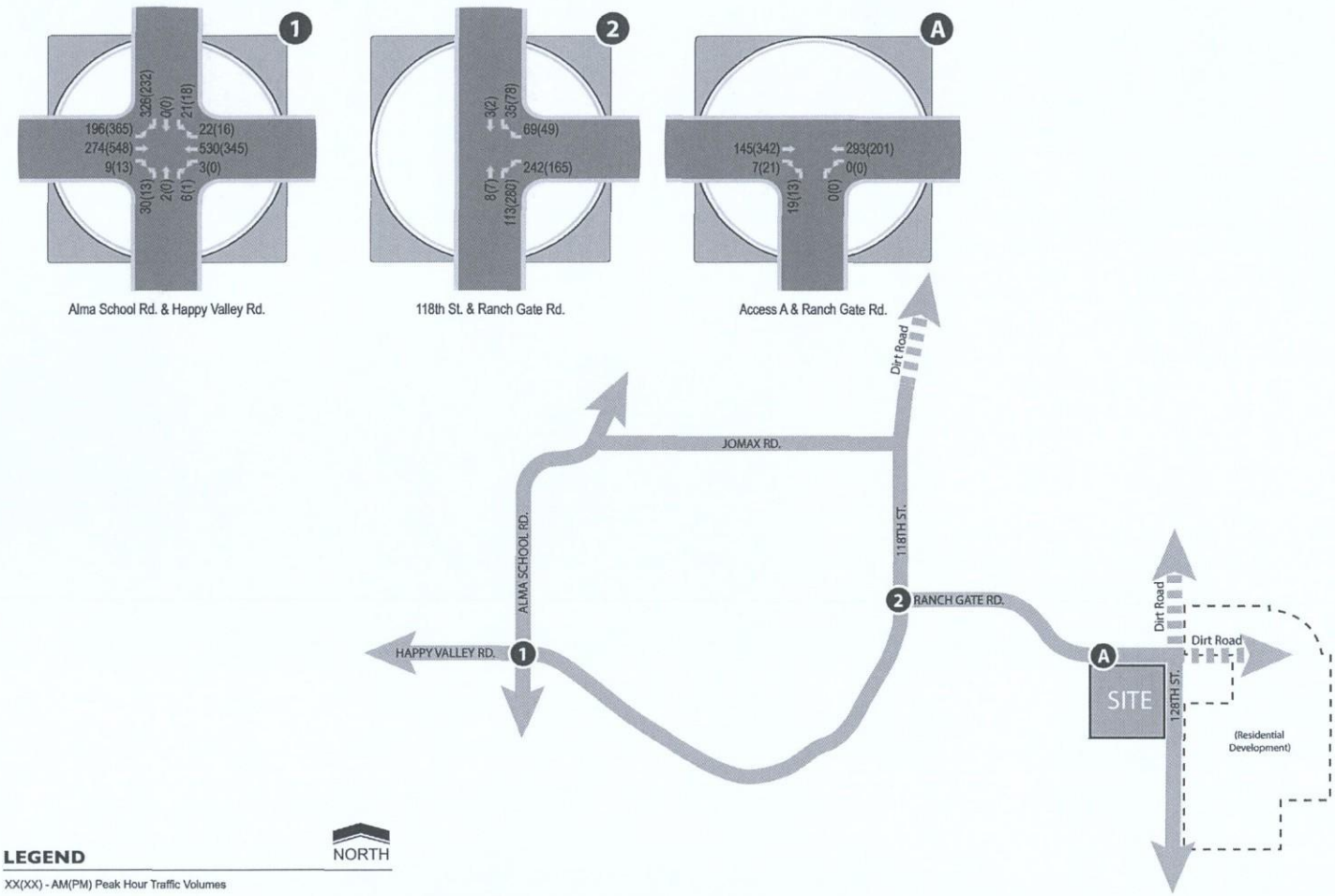

Figure 8: 2017 Total Traffic Volumes

TRAFFIC IMPROVEMENT AND MITIGATION ANALYSIS

INTERSECTION CAPACITY ANALYSIS

The capacity analysis of future conditions was performed using the methodology described previously. Results of the 2017 intersection capacity analyses are shown in **Table 5** for the 2017 build-out/opening year. The analyses are based on the proposed lane configurations and traffic controls depicted in **Figure 9**. The Traffix worksheets for year 2017 have been included in **Appendix F**.

Table 5 – 2017 Future Level-of-Service Summary

ID	Intersection	Traffic Control	Movement	AM(PM) LOS Left	Thru	Right
1	Alma School Road & Happy Valley Road	All way stop	NB	B(B)	B(B)	B(B)
			SB	B(B)	-(-)	C(C)
			EB	C(E)	C(D)	B(B)
			WB	B(A)	D(C)	C(B)
			Overall	**C(C)**		
2	118th Street/Happy Valley Road & Ranch Gate Road	1-way stop (WB)	NB	-(-)	A(A)	A(A)
			SB	A(A)	A(A)	-(-)
			WB	B(B)	-(-)	B(B)
			Worse Case	**B(B)**		
3	Access A & Ranch Gate Road	1-way stop (NB)	NB	B(B)	-(-)	B(B)
			EB	-(-)	A(A)	A(A)
			WB	A(A)	A(A)	-(-)
			Worse Case	**B(B)**		

Without improvements to the existing intersections, all movements are anticipated to operate at LOS D or better during the peak hours with the exception of the eastbound left-turn at the Happy Valley Road and Alma School Road intersection. This intersection may be mitigated to improve the movement's LOS to B during both peak hours.

The eastbound left-turn movement at the intersection of *Alma School Road and Happy Valley Road* is anticipated to operate at LOS E during the PM peak hour. This is due to the increase in regional background traffic within the study area. Without the trips generated by the proposed development, this movement will still operate at an unacceptable level of service, therefore, mitigation is not recommended as part of this study.

The proposed lane configurations and traffic controls are depicted in **Figure 9**.

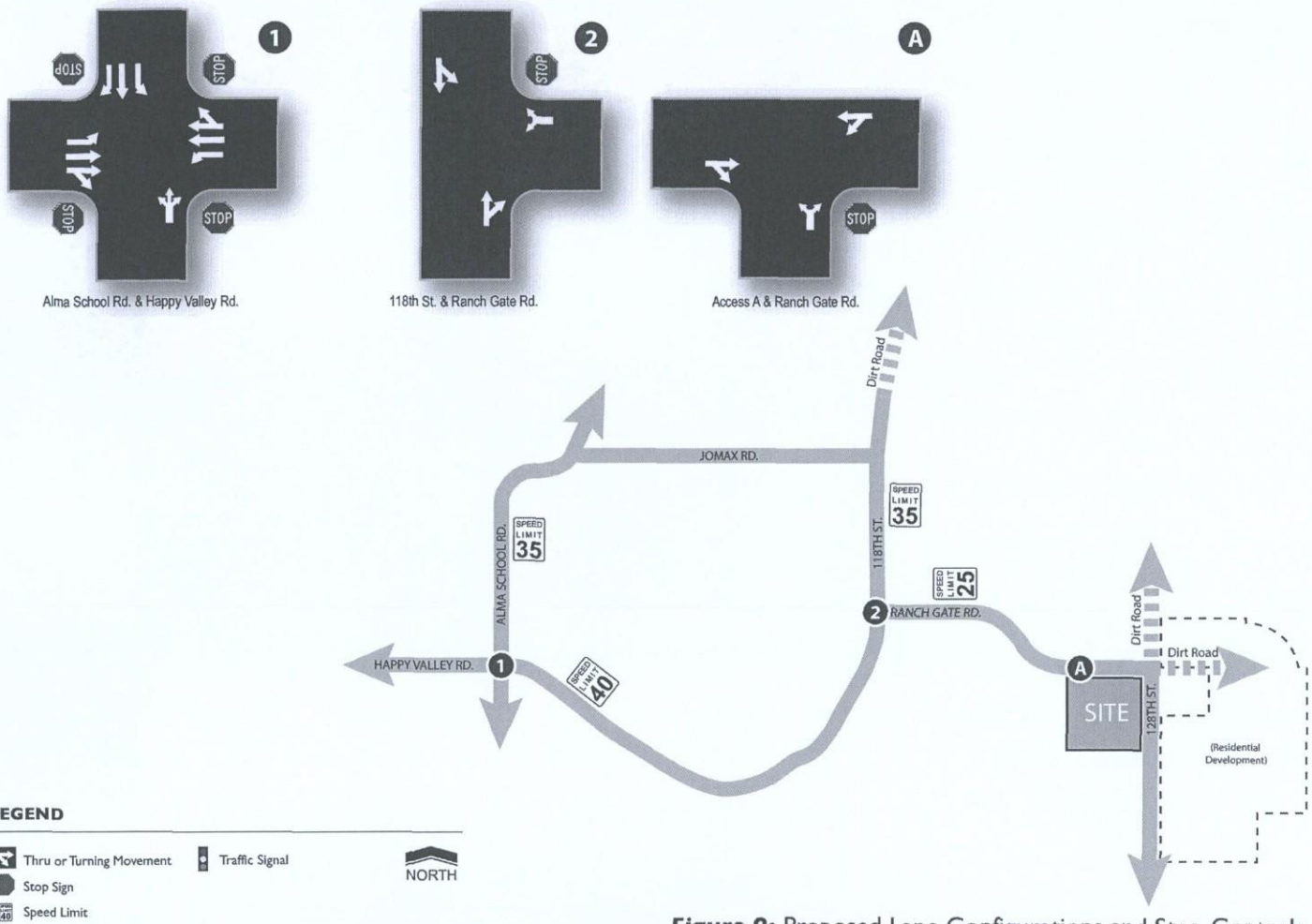

Figure 9: Proposed Lane Configurations and Stop Controls

DECELERATION LANES

Left-Turn Lanes

Ranch Road is a local road adjacent to the site and does not currently provide dedicated left-turn lanes for nearby driveways. A dedicated left-turn lane is not required approaching the site's main driveway.

Right-Turn Lanes

DSPM Section 5-3.206 establishes the criteria for decelerations lanes. Copies of the applicable standards are provided in **Appendix G**. New deceleration lanes have a standard storage length of 150 feet with a 100-foot storage length minimum. Deceleration lanes are required approaching all new driveways on major arterials and approaching new commercial/retail driveways on minor arterials. A deceleration lane on minor arterials or collectors is needed if the following criteria are met:

- At least 5,000 vehicles per day are expected to use the through street;
- The 85th percentile speed of the through street is at or above 45 mph for a 2-lane road or 35 mph for other roadways.
- At least 30 vehicles are expected to perform right-turns into the driveway during a 1-hour period.

The projected through volumes along Ranch Gate Road is anticipated to have at least 5,000 ADT volumes by study horizon year 2017 near the proposed site access point.

The posted speed limit of Ranch Gate Road is 25 mph which is less than 45 mph. Therefore, the speed limit criterion is not met.

The main driveway (Access A) is anticipated to facilitate less than 30 vehicles turning right into the site during the PM peak hour.

Only one of the three criteria is met, therefore a right-turn deceleration lane on Ranch Gate Road approaching the main driveway (Access A) is not required per the criteria in DSPM Section 5-3.206.

QUEUE STORAGE ANALYSIS

A queuing analysis was performed for all warranted/recommended intersection turn lanes. According to the methodology documented in A Policy on Geometric Design of Highways and Streets (the AASHTO "Green Book"), the storage length for a turn lane is typically estimated as the length required to hold the average number of arriving vehicles per two minutes, where unsignalized, or per one-and-a half signal cycles, where signalized[1]. The formulas used for the calculations are shown below.

[1] The American Association of Highway and Transportation Officials on pages 714-715 of its publication, *Geometric Design of Highways and Streets* ("AASHTO Green Book"), indicates that storage length for a turn lane, exclusive of taper, "should usually be based on one and one-half to two times the average number of vehicles that would store per cycle" at a signalized intersection.

For signalized intersections, the storage length is determined by the following formula:

Storage Length = [1.5 x (veh/hr)/(cycles/hr)] x 25 feet

For unsignalized intersections, the storage length is determined by the following formula:

Storage Length = [(veh/hr)/(30 periods/hr)] x 25 feet

The turn lane storage recommendations using the projected 2017 traffic volumes are summarized in **Table 6**; queue storage calculations are provided in **Appendix H**.

Table 6 – 2017 Queue Storage Lengths

ID	Intersection	Movement	Traffic Control	Queue Storage		
				Existing[1]	Calculated	Recommended
1	Alma School Road & Happy Valley Road	SB left	All way stop	210'	25'	[1] 210'
		SB right		210'	275'	[2] 275'
		EB left		75'	325'	[2] 325'
		WB left		125'	25'	[1] 125'

(1) Existing queue storage exceeds calculated queue storage
(2) The reported recommended storage increase is due to regional growth only, therefore this development is not required to mitigate these improvements.

It is recommended that all turn lanes provide at least the recommended storage lengths recommended in **Table 6**. No changes to existing turn lanes are recommended as part of the development.

SIGHT DISTANCE ANALYSIS

Adequate sight distance must be provided at the intersections to allow safe turning movements into and out of the development. A sight triangle is the area encompassed by the line of sight from a stopped vehicle on the minor roadway to the approaching vehicle on the major roadway; there must be sufficient unobstructed sight distance along both approaches of a street or driveway intersection and across their included corners to allow operators of vehicles to see each other in time to prevent a collision. There must also be sufficient sight distance along the major street to allow a driver intending to turn left into the site to see an oncoming vehicle in the opposing direction.

Sight distance should be provided at the proposed access based on the standards provided in the City of Scottsdale's DSPM.

The developer should ensure that adequate sight distance is provided at the intersections to allow safe left and right turning movements from the development. Landscaping should be maintained at a maximum of three feet in height. To maintain sight distance, tree branches should be trimmed lower than seven feet and maintained to meet current acceptable landscape requirements.

Figures depicting the method and sight distance requirements are provided in the City of Scottsdale's DSPM. Copies of the applicable standards are provided in **Appendix G**.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations have been documented in this study:

General

- The developer should ensure that adequate sight distance is provided at the intersections to allow safe left and right turning movements from the development. Landscaping should be maintained at a maximum of three feet in height. To maintain sight distance, tree branches should be trimmed lower than seven feet and maintained to meet current acceptable landscape requirements.

Trip Generation

- The proposed residential development is anticipated to generate approximately 324 daily trips, of which, 26 trips are generated during the AM peak hour and 34 trips during the PM peak hour.

Capacity Analyses

- Without improvements to the existing intersections, all movements are anticipated to operate at LOS D or better during the peak hours with the exception of the eastbound left-turn at the Happy Valley Road and Alma School Road intersection. This intersection may be mitigated to improve the movement's LOS to B during both peak hours.
- The eastbound left-turn movement at the intersection of *Alma School Road and Happy Valley Road* is anticipated to operate at LOS E during the PM peak hour. This is due to the increase in regional background traffic within the study area. Without the trips generated by the proposed development, this movement will still operate at an unacceptable level of service, therefore, mitigation is not recommended as part of this study.

Auxiliary Lanes and Intersection Geometrics

- Ranch Road is a local road adjacent to the site and does not currently provide dedicated left-turn lanes for nearby driveways. A dedicated left-turn lane is not required approaching the site's main driveway.
- Only one of the three DSPM right-turn deceleration lane criteria is met, therefore a right-turn deceleration lane on Ranch Gate Road approaching the main driveway (Access A) is not required.
- It is recommended that all turn lanes provide at least the recommended storage lengths recommended in **Table 6**. No changes to existing turn lanes are recommended as part of the development.
- It is recommended that the site driveways be designed to meet the standards established by the City of Scottsdale in its DSPM. The driveway type typically required on a local residential/local collector roadway, which have been included in **Appendix G**.

LIST OF REFERENCES

A Policy on Geometric Design of Highways and Streets, American Association of State Highway and Transportation Officials, Washington, D.C., 2011.

Design and Safety of Pedestrian Facilities, Institute of Transportation Engineers, Washington, D.C., March 1998.

Design Standards & Policies Manual – Section 5: Transportation Impact Studies, City of Scottsdale, Arizona, January 2010.

Highway Capacity Manual. Transportation Research Board, National Research Council, Washington, D.C., 2010.

Manual of Uniform Traffic Control Devices. U.S. Department of Transportation, Federal Highways Administration, Washington, D.C., 2009.

Street Classification Map, City of Scottsdale website, 2012.

Transportation and Land Development, Stover, V. G. and Koepke, F. J., Institute of Transportation Engineers, Washington, D.C, 1988.

Trip Generation 9th Edition, Institute of Transportation Engineers, Washington, D.C, 2012.

SWC of 128th Street and Ranch Gate Road Traffic Impact Mitigation Analysis (TIMA), Kimely-Horn and Associates, Phoenix, Arizona, May 2014

TECHNICAL APPENDICES

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APPENDIX C: EXISTING PEAK HOUR ANALYSIS
APPENDIX D: TRIP GENERATION CALCULATIONS
APPENDIX E: EXCERPTS FROM KIMELY-HORN TIMA
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APPENDIX G: CITY OF SCOTTSDALE DESIGN STANDARDS AND POLICIES
APPENDIX H: QUEUE STORAGE CALCULATIONS

PALEO WEST archaeology

A Cultural Resources Survey of 40 Acres for the Ranch Gate Development, Scottsdale, Maricopa County, Arizona

Submitted to:
Del Sol Group, LLC

Technical Report 14-113

October 13, 2014

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A CULTURAL RESOURCES SURVEY OF 40 ACRES FOR THE RANCH GATE DEVELOPMENT, SCOTTSDALE, MARICOPA COUNTY, ARIZONA

Prepared by:

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Technical Report No. 14-113

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October 13, 2014

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ARIZONA SHPO ABSTRACT

PROJECT TITLE: A Cultural Resources Survey of 40 Acres for the Ranch Gate Development, Scottsdale, Maricopa County, Arizona

PROJECT DESCRIPTION: A cultural resources survey for a proposed residential development southwest of the intersection of Ranch Gate Road and 128th Street, Scottsdale, Maricopa County, Arizona

REPORT DATE: October 13, 2014

AGENCY: City of Scottsdale, U.S. Army Corps of Engineers

PROJECT NUMBERS: PaleoWest Project No. 14-120

LAND STATUS/JURISDICTION: Private; City of Scottsdale Archaeology Ordinance 3243

LOCATION: The parcel is in Section 11, T4N, R5E, Gila and Salt River Baseline and Meridian, in Scottsdale, Maricopa County, Arizona. USGS McDowell Peak, AZ 7.5' quadrangle.

PERMIT NUMBERS: N/A

NUMBER OF SURVEYED ACRES: Approximately 40 acres

DATE(S) OF FIELD SURVEY: October 9, 2014

NUMBER OF CULTURAL RESOURCES: Three isolated occurrences, no sites.

LIST OF REGISTER ELIGIBLE PROPERTIES: None

LIST OF INELIGIBLE PROPERTIES: None

LIST OF PROPERTIES FOR WHICH ELIGIBILITY IS NOT DETERMINED: None

ASSESSMENT OF EFFECT AND TREATMENT RECOMMENDATIONS: No sites and three isolated artifact occurrences (IOs) were found in the project area. The IOs do not meet City of Scottsdale, State, or National criteria for significance. Due to the absence of significant cultural resources in the parcel, no further work is recommended for the project area. However, PaleoWest recommends that the Discovery Clause (Sec. 46-134) of the Scottsdale Archaeology Ordinance be followed. The Clause states that when a previously unidentified archaeological site is discovered in the course of construction, the property owner immediately shall notify the City Archaeologist or Historic Preservation Officer. The property owner shall have a preliminary study made by a qualified archaeologist to determine the effect that the proposed development project may have on the site. The City Archaeologist and/or Historic Preservation Officer, with concurrence from the qualified archaeologist hired by the property owner, shall evaluate on-site the significance of the archaeological finding as soon as possible. When the Historic Preservation

Officer, the qualified archaeologist hired by the property owner and the City Archaeologist concur that no adverse effect on the archaeological site will take place, the project may proceed immediately. Where an adverse effect on a significant archaeological site will take place, the project shall be referred to the Historic Preservation Commission at the commission's next regular meeting or a called meeting for review following the same procedure set forth for identified significant archaeological sites.

INTRODUCTION

This report presents the results of an archaeological survey for the proposed Ranch Gate development project in north Scottsdale, Maricopa County, Arizona (PaleoWest project no. 14-120). The project includes approximately 40 acres. Development of the project area requires compliance with the City of Scottsdale archaeology ordinance 3243 and with section 106 of the National Historic Preservation Act (due to permitting under section 404 of the Clean Water Act by the U.S. Army Corps of Engineers). The parcel is privately owned land. The parcel is southwest of the intersection of Ranch Gate Road and 128th Street in Section 11, T4N, R5E, Gila and Salt River Baseline and Meridian, in Scottsdale, Maricopa County, Arizona (see Figure 1).

No sites and three isolated artifact occurrences (IOs) were found in the project area. The IOs do not meet City of Scottsdale, State, or National criteria for significance. Due to the absence of significant cultural resources in the parcel, no further work is recommended for the project area. However, PaleoWest recommends that the Discovery Clause (Sec. 46-134) of the Scottsdale Archaeology Ordinance be followed. The Clause states that when a previously unidentified archaeological site is discovered in the course of construction, the property owner immediately shall notify the City Archaeologist or Historic Preservation Officer. The property owner shall have a preliminary study made by a qualified archaeologist to determine the effect that the proposed development project may have on the site. The City Archaeologist and/or Historic Preservation Officer, with concurrence from the qualified archaeologist hired by the property owner, shall evaluate on-site the significance of the archaeological finding as soon as possible. When the Historic Preservation Officer, the qualified archaeologist hired by the property owner and the City Archaeologist concur that no adverse effect on the archaeological site will take place, the project may proceed immediately. Where an adverse effect on a significant archaeological site will take place, the project shall be referred to the Historic Preservation Commission at the commission's next regular meeting or a called meeting for review following the same procedure set forth for identified significant archaeological sites.

ENVIRONMENTAL SETTING

The project area is situated in the Phoenix Basin physiographic region, which includes the Lower Colorado River Subdivision of the Sonoran Desert. The area receives approximately nine inches of rainfall annually, with maximum temperatures exceeding 100 degrees during the summer months. Elevation within the project area averages approximately 2,675 feet above mean sea level (amsl). Vegetation in the project area is most typical of the paloverde-cacti-mixed scrub series of the Arizona Upland Subdivision (Turner and Brown 1994). This series is dominated by paloverde trees and saguaro cactus and also includes mesquite trees, ironwood trees, small cacti, creosote, and various shrubs.

CULTURE HISTORY

The best-documented and most common archaeological remains in the Phoenix Basin are attributed to the Hohokam culture. The earliest manifestation has been labeled the Pioneer period (A.D. 1–750) when people subsisted on wild resources and agricultural products. Around A.D. 400, canal irrigation appeared along the Salt River (Ackerly and Henderson 1989). By the late Pioneer period Hohokam decorated pottery was characterized by red-painted designs on a

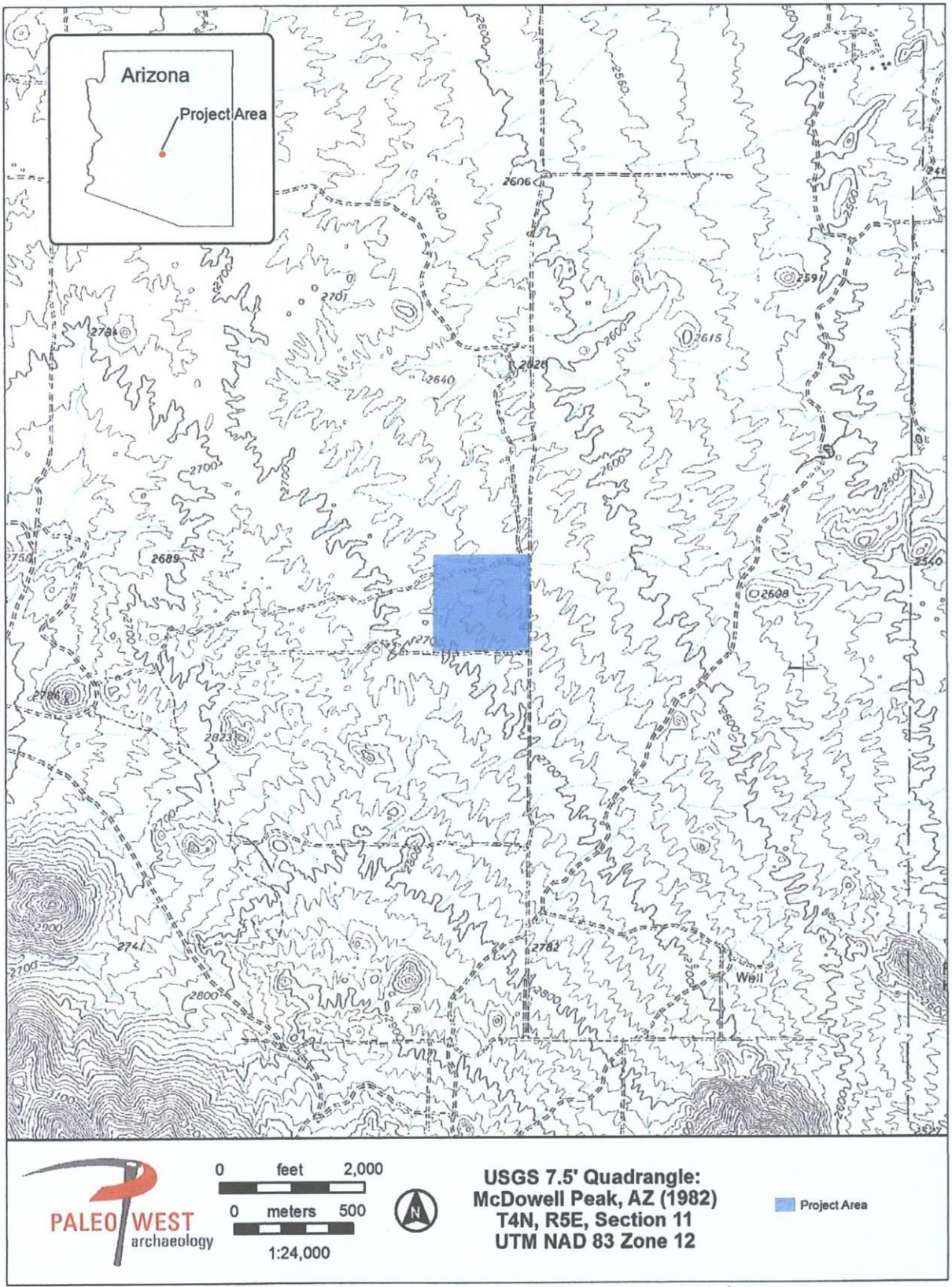

Figure 1. Location of the project area in Scottsdale, Maricopa County, Arizona.

light-colored buff or brown background (Haury 1976). House types (moderate-sized pit structures with square or rectangular floor plans and formal, plastered hearths) associated with the late Pioneer period varied greatly.

The following Colonial period (A.D. 750–950) was a time of cultural expansion and elaboration among the Hohokam. It is during this time that the Hohokam achieved their highest level of sophistication in the production of arts and crafts (ceramics and shell). They also expanded their territory and economic interaction with their neighbors. In part, Colonial period Hohokam social organization appears tied to the exchange of ritual and subsistence goods (Doyel 1985).

Ballcourts, which were first built in the early A.D. 800s, became the dominant form of public architecture in southern Arizona (Wallace 2001). They are thought to mark the onset of a regional system bound by religious, economic, and political links that crosscut the geophysical boundaries of the region (Abbott 2001; Wilcox and Shenk 1977). Subsistence was based on a mix of wild resources and agriculture (Bohrer 1987). The construction, expansion, and maintenance of irrigation systems of the Salt and Gila River valleys had a significant impact on Hohokam social and political organization (e.g., Abbott 2000).

The Sedentary period (Sacaton phase, A.D. 950–1150) saw a general decline in the quality of Hohokam material culture. Early, ballcourts were the dominant form of public architecture. However, by the end of the period, few ballcourts were being built and the construction of capped mounds or platform mounds became more common. Platform mounds were built near village centers around plazas surrounded by domestic features. Houses, which exhibited significant variability in form, were more closely packed and organized in courtyard groups or village segments (Wilcox et al. 1981).

Agriculture still provided the majority of foodstuffs, although some wild plant species were intensively exploited. Cotton production (for weaving of textiles and its seeds as food) was also of major importance. By the end of the Sedentary period, a major reorganization of Hohokam society occurred. Many village sites and areas were abandoned as populations began to concentrate in larger villages along the Salt River. These changes were also reflected in public architecture and in the nature of ceramic and shell production (Doyel 1991).

The Classic period is divided into the Soho (A.D. 1150–1300) and the Civano (A.D. 1300–1450) phases. Differences in ceramic decoration and architectural styles separate these two phases. Low frequencies of red-on-buff ceramics continued to be produced during the Soho phase as redwares become increasingly common. The introduction of long-necked jars also marks a break with earlier ceramic styles. Structures with post-reinforced adobe walls and surface structures are common during the Soho phase. These were replaced by solid, adobe-walled surface rooms in the Civano phase, although the use of some pit houses continued (Doyel 1991; Mitchell 1994).

Houses were more closely spaced or contiguous, and surrounded by compound walls that often also enclosed small plazas. There was a significant increase in the construction and use of platform mounds (Gregory et al. 1988), and the construction of ballcourts declined to its lowest point. The apex of Hohokam public architecture was achieved during the Civano phase with the building of "big houses." These structures, which often co-occur with platform mounds, likely

served multiple functions. It is argued that they were clear symbols of elite status in Hohokam society (Wilcox and Shenk 1977).

The Classic period Hohokam subsisted increasingly upon domesticates, although agave and cholla continued to be commonly used, and canal irrigation continued to be very important. Redwares and the disappearance of buffwares mark the Civano phase, although plainwares continue to dominate the total ceramic assemblage. Gila and Tonto Polychrome and local imitations are present after A.D. 1320 (Reid and Whittlesey 1992). Civano phase Hohokam social organization was clearly different from what preceded it and from what was to follow. Population size and density at many of the large sites reached never-before-seen levels, and although the level of social and political organization actually achieved at this time is much debated, some increase in social complexity was undoubtedly necessary to manage the higher population densities. By the late Civano phase, the success the Hohokam had enjoyed had vanished. High population densities, depletion of food resources, decline in agricultural productivity, disease and malnutrition, flooding, drought, and the collapse of many irrigation systems are cited as reasons for the collapse of the Hohokam (e.g., Bayman 2001).

The post-Classic period (Polvorón phase, A.D. 1450–1540) in the Phoenix Basin is somewhat of a hazy gap between the late Classic period Hohokam and the arrival of the first Europeans (Bayman 2001). The Polvorón phase is defined by jacal structures, polychrome ceramics, and an abundance of obsidian. However, many argue that these characteristics, as well as available chronometric dates (e.g., Dean 1991:87) are not sufficient to distinguish it from the late Civano phase. Others have suggested that the Hohokam may have persisted until the early 1500s and that Hohokam and Salado peoples may have been directly encountered by the Spanish (Bayman 2001). The debate over the cause or causes for the decline and disappearance of the Hohokam has not been resolved.

Following the collapse of the Hohokam regional system, Akimel O' Odham (Pima) and Tohono O' Odham (Papago) groups lived in the Middle Gila River Valley. For unknown reasons, the Salt River Valley was either used sparingly or abandoned following the Hohokam collapse. Akimel O' Odham and Tohono O' Odham groups lived in small rancherías subsisting on agricultural products, wild plant foods, and game. The Pee Posh (Maricopa), migrants from the Gulf of California area, formed an alliance with the Pima in the early 1800s and have lived in the Salt-Gila Basin ever since. All these groups continue to occupy the area on several reservations (Loendorf 2012).

Spanish, Mexican, and Anglo factions began to arrive in appreciable numbers in the 18th century. The ensuing period of historic exploitation was marked by mining, ranching, and homesteading interests. These historic pursuits included the construction of new canals as well as re-utilization of prehistoric ones. Development in the Phoenix Basin grew through the 19th century with the railroad and immigration from other parts of the country. The 20th century saw a steady increase in population growth and development that continues to this day (Sheridan 2012).

PREVIOUS RESEARCH

A review of the AZSITE database maintained by the Arizona State Museum and the historical General Land Office (GLO) records was conducted to identify previous archaeological investigations and recorded archaeological and historical sites within a one-mile proximity to the project area. These records indicate that 11 archaeological surveys have been previously conducted within this one-mile study radius, one of which overlapped the project area (see Figure A.1 in Appendix A and Table 1).

Nine archaeological sites have been recorded in the study radius but none are within the project area (Figure A.1 in Appendix A, and Table 2). The GLO records from 1921 indicate that a road passed through the study area. The Scottsdale Historic Register and the National Register of Historic Places were also examined but no properties listed on these registers exist within the study radius.

Table 1. Previous Projects in the Study Area

Project No.	Description	In Project Area?	Reference
1987-243.ASM	Reconnaissance	Yes	Hectar 1987
1990-124.ASM	State Land Purchase	No	Stone 1990
1997-117.ASM	Housing Development	No	Aguila 1997
2000-34.ASM	Development Clearance	No	Marshall 2000
2001-279.ASM	Residential Development	No	Lundun 2001
2010-325.ASM	Cell Tower Construction	No	Luchetta and Moses 2010a
2010-351.ASM	Clearance	No	Aragon 2010
2010-79.ASM	Clearance	No	Luchetta and Moses 2010b
2011-588.ASM	Unknown Development	No	Breternitz and Robinson 2007a
2011-595.ASM	Road Right-of-Way	No	Breternitz and Robinson 2007b
7-230.SHPO	No Information	No	No Information

Note: ASM – Arizona State Museum; SHPO – State Historic Preservation Office

Table 2. Previous Sites in the Study Radius

Site No.	Eligibility	Description	In Project Area?
AZ U:5:26(ASM)	Unevaluated	Prehistoric artifact scatter	No
AZ U:5:239(ASM)	Eligible	Pinnacle Peak Village	No
AZ U:5:346(ASM)	No Information	No Information	No
AZ U:5:347(ASM)	No Information	No Information	No
AZ U:5:348(ASM)	No Information	No Information	No
AZ U:5:351(ASM)	No Information	No Information	No
AZ U:5:354(ASM)	No Information	No Information	No
AZ U:5:355(ASM)	No Information	No Information	No
AZ U:5:356(ASM)	No Information	No Information	No

SURVEY METHODS

The survey was conducted according to professional standards and guidelines outlined in the Arizona State Museum (ASM) manual. A hand-held GPS unit (Garmin Map60CSx) was used for obtaining location information. PaleoWest followed the ASM survey standards so that survey intervals were no greater 20 meters (approximately 60 feet). Field notes were maintained describing terrain and vegetation, cultural remains, observational problems, and procedures used to accommodate or compensate for them.

The ASM guidelines for identifying archaeological sites (ASM 1993 [revised 1995]) were followed. Those guidelines specify the following:

1. Physical remains of past human activity that are at least 50 years old.

In addition, sites should consist of a least one of the following:

2. 30+ artifacts of a single class (i.e., 30 sherds, 30 lithics, 30 tin cans) within an area 15 meters (50 feet) in diameter, except when all pieces appear to originate from a single source (i.e., one ceramic pot, one core, one glass bottle);
3. 20+ artifacts which include at least 2 classes of artifact types (i.e., sherds, groundstone, nails, glass) within an area 15 meters (50 feet) in diameter;
4. One or more archaeological feature in temporal association with any number of artifacts;
5. Two or more temporally associated archaeological features without artifacts.

The recording of cultural resource sites in the field followed ASM guidelines. A written description was provided and a scaled, hand-drawn map was prepared; photographs were taken, and locational data were collected with a Garmin GPS unit (NAD 83).

Isolated artifacts and features within the project area that did not meet the minimum standards to be considered a site were recorded as isolated occurrences (IOs). IO documentation consists of recording the UTM location of each IO with a hand-held GPS unit and describing the artifacts.

SURVEY RESULTS

The 40 acre project area is located north of Tom's Thumb and east of Troon Mountain, at the intersection of Ranch Gate Road and 128th Street. The parcel consisted of open desert that included blue palo verde, saguaro, prickly pear, cholla, ocotillo, agave, white bursage and creosote bush (Figure 2). Four small washes intersected the project area. Soils consisted of silty sand with 90 percent gravel. Large granite boulders are present in small clusters. Ground visibility was nearly 100 percent.

Figure 2. Overview of the project area, facing west.

Three isolated occurrences were recorded in the project area (see Figure A.1 in Appendix) and described here (see Table 3).

Table 3. Description of the Isolated Occurrences Recorded in the Project Area

IO No.	UTM (Zone 12, NAD 83)	Description
1	425249E, 3730503N	One plain ware sherd (sand temper with volcanic inclusions)
2	425296E, 3730497N	Two church-key opened cans, 10 shards of clear glass
3	425318E, 3730515N	One crushed sanitary can

RECOMMENDATIONS

No sites and three isolated artifact occurrences (IOs) were found in the project area. The IOs do not meet City of Scottsdale, State, or National criteria for significance. Due to the absence of significant cultural resources in the parcel, no further work is recommended for the project area. However, PaleoWest recommends that the Discovery Clause (Sec. 46-134) of the Scottsdale Archaeology Ordinance be followed. The Clause states that when a previously unidentified archaeological site is discovered in the course of construction, the property owner immediately shall notify the City Archaeologist or Historic Preservation Officer. The property owner shall have a preliminary study made by a qualified archaeologist to determine the effect that the proposed development project may have on the site. The City Archaeologist and/or Historic Preservation Officer, with concurrence from the qualified archaeologist hired by the property owner, shall evaluate on-site the significance of the archaeological finding as soon as possible. When the Historic Preservation Officer, the qualified archaeologist hired by the property owner and the City Archaeologist concur that no adverse effect on the archaeological site will take place, the project may proceed immediately. Where an adverse effect on a significant archaeological site will take place, the project shall be referred to the Historic Preservation Commission at the commission's next regular meeting or a called meeting for review following the same procedure set forth for identified significant archaeological sites.

REFERENCES CITED

Abbott, David R.
2000 *Ceramics and Community Organization among the Hohokam*. University of Arizona Press, Tucson.

2001 Conclusions for the GARP Ceramic Analysis. In *The Grewe Archaeological Research Project, Volume 2, Part 1. Ceramic Studies*, edited by David R. Abbott, pp. 263–272. Anthropological Research Papers No. 99-01. Northland Research, Tempe.

Ackerly, Neal W., and T. Kathleen Henderson (editors)
1989 *Prehistoric Agricultural Activities on the Lehi-Mesa Terrace: Perspectives on Hohokam Irrigation Cycles*. Northland Research, Tempe.

Aguila, Lourdes
1997 *Archaeological Survey for the Proposed North Encanto II Development.* Scottsdale, Maricopa County. Archaeological Consulting Services, Ltd., Tempe.

Aragon, Leslie
2010 *A Cultural Resources Survey of 19.96 Acres of McDowell Sonoran Preserve Land for a Planned North McDowell Access Area, Scottsdale, Maricopa County, Arizona.* Desert Archaeology, Inc., Tucson.

Arizona State Museum (ASM)
1993 *Archaeological Site Recording Manual, Version 1.1.* Arizona State Museum, Tucson.

Bayman, James M.
2001 The Hohokam of Southwest North America. *Journal of World Prehistory*, 15:257–311.

Bohrer, Vorsila L.
1987 The Plant Remains from La Ciudad, a Hohokam Site in Phoenix. In *La Ciudad: Specialized Studies in the Economy, Environment, and Culture of La Ciudad*, Part III, edited by JoAnn E. Kisselburg, Glen E. Rice, and Brenda L. Shears, pp. 67–202. Anthropological Field Studies No. 20, Arizona State University, Tempe.

Breternitz, Cory and Christine Robinson
2007a *A Cultural Resources Survey of Approximately 40 Acres of Private Land at the Northwest Corner of the Mariposa Grande Road and 128th Street Alignments in North Scottsdale, Maricopa County, Arizona.* Soils Systems, Phoenix.

2007b *A Cultural Resources Survey of Approximately 15.15 Acres for the Ranch gate Road Waterline, Sewerline, and Access Road Right-of-Way for the Sereno Canyon Residential Development in North Scottsdale, Maricopa County, Arizona.* Soil Systems, Phoenix.

Dean, Jeffrey S.
1991 Thoughts on Hohokam Chronology. In *Exploring the Hohokam: Prehistoric Desert Peoples of the American Southwest,* edited by G. J. Gumerman, pp. 61–149. Amerind Foundation New World Studies Series No. 1. Amerind Foundation, Dragoon, Arizona, and University of New Mexico Press, Albuquerque.

Doyel, David E.
1985 Summary and Discussion. In *Hohokam Settlement and Economic Systems in the Central New River Drainage, Arizona,* Volume 1, edited by D. E. Doyel and M. D. Elson, pp. 727–734. Publications in Archaeology No. 4. Soil Systems, Inc., Phoenix.

1991 Hohokam Cultural Evolution in the Phoenix Basin. In *Exploring the Hohokam: Prehistoric Desert Peoples of the American Southwest,* edited by George Gummerman, pp. 231–278. University of New Mexico Press, Albuquerque.

Gregory, David A., William L. Deaver, Suzanne K. Fish, Ronald Gardiner, Robert W. Layhe, Fred L. Nials, and Lynn S. Teague
1988 *The 1982–1984 Excavations at Las Colinas: The Site and its Features.* Archaeological Series 162, Volume 2. Arizona State Museum, Tucson.

Haury, Emil W.
1976 *The Hohokam: Desert Farmers and Craftsman; Snaketown.* 1964–1965. University of Arizona Press, Tucson.

Hectar, Susan
1987 *North Scottsdale Reconnaissance Survey.* Recon, Phoenix.

Loendorf, Chris
2012 *The Hohokam-Akimel O'odham Contimuum: Sociocultural Dynamics and Projectile Point Design in the Phoenix Basin, Arizona.* The University of Arizona Press, Tucson.

Luchetta, Sarah and James Moses
2010a *A Class I and Class III Cultural Resources Assessment Survey of a Proposed Wireless Telecommunications Facility AT&T Mobility K505-02 Located in North 118th Place and East La Junta Road in Scottsdale, Maricopa County, Arizona.* Antigua Archaeology, LLC., Prescott.

2010b *A Class I and Class III Cultural Resources Assessment Survey of a Proposed Wireless Telecommunications Facility AT&T Mobility H083 Located at 12127 East Alameda Road in Scottsdale, Maricopa County, Arizona.* Antigua Archaeology, LLC., Prescott.

Lundun, Del
2001 *An Archaeological Survey for the Proposed Santa Rita Ranch Site in North Scottsdale.* SWCA, Phoenix.

Marshall, John
2000 *A Cultural Resources Survey of Ten Acres near 126th Street and Pinnacle Peak Road, Scottsdale, Arizona.* Northland Research, Tempe.

Mitchell, Douglas R.
1994 Architecture Feature Descriptions. In *The Pueblo Grande Project, Vol. 2: Feature Descriptions, Chronology, and Site Structure*, edited by Douglas R. Mitchell, pp. 33-84. Publications in Archaeology No. 20. Soil Systems, Phoenix.

Reid, J. Jefferson, and Stephanie Whittlesey
1992 New Evidence for Dating Gila Polychrome. In *Proceedings of the Second Salado Conference, Globe, AZ, 1992*, edited by R. C. Lang and S. Germick, pp. 223–229. Arizona Archaeological Society, Phoenix.

Sheridan, Thomas
2012 *Arizona: A History* (revised edition). Southwest Center Series, Phoenix.

Stone, Connie, L.
1990 *An Archaeological Survey of State Trust Land Along Jomax Road, East of Pinnacle Peak.* Maricopa County, Arizona. Archaeological Consulting Services, Tempe.

Turner, Raymond M. and David E. Brown
1994 Tropical-Subtropical Desertscrub: Sonoran Desert Scrub. In *Biotic Communities: Southwestern United States and Northwestern Mexico*, edited by David E. Brown, pp. 181-223. University of Utah Press, Salt Lake City.

Wallace, Henry D.
2001 Time Seriation and Typological Refinement of the Middle Gila Buffware Sequence: Snaketown through Soho Phase. In *The Grewe Archaeological Research Project*, Vol. 2, Part 1: *Ceramic Studies*, edited by D. R. Abbott, pp. 177–259. Anthropological Papers 99-1. Northland Research, Inc., Tempe.

Wilcox, David R., and Lynette O. Shenk
1977 *The Architecture of the Casa Grande and its Interpretation.* Archaeological Series No. 115. Arizona State Museum, Tucson.

Wilcox, David R., Thomas R. McGuire, and Charles Sternberg
1981 *Snaketown Revisited.* Archaeological Series No. 155. Arizona State Museum, Tucson.

APPENDIX A

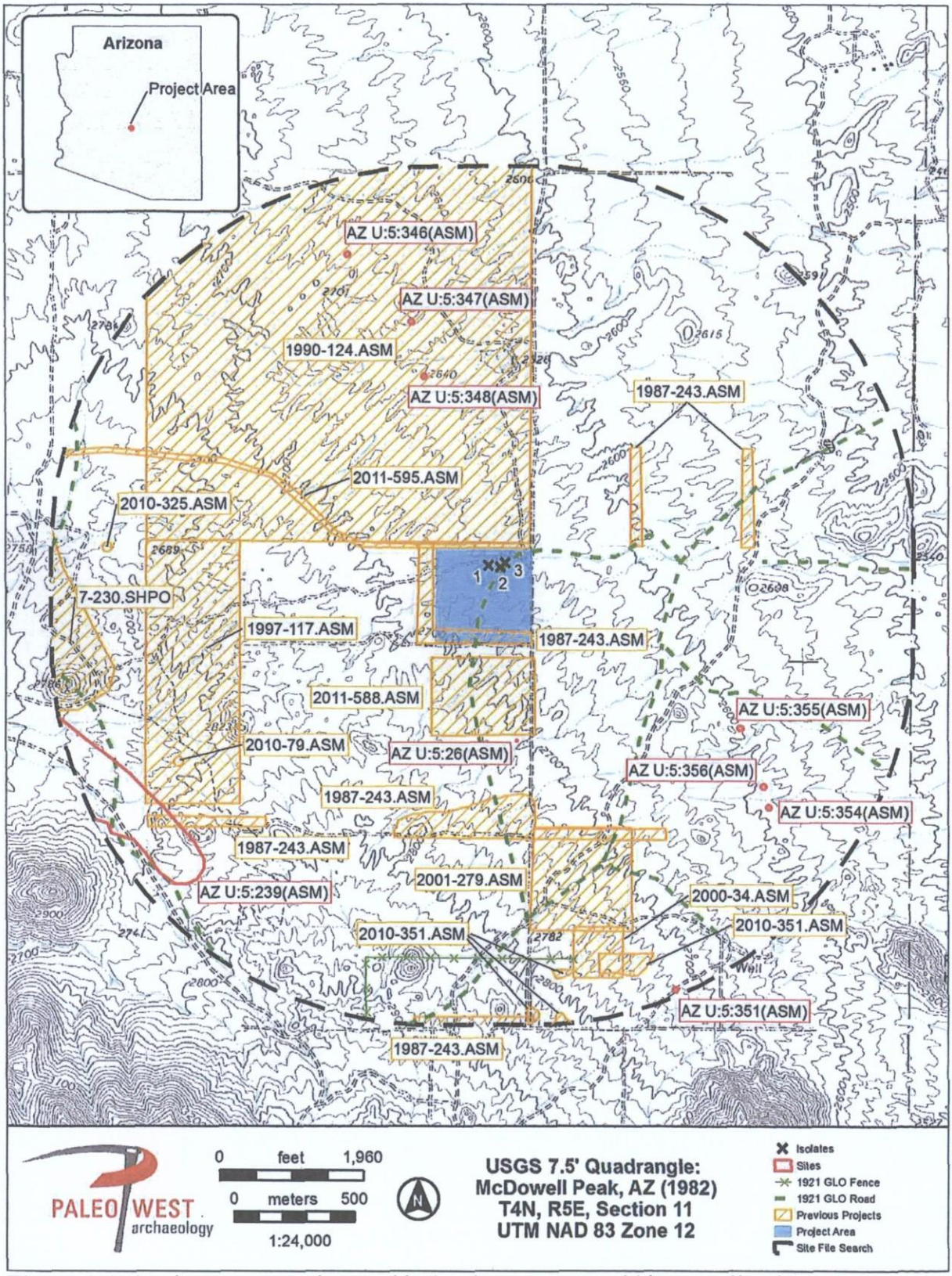

Figure A.1. Previous surveys, sites, and isolated occurrences within one mile of the project area.

Appendix 4-6B

WARNING AND DISCLAIMER OF LIABILITY

The City's Stormwater and Floodplain Management Ordinance is intended to minimize the occurrence of losses, hazards and conditions adversely affecting the public health, safety and general welfare which might result from flooding.

The Stormwater and Floodplain Management Ordinance identifies floodplains, floodways, flood fringes and special flood hazard areas. However, a property outside these areas could be inundated by floods. Also, much of the City is a dynamic flood area; floodways, floodplains, flood fringes and special flood hazard areas may shift from one location to another, over time, due to natural processes.

WARNING AND DISCLAIMER OF LIABILITY

The flood protection provided by the Stormwater and Floodplain Management Ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Floods larger than the base flood can and will occur on rare occasions. Floodwater heights may be increased by constructed or natural causes. The Stormwater and Floodplain Management Ordinance does not create liability on the part of the city, any officer or employee thereof, or the federal, state or county government for any flood damages that result from reliance on the Ordinance or any administrative decision lawfully made thereunder.

Compliance with the Stormwater and Floodplain Management Ordinance does not ensure complete protection from flooding. Flood-related problems such as natural erosion, streambed meander, or constructed obstructions and diversions may occur and have an adverse effect in the event of a flood. You are advised to consult your own engineer or other expert regarding these considerations.

I have read and understand the above.

Plan Check #	Owner	Date
		1/14/15

3-ZN-2015
2/2/2015

PRELIMINARY DRAINAGE REPORT
FOR
128TH STREET & RANCH GATE
PRELMINARY DESIGN

A proposed residential subdivision located at:
128th Street and Ranch Gate
Scottsdale, Arizona

Prepared:

January 13, 2014

Prepared for:

K. Hovnanian Companies of Arizona, LLC
20830 North Tatum Blvd, Suite 250
Scottsdale, Arizona

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HRC 14-049-05

3-ZN-2015
2/2/2015

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1 INTRODUCTION

HRC has been contracted to provide preliminary drainage services for a 40-acre property at the southwest corner of 128th Street and Ranch Gate Road (the Site) within the City of Scottsdale (the City). The Site is located within Section 12, Township 4N and Range 5E (Figure 1). State Trust land bounds the northern portion of the Site. Land to the east, west and south of the Site is zoned for residential development, but currently has minimal development. The Site is located in the McDowell Mountain foothills and is characterized by Upper Desert landforms. It is also located within the Environmentally Sensitive Lands (ESL) of the City and, consequently, is subject to regulations within the Environmentally Sensitive Lands Ordinance (ESLO). The purpose of this report is to document the existing and proposed hydrologic conditions of the Site in accordance with drainage criteria established by the City of Scottsdale.

2 EXISTING DRAINAGE CONDITIONS

2.1 Flood Insurance Rate Map

The Flood Insurance Rate Map (FIRM) for Maricopa County Arizona, and Incorporated Areas, Map Number 04013C1335L, dated October 16, 2013 (Figure 2), as published by the Federal Emergency Management Agency (FEMA) (Ref. 2) shows the Site within a Zone "D", defined as follows:

> *Unstudied areas where flood hazards are undetermined but flooding is possible. No mandatory flood insurance requirements apply.*

2.2 Off-Site Flow

The terrain around the Site slopes from the southwest towards the northeast. The 150-acre contributing watershed, as shown on Figure 3, is primarily undeveloped desert land. Plans for the

proposed Sereno Canyon, sub-division to the west of the Site, illustrate that discharges from the fully developed sub-division will be comparable to those of the existing condition (Ref.6). As a result, off-site flows are assumed to remain similar to the existing undeveloped flows.

In the 2004 ESLO revision, wash preservation became the highest priority for land preservation. Significant washes are defined as having over 50 cfs in the 100-year storm as the flow in these washes tend to be fairly concentrated and the washes are incised and well vegetated. Four reaches with flows over 50 cfs (Washes A, D, E and H) are shown on Figure 4 and 5. Washes A, D and H have a 100-year flow exceeding 50-cfs prior to entering the Site. Wash E reaches 50-cfs part way through the Site.

2.3 On-Site Flow

On-site washes are reasonably incised and convey flow from the southwest to the northeast. Two culvert crossings convey flows to the north, across Ranch Gate Road. Two 48-inch corrugated metal pipes (CMP) convey the flow from Wash A and one 24-inch CMP conveys the flow from Sub-Basin C across the road. No other culverts or structures are located on the Site. Flows from Washes E, D and H and Basins F, G and I flow across 128th Street in low-flow crossings. See Figures 3 and 4 for all sub-basin, wash and culvert locations.

Site photographs were taken on September 4, 2014 and can be seen in Appendix A.

3 PROPOSED DRAINAGE PLAN

A preliminary site plan (the layout) has been created and is shown on Figure 5. The analysis and discussion in this report are based on the layout and meets the drainage requirements outlined in the City of Scottsdale's *Design Standards and Policies Manual* (Ref. 1).

3.1 Off-Site Flow

The layout seeks to minimize any impact to the existing 100-year flow corridors for the four significant washes that cross the Site. The layout seeks to allow the off-site flow to continue through the site, while storing additional runoff caused by the development. Detailed hydrologic analysis has been completed to ensure that the development does not increase or decrease the runoff leaving the Site to ensure no additional erosion or scour occurs and to ensure natural habitats are maintained.

3.2 On-Site Flow

The layout includes 34 residential lots ranging from 33,000 to 55,500 square feet. Each lot includes a building envelope and 15-foot Natural Area Open Space (NAOS) tracks on either side. This will allow conveyance for historic drainage around the houses to continue along historic paths. When possible, developed lots will drain towards the street and the streets will then drain towards local storage basins that bleed off into the existing watercourses.

On-site storage for the 100-year 2- hour discharge volume for all disturbed land is typically required. However, because the property is within upper desert landform ESL with slopes greater than 5%, a Stormwater Storage Waiver to reduce the amount of storage required for the Site has been submitted with this report (See Appendix G). With the exception of the wash corridors, the Site is almost entirely located within slopes greater than 5%. Slopes higher than 5% are shown in Graphic 1 in pink. Slopes less than 5% are shown in grey.

Large storage basins will require deep cuts into the hillside. The layout provides adequate on-site storage to ensure that the peak flow leaving the Site does not increase as a result of the proposed development. See Figure 5 for proposed conditions flows. Volume provided, 100-year 2-hour volume and first flush volume calculations are included in Appendix F.

Graphic 1: Greater than 5% Slopes

The final design of the storage basins will blend in with the natural contouring of the land to minimize the visual scaring and will be accessible from local roads. A positive drain for each storage basin will be provided to drain into the adjacent downstream existing drainage corridors.

Storage basins will not exceed 3-feet of water deep and will be designed with a spillway that discharges into the natural water conveyances on-site. Later design stages will ensure that storage basins will drain within 36-hours.

Appropriately sized box or circular culverts will be used at each road crossing to ensure adequate conveyance of the flows and minimal impact to the washes. Basin and culvert placement and the preliminary layout is included in Figure 5.

4 SPECIAL CONDITIONS

A storm water retention waiver has been completed and is included in Appendix G. Full storm water retention requirements are not attainable while preserving ESLO requirements. The 404 delineation was submitted to US Army Corps of Engineers on October 8, 2014 and is awaiting approval. Disturbance to the preliminary 404 is currently estimated at 0.12 acres, requiring a 404 Nationwide Permit, but not an Individual Permit.

5 DATA ANALYSIS METHODS

All hydrologic and hydraulic methods used for this report are in accordance with the *Design Standards and Policies Manual for the City of Scottsdale* (Ref. 1), the *Flood Control District of Maricopa County Hydrology Manual* (Ref.3) and the *Flood Control District of Maricopa County Hydraulic Manual* (Ref.4)

5.1 Hydrology

Hydrologic analyses were performed using the US Army Corps of Engineer's computer program *HEC-1, Version 4.1, Flood Hydrograph Package* (Ref. 7) in accordance with procedures and parameters

recommended in the *Flood Control District of Maricopa County Hydrology Manual* (Ref.3). Hydrologic models created are as follows:

- 100-year; 6-hour and 24-hour Existing and Proposed Conditions
- 10-year; 6-hour and 24-hour Existing and Proposed Conditions
- 2-year; 6-hour and 24-hour Existing and Proposed Conditions

Off-site basins were delineated using 2-foot topography data obtained from the City of Scottsdale on September 18, 2014. Where necessary, adjustments were made to the sub-basin boundaries based on visual assessment of the aerial photography and field observation. A terrain surface was created in ArcGIS using 2014 aerial topography and was used to delineate on-site existing sub-basin boundaries. Proposed on-site sub-basin boundaries were developed from the existing terrain, and the preliminary plat Site layout.

Each model uses the Green and Ampt methodology to estimate rainfall losses, and the Phoenix Mountain S-graph for the unit hydrograph. Flow is routed using the Normal Depth routing option. Per the United States Department of Agriculture Natural Resources Conservation Service (NRCS), soil on the Site is completed Gran-Wickenburg complex, 1 to 10 percent slopes. Rainfall intensities contained in the *NOAA Atlas 14, Precipitation-Frequency Atlas of the United States, Volume 1, Arizona* (Ref. 5) are used for this study and are summarized in Appendix B. The watershed sub-basins for the runoff models are shown on Figures 3 through 5. All parameters used for HEC-1 modeling are included in Appendix B.

The study identified the 100-year, 6-hour and 24-hour peak discharges and compared the discharges along each wash to determine which produced the higher discharge. HEC-1 model outputs for both existing and proposed conditions are included in Appendix C.

Due to the steep slopes throughout the Site, storage basins were limited to locations where the runoff ponds due to road crossings. Basin A is located drains through the existing 24-inch culvert under Ranch Gate Road on the north of the Site. A metal plate will be placed on the existing culvert to reduce the outflow such that it matches the existing runoff. Basin C will be located on the west side of 128th street at the Wash E crossing. Four 36-inch pipes will drain the basin under the road. Similar to Basin A, metal plates will be placed on the pipe inlets to allow for the required attenuation and storage.

Existing and proposed runoff peak site discharges from the Site are summarized in Table 1.

Table 1: Existing & Proposed Peak Discharges

Storm Frequency	Existing Conditions Max Exit Flow	Proposed Conditions Max Exit Flow
Wash A		
2-year	44	43
10-year	92	92
50-year	143	141
100-year	166	164
Wash C / Proposed Storage Basin A		
2-year	2	2
10-year	4	4
50-year	6	5
100-year	7	6
Wash D		
2-year	121	115
10-year	254	249
50-year	395	379
100-year	460	442
Wash E / Proposed Storage Basin C		
2-year	29	29
10-year	58	58
50-year	87	88*
100-year	101	101

*50-year 24-hour duration runoff is 87cfs. 6-hour duration is at 88 cfs.

Table 1: Existing & Proposed Peak Discharges (Continued)

Storm Frequency	Existing Conditions Max Exit Flow	Proposed Conditions Max Exit Flow
Wash H		
2-year	47	45
10-year	100	98
50-year	157	154
100-year	183	180

5.2 Hydraulics

Each significant wash with a flow greater than 50-cfs, was modeled using the US Army Corps of Engineers computer program, *HEC-RAS version 4.1 (*Ref.9) to determine the water surface extent in a 100-year storm event.

Normal depth downstream boundary condition for each wash was determined by the existing downstream slope. Manning's roughness coefficients ("n" values) were chosen based on field and aerial photography observation and are summarized as follows:

Table 2: HEC-RAS Manning's Roughness Coefficients

	Channel	Overbank
Wide Sandy Bottom	0.03	0.042
No Sandy Bottom	0.036	0.042

Expansion and contraction coefficients are based on values presented in the Flood Control District's *Drainage Design Manual, Hydraulics* (Ref.4). Contraction and expansion values of 0.3 and 0.1 respectively were used for cross-sections without dramatic differences. Cross-sections located upstream and downstream of culverts utilized 0.5 and 0.3 for the expansion and contraction coefficients, respectively.

HEC-RAS geometry data is obtained from the recent aerial 1-foot topography. All elevations for the study are on the NAVD88 vertical datum. Cross-sections were placed perpendicular to the flow paths

as much as possible. Flow data from controlling 6- or 24-hour storm event discharges were used at key concentration points along the washes. Water surface extents were generated using the on-site terrain surface and are shown on Figures 4 and 5. All hydraulic parameters are summarized in Appendix D and the HEC-RAS results are summarized in Appendix E.

6 CONCLUSIONS

1) The Site is located within the City of Scottsdale Upper Desert ESL lands and is subject to all ESLO regulations.
2) Four washes within the Site convey over 50-cfs in the 100-year storm event. Corridors reflecting their 100-year water surface extents are preserved as much as possible in the preliminary design.
3) Two storage basins will be constructed at natural low areas within the washes to attenuate additional runoff from the proposed development.
4) Culverts will be placed at road crossings within the wash so runoff can continue along historic routes.
5) All off-site flow is required to discharge from the Site at the historic discharge points. Runoff leaving the site matches or is slightly less than existing conditions for the 2, 10, 50 and 100-year frequency storms.
6) All on-site flow in the developed areas will be directed away from the houses. Most flow will be conveyed in streets or in storm drains prior to discharging into the storage basins or existing watercourses.

7 WARNING AND DISCLAIMER OF LIABILITY

A completed Warning and Disclaimer of Liability form is included in Appendix G of this report.

8 REFERENCES

1. City of Scottsdale, *"Design Standards and Policies Manual"*, January 2010.

2. Federal Emergency Management Agency, *"Flood Insurance Rate Maps for Maricopa County Arizona, and Incorporated Areas, Map Number 04013C1335L"*, October 16, 2013.

3. The Flood Control District of Maricopa County, *"Drainage Design Manual for Maricopa County, Arizona- Hydrology"*, August 15, 2013.

4. The Flood Control District of Maricopa County, *"Drainage Design Manual for Maricopa County, Arizona, Volume II Hydraulics"*, August 15, 2013.

5. National Oceanic and Atmospheric Administration, *NOAA Atlas 14, Precipitation-Frequency Atlas of the United States, Volume 1 Version 4.0: Semiarid Southwest (Arizona, Southeast California, Nevada, New Mexico, Utah)*, 2006.

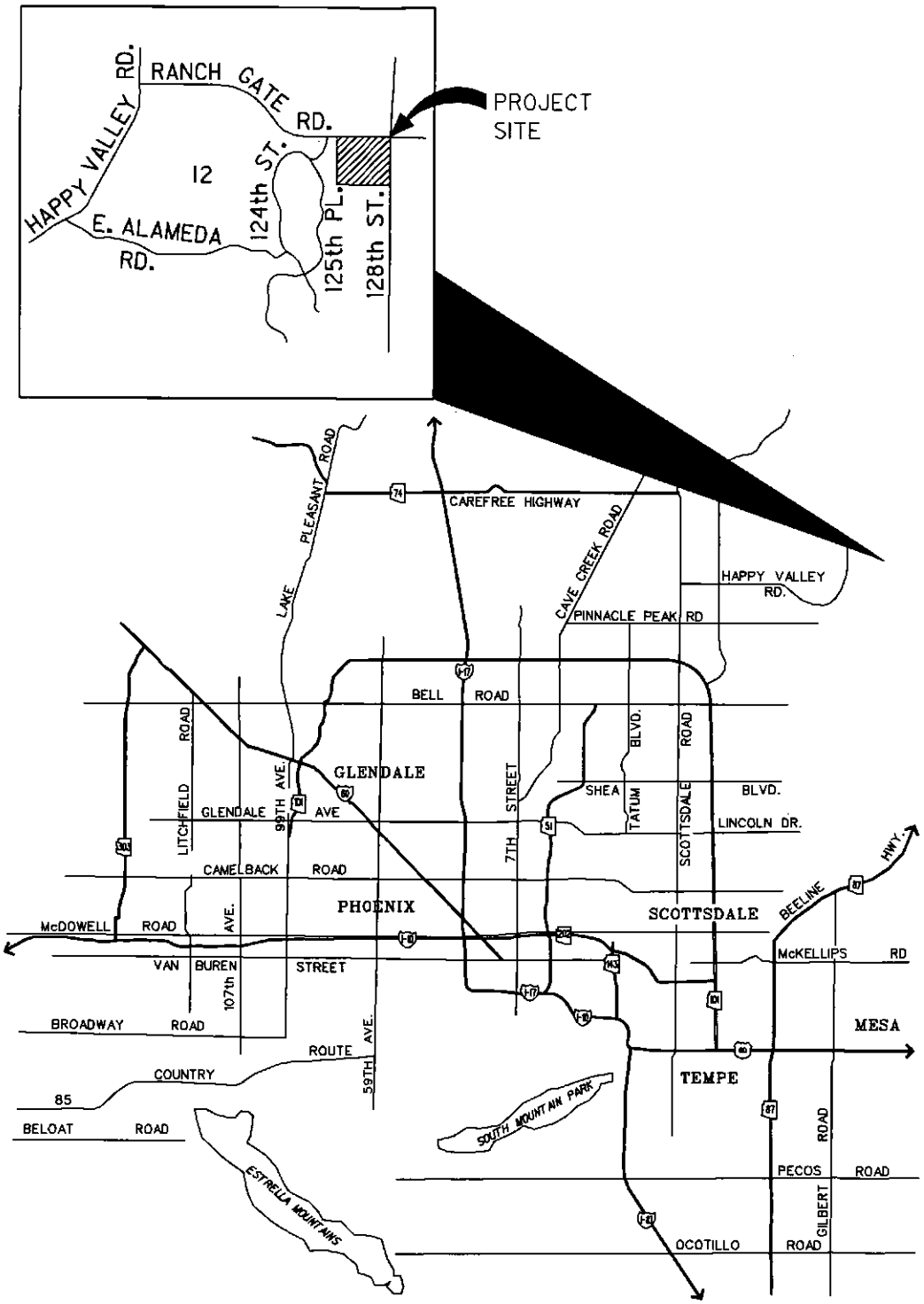
6. Wood/Patel, *"Sereno Canyon – Phase 1 Improvement Plans, As-Builts"*, January 2007.

7. United States Army Corps of Engineers, *HEC-1 Flood Hydrograph Package, Version 4.1*, June 1998.

8. United States Army Corps of Engineers, *HEC-GeoRAS, Version 4.2.93*, September 2009

9. United States Army Corps of Engineers, *HEC-RAS River Analysis System, Version 4.1*, January 2010.

10. United States Department of Agriculture Natural Resources Conservation Service, *"Custom Soil Resource Report for Aguila-Carefree Area, Arizona, Parts of Maricopa and Pinal Counties"*, downloaded September 9, 2014.



NO SCALE

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128th ST. & RANCH GATE

LOCATION AND VICINITY MAP

FIGURE 1

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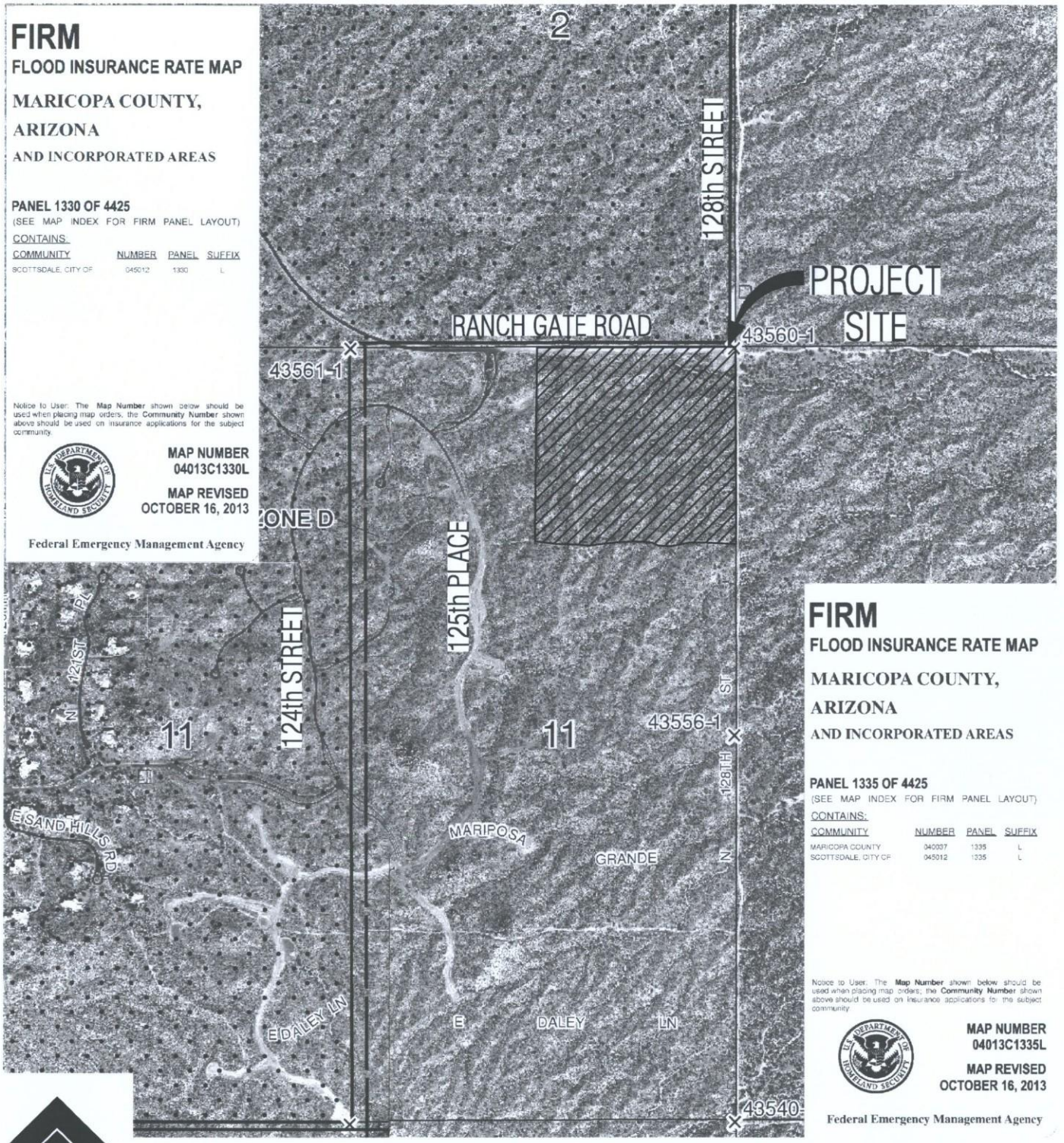
$DATE$



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128th ST. & RANCH GATE
FLOOD INSURANCE RATE MAP

FIGURE 2

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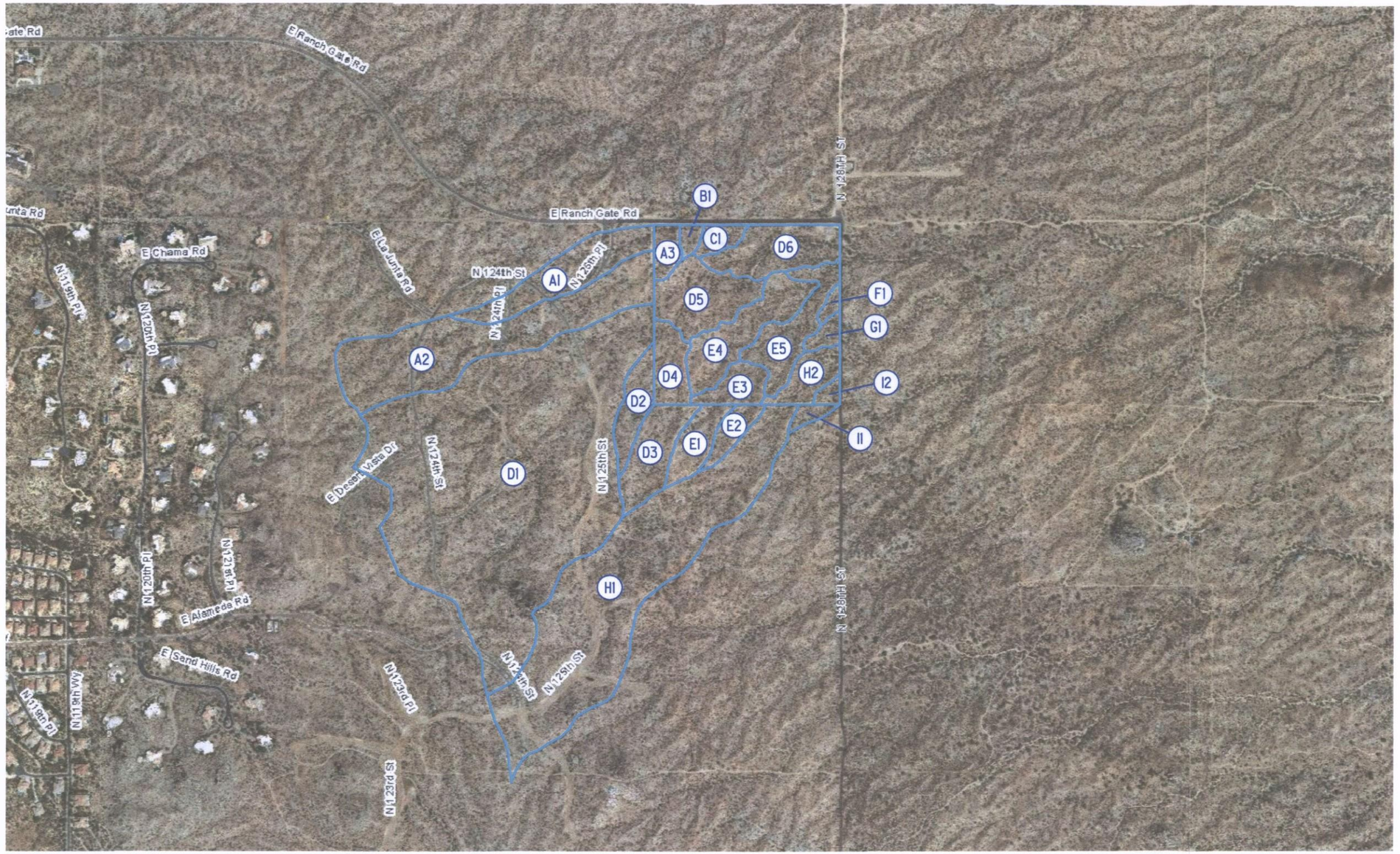

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LEGEND

SUB-BASIN BOUNDARY

(A5) SUB-BASIN I.D.

128th St & Ranch Gate
AERIAL & OFF-SITE DRAINAGE MAP

FIGURE 3

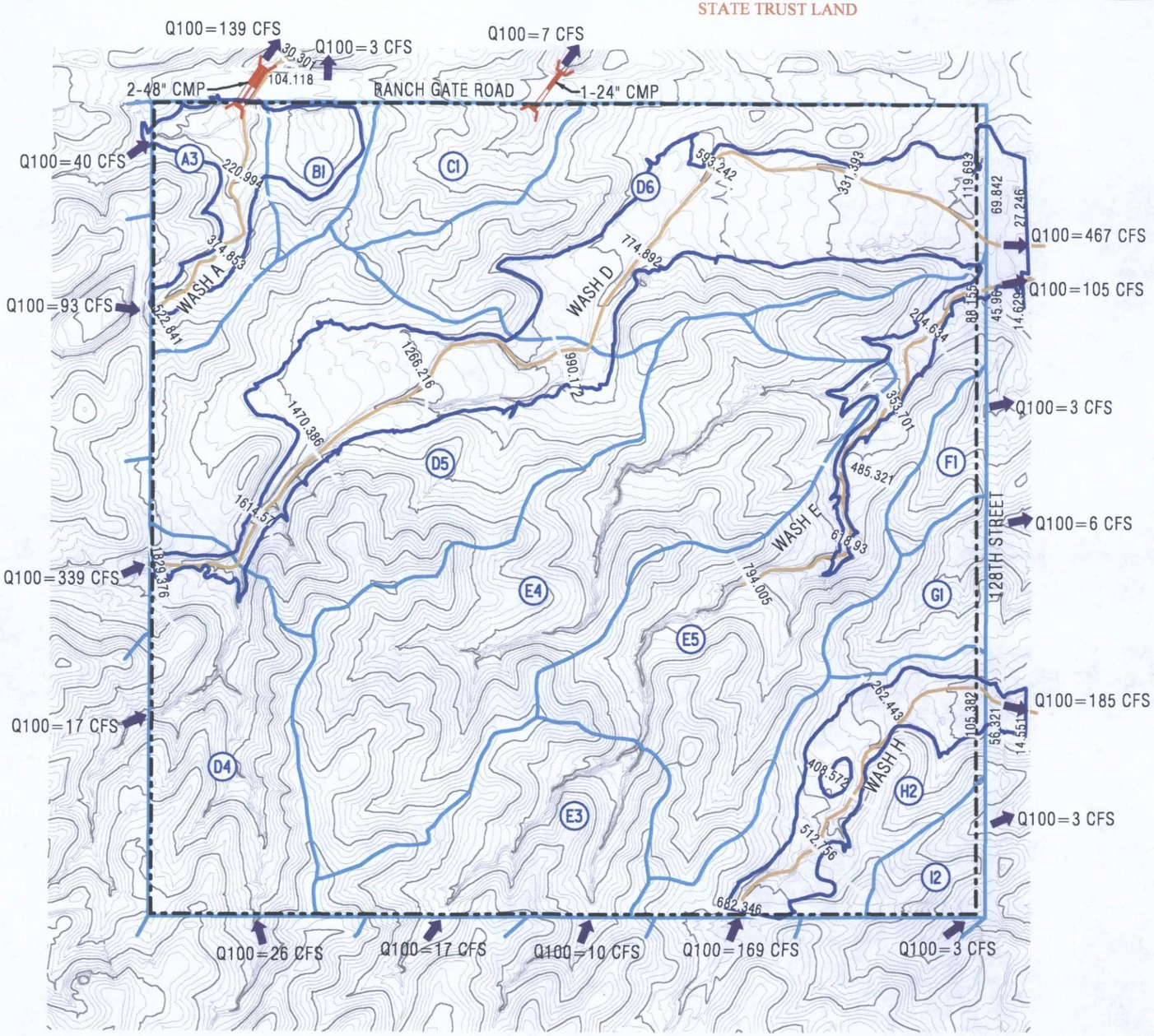
Appendix A: Site Photographs

STATE TRUST LAND

SERENO CANYON PHASE I

VACANT RESIDENTIAL

VACANT RESIDENTIAL



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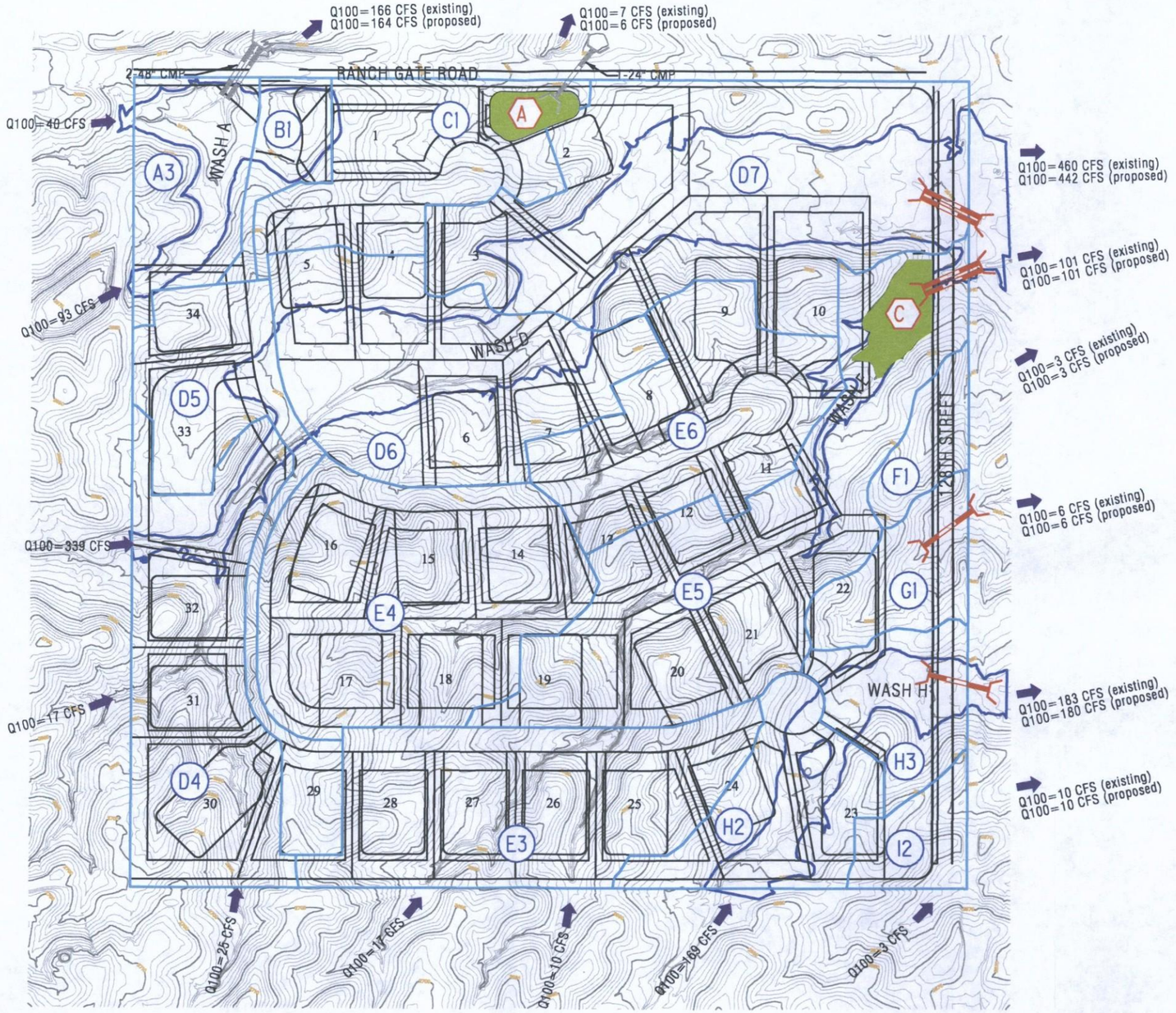
LEGEND

- SUB-BASIN BOUNDARY
- ONSITE TOPOGRAPHY
- 1614.57 HEC-RAS CROSS SECTIONS & I.D.
- RIVER FLOW LINE
- FLOODPLAIN LIMIT
- EXISTING CULVERTS
- EXISTING CONDITIONS DISCHARGE
- PROJECT BOUNDARY

128th St & Ranch Gate
EXISTING CONDITIONS ON-SITE DRAINAGE MAP

FIGURE 4



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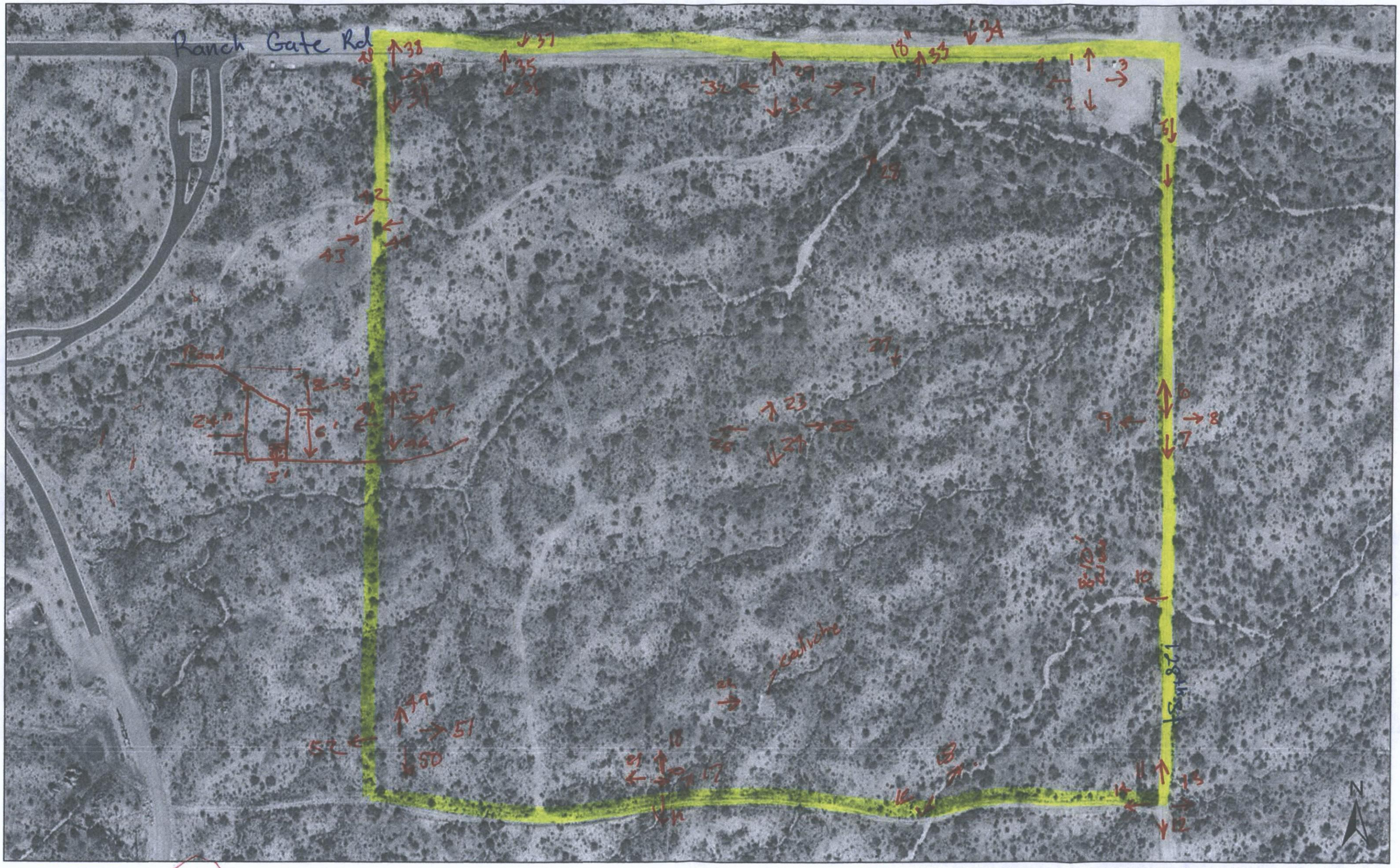
LEGEND

- 100-YR FLOODING LIMIT
- EXISTING STORM DRAIN
- PROPOSED ON-SITE STORAGE
- SUB-BASIN BOUNDARY
- 100-YR CONDITIONS DISCHARGE
- E3 SUB-BASIN BOUNDARY ID
- C ON-SITE STORAGE ID
- PROPOSED CULVERTS

128th St & Ranch Gate
PROPOSED CONDITIONS ON-SITE DRAINAGE MAP

FIGURE 5

Field Visit 9/4/2014



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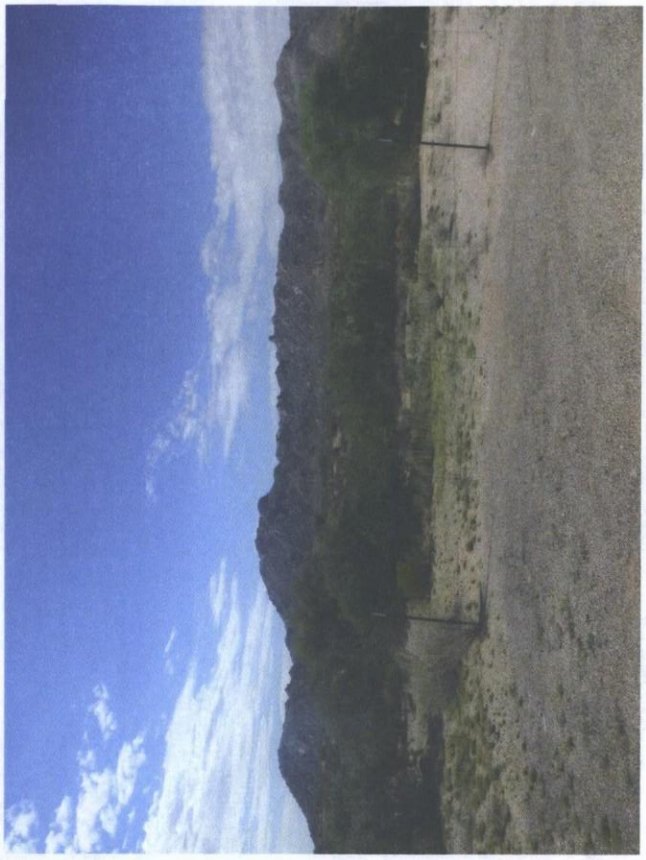

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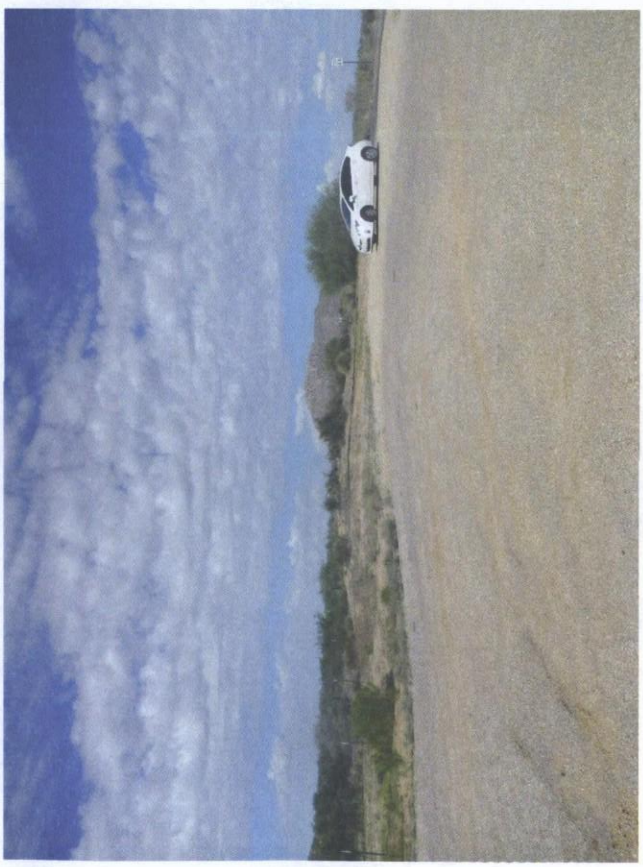

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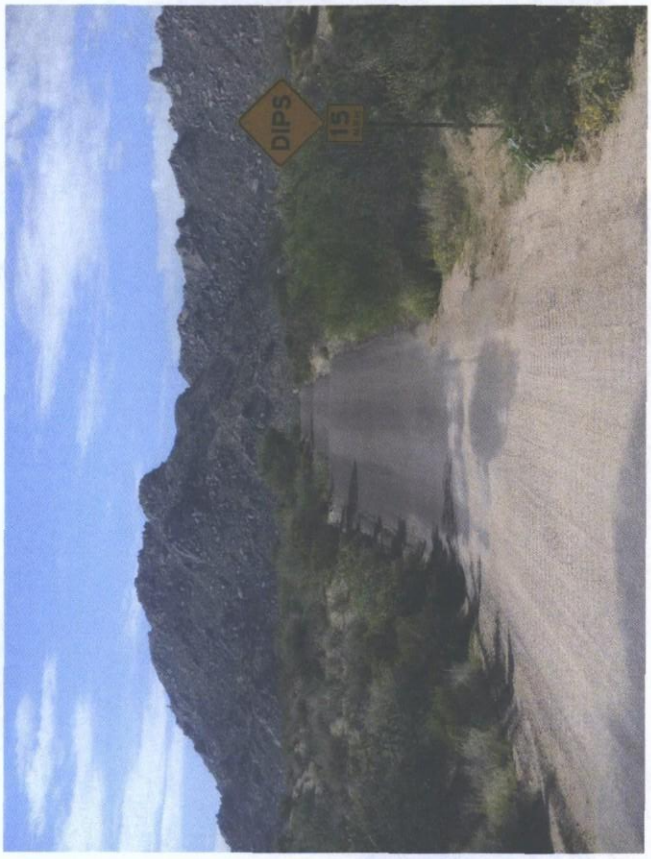

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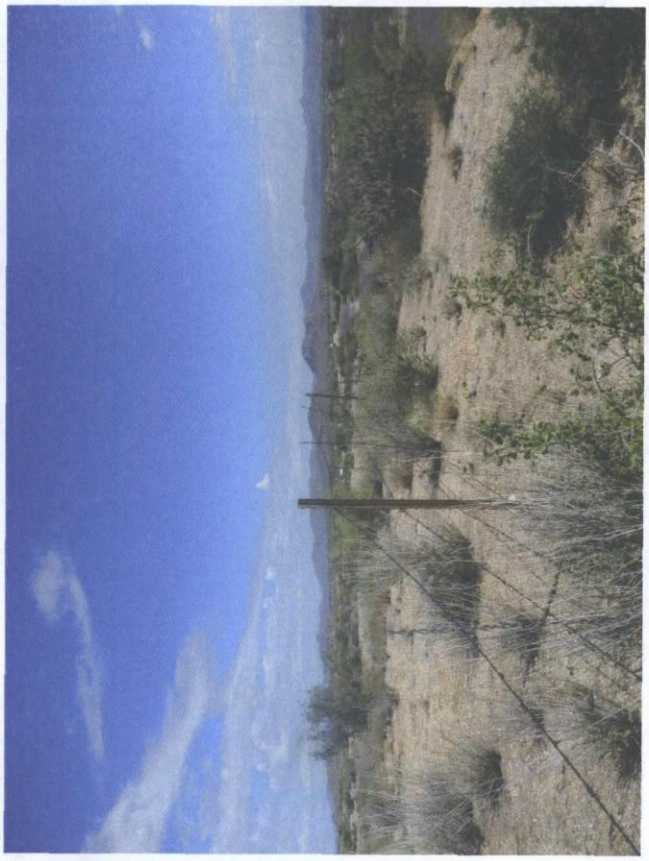

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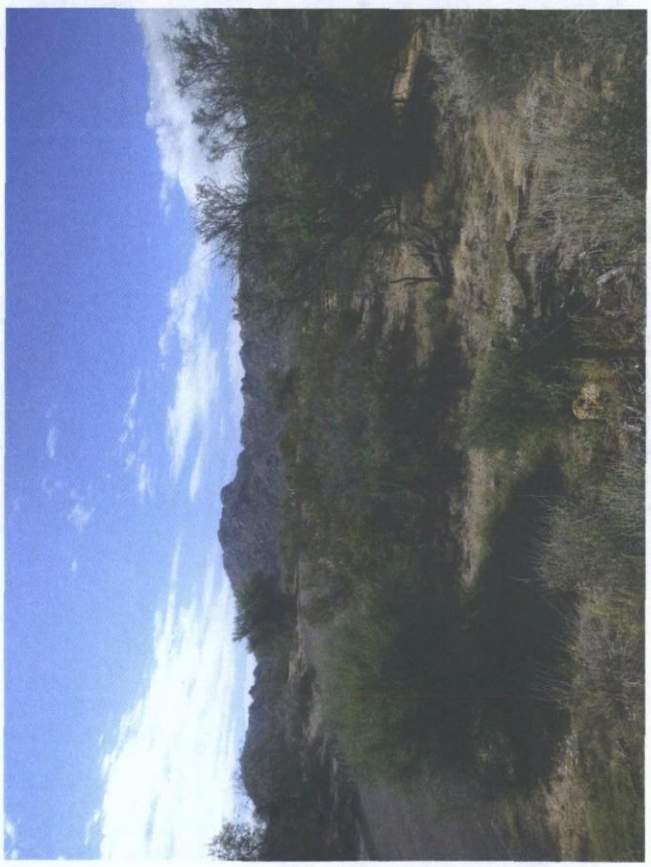

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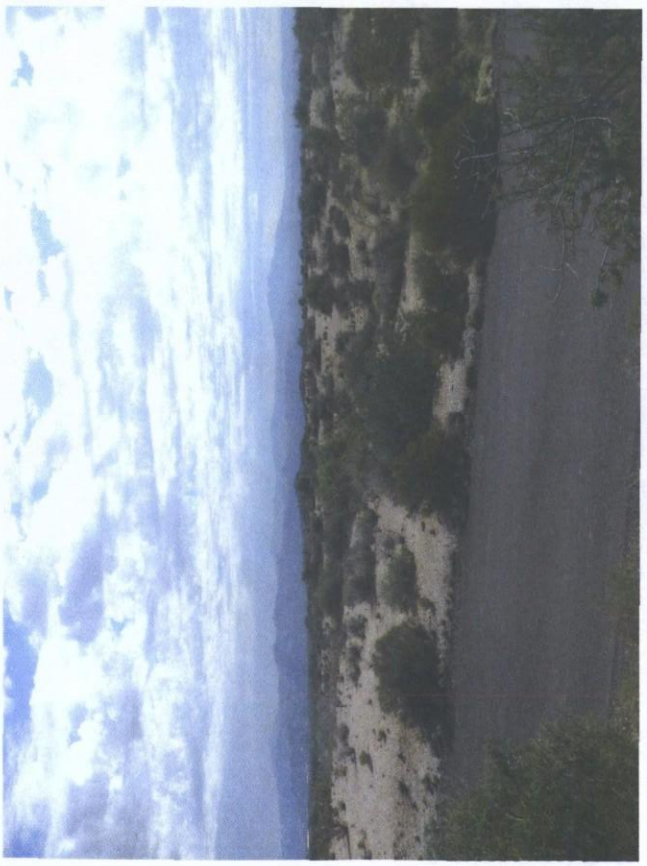

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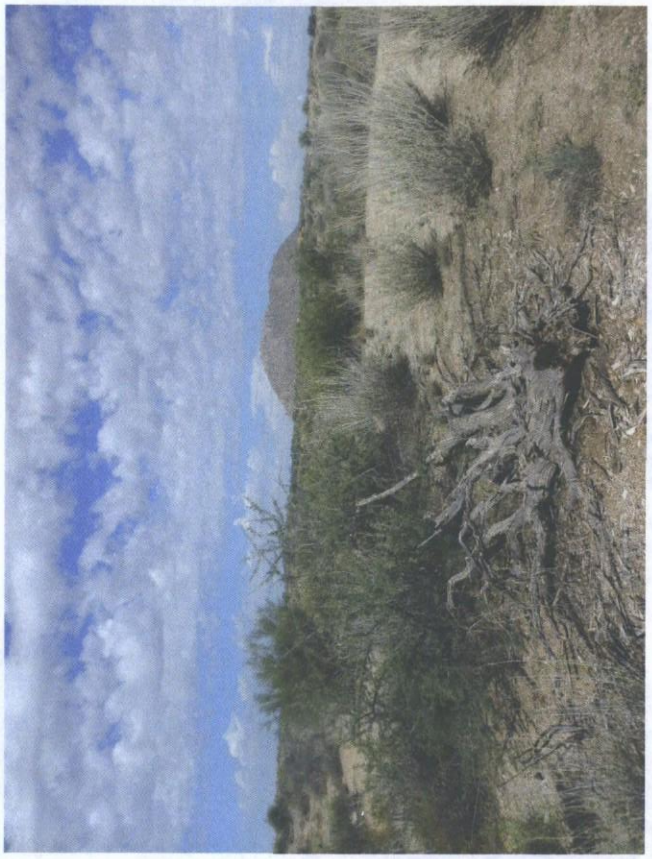

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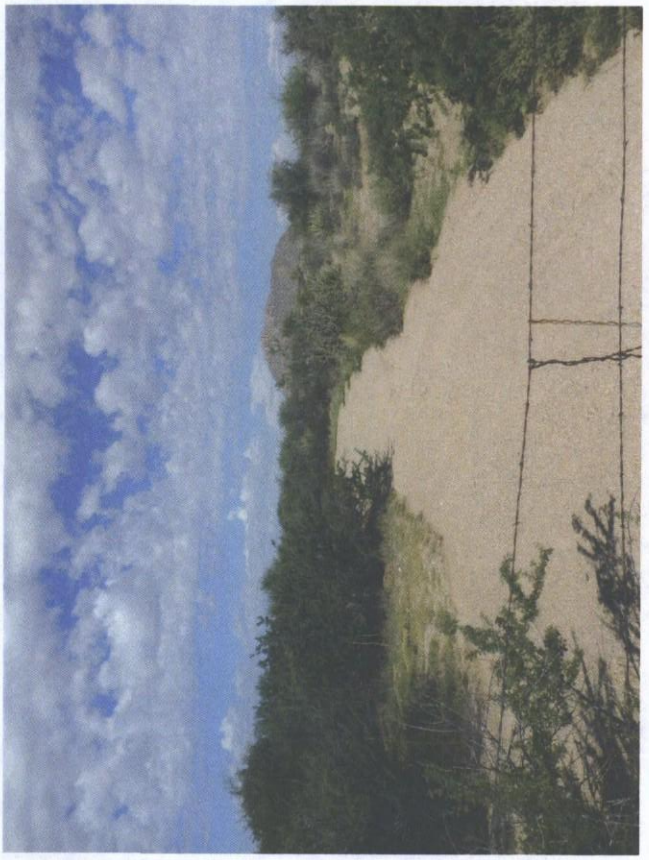

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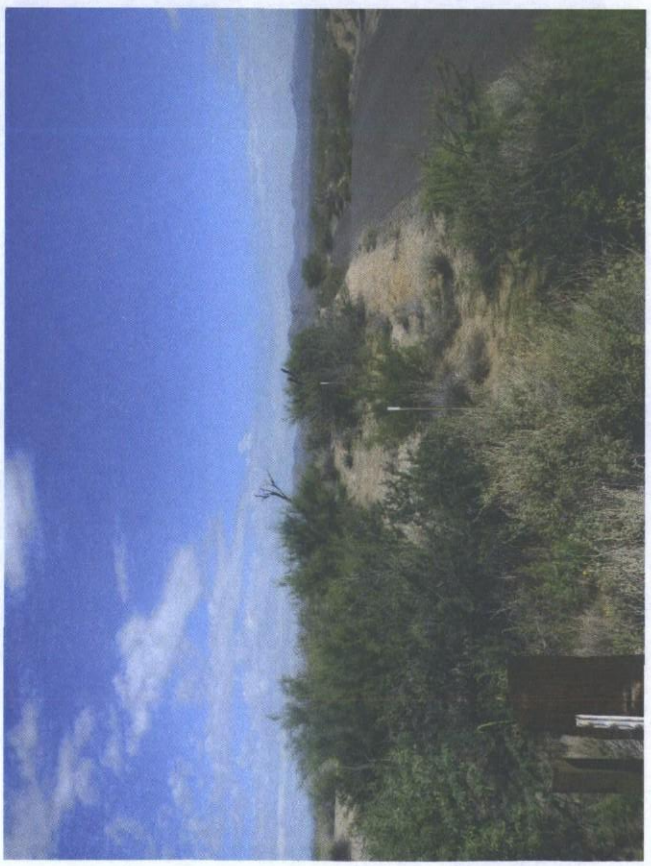

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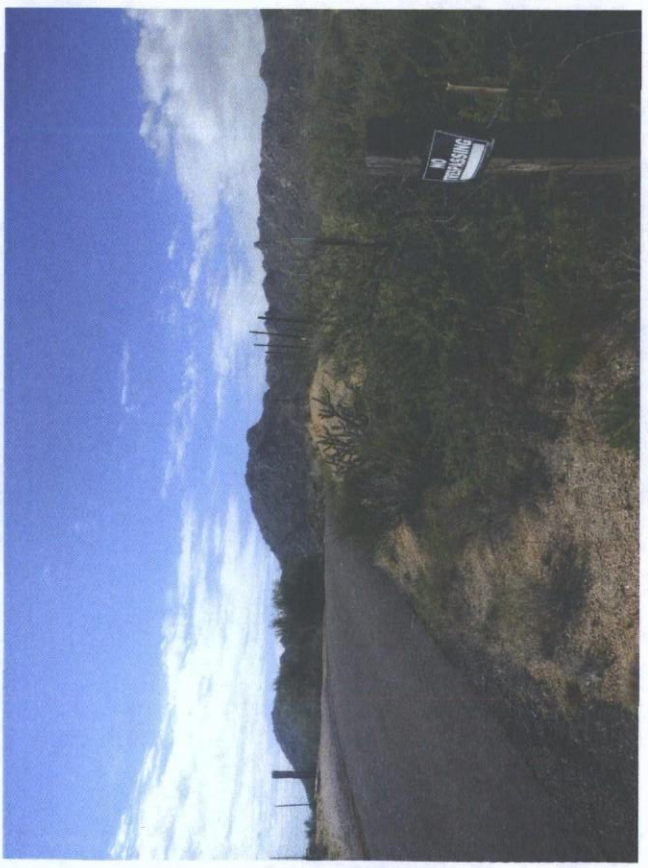

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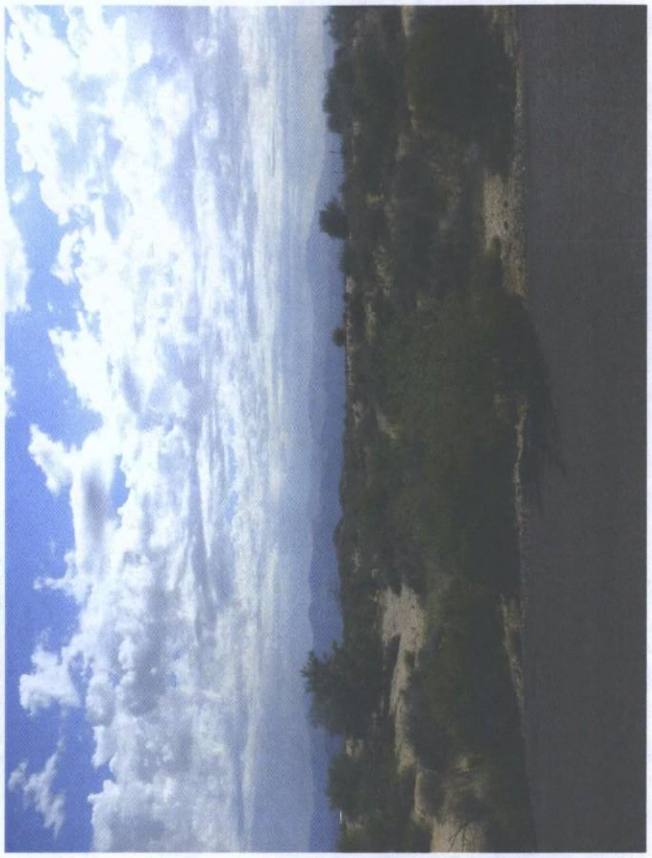

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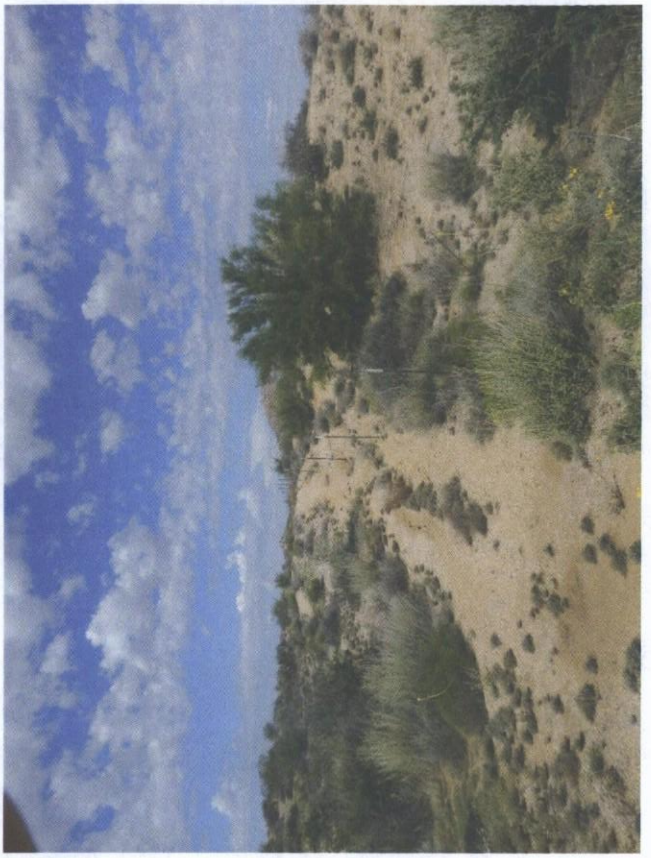

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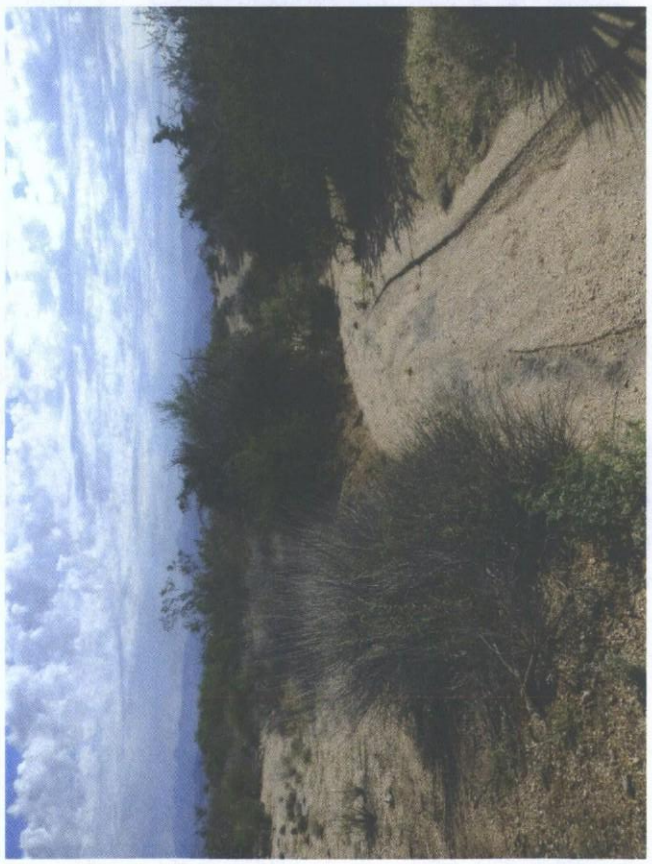

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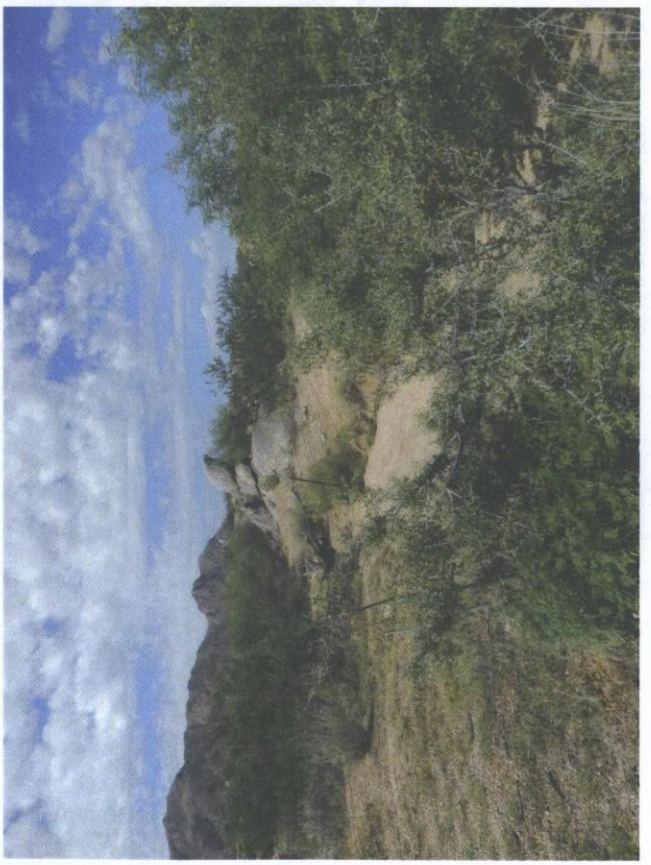

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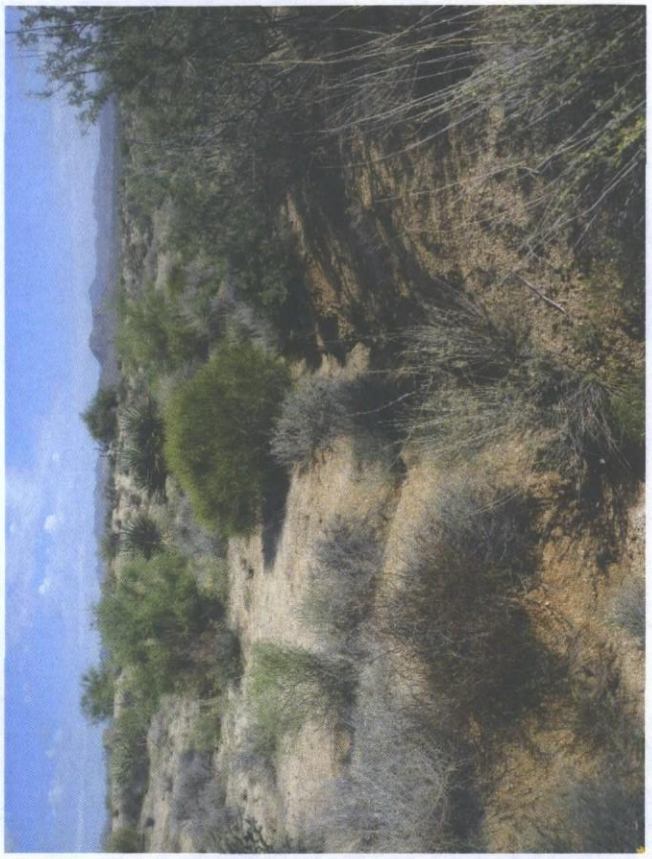

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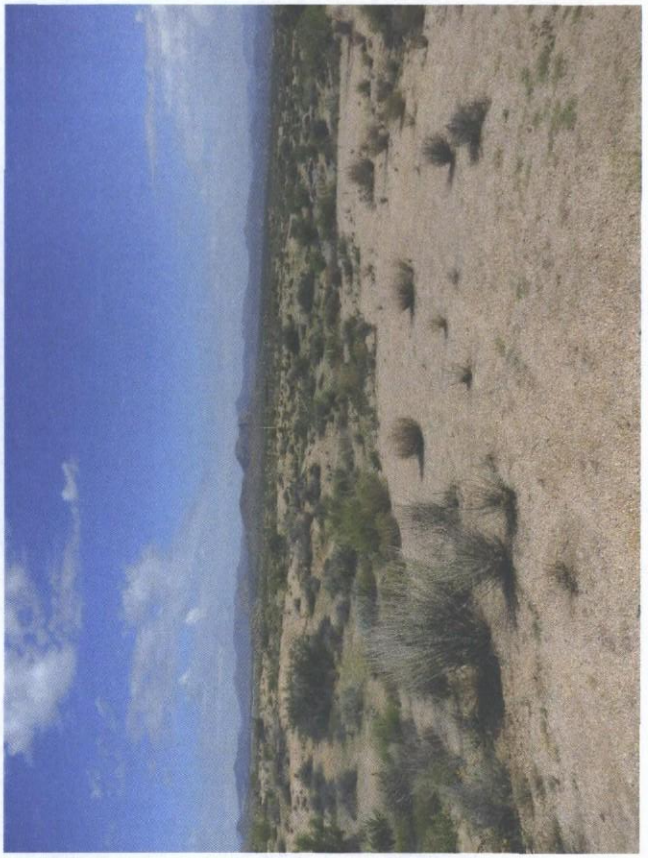

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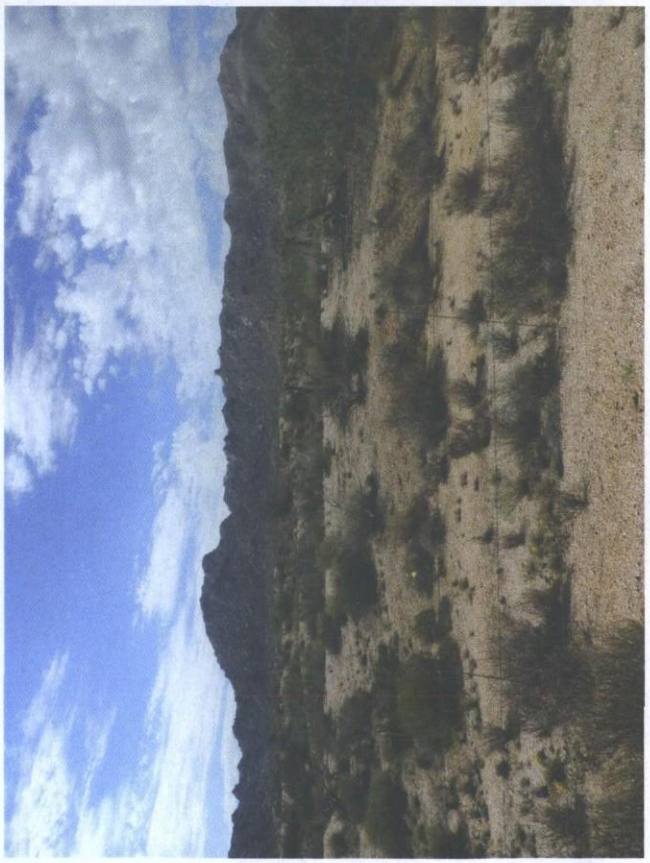

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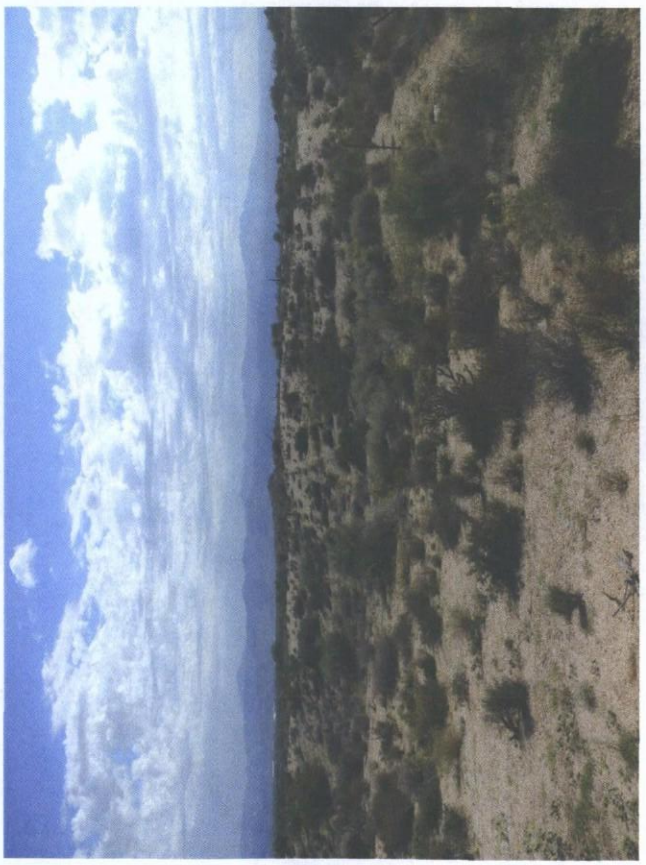

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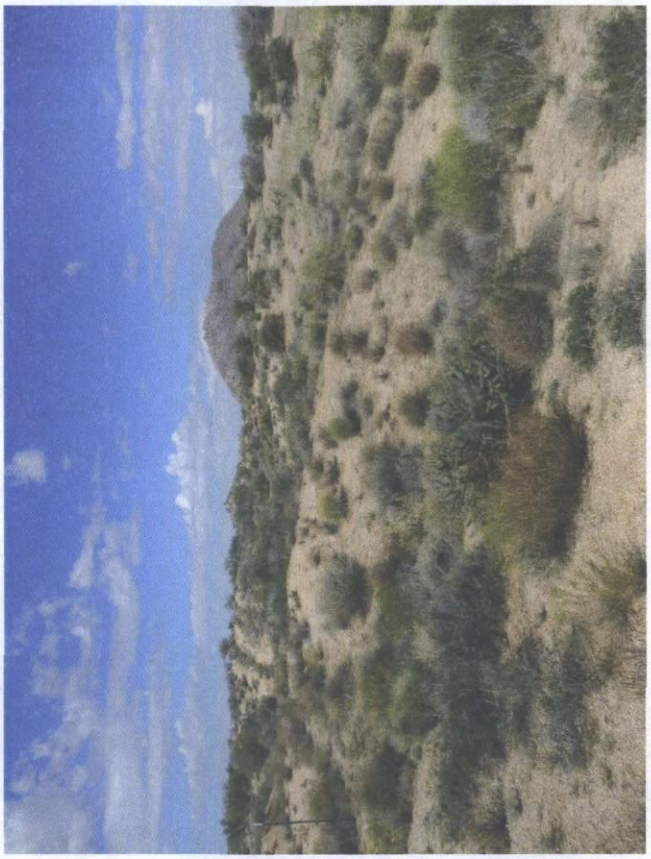

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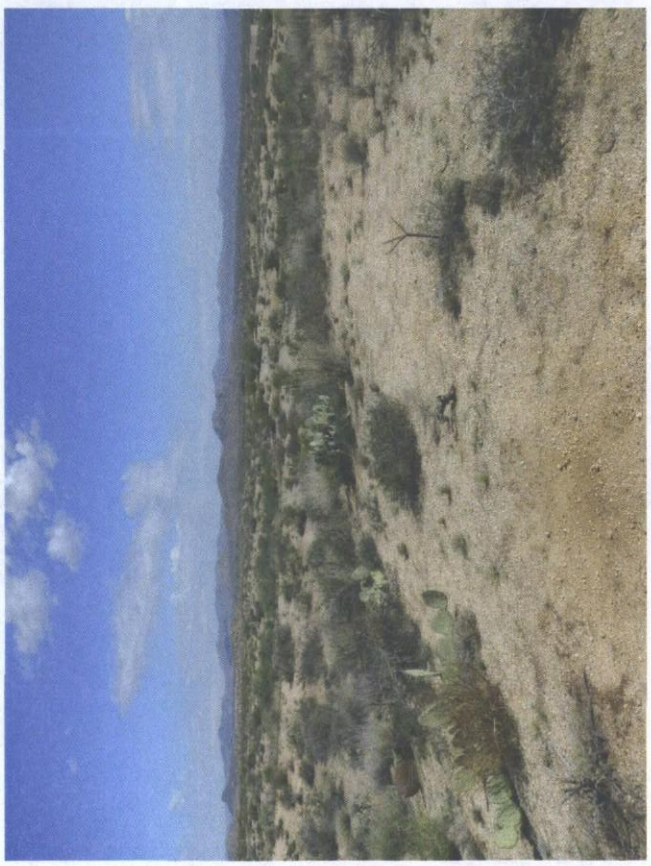

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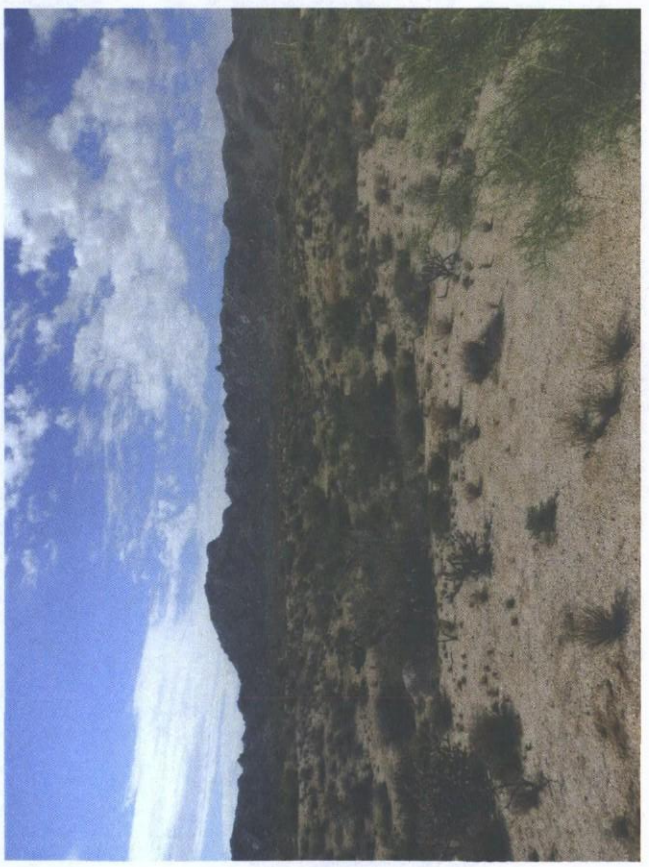

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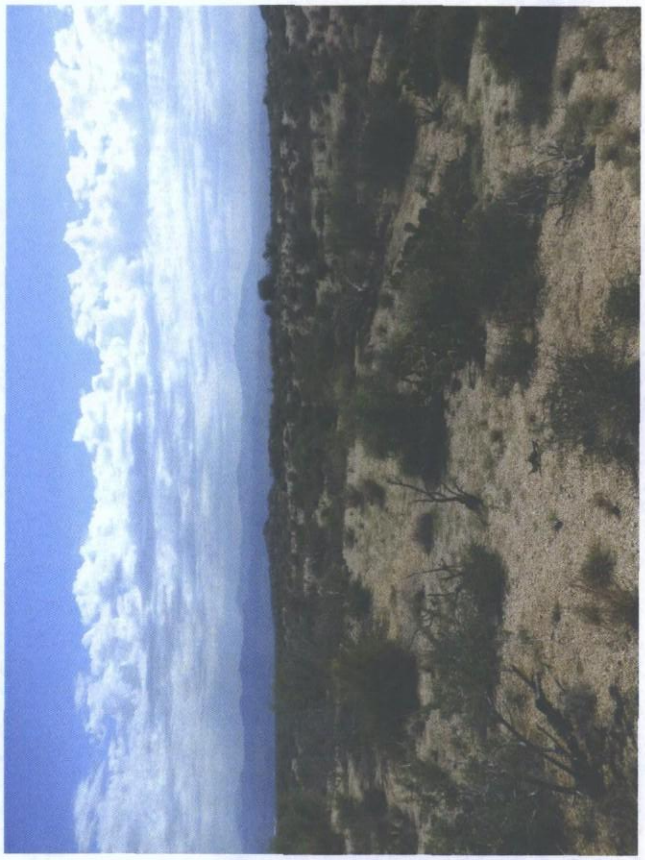

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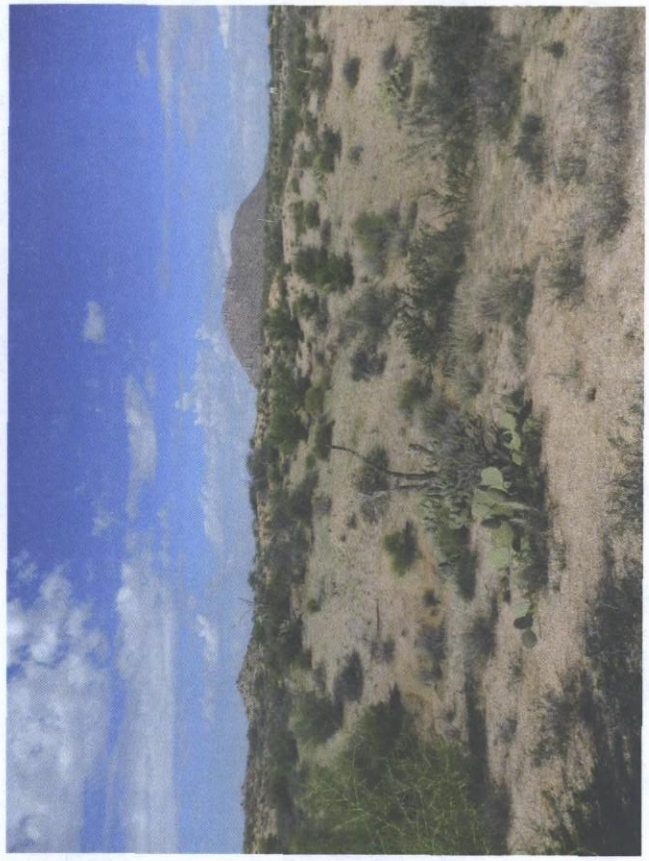

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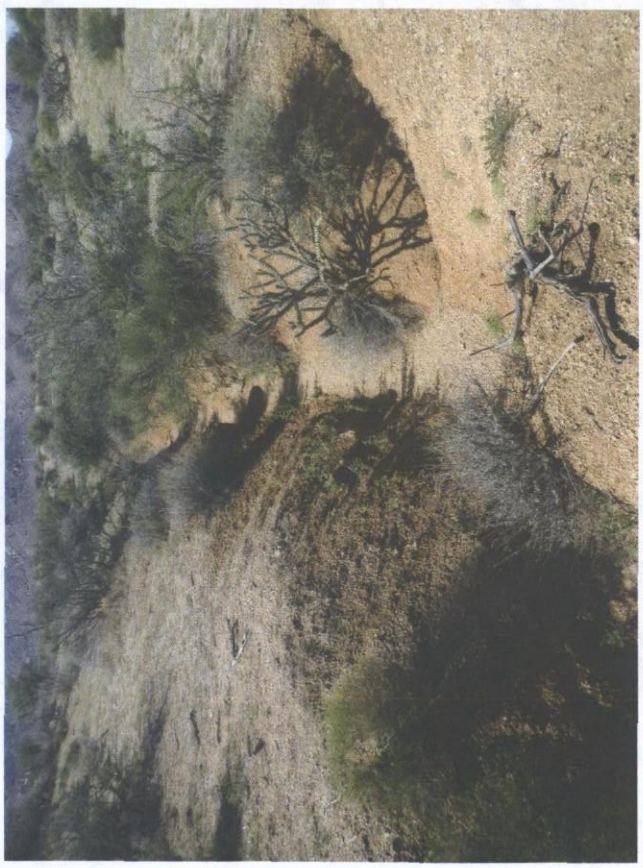

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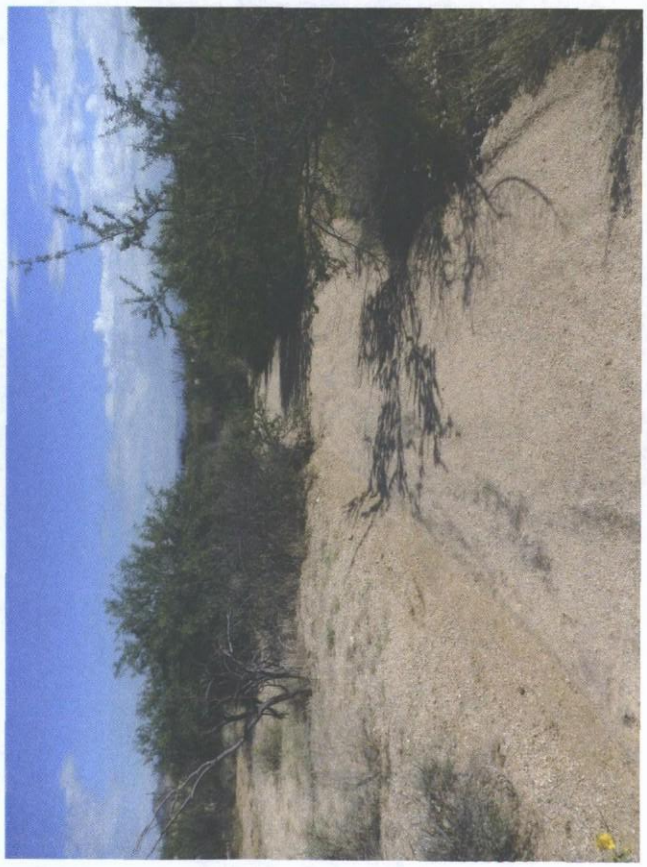

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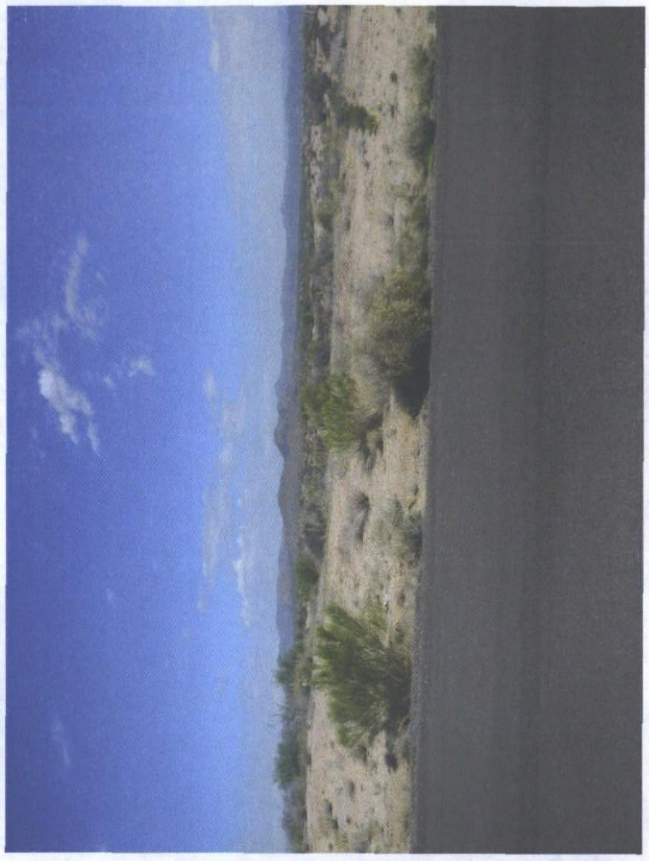

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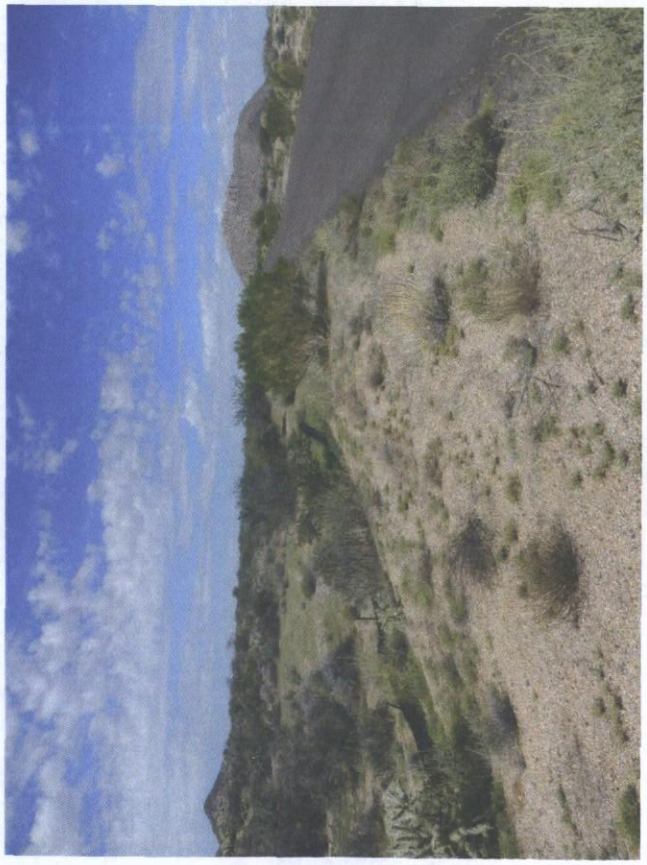

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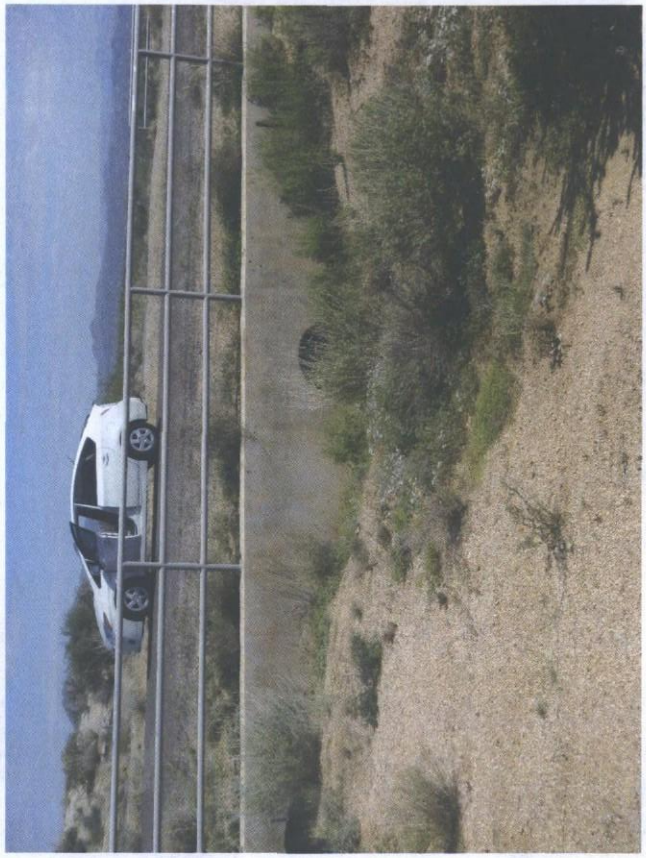
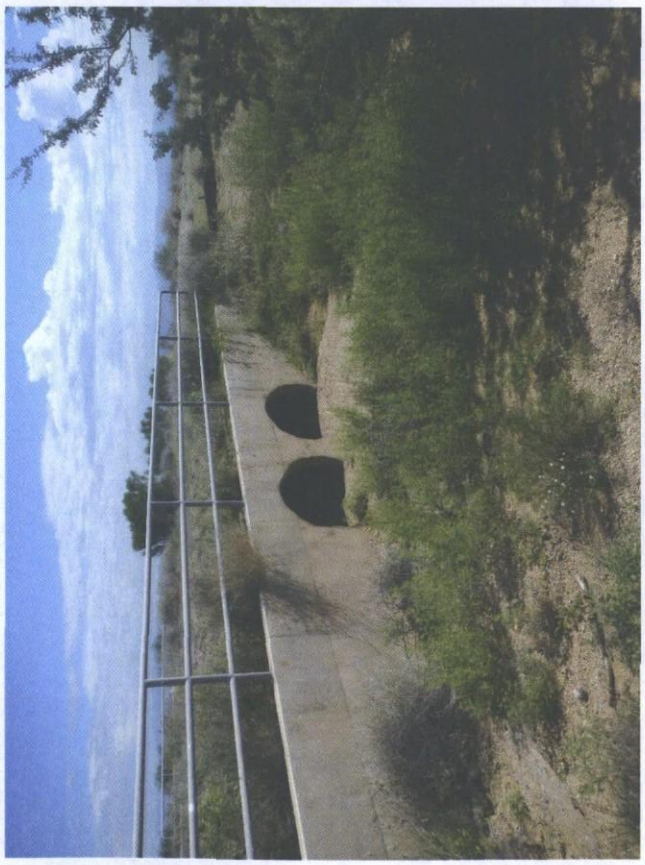


RanchGate_033.JPG

RanchGate_034.JPG



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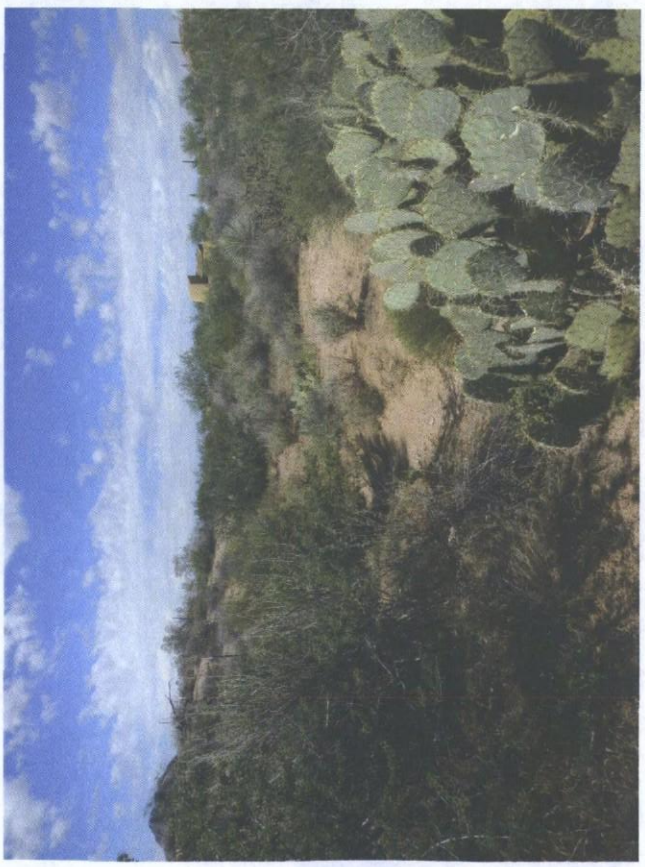

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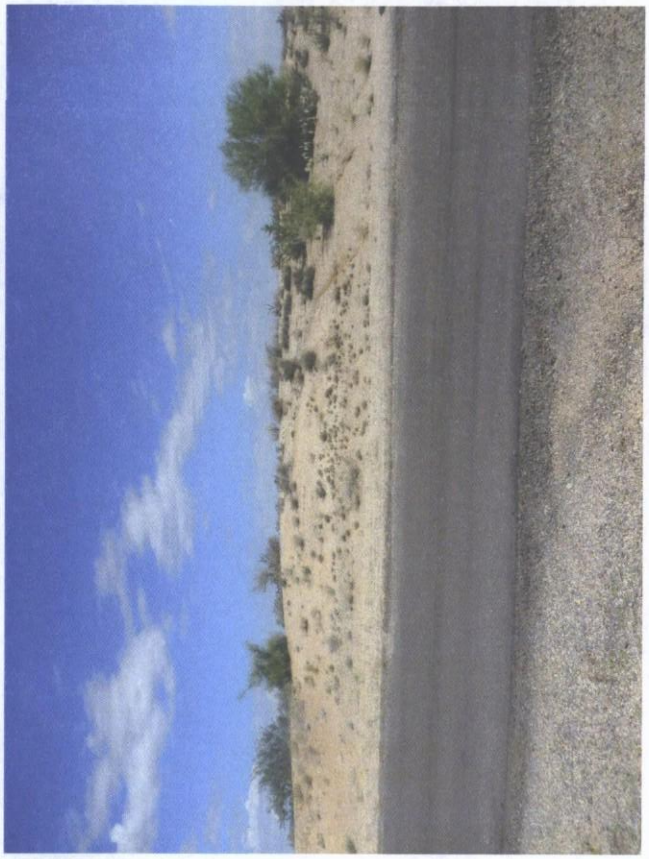
RanchGate_037.JPG



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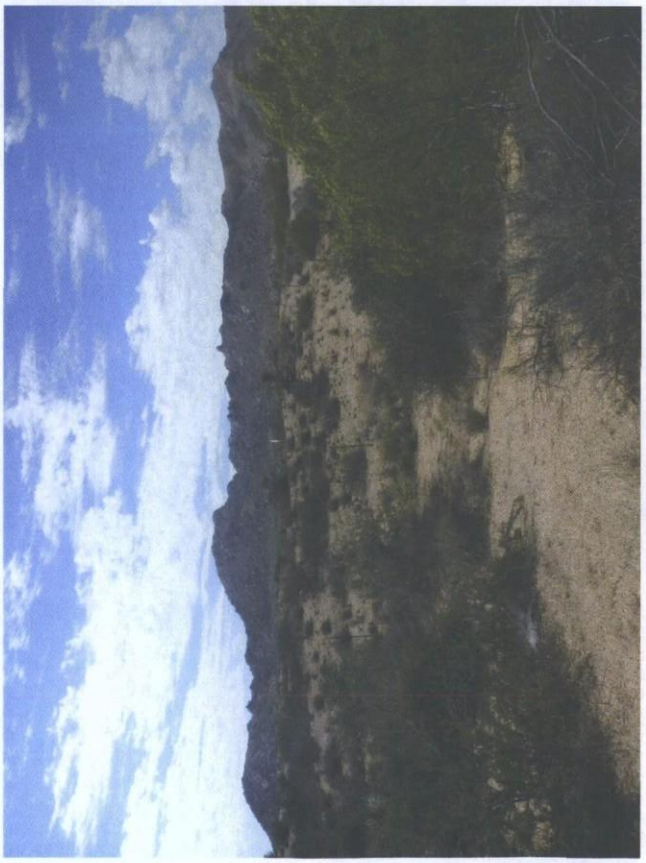

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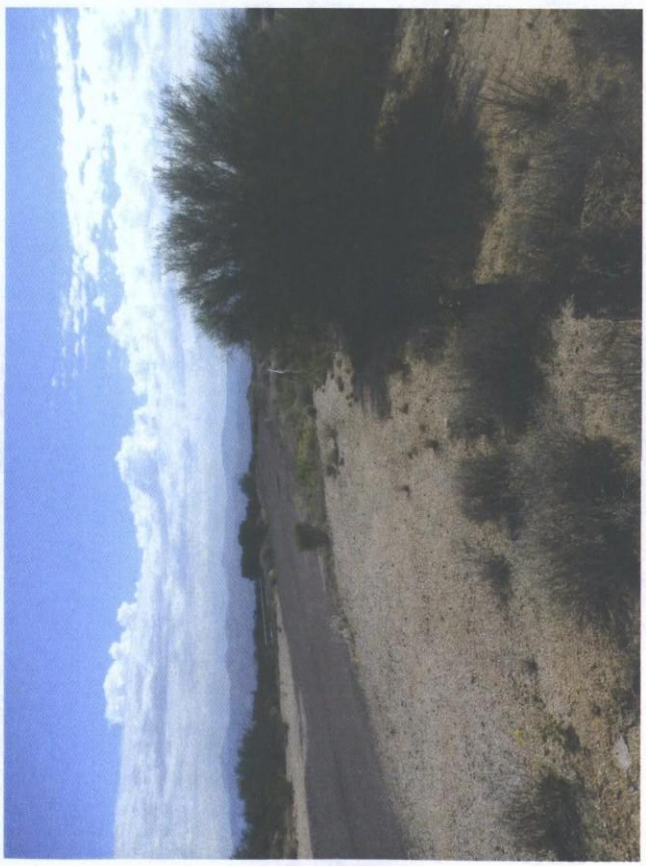

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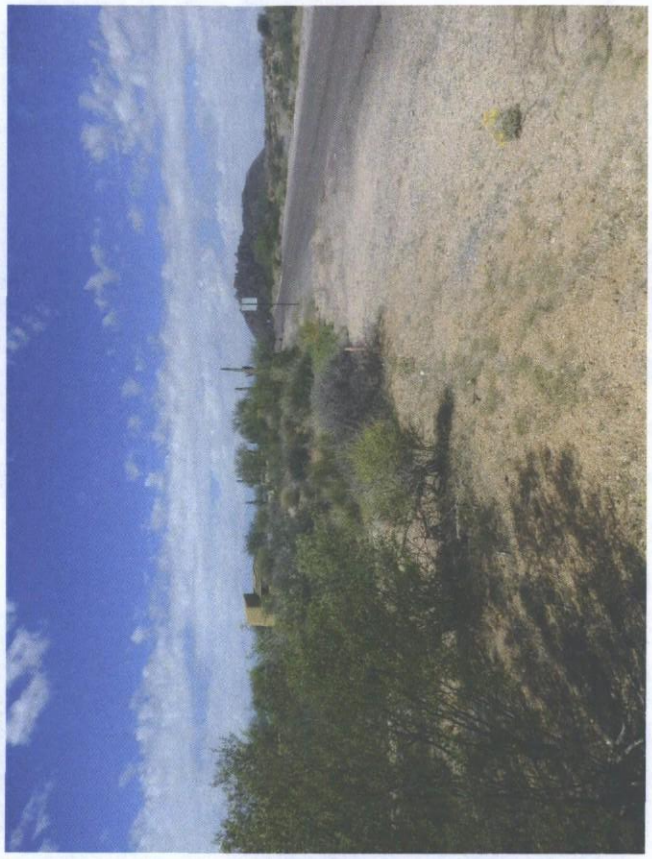

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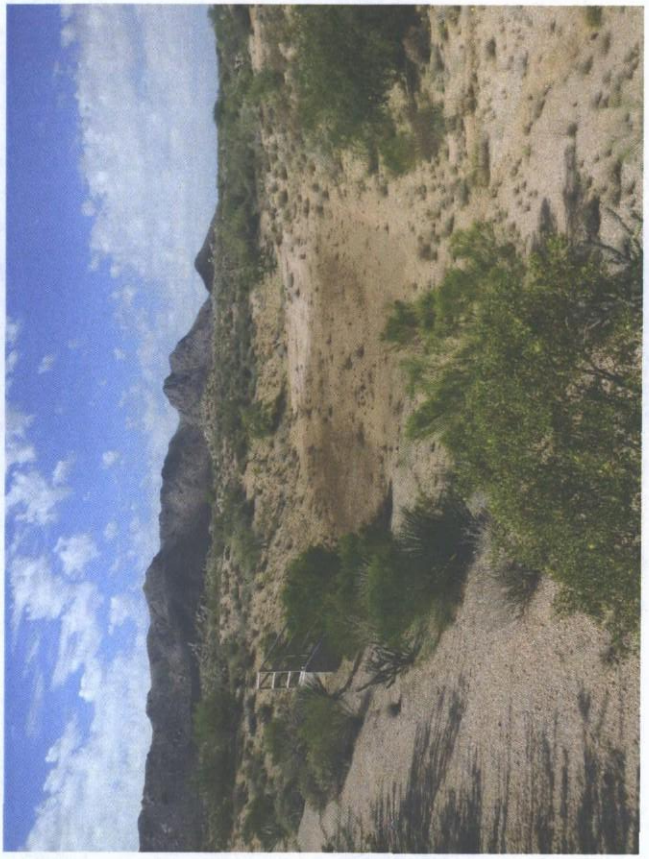

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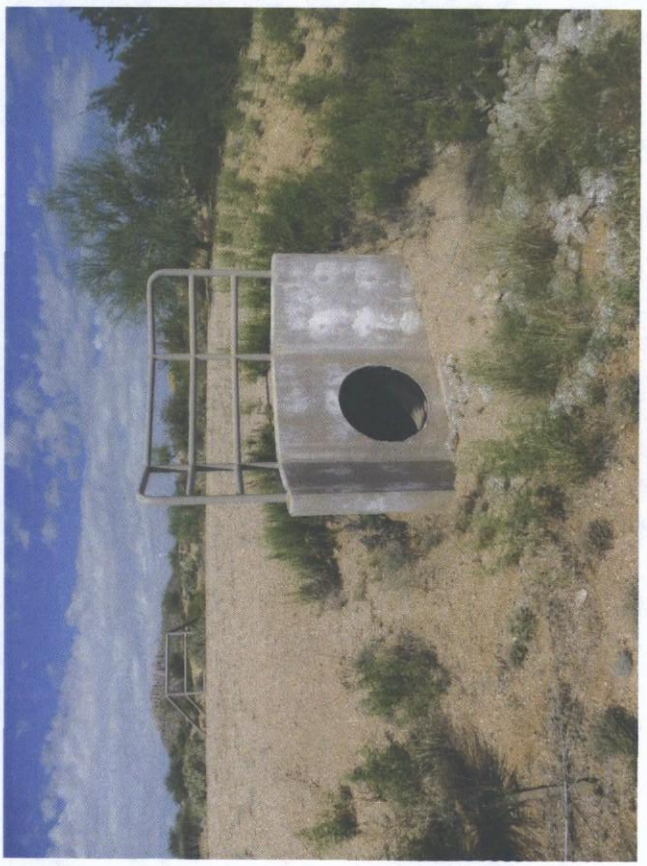

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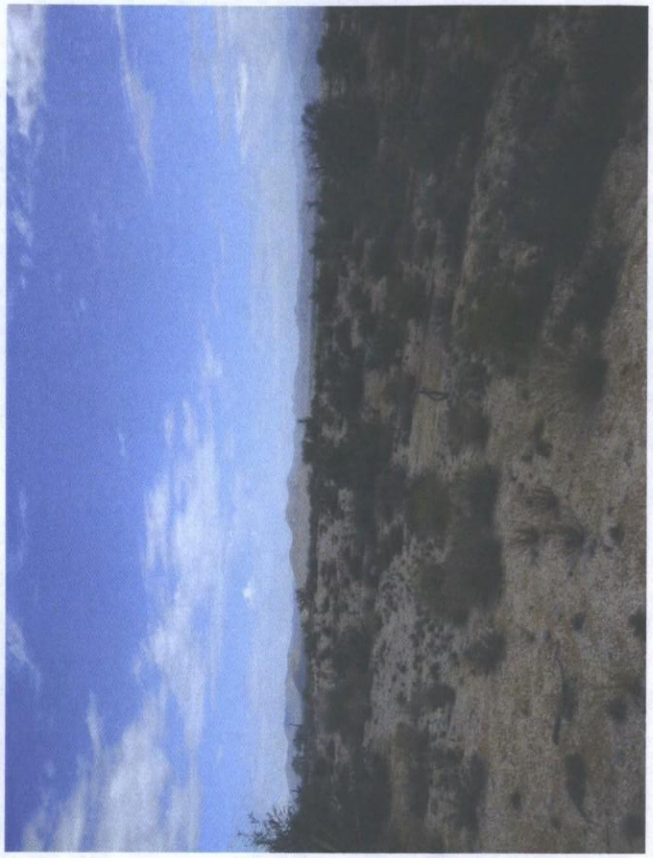

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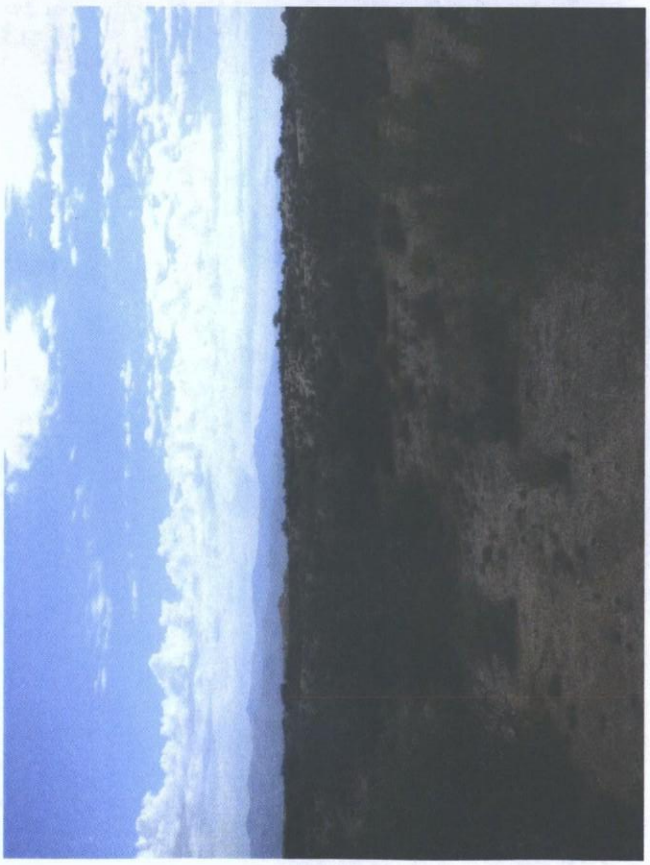

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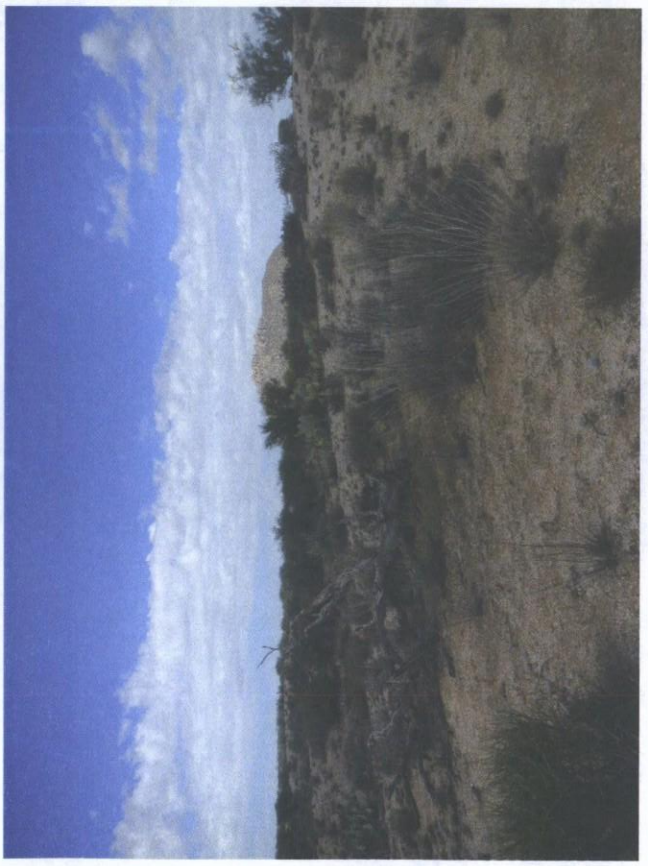

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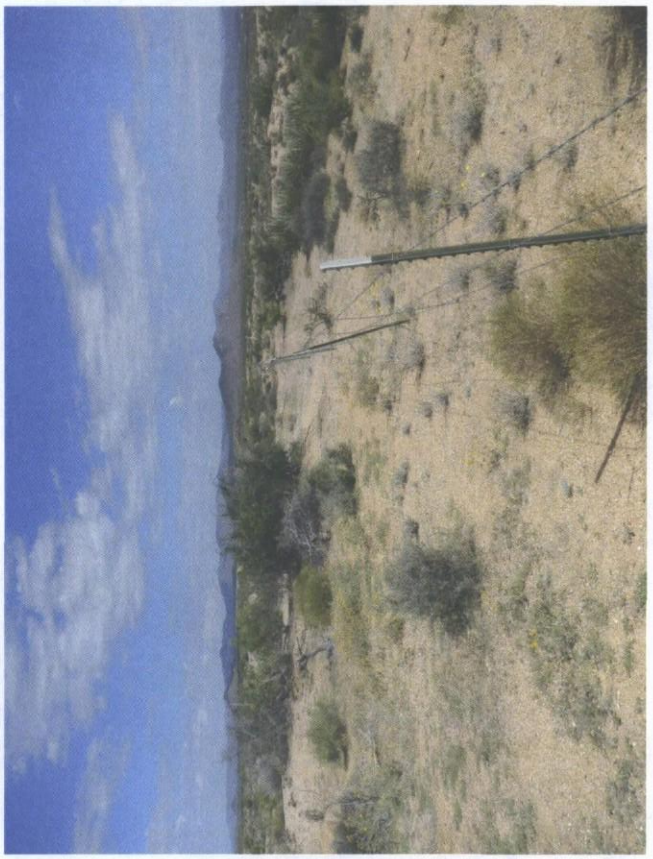

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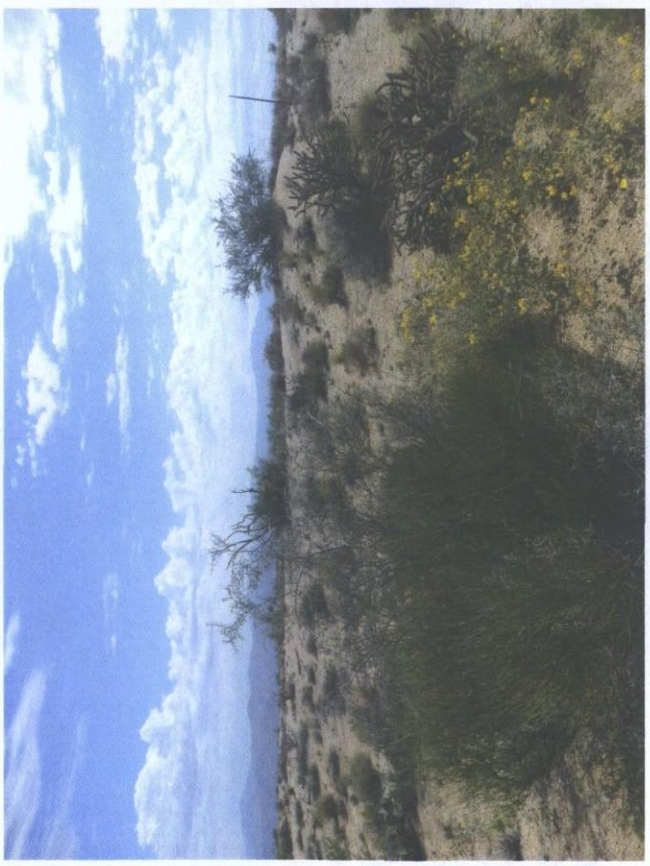
RanchGate_050.JPG



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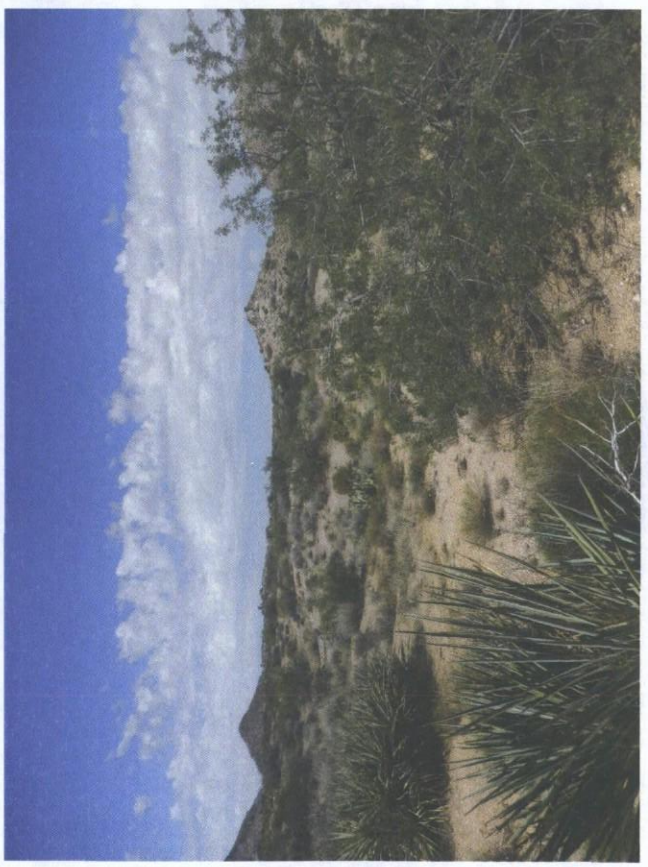

RanchGate_052.JPG

Appendix B: Hydrologic Parameters

City of Scottsdale
Drainage Design Management System
RAINFALL DATA
Project Reference: RANCH GATE 6 HR

9/16/2014

ID	Method	Duration	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
DEFAULT	NOAA14	5 MIN	0.315	0.425	0.506	0.612	0.691	0.771
	NOAA14	10 MIN	0.480	0.646	0.770	0.932	1.053	1.173
	NOAA14	15 MIN	0.595	0.801	0.954	1.155	1.305	1.454
	NOAA14	30 MIN	0.802	1.079	1.285	1.556	1.757	1.958
	NOAA14	1 HOUR	0.992	1.335	1.590	1.925	2.174	2.424
	NOAA14	2 HOUR	1.128	1.496	1.774	2.147	2.427	2.714
	NOAA14	3 HOUR	1.197	1.558	1.846	2.241	2.554	2.874
	NOAA14	6 HOUR	1.425	1.809	2.115	2.530	2.853	3.187
	NOAA14	12 HOUR	1.710	2.150	2.499	2.971	3.333	3.706
	NOAA14	24 HOUR	2.119	2.756	3.271	3.999	4.586	5.205

Area ID	Book Number	Map Unit	Soil ID	Area (sq mi)	Area (%)	XKSAT	Rock Percent (%)	Effective Rock (%)
Major Basin ID: 01								
A1	645	61	64561	0.012	100.00	0.15	-	100
A2	645	61	64561	0.031	100.00	0.15	-	100
A3	645	61	64561	0.002	100.00	0.15	-	100
B1	645	61	64561	0.001	100.00	0.15	-	100
C1	645	61	64561	0.002	100.00	0.15	-	100
D1	645	61	64561	0.113	100.00	0.15	-	100
D2	645	61	64561	0.005	100.00	0.15	-	100
D3	645	61	64561	0.008	100.00	0.15	-	100
D4	645	61	64561	0.005	100.00	0.15	-	100
D5	645	61	64561	0.011	100.00	0.15	-	100
D6	645	61	64561	0.010	100.00	0.15	-	100
E1	645	61	64561	0.005	100.00	0.15	-	100
E2	645	61	64561	0.003	100.00	0.15	-	100
E3	645	61	64561	0.004	100.00	0.15	-	100
E4	645	61	64561	0.011	100.00	0.15	-	100
E5	645	61	64561	0.009	100.00	0.15	-	100
F1	645	61	64561	0.001	100.00	0.15	-	100
G1	645	61	64561	0.002	100.00	0.15	-	100
H1	645	61	64561	0.058	100.00	0.15	-	100
H2	645	61	64561	0.005	100.00	0.15	-	100
I1	645	61	64561	0.001	100.00	0.15	-	100
I2	645	61	64561	0.001	100.00	0.15	-	100

Sediment Area ID	Land Use Code	Area (sq mi)	Area (%)	Effects of Canopy Cover (Ci)	Effects of Vegetation (Cii)	Effects of Tillage (Ciii)	Percent Impervious (%)
Major Basin ID: 01							
A1	900	0.0115	100.0	.86	.93	.39	-
		0.0115	**100.0**				
A2	900	0.0305	100.0	.86	.93	.39	-
		0.0305	**100.0**				
A3	900	0.0024	100.0	.86	.93	.39	-
		0.0024	**100.0**				
B1	900	0.0011	100.0	.86	.93	.39	-
		0.0011	**100.0**				
C1	900	0.0021	100.0	.86	.93	.39	-
		0.0021	**100.0**				
D1	900	0.1131	100.0	.86	.93	.39	-
		0.1131	**100.0**				
D2	900	0.0051	100.0	.86	.93	.39	-
		0.0051	**100.0**				
D3	900	0.0081	100.0	.86	.93	.39	-
		0.0081	**100.0**				
D4	900	0.0051	100.0	.86	.93	.39	-
		0.0051	**100.0**				
D5	900	0.0107	100.0	.86	.93	.39	-
		0.0107	**100.0**				
D6	900	0.0099	100.0	.86	.93	.39	-
		0.0099	**100.0**				
E1	900	0.0049	100.0	.86	.93	.39	-
		0.0049	**100.0**				
E2	900	0.0030	100.0	.86	.93	.39	-
		0.0030	**100.0**				
E3	900	0.0041	100.0	.86	.93	.39	-
		0.0041	**100.0**				
E4	900	0.0106	100.0	.86	.93	.39	-
		0.0106	**100.0**				
E5	900	0.0086	100.0	.86	.93	.39	-
		0.0086	**100.0**				
F1	900	0.0009	100.0	.86	.93	.39	-
		0.0009	**100.0**				
G1	900	0.0015	100.0	.86	.93	.39	-
		0.0015	**100.0**				
H1	900	0.0575	100.0	.86	.93	.39	-

Sediment Area ID	Land Use Code	Area (sq mi)	Area (%)	Effects of Canopy Cover (Ci)	Effects of Vegetation (Cii)	Effects of Tillage (Ciii)	Percent Impervious (%)
Major Basin ID: 01							
		0.0575	**100.0**				
H2	900	0.0046	100.0	.86	.93	.39	-
		0.0046	**100.0**				
I1	900	0.0013	100.0	.86	.93	.39	-
		0.0013	**100.0**				
I2	900	0.0010	100.0	.86	.93	.39	-
		0.0010	**100.0**				

Area ID	Sub Basin Parameters								Rainfall Losses				
	Area (sq mi)	Length (mi)	Slope (ft/mi)	S-Graph	Lca (mi)	Lag (min)	Velocity (f/s)	Kn	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)
Major Basin ID: 01													
A1	0.012	0.31	159.6	Mountain	0.13	4.00	6.69	0.025	0.35	0.40	6.00	0.18	
A2	0.030	0.47	141.6	Mountain	0.27	6.40	6.48	0.025	0.35	0.40	6.00	0.18	
A3	0.002	0.09	168.5	Mountain	0.04	1.60	4.91	0.025	0.35	0.40	6.00	0.18	
B1	0.001	0.05	291.7	Mountain	0.02	.90	4.84	0.025	0.35	0.40	6.00	0.18	
C1	0.002	0.08	265.8	Mountain	0.04	1.40	4.97	0.025	0.35	0.40	6.00	0.18	
D1	0.113	0.66	159.8	Mountain	0.29	7.30	7.91	0.025	0.35	0.40	6.00	0.18	
D2	0.005	0.18	209.0	Mountain	0.08	2.60	6.02	0.025	0.35	0.40	6.00	0.18	
D3	0.008	0.18	157.3	Mountain	0.08	2.70	5.72	0.025	0.35	0.40	6.00	0.18	
D4	0.005	0.12	233.3	Mountain	0.06	2.00	5.39	0.025	0.35	0.40	6.00	0.18	
D5	0.011	0.15	176.5	Mountain	0.09	2.60	5.09	0.025	0.35	0.40	6.00	0.18	
D6	0.010	0.22	167.4	Mountain	0.11	3.30	5.87	0.025	0.35	0.40	6.00	0.18	
E1	0.005	0.14	230.8	Mountain	0.06	2.10	6.00	0.025	0.35	0.40	6.00	0.18	
E2	0.003	0.12	227.6	Mountain	0.05	1.90	5.84	0.025	0.35	0.40	6.00	0.18	
E3	0.004	0.12	275.0	Mountain	0.05	1.80	5.96	0.025	0.35	0.40	6.00	0.18	
E4	0.011	0.26	219.7	Mountain	0.15	3.80	6.13	0.025	0.35	0.40	6.00	0.18	
E5	0.009	0.23	215.9	Mountain	0.13	3.40	5.88	0.025	0.35	0.40	6.00	0.18	
F1	0.001	0.05	326.9	Mountain	0.02	.90	5.19	0.025	0.35	0.40	6.00	0.18	
G1	0.002	0.07	235.3	Mountain	0.03	1.20	4.94	0.025	0.35	0.40	6.00	0.18	
H1	0.058	0.72	174.3	Mountain	0.37	8.20	7.74	0.025	0.35	0.40	6.00	0.18	
H2	0.005	0.14	188.8	Mountain	0.06	2.20	5.77	0.025	0.35	0.40	6.00	0.18	
I1	0.001	0.08	285.7	Mountain	0.04	1.40	4.96	0.025	0.35	0.40	6.00	0.18	
I2	0.001	0.04	333.3	Mountain	0.02	.80	4.57	0.025	0.35	0.40	6.00	0.18	

City of Scottsdale
Drainage Design Management System
HEC-1 ROUTING DATA
Project Reference: RANCH GATE 6 HR

9/16/2014

Route ID	LOB N	Chan N	ROB N	Length (ft)	Slope (ft/ft)	Max Elev (ft)		1.	2.	3.	4.	5.	6.	7.	8.
NORMAL DEPTH															
Major Basin 01															
RA1	0.042	0.036	0.042	174.90	0.0229	2,672.00	X:	-	15.00	25.00	43.00	50.00	60.00	72.00	79.00
							Y:	75.00	74.00	73.00	72.00	72.00	73.00	74.00	75.00
RA2	0.042	0.036	0.042	415.60	0.0216	2,677.00	X:	-	15.00	25.00	43.00	50.00	60.00	72.00	79.00
							Y:	75.00	74.00	73.00	72.00	72.00	73.00	74.00	75.00
RD2	0.042	0.036	0.042	320.90	0.0343	2,684.00	X:	-	38.00	70.00	77.00	79.00	85.00	94.00	130.00
							Y:	87.00	83.00	81.00	79.00	79.00	81.00	83.00	87.00
RD3	0.042	0.036	0.043	624.60	0.0352	2,695.00	X:	-	38.00	70.00	77.00	79.00	85.00	94.00	130.00
							Y:	87.00	83.00	81.00	79.00	79.00	81.00	83.00	87.00
RD4	0.042	0.030	0.042	751.20	0.0226	2,673.00	X:	-	27.00	85.00	91.00	99.00	105.00	141.00	174.00
							Y:	59.00	55.00	55.00	54.00	54.00	55.00	59.00	63.00
RD5	0.042	0.030	0.042	843.50	0.0213	2,656.00	X:	-	27.00	85.00	91.00	99.00	105.00	141.00	174.00
							Y:	59.00	55.00	55.00	54.00	54.00	55.00	59.00	63.00
RE1	0.042	0.036	0.042	415.60	0.0217	2,677.00	X:	-	38.00	70.00	77.00	79.00	85.00	94.00	130.00
							Y:	87.00	83.00	81.00	79.00	79.00	81.00	83.00	87.00
RE2	0.042	0.036	0.042	285.70	0.0420	2,682.00	X:	-	38.00	70.00	77.00	79.00	85.00	94.00	130.00
							Y:	87.00	83.00	81.00	79.00	79.00	81.00	83.00	87.00
RE3	0.042	0.036	0.042	1,085.60	0.0276	2,669.00	X:	-	38.00	70.00	77.00	79.00	85.00	94.00	130.00
							Y:	87.00	83.00	81.00	79.00	79.00	81.00	83.00	87.00
RE4	0.042	0.036	0.042	211.40	0.0236	2,644.00	X:	-	15.00	25.00	43.00	50.00	60.00	72.00	79.00
							Y:	75.00	74.00	73.00	72.00	72.00	73.00	74.00	75.00
RH1	0.042	0.030	0.042	592.60	0.0287	2,676.00	X:	-	27.00	85.00	91.00	99.00	105.00	141.00	174.00
							Y:	59.00	55.00	55.00	54.00	54.00	55.00	59.00	63.00

City of Scottsdale
Drainage Design Management System
LAND USE
Project Reference: RANCH GATE 24 HR PRO

Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetation Cover (%)	DTHETA	Kn	Description
Major Basin ID: 01									
A1	900	0.0115	43.4	0.35	0	25.0	DRY	0.025	
	900	0.0150	56.6	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0265	**100.0**						
A2	900	0.0305	45.9	0.35	0	25.0	DRY	0.025	
	900	0.0360	54.1	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0665	**100.0**						
A3	900	0.0024	52.2	0.35	0	25.0	DRY	0.025	
	900	0.0022	47.8	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0046	**100.0**						
B1	601	0.0005	25.0	0.10	90	10.0	DRY	0.020	Transportation (railways, transit centers, freeways)
	900	0.0011	55.0	0.35	0	25.0	DRY	0.025	
	900	0.0004	20.0	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0020	**100.0**						
C1	131	0.0016	28.1	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	601	0.0008	14.0	0.10	90	10.0	DRY	0.020	Transportation (railways, transit centers, freeways)
	711	0.0011	19.3	0.10	5	90.0	WET	0.030	Active Open Space (storage basins)
	900	0.0021	36.8	0.35	0	25.0	DRY	0.025	
	900	0.0001	1.8	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0057	**100.0**						
D1	900	0.1131	51.0	0.35	0	25.0	DRY	0.025	
	900	0.1085	49.0	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)

* Non default value

Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetation Cover (%)	DTHETA	Kn	Description
Major Basin ID: 01									
		0.2216	**100.0**						
D2	900	0.0051	42.5	0.35	0	25.0	DRY	0.025	
	900	0.0069	57.5	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0120	**100.0**						
D3	900	0.0081	55.1	0.35	0	25.0	DRY	0.025	
	900	0.0066	44.9	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0147	**100.0**						
D4	131	0.0020	19.0	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	900	0.0051	48.6	0.35	0	25.0	DRY	0.025	
	900	0.0034	32.4	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0105	**100.0**						
D5	131	0.0021	14.9	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	601	0.0009	6.4	0.10	90	10.0	DRY	0.020	Transportation (railways, transit centers, freeways)
	900	0.0107	75.9	0.35	0	25.0	DRY	0.025	
	900	0.0004	2.8	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0141	**100.0**						
D6	131	0.0025	15.9	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	711	0.0007	4.5	0.10	5	90.0	WET	0.030	Active Open Space (storage basins)
	900	0.0099	63.1	0.35	0	25.0	DRY	0.025	
	900	0.0026	16.6	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0157	**100.1**						

* Non default value

Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetation Cover (%)	DTHETA	Kn	Description
Major Basin ID: 01									
D7	131	0.0021	22.6	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	900	0.0072	77.4	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0093	**100.0**						
E1	900	0.0049	53.3	0.35	0	25.0	DRY	0.025	
	900	0.0043	46.7	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0092	**100.0**						
E2	900	0.0030	50.8	0.35	0	25.0	DRY	0.025	
	900	0.0029	49.2	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0059	**100.0**						
E3	131	0.0034	35.1	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	601	0.0010	10.3	0.10	90	10.0	DRY	0.020	Transportation (railways, transit centers, freeways)
	900	0.0041	42.3	0.35	0	25.0	DRY	0.025	
	900	0.0012	12.4	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0097	**100.1**						
E4	131	0.0043	25.1	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	601	0.0009	5.3	0.10	90	10.0	DRY	0.020	Transportation (railways, transit centers, freeways)
	711	0.0007	4.1	0.10	5	90.0	WET	0.030	Active Open Space (storage basins)
	900	0.0106	62.0	0.35	0	25.0	DRY	0.025	
	900	0.0006	3.5	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0171	**100.0**						
E5	131	0.0031	19.1	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)

* Non default value

City of Scottsdale
Drainage Design Management System
LAND USE
Project Reference: RANCH GATE 24 HR PRO

Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetation Cover (%)	DTHETA	Kn	Description
Major Basin ID: 01									
E5	711	0.0005	3.1	0.10	5	90.0	WET	0.030	Active Open Space (storage basins)
	900	0.0086	53.1	0.35	0	25.0	DRY	0.025	
	900	0.0040	24.7	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0162	**100.0**						
E6	131	0.0032	74.4	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	601	0.0008	18.6	0.10	90	10.0	DRY	0.020	Transportation (railways, transit centers, freeways)
	900	0.0003	7.0	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0043	**100.0**						
F1	900	0.0009	50.0	0.35	0	25.0	DRY	0.025	
	900	0.0009	50.0	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0018	**100.0**						
G1	131	0.0004	13.3	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	900	0.0015	50.0	0.35	0	25.0	DRY	0.025	
	900	0.0011	36.7	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0030	**100.0**						
H1	900	0.0575	50.0	0.35	0	25.0	DRY	0.025	
	900	0.0574	50.0	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.1149	**100.0**						
H2	131	0.0009	12.3	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	601	0.0003	4.1	0.10	90	10.0	DRY	0.020	Transportation (railways, transit centers, freeways)
	900	0.0046	63.0	0.35	0	25.0	DRY	0.025	

* Non default value

Sub Basin	Land Use Code	Area (sq mi)	Area (%)	Initial Loss (IA)	Percent Impervious (RTIMP)	Vegetation Cover (%)	DTHETA	Kn	Description
Major Basin ID: 01									
H2	900	0.0015	20.5	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0073	**99.9**						
H3	131	0.0001	5.6	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	900	0.0017	94.4	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0018	**100.0**						
I1	900	0.0013	39.4	0.35	0	25.0	DRY	0.025	
	900	0.0020	60.6	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0033	**100.0**						
I2	131	0.0001	5.0	0.25	30	25.0	DRY	0.020	Large Lot Residential - Single Family (1-2 du per acre)
	900	0.0010	50.0	0.35	0	25.0	DRY	0.025	
	900	0.0009	45.0	0.35	0	25.0	DRY	0.025	Vacant (Existing land use database only)
		0.0020	**100.0**						

Area ID	Sub Basin Parameters								Rainfall Losses				
	Area (sq mi)	Length (mi)	Slope (ft/mi)	S-Graph	Lca (mi)	Lag (min)	Velocity (f/s)	Kn	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)
Major Basin ID: 01													
A1	0.015	0.33	170.2	MOUNTAIN	0.15	4.30	6.70	0.025	0.35	0.40	6.00	0.176	
D7	0.009	0.19	171.1	Mountain	0.11	3.00	5.53	0.024	0.33	0.40	6.00	0.176	7
B1	0.001	0.06	62.5	Mountain	0.02	1.30	4.49	0.024	0.29	0.40	6.00	0.170	23
A2	0.036	0.52	153.3	MOUNTAIN	0.30	6.80	6.72	0.025	0.35	0.40	6.00	0.176	
E6	0.004	0.11	179.2	Mountain	0.05	1.50	6.36	0.020	0.23	0.40	6.00	0.171	39
A3	0.002	0.09	166.7	MOUNTAIN	0.04	1.60	4.93	0.025	0.35	0.40	6.00	0.176	
H3	0.002	0.05	270.8	Mountain	0.02	.90	4.77	0.025	0.34	0.40	6.00	0.176	2
C1	0.004	0.12	144.1	MOUNTAIN	0.04	1.80	5.91	0.024	0.24	0.32	6.00	0.192	22
D1	0.109	0.67	180.2	MOUNTAIN	0.29	7.20	8.16	0.025	0.35	0.40	6.00	0.176	
D2	0.007	0.19	247.3	MOUNTAIN	0.08	2.60	6.41	0.025	0.35	0.40	6.00	0.176	
D3	0.007	0.17	236.7	MOUNTAIN	0.08	2.50	5.99	0.025	0.35	0.40	6.00	0.176	
D4	0.005	0.16	212.9	MOUNTAIN	0.09	2.50	5.54	0.024	0.33	0.40	6.00	0.176	6
D5	0.003	0.16	202.5	MOUNTAIN	0.06	2.10	6.48	0.024	0.32	0.40	6.00	0.174	10
D6	0.006	0.11	196.3	MOUNTAIN	0.06	1.90	5.06	0.024	0.32	0.38	6.00	0.180	5
E1	0.004	0.12	276.4	MOUNTAIN	0.06	1.90	5.65	0.025	0.35	0.40	6.00	0.176	
E2	0.003	0.10	277.2	MOUNTAIN	0.05	1.70	5.36	0.025	0.35	0.40	6.00	0.176	
E3	0.006	0.16	185.2	MOUNTAIN	0.11	2.70	5.36	0.023	0.29	0.40	6.00	0.173	20
E4	0.007	0.12	209.7	MOUNTAIN	0.05	1.80	6.02	0.024	0.30	0.38	6.00	0.179	13
E5	0.008	0.24	205.0	MOUNTAIN	0.12	3.30	6.45	0.024	0.32	0.39	6.00	0.179	6
F1	0.001	0.05	326.9	MOUNTAIN	0.02	.90	5.19	0.025	0.35	0.40	6.00	0.176	
G1	0.002	0.07	235.3	MOUNTAIN	0.03	1.20	5.14	0.024	0.34	0.40	6.00	0.176	4

* Non default value

Area ID	Sub Basin Parameters								Rainfall Losses				
	Area (sq mi)	Length (mi)	Slope (ft/mi)	S-Graph	Lca (mi)	Lag (min)	Velocity (f/s)	Kn	IA (in)	DTHETA	PSIF (in)	XKSAT (in/hr)	RTIMP (%)
Major Basin ID: 01													
H1	0.057	0.71	194.6	MOUNTAIN	0.37	8.00	7.85	0.025	0.35	0.40	6.00	0.176	
H2	0.003	0.09	202.1	MOUNTAIN	0.03	1.40	6.11	0.024	0.33	0.40	6.00	0.174	7
I1	0.002	0.08	287.5	MOUNTAIN	0.04	1.40	5.09	0.025	0.35	0.40	6.00	0.176	
I2	0.001	0.04	325.6	MOUNTAIN	0.02	.80	4.61	0.025	0.35	0.40	6.00	0.176	2

City of Scottsdale
Drainage Design Management System
HEC-1 ROUTING DATA
Project Reference: RANCH GATE 24 HR PRO

1/13/2015

Route ID	LOB N	Chan N	ROB N	Length (ft)	Slope (ft/ft)	Max Elev (ft)		1.	2.	3.	4.	5.	6.	7.	8.
NORMAL DEPTH															
Major Basin 01															
RA1	0.042	0.036	0.042	174.90	0.0229	2,672.00	X:	-	15.00	25.00	43.00	50.00	60.00	72.00	79.00
							Y:	75.00	74.00	73.00	72.00	72.00	73.00	74.00	75.00
Non sandy bottom medium slope (<2.5%)															
RA2	0.042	0.036	0.042	415.60	0.0216	2,677.00	X:	-	15.00	25.00	43.00	50.00	60.00	72.00	79.00
							Y:	75.00	74.00	73.00	72.00	72.00	73.00	74.00	75.00
Non sandy bottom medium slope (<2.5%)															
RD2	0.042	0.036	0.042	320.90	0.0343	2,684.00	X:	-	38.00	70.00	77.00	79.00	85.00	94.00	130.00
							Y:	87.00	83.00	81.00	79.00	79.00	81.00	83.00	87.00
Non sandy bottom steep slope (>2.5%)															
RD3	0.042	0.036	0.043	624.60	0.0352	2,695.00	X:	-	38.00	70.00	77.00	79.00	85.00	94.00	130.00
							Y:	87.00	83.00	81.00	79.00	79.00	81.00	83.00	87.00
Non sandy bottom steep slope (>2.5%)															
RD4	0.042	0.030	0.042	751.20	0.0226	2,673.00	X:	-	27.00	85.00	91.00	99.00	105.00	141.00	174.00
							Y:	59.00	55.00	55.00	54.00	54.00	55.00	59.00	63.00
Sandy bottom- wide															
RD5	0.042	0.030	0.042	843.50	0.0213	2,656.00	X:	-	27.00	85.00	91.00	99.00	105.00	141.00	174.00
							Y:	59.00	55.00	55.00	54.00	54.00	55.00	59.00	63.00
Sandy bottom- wide															
RE1	0.042	0.036	0.042	415.60	0.0217	2,677.00	X:	-	38.00	70.00	77.00	79.00	85.00	94.00	130.00
							Y:	87.00	83.00	81.00	79.00	79.00	81.00	83.00	87.00
removed as not needed for developed															
RE2	0.042	0.036	0.042	475.00	0.0400	2,682.00	X:	-	38.00	70.00	77.00	79.00	85.00	94.00	130.00
							Y:	87.00	83.00	81.00	79.00	79.00	81.00	83.00	87.00
Non sandy bottom steep slope (>2.5%)															
RE3	0.042	0.036	0.042	761.00	0.0236	2,660.00	X:	-	38.00	70.00	77.00	79.00	85.00	94.00	130.00
							Y:	87.00	83.00	81.00	79.00	79.00	81.00	83.00	87.00
Non sandy bottom steep slope (>2.5%)															
RE4	0.042	0.036	0.042	211.40	0.0236	2,644.00	X:	-	15.00	25.00	43.00	50.00	60.00	72.00	79.00
							Y:	75.00	74.00	73.00	72.00	72.00	73.00	74.00	75.00
not needed for proposed conditions															
RH1	0.042	0.030	0.042	254.20	0.0275	2,676.00	X:	-	27.00	85.00	91.00	99.00	105.00	141.00	174.00
							Y:	59.00	55.00	55.00	54.00	54.00	55.00	59.00	63.00
Sandy bottom- wide															

Route ID	LOB N	Chan N	ROB N	Length (ft)	Slope (ft/ft)	Max Elev (ft)		1.	2.	3.	4.	5.	6.	7.	8.
RH2	0.042	0.030	0.042	415.00	0.0217	2,677.00	X:	-	27.00	85.00	91.00	99.00	105.00	141.00	174.00
							Y:	59.00	55.00	55.00	54.00	54.00	55.00	59.00	63.00
Sandy bottom- wide															

Appendix C: HEC-1 Output

Only summary tables are printed. See report CD for full HEC-1 output.

Existing 2-year 6-hour Summary

LENGTH, ELEVATION	FEET
FLOW	CUBIC FEET PER SECOND
STORAGE VOLUME	ACRE-FEET
SURFACE AREA	ACRES
TEMPERATURE	DEGREES FAHRENHEIT

10 JD INDEX STORM NO. 1

STRM	1.42	PRECIPITATION DEPTH
TRDA	0.00	TRANSPOSITION DRAINAGE AREA

11 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.09	0.09	0.09	0.09	0.09
0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

14 JD INDEX STORM NO. 2

STRM	1.42	PRECIPITATION DEPTH
TRDA	0.50	TRANSPOSITION DRAINAGE AREA

15 PI PRECIPITATION PATTERN

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.02	0.02	0.02	0.02	0.02
0.03	0.03	0.03	0.03	0.03	0.09	0.09	0.09	0.09	0.09
0.02	0.02	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	A1	11.	4.05	0.	0.	0.	0.01		
+	ROUTED TO	RA1	11.	4.05	0.	0.	0.	0.01		
+	HYDROGRAPH AT	A2	23.	4.05	1.	0.	0.	0.03		
+	ROUTED TO	RA2	23.	4.10	1.	0.	0.	0.03		
+	2 COMBINED AT	CA1	34.	4.05	1.	0.	0.	0.04		
+	HYDROGRAPH AT	A3	2.	4.05	0.	0.	0.	0.00		
+	2 COMBINED AT	CA2	36.	4.05	1.	0.	0.	0.04		
+	HYDROGRAPH AT	B1	1.	4.05	0.	0.	0.	0.00		
+	HYDROGRAPH AT	C1	2.	4.05	0.	0.	0.	0.00		
+	3 COMBINED AT	DUMMY1	39.	4.05	2.	0.	0.	0.05		
+	HYDROGRAPH AT	D1	84.	4.10	4.	1.	0.	0.11		
+	HYDROGRAPH AT	D2	5.	4.05	0.	0.	0.	0.00		
+	ROUTED TO	RD2	5.	4.05	0.	0.	0.	0.00		
+	HYDROGRAPH AT	D3	8.	4.05	0.	0.	0.	0.01		
+	ROUTED TO	RD3	8.	4.05	0.	0.	0.	0.01		
+	2 COMBINED AT	CD1	13.	4.05	0.	0.	0.	0.01		
+	2 COMBINED AT	CD2	92.	4.05	4.	1.	0.	0.13		
+	HYDROGRAPH AT	D4	5.	4.05	0.	0.	0.	0.00		
+	2 COMBINED AT	CD3	97.	4.05	4.	1.	0.	0.13		

+	ROUTED TO	RD4	97.	4.05	4.	1.	0.	0.13
+	HYDROGRAPH AT	D5	11.	4.05	0.	0.	0.	0.01
+	2 COMBINED AT	CD4	107.	4.05	5.	1.	0.	0.14
+	ROUTED TO	RD5	107.	4.05	5.	1.	0.	0.14
+	HYDROGRAPH AT	D6	9.	4.05	0.	0.	0.	0.01
+	2 COMBINED AT	CD5	116.	4.05	5.	1.	0.	0.15
+	HYDROGRAPH AT	E1	5.	4.05	0.	0.	0.	0.00
+	ROUTED TO	RE1	5.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	E2	3.	4.05	0.	0.	0.	0.00
+	ROUTED TO	RE2	3.	4.05	0.	0.	0.	0.00
+	2 COMBINED AT	CE1	8.	4.05	0.	0.	0.	0.01
+	HYDROGRAPH AT	E3	4.	4.05	0.	0.	0.	0.00
+	2 COMBINED AT	CE2	12.	4.05	0.	0.	0.	0.01
+	ROUTED TO	RE3	12.	4.05	0.	0.	0.	0.01
+	HYDROGRAPH AT	E5	8.	4.05	0.	0.	0.	0.01
+	2 COMBINED AT	CE3	20.	4.05	1.	0.	0.	0.02
+	HYDROGRAPH AT	E4	10.	4.05	0.	0.	0.	0.01
+	ROUTED TO	RE4	10.	4.05	0.	0.	0.	0.01
+	2 COMBINED AT	CE4	30.	4.05	1.	0.	0.	0.03
+	HYDROGRAPH AT	F1	1.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	G1	2.	4.05	0.	0.	0.	0.00
+	3 COMBINED AT	DUMMY2	33.	4.05	1.	0.	0.	0.03
+	HYDROGRAPH AT	H1	42.	4.10	2.	0.	0.	0.06
+	ROUTED TO	RH1	42.	4.10	2.	0.	0.	0.06
+	HYDROGRAPH AT	H2	5.	4.05	0.	0.	0.	0.00
+	2 COMBINED AT	CH1	43.	4.10	2.	1.	0.	0.06
+	HYDROGRAPH AT	I1	1.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	I2	1.	4.05	0.	0.	0.	0.00
+	2 COMBINED AT	CI1	2.	4.05	0.	0.	0.	0.00

*** NORMAL END OF HEC-1 ***

Existing 2-year 24-hour Summary

RG-2y24h.out

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	A1	11.	12.05	0.	0.	0.	0.01		
+	ROUTED TO	RA1	11.	12.05	0.	0.	0.	0.01		
+	HYDROGRAPH AT	A2	25.	12.05	1.	0.	0.	0.03		
+	ROUTED TO	RA2	25.	12.05	1.	0.	0.	0.03		
+	2 COMBINED AT	CA1	36.	12.05	2.	0.	0.	0.04		
+	HYDROGRAPH AT	A3	2.	12.05	0.	0.	0.	0.00		
+	2 COMBINED AT	CA2	37.	12.05	2.	0.	0.	0.04		
+	HYDROGRAPH AT	B1	1.	12.05	0.	0.	0.	0.00		
+	HYDROGRAPH AT	C1	2.	12.05	0.	0.	0.	0.00		
+	3 COMBINED AT	DUMMY1	40.	12.05	2.	0.	0.	0.05		
+	HYDROGRAPH AT	D1	87.	12.05	4.	1.	0.	0.11		
+	HYDROGRAPH AT	D2	5.	12.05	0.	0.	0.	0.00		
+	ROUTED TO	RD2	5.	12.05	0.	0.	0.	0.00		
+	HYDROGRAPH AT	D3	7.	12.05	0.	0.	0.	0.01		
+	ROUTED TO	RD3	7.	12.05	0.	0.	0.	0.01		
+	2 COMBINED AT	CD1	12.	12.05	0.	0.	0.	0.01		
+	2 COMBINED AT	CD2	99.	12.05	5.	1.	0.	0.13		
+	HYDROGRAPH AT	D4	5.	12.05	0.	0.	0.	0.00		
+	2 COMBINED AT	CD3	104.	12.05	5.	1.	0.	0.13		
+	ROUTED TO	RD4	103.	12.05	5.	1.	0.	0.13		
+	HYDROGRAPH AT	D5	10.	12.05	0.	0.	0.	0.01		
+	2 COMBINED AT	CD4	114.	12.05	5.	1.	0.	0.14		
+	ROUTED TO	RD5	113.	12.05	5.	1.	0.	0.14		
+	HYDROGRAPH AT	D6	9.	12.05	0.	0.	0.	0.01		
+	2 COMBINED AT	CD5	122.	12.05	6.	1.	0.	0.15		
+	HYDROGRAPH AT	E1	5.	12.05	0.	0.	0.	0.00		
+	ROUTED TO	RE1	5.	12.05	0.	0.	0.	0.00		
+	HYDROGRAPH AT	E2	3.	12.05	0.	0.	0.	0.00		
+	ROUTED TO	RE2	3.	12.05	0.	0.	0.	0.00		

+	2 COMBINED AT	CE1	7.	12.05	0.	0.	0.	0.01
+	HYDROGRAPH AT	E3	4.	12.05	0.	0.	0.	0.00
+	2 COMBINED AT	CE2	11.	12.05	0.	0.	0.	0.01
+	ROUTED TO	RE3	11.	12.00	0.	0.	0.	0.01
+	HYDROGRAPH AT	E5	8.	12.05	0.	0.	0.	0.01
+	2 COMBINED AT	CE3	19.	12.05	1.	0.	0.	0.02
+	HYDROGRAPH AT	E4	10.	12.05	0.	0.	0.	0.01
+	ROUTED TO	RE4	10.	12.05	0.	0.	0.	0.01
+	2 COMBINED AT	CE4	29.	12.05	1.	0.	0.	0.03
+	HYDROGRAPH AT	F1	1.	12.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	G1	2.	12.05	0.	0.	0.	0.00
+	3 COMBINED AT	DUMMY2	32.	12.05	1.	0.	0.	0.03
+	HYDROGRAPH AT	H1	44.	12.10	2.	1.	0.	0.06
+	ROUTED TO	RH1	44.	12.10	2.	1.	0.	0.06
+	HYDROGRAPH AT	H2	5.	12.05	0.	0.	0.	0.00
+	2 COMBINED AT	CH1	47.	12.05	2.	1.	0.	0.06
+	HYDROGRAPH AT	I1	1.	12.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	I2	1.	12.05	0.	0.	0.	0.00
+	2 COMBINED AT	CI1	2.	12.05	0.	0.	0.	0.00

*** NORMAL END OF HEC-1 ***

Existing 10-year 6-hour Summary


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     LENGTH, ELEVATION      FEET
     FLOW                   CUBIC FEET PER SECOND
     STORAGE VOLUME         ACRE-FEET
     SURFACE AREA           ACRES
     TEMPERATURE            DEGREES FAHRENHEIT

10 JD      INDEX STORM NO. 1
                STRM      2.12  PRECIPITATION DEPTH
                TRDA      0.00  TRANSPOSITION DRAINAGE AREA

11 PI        PRECIPITATION PATTERN
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
               0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
               0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00

14 JD      INDEX STORM NO. 2
                STRM      2.10  PRECIPITATION DEPTH
                TRDA      0.50  TRANSPOSITION DRAINAGE AREA

15 PI        PRECIPITATION PATTERN
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.02      0.02      0.02      0.02      0.02
               0.03      0.03      0.03      0.03      0.03      0.09      0.09      0.09      0.09      0.09
               0.02      0.02      0.02      0.02      0.02      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
               0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00      0.00
1
                                    RUNOFF SUMMARY
                              FLOW IN CUBIC FEET PER SECOND
                           TIME IN HOURS,  AREA IN SQUARE MILES

                                                PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN    MAXIMUM    TIME OF
+       OPERATION          STATION              FLOW    PEAK       6-HOUR      24-HOUR     72-HOUR      AREA     STAGE    MAX STAGE
+       HYDROGRAPH AT        A1                 23.     4.05         1.           0.          0.         0.01
+       ROUTED TO            RA1                23.     4.05         1.           0.          0.         0.01
+       HYDROGRAPH AT        A2                 51.     4.05         2.           1.          0.         0.03
+       ROUTED TO            RA2                52.     4.05         2.           1.          0.         0.03
+       2 COMBINED AT        CA1                74.     4.05         3.           1.          0.         0.04
+       HYDROGRAPH AT        A3                  4.     4.05         0.           0.          0.         0.00
+       2 COMBINED AT        CA2                78.     4.05         3.           1.          0.         0.04
+       HYDROGRAPH AT        B1                  2.     4.05         0.           0.          0.         0.00
+       HYDROGRAPH AT        C1                  4.     4.05         0.           0.          0.         0.00
+       3 COMBINED AT        DUMMY1             84.     4.05         4.           1.          0.         0.05
+       HYDROGRAPH AT        D1                184.     4.05         9.           2.          1.         0.11
+       HYDROGRAPH AT        D2                 10.     4.05         0.           0.          0.         0.00
+       ROUTED TO            RD2                10.     4.05         0.           0.          0.         0.00
+       HYDROGRAPH AT        D3                 15.     4.05         1.           0.          0.         0.01
+       ROUTED TO            RD3                15.     4.05         1.           0.          0.         0.01
+       2 COMBINED AT        CD1                25.     4.05         1.           0.          0.         0.01
+       2 COMBINED AT        CD2               209.     4.05        10.           2.          1.         0.13
+       HYDROGRAPH AT        D4                 10.     4.05         0.           0.          0.         0.00
+       2 COMBINED AT        CD3               218.     4.05        10.           3.          1.         0.13
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+	ROUTED TO	RD4	218.	4.05	10.	3.	1.	0.13
+	HYDROGRAPH AT	D5	21.	4.05	1.	0.	0.	0.01
+	2 COMBINED AT	CD4	239.	4.05	11.	3.	1.	0.14
+	ROUTED TO	RD5	238.	4.05	11.	3.	1.	0.14
+	HYDROGRAPH AT	D6	19.	4.05	1.	0.	0.	0.01
+	2 COMBINED AT	CD5	257.	4.05	12.	3.	1.	0.15
+	HYDROGRAPH AT	E1	10.	4.05	0.	0.	0.	0.00
+	ROUTED TO	RE1	10.	4.00	0.	0.	0.	0.00
+	HYDROGRAPH AT	E2	6.	4.05	0.	0.	0.	0.00
+	ROUTED TO	RE2	6.	4.05	0.	0.	0.	0.00
+	2 COMBINED AT	CE1	15.	4.00	1.	0.	0.	0.01
+	HYDROGRAPH AT	E3	8.	4.05	0.	0.	0.	0.00
+	2 COMBINED AT	CE2	23.	4.05	1.	0.	0.	0.01
+	ROUTED TO	RE3	23.	4.00	1.	0.	0.	0.01
+	HYDROGRAPH AT	E5	17.	4.05	1.	0.	0.	0.01
+	2 COMBINED AT	CE3	39.	4.05	2.	0.	0.	0.02
+	HYDROGRAPH AT	E4	21.	4.05	1.	0.	0.	0.01
+	ROUTED TO	RE4	21.	4.05	1.	0.	0.	0.01
+	2 COMBINED AT	CE4	60.	4.05	2.	1.	0.	0.03
+	HYDROGRAPH AT	F1	2.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	G1	4.	4.05	0.	0.	0.	0.00
+	3 COMBINED AT	DUMMY2	66.	4.05	3.	1.	0.	0.03
+	HYDROGRAPH AT	H1	92.	4.10	5.	1.	0.	0.06
+	ROUTED TO	RH1	92.	4.10	5.	1.	0.	0.06
+	HYDROGRAPH AT	H2	10.	4.05	0.	0.	0.	0.00
+	2 COMBINED AT	CH1	99.	4.05	5.	1.	0.	0.06
+	HYDROGRAPH AT	I1	2.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	I2	2.	4.05	0.	0.	0.	0.00
+	2 COMBINED AT	CI1	4.	4.05	0.	0.	0.	0.00

*** NORMAL END OF HEC-1 ***

Existing 10-year 24-hour Summary

RG-10y24h.out

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	A1	22.	12.05	1.	0.	0.	0.01		
+	ROUTED TO	RA1	22.	12.05	1.	0.	0.	0.01		
+	HYDROGRAPH AT	A2	52.	12.05	3.	1.	0.	0.03		
+	ROUTED TO	RA2	52.	12.05	3.	1.	0.	0.03		
+	2 COMBINED AT	CA1	74.	12.05	4.	1.	0.	0.04		
+	HYDROGRAPH AT	A3	4.	12.05	0.	0.	0.	0.00		
+	2 COMBINED AT	CA2	78.	12.05	4.	1.	0.	0.04		
+	HYDROGRAPH AT	B1	2.	12.05	0.	0.	0.	0.00		
+	HYDROGRAPH AT	C1	4.	12.05	0.	0.	0.	0.00		
+	3 COMBINED AT	DUMMY1	83.	12.05	4.	1.	0.	0.05		
+	HYDROGRAPH AT	D1	186.	12.05	10.	3.	1.	0.11		
+	HYDROGRAPH AT	D2	10.	12.05	0.	0.	0.	0.00		
+	ROUTED TO	RD2	9.	12.00	0.	0.	0.	0.00		
+	HYDROGRAPH AT	D3	15.	12.05	1.	0.	0.	0.01		
+	ROUTED TO	RD3	15.	12.00	1.	0.	0.	0.01		
+	2 COMBINED AT	CD1	24.	12.00	1.	0.	0.	0.01		
+	2 COMBINED AT	CD2	210.	12.05	11.	3.	1.	0.13		
+	HYDROGRAPH AT	D4	9.	12.05	0.	0.	0.	0.00		
+	2 COMBINED AT	CD3	220.	12.05	12.	3.	1.	0.13		
+	ROUTED TO	RD4	219.	12.05	12.	3.	1.	0.13		
+	HYDROGRAPH AT	D5	21.	12.05	1.	0.	0.	0.01		
+	2 COMBINED AT	CD4	240.	12.05	13.	3.	1.	0.14		
+	ROUTED TO	RD5	239.	12.05	13.	3.	1.	0.14		
+	HYDROGRAPH AT	D6	19.	12.05	1.	0.	0.	0.01		
+	2 COMBINED AT	CD5	258.	12.05	14.	3.	1.	0.15		
+	HYDROGRAPH AT	E1	9.	12.05	0.	0.	0.	0.00		
+	ROUTED TO	RE1	9.	12.00	0.	0.	0.	0.00		
+	HYDROGRAPH AT	E2	5.	12.05	0.	0.	0.	0.00		
+	ROUTED TO	RE2	5.	12.00	0.	0.	0.	0.00		

+	2 COMBINED AT	CE1	15.	12.00	1.	0.	0.	0.01
+	HYDROGRAPH AT	E3	7.	12.05	0.	0.	0.	0.00
+	2 COMBINED AT	CE2	22.	12.00	1.	0.	0.	0.01
+	ROUTED TO	RE3	22.	12.00	1.	0.	0.	0.01
+	HYDROGRAPH AT	E5	17.	12.05	1.	0.	0.	0.01
+	2 COMBINED AT	CE3	39.	12.00	2.	0.	0.	0.02
+	HYDROGRAPH AT	E4	20.	12.05	1.	0.	0.	0.01
+	ROUTED TO	RE4	20.	12.05	1.	0.	0.	0.01
+	2 COMBINED AT	CE4	59.	12.05	3.	1.	0.	0.03
+	HYDROGRAPH AT	F1	2.	12.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	G1	4.	12.05	0.	0.	0.	0.00
+	3 COMBINED AT	DUMMY2	64.	12.05	3.	1.	0.	0.03
+	HYDROGRAPH AT	H1	92.	12.10	5.	1.	0.	0.06
+	ROUTED TO	RH1	92.	12.10	5.	1.	0.	0.06
+	HYDROGRAPH AT	H2	9.	12.05	0.	0.	0.	0.00
+	2 COMBINED AT	CH1	101.	12.05	6.	1.	0.	0.06
+	HYDROGRAPH AT	I1	2.	12.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	I2	2.	12.05	0.	0.	0.	0.00
+	2 COMBINED AT	CI1	4.	12.05	0.	0.	0.	0.00

*** NORMAL END OF HEC-1 ***

Existing 50-year 6-hour Summary


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          LENGTH, ELEVATION     FEET
          FLOW                  CUBIC FEET PER SECOND
          STORAGE VOLUME        ACRE-FEET
          SURFACE AREA          ACRES
          TEMPERATURE           DEGREES FAHRENHEIT

 10 JD          INDEX STORM NO. 1
                    STRM        2.85  PRECIPITATION DEPTH
                    TRDA        0.00  TRANSPOSITION DRAINAGE AREA

 11 PI            PRECIPITATION PATTERN
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.02    0.02    0.02    0.02    0.02
                 0.03    0.03    0.03    0.03    0.03    0.09    0.09    0.09    0.09    0.09
                 0.02    0.02    0.02    0.02    0.02    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00

 14 JD          INDEX STORM NO. 2
                    STRM        2.84  PRECIPITATION DEPTH
                    TRDA        0.50  TRANSPOSITION DRAINAGE AREA

 15 PI            PRECIPITATION PATTERN
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.02    0.02    0.02    0.02    0.02
                 0.03    0.03    0.03    0.03    0.03    0.09    0.09    0.09    0.09    0.09
                 0.02    0.02    0.02    0.02    0.02    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                 0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
1
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	A1	42.	4.05	2.	1.	0.	0.01		
+	ROUTED TO	RA1	42.	4.05	2.	1.	0.	0.01		
+	HYDROGRAPH AT	A2	92.	4.05	5.	1.	0.	0.04		
+	ROUTED TO	RA2	92.	4.05	5.	1.	0.	0.04		
+	2 COMBINED AT	CA1	134.	4.05	7.	2.	1.	0.05		
+	HYDROGRAPH AT	A3	6.	4.05	0.	0.	0.	0.00		
+	2 COMBINED AT	CA2	140.	4.05	7.	2.	1.	0.05		
+	HYDROGRAPH AT	B1	3.	4.05	0.	0.	0.	0.00		
+	HYDROGRAPH AT	C1	6.	4.05	0.	0.	0.	0.00		
+	3 COMBINED AT	DUMMY1	149.	4.05	8.	2.	1.	0.06		
+	HYDROGRAPH AT	D1	275.	4.05	15.	4.	1.	0.11		
+	HYDROGRAPH AT	D2	20.	4.05	1.	0.	0.	0.01		
+	ROUTED TO	RD2	20.	4.00	1.	0.	0.	0.01		
+	HYDROGRAPH AT	D3	20.	4.05	1.	0.	0.	0.01		
+	ROUTED TO	RD3	20.	4.00	1.	0.	0.	0.01		
+	2 COMBINED AT	CD1	40.	4.00	2.	0.	0.	0.01		
+	2 COMBINED AT	CD2	314.	4.05	17.	4.	1.	0.12		
+	HYDROGRAPH AT	D4	14.	4.05	1.	0.	0.	0.00		
+	2 COMBINED AT	CD3	329.	4.05	18.	4.	1.	0.13		

+	ROUTED TO	RD4	328.	4.05	18.	4.	1.	0.13
+	HYDROGRAPH AT	D5	32.	4.05	2.	0.	0.	0.01
+	2 COMBINED AT	CD4	360.	4.05	19.	5.	2.	0.14
+	ROUTED TO	RD5	359.	4.05	19.	5.	2.	0.14
+	HYDROGRAPH AT	D6	29.	4.05	1.	0.	0.	0.01
+	2 COMBINED AT	CD5	387.	4.05	21.	5.	2.	0.15
+	HYDROGRAPH AT	E1	11.	4.05	1.	0.	0.	0.00
+	ROUTED TO	RE1	11.	4.00	1.	0.	0.	0.00
+	HYDROGRAPH AT	E2	8.	4.05	0.	0.	0.	0.00
+	ROUTED TO	RE2	8.	4.00	0.	0.	0.	0.00
+	2 COMBINED AT	CE1	20.	4.00	1.	0.	0.	0.01
+	HYDROGRAPH AT	E3	11.	4.05	1.	0.	0.	0.00
+	2 COMBINED AT	CE2	31.	4.00	1.	0.	0.	0.01
+	ROUTED TO	RE3	31.	4.00	1.	0.	0.	0.01
+	HYDROGRAPH AT	E5	26.	4.05	1.	0.	0.	0.01
+	2 COMBINED AT	CE3	56.	4.00	3.	1.	0.	0.02
+	HYDROGRAPH AT	E4	31.	4.05	2.	0.	0.	0.01
+	ROUTED TO	RE4	31.	4.05	2.	0.	0.	0.01
+	2 COMBINED AT	CE4	87.	4.05	4.	1.	0.	0.03
+	HYDROGRAPH AT	F1	3.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	G1	5.	4.05	0.	0.	0.	0.00
+	3 COMBINED AT	DUMMY2	95.	4.05	5.	1.	0.	0.03
+	HYDROGRAPH AT	H1	138.	4.10	8.	2.	1.	0.06
+	ROUTED TO	RH1	138.	4.10	8.	2.	1.	0.06
+	HYDROGRAPH AT	H2	14.	4.05	1.	0.	0.	0.00
+	2 COMBINED AT	CH1	152.	4.05	9.	2.	1.	0.06
+	HYDROGRAPH AT	I1	6.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	I2	3.	4.05	0.	0.	0.	0.00
+	2 COMBINED AT	CI1	9.	4.05	0.	0.	0.	0.00

*** NORMAL END OF HEC-1 ***

Existing 50 year 24-hour Summary

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	A1	42.	12.05	2.	1.	0.	0.01		
+	ROUTED TO	RA1	42.	12.05	2.	1.	0.	0.01		
+	HYDROGRAPH AT	A2	95.	12.05	6.	1.	0.	0.04		
+	ROUTED TO	RA2	95.	12.05	6.	1.	0.	0.04		
+	2 COMBINED AT	CA1	137.	12.05	8.	2.	1.	0.05		
+	HYDROGRAPH AT	A3	6.	12.05	0.	0.	0.	0.00		
+	2 COMBINED AT	CA2	143.	12.05	8.	2.	1.	0.05		
+	HYDROGRAPH AT	B1	3.	12.05	0.	0.	0.	0.00		
+	HYDROGRAPH AT	C1	6.	12.05	0.	0.	0.	0.00		
+	3 COMBINED AT	DUMMY1	151.	12.05	9.	2.	1.	0.06		
+	HYDROGRAPH AT	D1	283.	12.05	18.	4.	1.	0.11		
+	HYDROGRAPH AT	D2	20.	12.05	1.	0.	0.	0.01		
+	ROUTED TO	RD2	20.	12.00	1.	0.	0.	0.01		
+	HYDROGRAPH AT	D3	20.	12.05	1.	0.	0.	0.01		
+	ROUTED TO	RD3	20.	12.00	1.	0.	0.	0.01		
+	2 COMBINED AT	CD1	40.	12.00	2.	1.	0.	0.01		
+	2 COMBINED AT	CD2	322.	12.05	20.	5.	2.	0.12		
+	HYDROGRAPH AT	D4	14.	12.05	1.	0.	0.	0.00		
+	2 COMBINED AT	CD3	337.	12.05	21.	5.	2.	0.13		
+	ROUTED TO	RD4	336.	12.05	21.	5.	2.	0.13		
+	HYDROGRAPH AT	D5	32.	12.05	2.	0.	0.	0.01		
+	2 COMBINED AT	CD4	368.	12.05	22.	6.	2.	0.14		
+	ROUTED TO	RD5	367.	12.05	22.	6.	2.	0.14		
+	HYDROGRAPH AT	D6	29.	12.05	2.	0.	0.	0.01		
+	2 COMBINED AT	CD5	395.	12.05	24.	6.	2.	0.15		
+	HYDROGRAPH AT	E1	11.	12.05	1.	0.	0.	0.00		
+	ROUTED TO	RE1	11.	12.00	1.	0.	0.	0.00		
+	HYDROGRAPH AT	E2	9.	12.05	0.	0.	0.	0.00		
+	ROUTED TO	RE2	9.	12.00	0.	0.	0.	0.00		

+	2 COMBINED AT	CE1	20.	12.00	1.	0.	0.	0.01
+	HYDROGRAPH AT	E3	11.	12.05	1.	0.	0.	0.00
+	2 COMBINED AT	CE2	31.	12.00	2.	0.	0.	0.01
+	ROUTED TO	RE3	31.	11.90	2.	0.	0.	0.01
+	HYDROGRAPH AT	E5	26.	12.05	1.	0.	0.	0.01
+	2 COMBINED AT	CE3	57.	12.00	3.	1.	0.	0.02
+	HYDROGRAPH AT	E4	31.	12.05	2.	0.	0.	0.01
+	ROUTED TO	RE4	31.	12.05	2.	0.	0.	0.01
+	2 COMBINED AT	CE4	87.	12.00	5.	1.	0.	0.03
+	HYDROGRAPH AT	F1	3.	12.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	G1	5.	12.05	0.	0.	0.	0.00
+	3 COMBINED AT	DUMMY2	95.	12.05	5.	1.	0.	0.03
+	HYDROGRAPH AT	H1	143.	12.05	9.	2.	1.	0.06
+	ROUTED TO	RH1	143.	12.05	9.	2.	1.	0.06
+	HYDROGRAPH AT	H2	14.	12.05	1.	0.	0.	0.00
+	2 COMBINED AT	CH1	157.	12.05	10.	2.	1.	0.06
+	HYDROGRAPH AT	I1	6.	12.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	I2	3.	12.05	0.	0.	0.	0.00
+	2 COMBINED AT	CI1	9.	12.05	0.	0.	0.	0.00

*** NORMAL END OF HEC-1 ***

Existing 100-year 6-hour Summary


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          LENGTH, ELEVATION      FEET
          FLOW                   CUBIC FEET PER SECOND
          STORAGE VOLUME         ACRE-FEET
          SURFACE AREA           ACRES
          TEMPERATURE            DEGREES FAHRENHEIT

10 JD          INDEX STORM NO. 1
                      STRM        3.19  PRECIPITATION DEPTH
                      TRDA        0.00  TRANSPOSITION DRAINAGE AREA

11 PI            PRECIPITATION PATTERN
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.02    0.02    0.02    0.02    0.02
                   0.03    0.03    0.03    0.03    0.03    0.09    0.09    0.09    0.09    0.09
                   0.02    0.02    0.02    0.02    0.02    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00

14 JD          INDEX STORM NO. 2
                      STRM        3.17  PRECIPITATION DEPTH
                      TRDA        0.50  TRANSPOSITION DRAINAGE AREA

15 PI            PRECIPITATION PATTERN
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.02    0.02    0.02    0.02    0.02
                   0.03    0.03    0.03    0.03    0.03    0.09    0.09    0.09    0.09    0.09
                   0.02    0.02    0.02    0.02    0.02    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
                   0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00    0.00
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RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	A1	39.	4.05	2.	1.	0.	0.01		
+	ROUTED TO	RA1	39.	4.05	2.	1.	0.	0.01		
+	HYDROGRAPH AT	A2	90.	4.05	5.	1.	0.	0.03		
+	ROUTED TO	RA2	90.	4.05	5.	1.	0.	0.03		
+	2 COMBINED AT	CA1	129.	4.05	7.	2.	1.	0.04		
+	HYDROGRAPH AT	A3	6.	4.05	0.	0.	0.	0.00		
+	2 COMBINED AT	CA2	135.	4.05	7.	2.	1.	0.04		
+	HYDROGRAPH AT	B1	3.	4.05	0.	0.	0.	0.00		
+	HYDROGRAPH AT	C1	7.	4.05	0.	0.	0.	0.00		
+	3 COMBINED AT	DUMMY1	145.	4.05	8.	2.	1.	0.05		
+	HYDROGRAPH AT	D1	326.	4.05	19.	5.	2.	0.11		
+	HYDROGRAPH AT	D2	16.	4.05	1.	0.	0.	0.00		
+	ROUTED TO	RD2	16.	4.00	1.	0.	0.	0.00		
+	HYDROGRAPH AT	D3	26.	4.05	1.	0.	0.	0.01		
+	ROUTED TO	RD3	26.	4.00	1.	0.	0.	0.01		
+	2 COMBINED AT	CD1	42.	4.00	2.	1.	0.	0.01		
+	2 COMBINED AT	CD2	368.	4.05	21.	5.	2.	0.13		
+	HYDROGRAPH AT	D4	16.	4.05	1.	0.	0.	0.00		
+	2 COMBINED AT	CD3	385.	4.05	22.	5.	2.	0.13		

+	ROUTED TO	RD4	384.	4.05	22.	5.	2.	0.13
+	HYDROGRAPH AT	D5	36.	4.05	2.	0.	0.	0.01
+	2 COMBINED AT	CD4	420.	4.05	24.	6.	2.	0.14
+	ROUTED TO	RD5	419.	4.05	24.	6.	2.	0.14
+	HYDROGRAPH AT	D6	33.	4.05	2.	0.	0.	0.01
+	2 COMBINED AT	CD5	451.	4.05	26.	6.	2.	0.15
+	HYDROGRAPH AT	E1	16.	4.05	1.	0.	0.	0.00
+	ROUTED TO	RE1	16.	4.00	1.	0.	0.	0.00
+	HYDROGRAPH AT	E2	9.	4.05	0.	0.	0.	0.00
+	ROUTED TO	RE2	9.	4.00	0.	0.	0.	0.00
+	2 COMBINED AT	CE1	26.	4.00	1.	0.	0.	0.01
+	HYDROGRAPH AT	E3	13.	4.05	1.	0.	0.	0.00
+	2 COMBINED AT	CE2	38.	4.00	2.	0.	0.	0.01
+	ROUTED TO	RE3	39.	4.00	2.	0.	0.	0.01
+	HYDROGRAPH AT	E5	29.	4.05	2.	0.	0.	0.01
+	2 COMBINED AT	CE3	68.	4.00	3.	1.	0.	0.02
+	HYDROGRAPH AT	E4	35.	4.05	2.	0.	0.	0.01
+	ROUTED TO	RE4	35.	4.05	2.	0.	0.	0.01
+	2 COMBINED AT	CE4	102.	4.05	5.	1.	0.	0.03
+	HYDROGRAPH AT	F1	3.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	G1	6.	4.05	0.	0.	0.	0.00
+	3 COMBINED AT	DUMMY2	112.	4.05	6.	1.	0.	0.03
+	HYDROGRAPH AT	H1	161.	4.10	10.	2.	1.	0.06
+	ROUTED TO	RH1	162.	4.10	10.	2.	1.	0.06
+	HYDROGRAPH AT	H2	16.	4.05	1.	0.	0.	0.00
+	2 COMBINED AT	CH1	177.	4.05	11.	3.	1.	0.06
+	HYDROGRAPH AT	I1	3.	4.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	I2	3.	4.05	0.	0.	0.	0.00
+	2 COMBINED AT	CI1	6.	4.05	0.	0.	0.	0.00

*** NORMAL END OF HEC-1 ***

Existing 100-year 24-hour Summary

0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

+	OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD 6-HOUR	24-HOUR	72-HOUR	BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
+	HYDROGRAPH AT	A1	40.	12.05	2.	1.	0.	0.01		
+	ROUTED TO	RA1	40.	12.05	2.	1.	0.	0.01		
+	HYDROGRAPH AT	A2	93.	12.05	6.	1.	0.	0.03		
+	ROUTED TO	RA2	93.	12.05	6.	1.	0.	0.03		
+	2 COMBINED AT	CA1	133.	12.05	8.	2.	1.	0.04		
+	HYDROGRAPH AT	A3	7.	12.05	0.	0.	0.	0.00		
+	2 COMBINED AT	CA2	139.	12.05	9.	2.	1.	0.04		
+	HYDROGRAPH AT	B1	3.	12.05	0.	0.	0.	0.00		
+	HYDROGRAPH AT	C1	7.	12.05	0.	0.	0.	0.00		
+	3 COMBINED AT	DUMMY1	150.	12.05	9.	2.	1.	0.05		
+	HYDROGRAPH AT	D1	339.	12.05	22.	6.	2.	0.11		
+	HYDROGRAPH AT	D2	17.	12.05	1.	0.	0.	0.00		
+	ROUTED TO	RD2	17.	12.00	1.	0.	0.	0.00		
+	HYDROGRAPH AT	D3	26.	12.05	2.	0.	0.	0.01		
+	ROUTED TO	RD3	27.	12.00	2.	0.	0.	0.01		
+	2 COMBINED AT	CD1	43.	12.00	3.	1.	0.	0.01		
+	2 COMBINED AT	CD2	382.	12.05	25.	6.	2.	0.13		
+	HYDROGRAPH AT	D4	17.	12.05	1.	0.	0.	0.00		
+	2 COMBINED AT	CD3	399.	12.05	26.	6.	2.	0.13		
+	ROUTED TO	RD4	398.	12.05	26.	6.	2.	0.13		
+	HYDROGRAPH AT	D5	37.	12.05	2.	1.	0.	0.01		
+	2 COMBINED AT	CD4	435.	12.05	28.	7.	2.	0.14		
+	ROUTED TO	RD5	434.	12.05	28.	7.	2.	0.14		
+	HYDROGRAPH AT	D6	33.	12.05	2.	0.	0.	0.01		
+	2 COMBINED AT	CD5	467.	12.05	30.	7.	2.	0.15		
+	HYDROGRAPH AT	E1	17.	12.05	1.	0.	0.	0.00		
+	ROUTED TO	RE1	17.	12.00	1.	0.	0.	0.00		
+	HYDROGRAPH AT	E2	10.	12.05	1.	0.	0.	0.00		
+	ROUTED TO	RE2	10.	12.00	1.	0.	0.	0.00		

+	2 COMBINED AT	CE1	26.	12.00	2.	0.	0.	0.01
+	HYDROGRAPH AT	E3	13.	12.05	1.	0.	0.	0.00
+	2 COMBINED AT	CE2	39.	12.00	2.	1.	0.	0.01
+	ROUTED TO	RE3	40.	12.00	2.	1.	0.	0.01
+	HYDROGRAPH AT	E5	30.	12.05	2.	0.	0.	0.01
+	2 COMBINED AT	CE3	69.	12.00	4.	1.	0.	0.02
+	HYDROGRAPH AT	E4	36.	12.05	2.	1.	0.	0.01
+	ROUTED TO	RE4	36.	12.05	2.	1.	0.	0.01
+	2 COMBINED AT	CE4	105.	12.00	6.	2.	1.	0.03
+	HYDROGRAPH AT	F1	3.	12.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	G1	6.	12.05	0.	0.	0.	0.00
+	3 COMBINED AT	DUMMY2	114.	12.00	7.	2.	1.	0.03
+	HYDROGRAPH AT	H1	169.	12.05	11.	3.	1.	0.06
+	ROUTED TO	RH1	168.	12.05	11.	3.	1.	0.06
+	HYDROGRAPH AT	H2	17.	12.05	1.	0.	0.	0.00
+	2 COMBINED AT	CH1	185.	12.05	12.	3.	1.	0.06
+	HYDROGRAPH AT	I1	3.	12.05	0.	0.	0.	0.00
+	HYDROGRAPH AT	I2	3.	12.05	0.	0.	0.	0.00
+	2 COMBINED AT	CI1	7.	12.05	0.	0.	0.	0.00

*** NORMAL END OF HEC-1 ***

Proposed 2-year 6-hour Summary

CUMULATIVE AREA = .03 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT DC

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.95-HR
(CFS)	(HR)	(CFS)				
29.	4.05		2.	0.	0.	0.
		(INCHES)	.464	.464	.464	.464
		(AC-FT)	1.	1.	1.	1.

CUMULATIVE AREA = .03 SQ MI

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	A1	13.	4.05	0.	0.	0.	.01		
ROUTED TO	RA1	13.	4.05	0.	0.	0.	.01		
HYDROGRAPH AT	A2	27.	4.10	1.	0.	0.	.04		
ROUTED TO	RA2	27.	4.10	1.	0.	0.	.04		
2 COMBINED AT	CA1	40.	4.05	2.	0.	0.	.05		
HYDROGRAPH AT	A3	2.	4.05	0.	0.	0.	.00		
2 COMBINED AT	CA2	42.	4.05	2.	0.	0.	.05		
HYDROGRAPH AT	B1	1.	4.05	0.	0.	0.	.00		
HYDROGRAPH AT	C1	5.	4.05	0.	0.	0.	.00		
2 COMBINED AT	CA3	6.	4.05	0.	0.	0.	.01		
ROUTED TO	DA	2.	4.10	0.	0.	0.	.01		
HYDROGRAPH AT	D1	82.	4.10	4.	1.	0.	.11		
HYDROGRAPH AT	D2	7.	4.05	0.	0.	0.	.01		
ROUTED TO	RD2	7.	4.05	0.	0.	0.	.01		
HYDROGRAPH AT	D3	7.	4.05	0.	0.	0.	.01		
ROUTED TO	RD3	7.	4.05	0.	0.	0.	.01		
2 COMBINED AT	CD1	14.	4.05	0.	0.	0.	.01		
2 COMBINED AT	CD2	91.	4.05	4.	1.	0.	.12		
HYDROGRAPH AT	D4	5.	4.05	0.	0.	0.	.00		
2 COMBINED AT	CD3	96.	4.05	4.	1.	0.	.13		
ROUTED TO	RD4	96.	4.05	4.	1.	0.	.13		
HYDROGRAPH AT	D5	3.	4.05	0.	0.	0.	.00		
2 COMBINED AT	CD4	99.	4.05	4.	1.	0.	.13		
HYDROGRAPH AT	D6	6.	4.05	0.	0.	0.	.01		
2 COMBINED AT	CD5	105.	4.05	5.	1.	0.	.14		
ROUTED TO	RD5	104.	4.05	5.	1.	0.	.14		
HYDROGRAPH AT									

+		D7	9.	4.05	0.	0.	0.	.01
+	2 COMBINED AT	CD5	114.	4.05	5.	1.	0.	.15
+	HYDROGRAPH AT	E1	4.	4.05	0.	0.	0.	.00
+	HYDROGRAPH AT	E2	3.	4.05	0.	0.	0.	.00
+	2 COMBINED AT	CE1	7.	4.05	0.	0.	0.	.01
+	ROUTED TO	RE2	7.	4.05	0.	0.	0.	.01
+	HYDROGRAPH AT	E3	7.	4.05	0.	0.	0.	.01
+	2 COMBINED AT	CE3	14.	4.05	1.	0.	0.	.01
+	ROUTED TO	RE3	14.	4.05	1.	0.	0.	.01
+	HYDROGRAPH AT	E5	8.	4.05	0.	0.	0.	.01
+	2 COMBINED AT	CE2	22.	4.05	1.	0.	0.	.02
+	HYDROGRAPH AT	E4	8.	4.05	0.	0.	0.	.01
+	ROUTED TO	RE4	8.	4.05	0.	0.	0.	.01
+	HYDROGRAPH AT	E6	5.	4.05	0.	0.	0.	.00
+	2 COMBINED AT	CE4	13.	4.05	1.	0.	0.	.01
+	2 COMBINED AT	CE5	34.	4.05	2.	0.	0.	.03
+	ROUTED TO	DC	29.	4.05	2.	0.	0.	.03
+	HYDROGRAPH AT	F1	1.	4.05	0.	0.	0.	.00
+	HYDROGRAPH AT	G1	2.	4.05	0.	0.	0.	.00
+	3 COMBINED AT	DUMMY2	32.	4.05	2.	0.	0.	.04
+	HYDROGRAPH AT	H1	41.	4.10	2.	0.	0.	.06
+	ROUTED TO	RH1	41.	4.10	2.	0.	0.	.06
+	HYDROGRAPH AT	H2	3.	4.05	0.	0.	0.	.00
+	2 COMBINED AT	CH1	42.	4.10	2.	0.	0.	.06
+	ROUTED TO	RH2	42.	4.10	2.	0.	0.	.06
+	HYDROGRAPH AT	H3	2.	4.05	0.	0.	0.	.00
+	2 COMBINED AT	CH2	43.	4.05	2.	1.	0.	.06
+	HYDROGRAPH AT	I1	2.	4.05	0.	0.	0.	.00
+	HYDROGRAPH AT	I2	1.	4.05	0.	0.	0.	.00
+	2 COMBINED AT	CI1	3.	4.05	0.	0.	0.	.00

*** NORMAL END OF HEC-1 ***

Proposed 2-year 24-hour Summary


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 250 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

 249 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        .00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

 251 SV            STORAGE         .0       .2       .2       .3       .6       .9

 252 SQ          DISCHARGE         0.       29.      54.      60.      101.     200.

 253 SE          ELEVATION      56.00    57.00    57.50    58.00    59.00    60.00
                                                                      ***

 *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       29. TO       54.
                 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     DC
                      TRANSPOSITION AREA       .0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     99.95-HR
+   (CFS)       (HR)
                                    (CFS)
+      31.     12.05                   2.          1.          0.          0.
                                  (INCHES)       .510        .589        .589        .589
                                   (AC-FT)         1.          1.          1.          1.

  PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR     99.95-HR
+  (AC-FT)      (HR)
        0.     12.05                   0.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR     99.95-HR
+   (FEET)      (HR)
     57.04     12.05                 56.06       56.02       56.01       56.00

                      CUMULATIVE AREA =     .03 SQ MI

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     DC
                      TRANSPOSITION AREA      10.0 SQ MI

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     99.95-HR
+   (CFS)       (HR)
                                    (CFS)
+      27.     12.05                   2.          0.          0.          0.
                                  (INCHES)       .466        .541        .541        .541
                                   (AC-FT)         1.          1.          1.          1.

  PEAK STORAGE  TIME                          MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR     99.95-HR
+  (AC-FT)      (HR)
        0.     12.05                   0.          0.          0.          0.

  PEAK STAGE    TIME                          MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR     99.95-HR
+   (FEET)      (HR)
     56.93     12.05                 56.06       56.02       56.01       56.00

                      CUMULATIVE AREA =     .03 SQ MI

      ***             ***             ***             ***             ***


                      INTERPOLATED HYDROGRAPH AT     DC

  PEAK FLOW     TIME                          MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     99.95-HR
+   (CFS)       (HR)
                                    (CFS)
+      29.     12.05                   2.          0.          0.          0.
                                  (INCHES)       .488        .565        .565        .565
                                   (AC-FT)         1.          1.          1.          1.

                      CUMULATIVE AREA =     .03 SQ MI

1

                                        RUNOFF SUMMARY
                                    FLOW IN CUBIC FEET PER SECOND
                                  TIME IN HOURS,  AREA IN SQUARE MILES

                                    PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
+       OPERATION       STATION     FLOW    PEAK      6-HOUR      24-HOUR     72-HOUR       AREA      STAGE     MAX STAGE

        HYDROGRAPH AT
+                         A1         13.   12.05         1.          0.          0.          .01
```

+	ROUTED TO RA1	13.	12.05	1.	0.	0.	.01
+	HYDROGRAPH AT A2	28.	12.05	1.	0.	0.	.04
+	ROUTED TO RA2	28.	12.05	1.	0.	0.	.04
+	2 COMBINED AT CA1	41.	12.05	2.	0.	0.	.05
+	HYDROGRAPH AT A3	2.	12.05	0.	0.	0.	.00
+	2 COMBINED AT CA2	43.	12.05	2.	0.	0.	.05
+	HYDROGRAPH AT B1	1.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT C1	4.	12.05	0.	0.	0.	.00
+	2 COMBINED AT CA3	6.	12.05	0.	0.	0.	.01
+	ROUTED TO DA	2.	12.10	0.	0.	0.	.01
+	HYDROGRAPH AT D1	82.	12.05	4.	1.	0.	.11
+	HYDROGRAPH AT D2	7.	12.05	0.	0.	0.	.01
+	ROUTED TO RD2	7.	12.05	0.	0.	0.	.01
+	HYDROGRAPH AT D3	6.	12.05	0.	0.	0.	.01
+	ROUTED TO RD3	6.	12.05	0.	0.	0.	.01
+	2 COMBINED AT CD1	13.	12.05	1.	0.	0.	.01
+	2 COMBINED AT CD2	94.	12.05	4.	1.	0.	.12
+	HYDROGRAPH AT D4	5.	12.05	0.	0.	0.	.00
+	2 COMBINED AT CD3	99.	12.05	5.	1.	0.	.13
+	ROUTED TO RD4	99.	12.05	5.	1.	0.	.13
+	HYDROGRAPH AT D5	3.	12.05	0.	0.	0.	.00
+	2 COMBINED AT CD4	102.	12.05	5.	1.	0.	.13
+	HYDROGRAPH AT D6	6.	12.05	0.	0.	0.	.01
+	2 COMBINED AT CD5	107.	12.05	5.	1.	0.	.14
+	ROUTED TO RD5	107.	12.05	5.	1.	0.	.14
+	HYDROGRAPH AT D7	9.	12.05	0.	0.	0.	.01
+	2 COMBINED AT CD5	115.	12.05	5.	1.	0.	.15
+	HYDROGRAPH AT E1	4.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT E2	3.	12.05	0.	0.	0.	.00
+	2 COMBINED AT CE1	6.	12.05	0.	0.	0.	.01
+	ROUTED TO RE2	6.	12.05	0.	0.	0.	.01
+	HYDROGRAPH AT E3	6.	12.05	0.	0.	0.	.01
+	2 COMBINED AT CE3	13.	12.05	1.	0.	0.	.01
+	ROUTED TO RE3	13.	12.00	1.	0.	0.	.01
+	HYDROGRAPH AT E5	8.	12.05	0.	0.	0.	.01
	2 COMBINED AT						

+		CE2	20.	12.05	1.	0.	0.	.02
+	HYDROGRAPH AT	E4	7.	12.05	0.	0.	0.	.01
+	ROUTED TO	RE4	7.	12.05	0.	0.	0.	.01
+	HYDROGRAPH AT	E6	5.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CE4	12.	12.05	1.	0.	0.	.01
+	2 COMBINED AT	CE5	32.	12.05	2.	0.	0.	.03
+	ROUTED TO	DC	29.	12.05	2.	0.	0.	.03
+	HYDROGRAPH AT	F1	1.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	G1	2.	12.05	0.	0.	0.	.00
+	3 COMBINED AT	DUMMY2	32.	12.05	2.	1.	0.	.04
+	HYDROGRAPH AT	H1	42.	12.10	2.	1.	0.	.06
+	ROUTED TO	RH1	42.	12.10	2.	1.	0.	.06
+	HYDROGRAPH AT	H2	3.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CH1	44.	12.05	2.	1.	0.	.06
+	ROUTED TO	RH2	44.	12.05	2.	1.	0.	.06
+	HYDROGRAPH AT	H3	2.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CH2	45.	12.05	2.	1.	0.	.06
+	HYDROGRAPH AT	I1	2.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	I2	1.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CI1	3.	12.05	0.	0.	0.	.00

*** NORMAL END OF HEC-1 ***

Proposed 10-year 6-hour Summary

CUMULATIVE AREA = .03 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT DC

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.95-HR
(CFS)	(HR)	(CFS)				
58.	4.05		3.	1.	0.	0.
		(INCHES)	.916	.917	.917	.917
		(AC-FT)	2.	2.	2.	2.

CUMULATIVE AREA = .03 SQ MI

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	A1	28.	4.05	1.	0.	0.	.01		
ROUTED TO	RA1	28.	4.05	1.	0.	0.	.01		
HYDROGRAPH AT	A2	60.	4.05	3.	1.	0.	.04		
ROUTED TO	RA2	60.	4.05	3.	1.	0.	.04		
2 COMBINED AT	CA1	88.	4.05	4.	1.	0.	.05		
HYDROGRAPH AT	A3	4.	4.05	0.	0.	0.	.00		
2 COMBINED AT	CA2	92.	4.05	4.	1.	0.	.05		
HYDROGRAPH AT	B1	2.	4.05	0.	0.	0.	.00		
HYDROGRAPH AT	C1	8.	4.05	0.	0.	0.	.00		
2 COMBINED AT	CA3	10.	4.05	1.	0.	0.	.01		
ROUTED TO	DA	4.	4.10	1.	0.	0.	.01		
HYDROGRAPH AT	D1	179.	4.05	9.	2.	1.	.11		
HYDROGRAPH AT	D2	14.	4.05	1.	0.	0.	.01		
ROUTED TO	RD2	14.	4.05	1.	0.	0.	.01		
HYDROGRAPH AT	D3	13.	4.05	1.	0.	0.	.01		
ROUTED TO	RD3	13.	4.05	1.	0.	0.	.01		
2 COMBINED AT	CD1	27.	4.05	1.	0.	0.	.01		
2 COMBINED AT	CD2	205.	4.05	10.	2.	1.	.12		
HYDROGRAPH AT	D4	10.	4.05	0.	0.	0.	.00		
2 COMBINED AT	CD3	215.	4.05	10.	3.	1.	.13		
ROUTED TO	RD4	215.	4.05	10.	3.	1.	.13		
HYDROGRAPH AT	D5	6.	4.05	0.	0.	0.	.00		
2 COMBINED AT	CD4	221.	4.05	10.	3.	1.	.13		
HYDROGRAPH AT	D6	12.	4.05	1.	0.	0.	.01		
2 COMBINED AT	CD5	232.	4.05	11.	3.	1.	.14		
ROUTED TO	RD5	231.	4.05	11.	3.	1.	.14		
HYDROGRAPH AT									

+	D7	18.	4.05	1.	0.	0.	.01
+	2 COMBINED AT CD5	249.	4.05	12.	3.	1.	.15
+	HYDROGRAPH AT E1	8.	4.05	0.	0.	0.	.00
+	HYDROGRAPH AT E2	6.	4.05	0.	0.	0.	.00
+	2 COMBINED AT CE1	13.	4.05	1.	0.	0.	.01
+	ROUTED TO RE2	13.	4.00	1.	0.	0.	.01
+	HYDROGRAPH AT E3	12.	4.05	1.	0.	0.	.01
+	2 COMBINED AT CE3	25.	4.05	1.	0.	0.	.01
+	ROUTED TO RE3	26.	4.00	1.	0.	0.	.01
+	HYDROGRAPH AT E5	16.	4.05	1.	0.	0.	.01
+	2 COMBINED AT CE2	41.	4.05	2.	0.	0.	.02
+	HYDROGRAPH AT E4	14.	4.05	1.	0.	0.	.01
+	ROUTED TO RE4	14.	4.00	1.	0.	0.	.01
+	HYDROGRAPH AT E6	9.	4.05	1.	0.	0.	.00
+	2 COMBINED AT CE4	22.	4.05	1.	0.	0.	.01
+	2 COMBINED AT CE5	63.	4.05	3.	1.	0.	.03
+	ROUTED TO DC	58.	4.05	3.	1.	0.	.03
+	HYDROGRAPH AT F1	2.	4.05	0.	0.	0.	.00
+	HYDROGRAPH AT G1	4.	4.05	0.	0.	0.	.00
+	3 COMBINED AT DUMMY2	64.	4.05	3.	1.	0.	.04
+	HYDROGRAPH AT H1	90.	4.10	4.	1.	0.	.06
+	ROUTED TO RH1	91.	4.10	4.	1.	0.	.06
+	HYDROGRAPH AT H2	6.	4.05	0.	0.	0.	.00
+	2 COMBINED AT CH1	95.	4.05	5.	1.	0.	.06
+	ROUTED TO RH2	95.	4.05	5.	1.	0.	.06
+	HYDROGRAPH AT H3	4.	4.05	0.	0.	0.	.00
+	2 COMBINED AT CH2	98.	4.05	5.	1.	0.	.06
+	HYDROGRAPH AT I1	4.	4.05	0.	0.	0.	.00
+	HYDROGRAPH AT I2	2.	4.05	0.	0.	0.	.00
+	2 COMBINED AT CI1	6.	4.05	0.	0.	0.	.00

*** NORMAL END OF HEC-1 ***

Proposed 10-year 24-hour Summary


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 250 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

 249 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        .00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

 251 SV            STORAGE         .0       .2       .2       .3       .6       .9

 252 SQ          DISCHARGE         0.       29.      54.      60.      101.     200.

 253 SE          ELEVATION      56.00    57.00    57.50    58.00    59.00    60.00
                                                                  ***

 *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       29. TO       54.
                 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     DC
                      TRANSPOSITION AREA       .0 SQ MI

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     99.95-HR
+   (CFS)       (HR)
                              (CFS)
+      58.     12.05             4.          1.          0.          0.
                            (INCHES)      1.061       1.183       1.183       1.183
                             (AC-FT)         2.          2.          2.          2.

  PEAK STORAGE  TIME                                MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR     99.95-HR
+  (AC-FT)      (HR)
        0.     12.05                0.          0.          0.          0.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR     99.95-HR
+   (FEET)      (HR)
     57.83     12.05               56.12       56.03       56.01       56.01

                        CUMULATIVE AREA =     .03 SQ MI

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     DC
                      TRANSPOSITION AREA     10.0 SQ MI

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     99.95-HR
+   (CFS)       (HR)
                              (CFS)
+      56.     12.05             3.          1.          0.          0.
                            (INCHES)       .979       1.095       1.095       1.095
                             (AC-FT)         2.          2.          2.          2.

  PEAK STORAGE  TIME                                MAXIMUM AVERAGE STORAGE
                                      6-HR        24-HR       72-HR     99.95-HR
+  (AC-FT)      (HR)
        0.     12.05                0.          0.          0.          0.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                      6-HR        24-HR       72-HR     99.95-HR
+   (FEET)      (HR)
     57.67     12.05               56.11       56.03       56.01       56.01

                        CUMULATIVE AREA =     .03 SQ MI

      ***             ***             ***             ***             ***


                      INTERPOLATED HYDROGRAPH AT     DC

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                      6-HR        24-HR       72-HR     99.95-HR
+   (CFS)       (HR)
                              (CFS)
+      57.     12.05             4.          1.          0.          0.
                            (INCHES)      1.020       1.139       1.139       1.139
                             (AC-FT)         2.          2.          2.          2.

                        CUMULATIVE AREA =     .03 SQ MI

1

                                RUNOFF SUMMARY
                          FLOW IN CUBIC FEET PER SECOND
                          TIME IN HOURS,  AREA IN SQUARE MILES

                                                PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM    TIME OF
          OPERATION        STATION               FLOW    PEAK      6-HOUR     24-HOUR     72-HOUR      AREA      STAGE    MAX STAGE
+
          HYDROGRAPH AT
+                            A1                  27.   12.05          1.          0.          0.        .01
```

+	ROUTED TO	RA1	27.	12.05	1.	0.	0.	.01
+	HYDROGRAPH AT	A2	60.	12.05	3.	1.	0.	.04
+	ROUTED TO	RA2	60.	12.05	3.	1.	0.	.04
+	2 COMBINED AT	CA1	87.	12.05	4.	1.	0.	.05
+	HYDROGRAPH AT	A3	4.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CA2	90.	12.05	5.	1.	0.	.05
+	HYDROGRAPH AT	B1	2.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	C1	8.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CA3	10.	12.05	1.	0.	0.	.01
+	ROUTED TO	DA	4.	12.10	1.	0.	0.	.01
+	HYDROGRAPH AT	D1	177.	12.05	10.	2.	1.	.11
+	HYDROGRAPH AT	D2	13.	12.05	1.	0.	0.	.01
+	ROUTED TO	RD2	13.	12.00	1.	0.	0.	.01
+	HYDROGRAPH AT	D3	13.	12.05	1.	0.	0.	.01
+	ROUTED TO	RD3	13.	12.00	1.	0.	0.	.01
+	2 COMBINED AT	CD1	26.	12.00	1.	0.	0.	.01
+	2 COMBINED AT	CD2	202.	12.05	11.	3.	1.	.12
+	HYDROGRAPH AT	D4	9.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CD3	211.	12.05	11.	3.	1.	.13
+	ROUTED TO	RD4	211.	12.05	11.	3.	1.	.13
+	HYDROGRAPH AT	D5	6.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CD4	217.	12.05	12.	3.	1.	.13
+	HYDROGRAPH AT	D6	11.	12.05	1.	0.	0.	.01
+	2 COMBINED AT	CD5	228.	12.05	12.	3.	1.	.14
+	ROUTED TO	RD5	227.	12.05	12.	3.	1.	.14
+	HYDROGRAPH AT	D7	17.	12.05	1.	0.	0.	.01
+	2 COMBINED AT	CD5	243.	12.05	13.	3.	1.	.15
+	HYDROGRAPH AT	E1	7.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	E2	6.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CE1	13.	12.05	1.	0.	0.	.01
+	ROUTED TO	RE2	13.	12.00	1.	0.	0.	.01
+	HYDROGRAPH AT	E3	12.	12.05	1.	0.	0.	.01
+	2 COMBINED AT	CE3	24.	12.00	1.	0.	0.	.01
+	ROUTED TO	RE3	25.	12.00	1.	0.	0.	.01
+	HYDROGRAPH AT	E5	15.	12.05	1.	0.	0.	.01
	2 COMBINED AT							

+		CE2	39.	12.00	2.	1.	0.	.02
+	HYDROGRAPH AT	E4	13.	12.05	1.	0.	0.	.01
+	ROUTED TO	RE4	13.	12.00	1.	0.	0.	.01
+	HYDROGRAPH AT	E6	8.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CE4	21.	12.00	1.	0.	0.	.01
+	2 COMBINED AT	CE5	60.	12.00	4.	1.	0.	.03
+	ROUTED TO	DC	57.	12.05	4.	1.	0.	.03
+	HYDROGRAPH AT	F1	2.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	G1	4.	12.05	0.	0.	0.	.00
+	3 COMBINED AT	DUMMY2	62.	12.05	4.	1.	0.	.04
+	HYDROGRAPH AT	H1	89.	12.05	5.	1.	0.	.06
+	ROUTED TO	RH1	89.	12.05	5.	1.	0.	.06
+	HYDROGRAPH AT	H2	6.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CH1	95.	12.05	5.	1.	0.	.06
+	ROUTED TO	RH2	95.	12.05	5.	1.	0.	.06
+	HYDROGRAPH AT	H3	4.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CH2	98.	12.05	6.	1.	0.	.06
+	HYDROGRAPH AT	I1	4.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	I2	2.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CI1	6.	12.05	0.	0.	0.	.00

*** NORMAL END OF HEC-1 ***

Proposed 50 year 6 hour Summary

CUMULATIVE AREA = .03 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT DC

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.95-HR
(CFS)	(HR)	(CFS)				
88.	4.05		5.	1.	0.	0.
		(INCHES)	1.504	1.505	1.505	1.505
		(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = .03 SQ MI

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	A1	42.	4.05	2.	1.	0.	.01		
ROUTED TO	RA1	42.	4.05	2.	1.	0.	.01		
HYDROGRAPH AT	A2	92.	4.05	5.	1.	0.	.04		
ROUTED TO	RA2	92.	4.05	5.	1.	0.	.04		
2 COMBINED AT	CA1	134.	4.05	7.	2.	1.	.05		
HYDROGRAPH AT	A3	6.	4.05	0.	0.	0.	.00		
2 COMBINED AT	CA2	140.	4.05	7.	2.	1.	.05		
HYDROGRAPH AT	B1	3.	4.05	0.	0.	0.	.00		
HYDROGRAPH AT	C1	12.	4.05	1.	0.	0.	.00		
2 COMBINED AT	CA3	15.	4.05	1.	0.	0.	.01		
ROUTED TO	DA	5.	4.10	1.	0.	0.	.01		
HYDROGRAPH AT	D1	275.	4.05	15.	4.	1.	.11		
HYDROGRAPH AT	D2	20.	4.05	1.	0.	0.	.01		
ROUTED TO	RD2	20.	4.00	1.	0.	0.	.01		
HYDROGRAPH AT	D3	20.	4.05	1.	0.	0.	.01		
ROUTED TO	RD3	20.	4.00	1.	0.	0.	.01		
2 COMBINED AT	CD1	40.	4.00	2.	0.	0.	.01		
2 COMBINED AT	CD2	314.	4.05	17.	4.	1.	.12		
HYDROGRAPH AT	D4	14.	4.05	1.	0.	0.	.00		
2 COMBINED AT	CD3	329.	4.05	18.	4.	1.	.13		
ROUTED TO	RD4	328.	4.05	18.	4.	1.	.13		
HYDROGRAPH AT	D5	9.	4.05	0.	0.	0.	.00		
2 COMBINED AT	CD4	337.	4.05	18.	5.	2.	.13		
HYDROGRAPH AT	D6	17.	4.05	1.	0.	0.	.01		
2 COMBINED AT	CD5	354.	4.05	19.	5.	2.	.14		
ROUTED TO	RD5	353.	4.05	19.	5.	2.	.14		
HYDROGRAPH AT									

+	D7	26.	4.05	1.	0.	0.	.01
+ 2 COMBINED AT	CD5	378.	4.05	21.	5.	2.	.15
+ HYDROGRAPH AT	E1	11.	4.05	1.	0.	0.	.00
+ HYDROGRAPH AT	E2	8.	4.05	0.	0.	0.	.00
+ 2 COMBINED AT	CE1	20.	4.05	1.	0.	0.	.01
+ ROUTED TO	RE2	20.	4.00	1.	0.	0.	.01
+ HYDROGRAPH AT	E3	18.	4.05	1.	0.	0.	.01
+ 2 COMBINED AT	CE3	37.	4.00	2.	1.	0.	.01
+ ROUTED TO	RE3	38.	4.00	2.	1.	0.	.01
+ HYDROGRAPH AT	E5	23.	4.05	1.	0.	0.	.01
+ 2 COMBINED AT	CE2	60.	4.00	3.	1.	0.	.02
+ HYDROGRAPH AT	E4	20.	4.05	1.	0.	0.	.01
+ ROUTED TO	RE4	20.	4.00	1.	0.	0.	.01
+ HYDROGRAPH AT	E6	12.	4.05	1.	0.	0.	.00
+ 2 COMBINED AT	CE4	32.	4.00	2.	0.	0.	.01
+ 2 COMBINED AT	CE5	92.	4.00	5.	1.	0.	.03
+ ROUTED TO	DC	88.	4.05	5.	1.	0.	.03
+ HYDROGRAPH AT	F1	3.	4.05	0.	0.	0.	.00
+ HYDROGRAPH AT	G1	5.	4.05	0.	0.	0.	.00
+ 3 COMBINED AT	DUMMY2	96.	4.05	6.	1.	0.	.04
+ HYDROGRAPH AT	H1	138.	4.10	8.	2.	1.	.06
+ ROUTED TO	RH1	138.	4.10	8.	2.	1.	.06
+ HYDROGRAPH AT	H2	9.	4.05	0.	0.	0.	.00
+ 2 COMBINED AT	CH1	147.	4.05	8.	2.	1.	.06
+ ROUTED TO	RH2	146.	4.05	8.	2.	1.	.06
+ HYDROGRAPH AT	H3	6.	4.05	0.	0.	0.	.00
+ 2 COMBINED AT	CH2	152.	4.05	9.	2.	1.	.06
+ HYDROGRAPH AT	I1	6.	4.05	0.	0.	0.	.00
+ HYDROGRAPH AT	I2	3.	4.05	0.	0.	0.	.00
+ 2 COMBINED AT	CI1	9.	4.05	0.	0.	0.	.00

*** NORMAL END OF HEC-1 ***

Proposed 50-year 24-hour Summary


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          *            *
          ***************

 250 KO         OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL         0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

 249 RS         STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        .00  INITIAL CONDITION
                          X        .00  WORKING R AND D COEFFICIENT

 251 SV           STORAGE          .0        .2        .2        .3        .6        .9

 252 SQ         DISCHARGE          0.       29.       54.       60.      101.      200.

 253 SE         ELEVATION       56.00     57.00     57.50     58.00     59.00     60.00
                                                                   ***

*** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       29. TO       54.
                THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

      ***            ***            ***            ***            ***

                    HYDROGRAPH AT STATION      DC
                  TRANSPOSITION AREA       .0 SQ MI

  PEAK FLOW      TIME                         MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR      99.95-HR
+   (CFS)        (HR)
                              (CFS)
+       89.     12.05                     6.           2.          1.          0.
                           (INCHES)     1.752        1.923       1.923       1.923
                            (AC-FT)       3.           3.          3.          3.

 PEAK STORAGE    TIME                        MAXIMUM AVERAGE STORAGE
                                        6-HR        24-HR       72-HR      99.95-HR
+  (AC-FT)       (HR)
          1.    12.05                     0.           0.          0.          0.

  PEAK STAGE     TIME                         MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR       72-HR      99.95-HR
+   (FEET)       (HR)
      58.72     12.05                   56.19        56.05       56.02       56.01

                        CUMULATIVE AREA =      .03 SQ MI

      ***            ***            ***            ***            ***

                    HYDROGRAPH AT STATION      DC
                  TRANSPOSITION AREA      10.0 SQ MI

  PEAK FLOW      TIME                         MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR      99.95-HR
+   (CFS)        (HR)
                              (CFS)
+       84.     12.05                     6.           2.          1.          0.
                           (INCHES)     1.629        1.791       1.792       1.792
                            (AC-FT)       3.           3.          3.          3.

 PEAK STORAGE    TIME                        MAXIMUM AVERAGE STORAGE
                                        6-HR        24-HR       72-HR      99.95-HR
+  (AC-FT)       (HR)
          0.    12.05                     0.           0.          0.          0.

  PEAK STAGE     TIME                         MAXIMUM AVERAGE STAGE
                                        6-HR        24-HR       72-HR      99.95-HR
+   (FEET)       (HR)
      58.59     12.05                   56.18        56.05       56.02       56.01

                        CUMULATIVE AREA =      .03 SQ MI

      ***            ***            ***            ***            ***


                    INTERPOLATED HYDROGRAPH AT      DC

  PEAK FLOW      TIME                         MAXIMUM AVERAGE FLOW
                                        6-HR        24-HR       72-HR      99.95-HR
+   (CFS)        (HR)
                              (CFS)
+       87.     12.05                     6.           2.          1.          0.
                           (INCHES)     1.691        1.857       1.857       1.857
                            (AC-FT)       3.           3.          3.          3.

                        CUMULATIVE AREA =      .03 SQ MI

1
                                                RUNOFF SUMMARY
                                          FLOW IN CUBIC FEET PER SECOND
                                       TIME IN HOURS,  AREA IN SQUARE MILES

                                           PEAK   TIME OF    AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN    MAXIMUM    TIME OF
            OPERATION        STATION      FLOW     PEAK                                            AREA     STAGE   MAX STAGE
+                                                             6-HOUR     24-HOUR     72-HOUR

            HYDROGRAPH AT
+                              A1          42.    12.05          2.         1.          0.         .01
```

+	ROUTED TO	RA1	42.	12.05	2.	1.	0.	.01
+	HYDROGRAPH AT	A2	94.	12.05	6.	1.	0.	.04
+	ROUTED TO	RA2	94.	12.05	6.	1.	0.	.04
+	2 COMBINED AT	CA1	135.	12.05	8.	2.	1.	.05
+	HYDROGRAPH AT	A3	6.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CA2	141.	12.05	8.	2.	1.	.05
+	HYDROGRAPH AT	B1	3.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	C1	12.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CA3	14.	12.05	1.	0.	0.	.01
+	ROUTED TO	DA	5.	12.10	1.	0.	0.	.01
+	HYDROGRAPH AT	D1	278.	12.05	17.	4.	1.	.11
+	HYDROGRAPH AT	D2	20.	12.05	1.	0.	0.	.01
+	ROUTED TO	RD2	20.	12.00	1.	0.	0.	.01
+	HYDROGRAPH AT	D3	20.	12.05	1.	0.	0.	.01
+	ROUTED TO	RD3	20.	12.00	1.	0.	0.	.01
+	2 COMBINED AT	CD1	40.	12.00	2.	1.	0.	.01
+	2 COMBINED AT	CD2	317.	12.05	19.	5.	2.	.12
+	HYDROGRAPH AT	D4	14.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CD3	330.	12.05	20.	5.	2.	.13
+	ROUTED TO	RD4	330.	12.05	20.	5.	2.	.13
+	HYDROGRAPH AT	D5	9.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CD4	338.	12.05	21.	5.	2.	.13
+	HYDROGRAPH AT	D6	17.	12.05	1.	0.	0.	.01
+	2 COMBINED AT	CD5	355.	12.05	22.	5.	2.	.14
+	ROUTED TO	RD5	354.	12.05	22.	5.	2.	.14
+	HYDROGRAPH AT	D7	26.	12.05	2.	0.	0.	.01
+	2 COMBINED AT	CD5	379.	12.05	23.	6.	2.	.15
+	HYDROGRAPH AT	E1	11.	12.05	1.	0.	0.	.00
+	HYDROGRAPH AT	E2	8.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CE1	19.	12.05	1.	0.	0.	.01
+	ROUTED TO	RE2	20.	12.00	1.	0.	0.	.01
+	HYDROGRAPH AT	E3	18.	12.05	1.	0.	0.	.01
+	2 COMBINED AT	CE3	37.	12.00	2.	1.	0.	.01
+	ROUTED TO	RE3	37.	12.00	2.	1.	0.	.01
+	HYDROGRAPH AT	E5	23.	12.05	1.	0.	0.	.01

+	2 COMBINED AT	CE2	60.	12.00	4.	1.	0.	.02
+	HYDROGRAPH AT	E4	20.	12.05	1.	0.	0.	.01
+	ROUTED TO	RE4	20.	12.00	1.	0.	0.	.01
+	HYDROGRAPH AT	E6	12.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CE4	32.	12.00	2.	1.	0.	.01
+	2 COMBINED AT	CE5	91.	12.00	6.	2.	1.	.03
+	ROUTED TO	DC	87.	12.05	6.	2.	1.	.03
+	HYDROGRAPH AT	F1	3.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	G1	5.	12.05	0.	0.	0.	.00
+	3 COMBINED AT	DUMMY2	95.	12.05	6.	2.	1.	.04
+	HYDROGRAPH AT	H1	141.	12.05	9.	2.	1.	.06
+	ROUTED TO	RH1	141.	12.05	9.	2.	1.	.06
+	HYDROGRAPH AT	H2	9.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CH1	149.	12.05	10.	2.	1.	.06
+	ROUTED TO	RH2	149.	12.05	10.	2.	1.	.06
+	HYDROGRAPH AT	H3	6.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CH2	154.	12.05	10.	2.	1.	.06
+	HYDROGRAPH AT	I1	6.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	I2	3.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CI1	9.	12.05	0.	0.	0.	.00

*** NORMAL END OF HEC-1 ***

Proposed 100-year 6-hour Summary

CUMULATIVE AREA = .03 SQ MI

*** *** *** *** ***

INTERPOLATED HYDROGRAPH AT DC

PEAK FLOW	TIME		MAXIMUM AVERAGE FLOW			
			6-HR	24-HR	72-HR	99.95-HR
(CFS)	(HR)	(CFS)				
100.	4.05		6.	2.	1.	0.
		(INCHES)	1.780	1.781	1.781	1.781
		(AC-FT)	3.	3.	3.	3.

CUMULATIVE AREA = .03 SQ MI

1

RUNOFF SUMMARY
FLOW IN CUBIC FEET PER SECOND
TIME IN HOURS, AREA IN SQUARE MILES

OPERATION	STATION	PEAK FLOW	TIME OF PEAK	AVERAGE FLOW FOR MAXIMUM PERIOD			BASIN AREA	MAXIMUM STAGE	TIME OF MAX STAGE
				6-HOUR	24-HOUR	72-HOUR			
HYDROGRAPH AT	A1	48.	4.05	3.	1.	0.	.01		
ROUTED TO	RA1	48.	4.05	3.	1.	0.	.01		
HYDROGRAPH AT	A2	106.	4.05	6.	2.	1.	.04		
ROUTED TO	RA2	106.	4.05	6.	2.	1.	.04		
2 COMBINED AT	CA1	154.	4.05	9.	2.	1.	.05		
HYDROGRAPH AT	A3	6.	4.05	0.	0.	0.	.00		
2 COMBINED AT	CA2	161.	4.05	9.	2.	1.	.05		
HYDROGRAPH AT	B1	3.	4.05	0.	0.	0.	.00		
HYDROGRAPH AT	C1	13.	4.05	1.	0.	0.	.00		
2 COMBINED AT	CA3	17.	4.05	1.	0.	0.	.01		
ROUTED TO	DA	6.	4.10	1.	0.	0.	.01		
HYDROGRAPH AT	D1	317.	4.05	18.	5.	2.	.11		
HYDROGRAPH AT	D2	23.	4.05	1.	0.	0.	.01		
ROUTED TO	RD2	23.	4.00	1.	0.	0.	.01		
HYDROGRAPH AT	D3	23.	4.05	1.	0.	0.	.01		
ROUTED TO	RD3	23.	4.00	1.	0.	0.	.01		
2 COMBINED AT	CD1	46.	4.00	2.	1.	0.	.01		
2 COMBINED AT	CD2	362.	4.05	21.	5.	2.	.12		
HYDROGRAPH AT	D4	16.	4.05	1.	0.	0.	.00		
2 COMBINED AT	CD3	378.	4.05	22.	5.	2.	.13		
ROUTED TO	RD4	377.	4.05	22.	5.	2.	.13		
HYDROGRAPH AT	D5	10.	4.05	1.	0.	0.	.00		
2 COMBINED AT	CD4	387.	4.05	22.	6.	2.	.13		
HYDROGRAPH AT	D6	19.	4.05	1.	0.	0.	.01		
2 COMBINED AT	CD5	407.	4.05	23.	6.	2.	.14		
ROUTED TO	RD5	406.	4.05	23.	6.	2.	.14		
HYDROGRAPH AT									

+		D7	29.	4.05	2.	0.	0.	.01
+	2 COMBINED AT	CD5	435.	4.05	25.	6.	2.	.15
+	HYDROGRAPH AT	E1	13.	4.05	1.	0.	0.	.00
+	HYDROGRAPH AT	E2	10.	4.05	0.	0.	0.	.00
+	2 COMBINED AT	CE1	22.	4.05	1.	0.	0.	.01
+	ROUTED TO	RE2	22.	4.00	1.	0.	0.	.01
+	HYDROGRAPH AT	E3	20.	4.05	1.	0.	0.	.01
+	2 COMBINED AT	CE3	43.	4.00	2.	1.	0.	.01
+	ROUTED TO	RE3	43.	4.00	2.	1.	0.	.01
+	HYDROGRAPH AT	E5	26.	4.05	1.	0.	0.	.01
+	2 COMBINED AT	CE2	69.	4.00	4.	1.	0.	.02
+	HYDROGRAPH AT	E4	23.	4.05	1.	0.	0.	.01
+	ROUTED TO	RE4	23.	4.00	1.	0.	0.	.01
+	HYDROGRAPH AT	E6	14.	4.05	1.	0.	0.	.00
+	2 COMBINED AT	CE4	37.	4.00	2.	1.	0.	.01
+	2 COMBINED AT	CE5	105.	4.00	6.	2.	1.	.03
+	ROUTED TO	DC	100.	4.05	6.	2.	1.	.03
+	HYDROGRAPH AT	F1	3.	4.05	0.	0.	0.	.00
+	HYDROGRAPH AT	G1	6.	4.05	0.	0.	0.	.00
+	3 COMBINED AT	DUMMY2	109.	4.05	7.	2.	1.	.04
+	HYDROGRAPH AT	H1	159.	4.05	10.	2.	1.	.06
+	ROUTED TO	RH1	159.	4.05	10.	2.	1.	.06
+	HYDROGRAPH AT	H2	10.	4.05	1.	0.	0.	.00
+	2 COMBINED AT	CH1	169.	4.05	10.	3.	1.	.06
+	ROUTED TO	RH2	169.	4.05	10.	3.	1.	.06
+	HYDROGRAPH AT	H3	6.	4.05	0.	0.	0.	.00
+	2 COMBINED AT	CH2	175.	4.05	10.	3.	1.	.06
+	HYDROGRAPH AT	I1	7.	4.05	0.	0.	0.	.00
+	HYDROGRAPH AT	I2	3.	4.05	0.	0.	0.	.00
+	2 COMBINED AT	CI1	10.	4.05	1.	0.	0.	.00

*** NORMAL END OF HEC-1 ***

Proposed 100-year 24-hour Summary


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*           *
**************

 250 KO          OUTPUT CONTROL VARIABLES
                      IPRNT          3  PRINT CONTROL
                      IPLOT          0  PLOT CONTROL
                      QSCAL          0.  HYDROGRAPH PLOT SCALE

                HYDROGRAPH ROUTING DATA

 249 RS          STORAGE ROUTING
                      NSTPS          1  NUMBER OF SUBREACHES
                       ITYP       STOR  TYPE OF INITIAL CONDITION
                     RSVRIC        .00  INITIAL CONDITION
                          X        .00 WORKING R AND D COEFFICIENT

 251 SV            STORAGE         .0        .2        .2        .3        .6        .9

 252 SQ          DISCHARGE         0.       29.       54.       60.      101.      200.

 253 SE          ELEVATION      56.00     57.00     57.50     58.00     59.00     60.00
                                                                 ***

 *** WARNING *** MODIFIED PULS ROUTING MAY BE NUMERICALLY UNSTABLE FOR OUTFLOWS BETWEEN       29. TO       54.
                 THE ROUTED HYDROGRAPH SHOULD BE EXAMINED FOR OSCILLATIONS OR OUTFLOWS GREATER THAN PEAK INFLOWS.
                 THIS CAN BE CORRECTED BY DECREASING THE TIME INTERVAL OR INCREASING STORAGE (USE A LONGER REACH.)

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     DC
                      TRANSPOSITION AREA       .0 SQ MI

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR       72-HR     99.95-HR
+   (CFS)       (HR)
                          (CFS)
+     105.      12.05         7.          2.          1.          0.
                      (INCHES)       2.093       2.287       2.287       2.287
                        (AC-FT)          4.          4.          4.          4.

  PEAK STORAGE  TIME                                MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR       72-HR     99.95-HR
+  (AC-FT)      (HR)
       1.       12.05                     0.          0.          0.          0.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR       72-HR     99.95-HR
+   (FEET)      (HR)
     59.04      12.05                   56.23       56.06       56.02       56.02

                      CUMULATIVE AREA =     .03 SQ MI

      ***             ***             ***             ***             ***

                        HYDROGRAPH AT STATION     DC
                      TRANSPOSITION AREA     10.0 SQ MI

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR       72-HR     99.95-HR
+   (CFS)       (HR)
                          (CFS)
+      98.      12.05         7.          2.          1.          0.
                      (INCHES)       1.949       2.133       2.133       2.133
                        (AC-FT)          3.          4.          4.          4.

  PEAK STORAGE  TIME                                MAXIMUM AVERAGE STORAGE
                                          6-HR        24-HR       72-HR     99.95-HR
+  (AC-FT)      (HR)
       1.       12.05                     0.          0.          0.          0.

  PEAK STAGE    TIME                                MAXIMUM AVERAGE STAGE
                                          6-HR        24-HR       72-HR     99.95-HR
+   (FEET)      (HR)
     58.92      12.05                   56.21       56.06       56.02       56.01

                      CUMULATIVE AREA =     .03 SQ MI

      ***             ***             ***             ***             ***


                      INTERPOLATED HYDROGRAPH AT     DC

  PEAK FLOW     TIME                                MAXIMUM AVERAGE FLOW
                                          6-HR        24-HR       72-HR     99.95-HR
+   (CFS)       (HR)
                          (CFS)
+     101.      12.05         7.          2.          1.          0.
                      (INCHES)       2.021       2.210       2.210       2.210
                        (AC-FT)          3.          4.          4.          4.

                      CUMULATIVE AREA =     .03 SQ MI

1
                                        RUNOFF SUMMARY
                                  FLOW IN CUBIC FEET PER SECOND
                                TIME IN HOURS,  AREA IN SQUARE MILES

                                    PEAK   TIME OF     AVERAGE FLOW FOR MAXIMUM PERIOD      BASIN     MAXIMUM     TIME OF
        OPERATION      STATION      FLOW    PEAK                                           AREA      STAGE       MAX STAGE
+                                                                6-HOUR     24-HOUR     72-HOUR

        HYDROGRAPH AT
+                        A1          49.   12.05          3.          1.          0.        .01
```

+	ROUTED TO	RA1	49.	12.05	3.	1.	0.	.01
+	HYDROGRAPH AT	A2	109.	12.05	7.	2.	1.	.04
+	ROUTED TO	RA2	109.	12.05	7.	2.	1.	.04
+	2 COMBINED AT	CA1	157.	12.05	10.	2.	1.	.05
+	HYDROGRAPH AT	A3	6.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CA2	164.	12.05	10.	3.	1.	.05
+	HYDROGRAPH AT	B1	3.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	C1	13.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CA3	17.	12.05	1.	0.	0.	.01
+	ROUTED TO	DA	6.	12.10	1.	0.	0.	.01
+	HYDROGRAPH AT	D1	324.	12.05	21.	5.	2.	.11
+	HYDROGRAPH AT	D2	23.	12.05	1.	0.	0.	.01
+	ROUTED TO	RD2	23.	12.00	1.	0.	0.	.01
+	HYDROGRAPH AT	D3	23.	12.05	1.	0.	0.	.01
+	ROUTED TO	RD3	23.	12.00	1.	0.	0.	.01
+	2 COMBINED AT	CD1	46.	12.00	3.	1.	0.	.01
+	2 COMBINED AT	CD2	369.	12.05	24.	6.	2.	.12
+	HYDROGRAPH AT	D4	16.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CD3	385.	12.05	25.	6.	2.	.13
+	ROUTED TO	RD4	384.	12.05	25.	6.	2.	.13
+	HYDROGRAPH AT	D5	10.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CD4	394.	12.05	25.	6.	2.	.13
+	HYDROGRAPH AT	D6	19.	12.05	1.	0.	0.	.01
+	2 COMBINED AT	CD5	413.	12.05	26.	7.	2.	.14
+	ROUTED TO	RD5	412.	12.05	26.	7.	2.	.14
+	HYDROGRAPH AT	D7	30.	12.05	2.	0.	0.	.01
+	2 COMBINED AT	CD5	442.	12.05	28.	7.	2.	.15
+	HYDROGRAPH AT	E1	13.	12.05	1.	0.	0.	.00
+	HYDROGRAPH AT	E2	10.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CE1	23.	12.05	1.	0.	0.	.01
+	ROUTED TO	RE2	23.	12.00	1.	0.	0.	.01
+	HYDROGRAPH AT	E3	20.	12.05	1.	0.	0.	.01
+	2 COMBINED AT	CE3	43.	12.00	3.	1.	0.	.01
+	ROUTED TO	RE3	43.	12.00	3.	1.	0.	.01
+	HYDROGRAPH AT	E5	27.	12.05	2.	0.	0.	.01

+	2 COMBINED AT	CE2	69.	12.00	4.	1.	0.	.02
+	HYDROGRAPH AT	E4	23.	12.05	2.	0.	0.	.01
+	ROUTED TO	RE4	23.	12.00	2.	0.	0.	.01
+	HYDROGRAPH AT	E6	14.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CE4	37.	12.00	3.	1.	0.	.01
+	2 COMBINED AT	CE5	106.	12.00	7.	2.	1.	.03
+	ROUTED TO	DC	101.	12.05	7.	2.	1.	.03
+	HYDROGRAPH AT	F1	3.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	G1	6.	12.05	0.	0.	0.	.00
+	3 COMBINED AT	DUMMY2	111.	12.05	8.	2.	1.	.04
+	HYDROGRAPH AT	H1	164.	12.05	11.	3.	1.	.06
+	ROUTED TO	RH1	164.	12.05	11.	3.	1.	.06
+	HYDROGRAPH AT	H2	10.	12.05	1.	0.	0.	.00
+	2 COMBINED AT	CH1	174.	12.05	12.	3.	1.	.06
+	ROUTED TO	RH2	174.	12.05	12.	3.	1.	.06
+	HYDROGRAPH AT	H3	6.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CH2	180.	12.05	12.	3.	1.	.06
+	HYDROGRAPH AT	I1	7.	12.05	0.	0.	0.	.00
+	HYDROGRAPH AT	I2	3.	12.05	0.	0.	0.	.00
+	2 COMBINED AT	CI1	10.	12.05	1.	0.	0.	.00

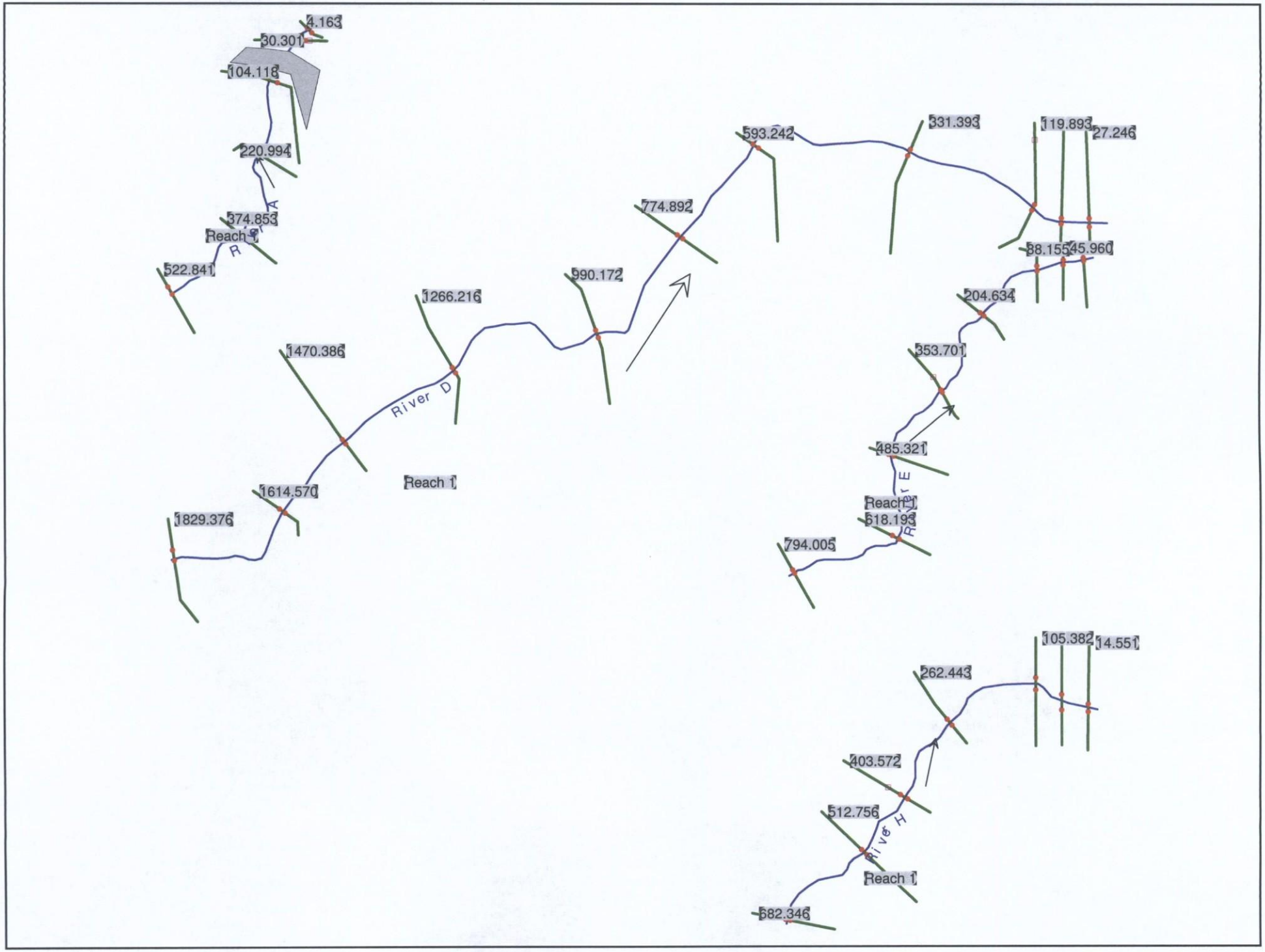
*** NORMAL END OF HEC-1 ***

Appendix D: Hydraulic Parameters

Manning's "n" Roughness Determination:

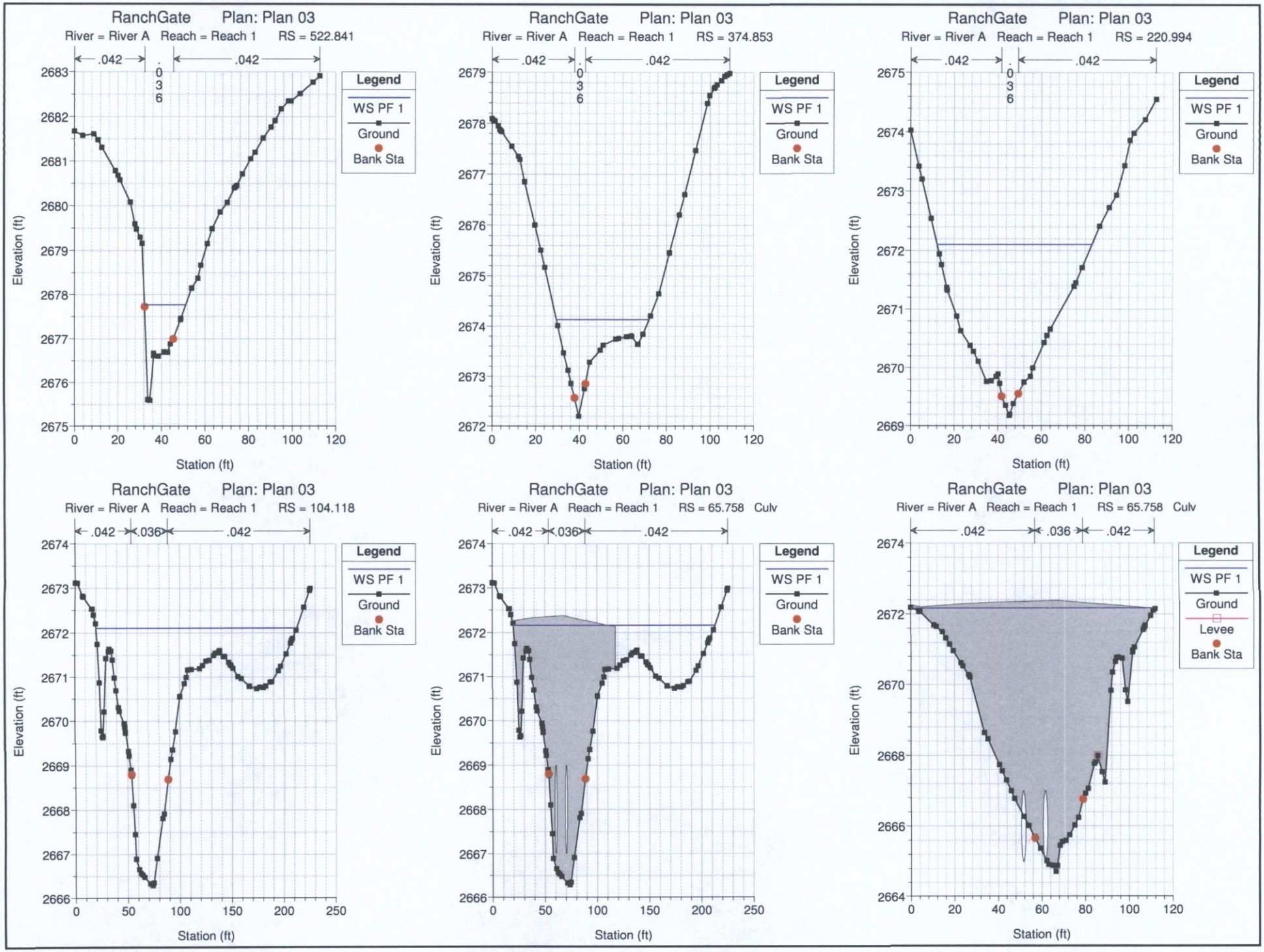
	Channel:		Overbank
	Sandy bottom Visible	**No Sandy Bottom Visible**	**Existing Desert**
n_0 =	0.026	0.028	0.032
Irregular Channel	0.002	0.003	0.00
xs variation	0.002	0.002	0.00
Vegitation	0.00	0.002	0.01
Obstruction	0.00	0.001	0.00
total:	**0.03**	**0.036**	**0.042**

Appendix E: HEC-RAS Output


4.163
30.301
104.118
220.994
River A
374.853
Reach 1
522.841
1470.386
1266.216
990.172
774.892
593.242
331.393
119.893
27.246
River D
Reach 1
1614.570
1829.376
88.155
45.960
204.634
353.701
485.321
River E
Reach 1
618.193
794.005
105.382
14.551
262.443
403.572
512.756
River H
Reach 1
582.346

HEC-RAS Plan: Plan 03 Profile: PF 1

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
River H	Reach 1	682.346	PF 1	185.00	2675.22	2677.29	2677.29	2677.58	0.006285	6.00	63.18	87.71	0.76
River H	Reach 1	512.756	PF 1	185.00	2670.40	2672.53	2672.53	2673.01	0.007262	6.38	45.64	56.89	0.82
River H	Reach 1	403.572	PF 1	185.00	2667.23	2669.00	2669.00	2669.61	0.010774	6.97	34.04	29.79	0.97
River H	Reach 1	262.443	PF 1	185.00	2662.94	2664.29	2664.29	2664.58	0.014469	5.96	51.07	82.07	1.04
River H	Reach 1	105.382	PF 1	185.00	2659.04	2659.51	2659.51	2659.77	0.029044	4.36	45.10	89.81	1.26
River H	Reach 1	56.321	PF 1	185.00	2657.23	2658.64	2658.64	2659.02	0.010410	5.47	44.11	60.53	0.91
River H	Reach 1	14.551	PF 1	185.00	2655.49	2657.21	2657.21	2657.53	0.009682	5.92	53.48	77.39	0.89
River E	Reach 1	794.005	PF 1	70.00	2657.49	2659.74	2659.74	2660.34	0.016417	6.52	12.26	11.45	0.93
River E	Reach 1	618.193	PF 1	70.00	2652.46	2654.00	2654.00	2654.48	0.017734	5.57	13.05	15.34	0.96
River E	Reach 1	485.321	PF 1	70.00	2648.98	2650.46	2650.46	2650.95	0.015350	5.91	13.58	15.12	0.93
River E	Reach 1	353.701	PF 1	105.00	2645.61	2647.08	2647.08	2647.13	0.003426	2.46	59.24	81.78	0.42
River E	Reach 1	204.634	PF 1	105.00	2641.37	2642.75	2642.75	2643.11	0.016065	5.97	25.39	35.74	0.95
River E	Reach 1	88.155	PF 1	105.00	2638.32	2639.66	2639.66	2640.04	0.015681	5.99	25.23	35.47	0.94
River E	Reach 1	45.960	PF 1	105.00	2636.08	2637.90	2637.90	2638.61	0.014771	7.09	16.83	13.22	0.95
River E	Reach 1	14.629	PF 1	105.00	2635.34	2637.79	2637.79	2638.05	0.005190	5.11	39.96	68.42	0.59
River D	Reach 1	1829.376	PF 1	399.00	2675.86	2679.00	2679.00	2679.91	0.007285	8.15	63.84	45.87	0.87
River D	Reach 1	1614.570	PF 1	399.00	2669.87	2673.48	2673.48	2674.59	0.006494	9.13	59.93	33.80	0.86
River D	Reach 1	1470.386	PF 1	434.00	2667.19	2671.25	2671.25	2671.64	0.003834	6.90	149.85	161.30	0.63
River D	Reach 1	1266.216	PF 1	434.00	2663.35	2666.30	2666.30	2666.64	0.006869	6.97	139.67	174.19	0.79
River D	Reach 1	990.172	PF 1	434.00	2657.48	2659.77	2659.77	2660.19	0.008099	7.19	118.52	139.84	0.88
River D	Reach 1	774.892	PF 1	467.00	2653.10	2655.61	2655.61	2656.08	0.007698	7.84	116.22	108.13	0.88
River D	Reach 1	593.242	PF 1	467.00	2649.67	2650.58	2650.58	2650.91	0.025746	6.73	105.06	164.87	1.33
River D	Reach 1	331.393	PF 1	467.00	2643.63	2645.29	2645.29	2645.62	0.012350	7.26	124.98	158.80	1.03
River D	Reach 1	119.893	PF 1	467.00	2638.73	2640.04	2640.04	2640.36	0.015756	7.34	117.84	157.55	1.14
River D	Reach 1	69.842	PF 1	467.00	2637.36	2638.96	2638.96	2639.24	0.014274	7.31	129.44	184.08	1.09
River D	Reach 1	27.246	PF 1	467.00	2635.97	2637.78	2637.78	2638.06	0.010223	6.70	139.44	185.03	0.95
River A	Reach 1	522.841	PF 1	100.00	2675.59	2677.77	2677.77	2678.29	0.017916	5.88	18.31	19.00	0.94
River A	Reach 1	374.853	PF 1	100.00	2672.20	2674.14	2674.14	2674.44	0.010223	5.79	29.19	42.55	0.79
River A	Reach 1	220.994	PF 1	139.00	2669.17	2672.11		2672.14	0.000571	1.92	112.25	70.91	0.20
River A	Reach 1	104.118	PF 1	139.00	2666.29	2672.11	2667.65	2672.11	0.000023	0.58	364.22	192.28	0.05
River A	Reach 1	65.758		Culvert									
River A	Reach 1	30.301	PF 1	139.00	2664.71	2667.65	2666.55	2667.73	0.001312	2.46	65.61	42.27	0.30
River A	Reach 1	4.163	PF 1	139.00	2664.73	2666.87	2666.87	2667.49	0.014745	6.78	24.45	22.17	0.92


RanchGate Plan: Plan 03
River = River A Reach = Reach 1 RS = 522.841
.042
.036
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
RanchGate Plan: Plan 03
River = River A Reach = Reach 1 RS = 374.853
.042
.036
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
RanchGate Plan: Plan 03
River = River A Reach = Reach 1 RS = 220.994
.042
.036
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
RanchGate Plan: Plan 03
River = River A Reach = Reach 1 RS = 104.118
.042
.036
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
RanchGate Plan: Plan 03
River = River A Reach = Reach 1 RS = 65.758 Culv
.042
.036
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
RanchGate Plan: Plan 03
River = River A Reach = Reach 1 RS = 65.758 Culv
.042
.036
.042
Legend
WS PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)

RanchGate Plan: Plan 03

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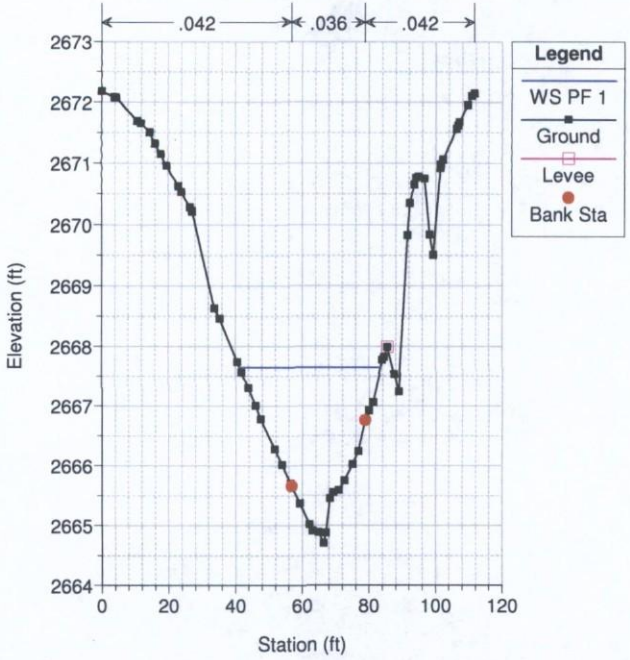

RanchGate Plan: Plan 03

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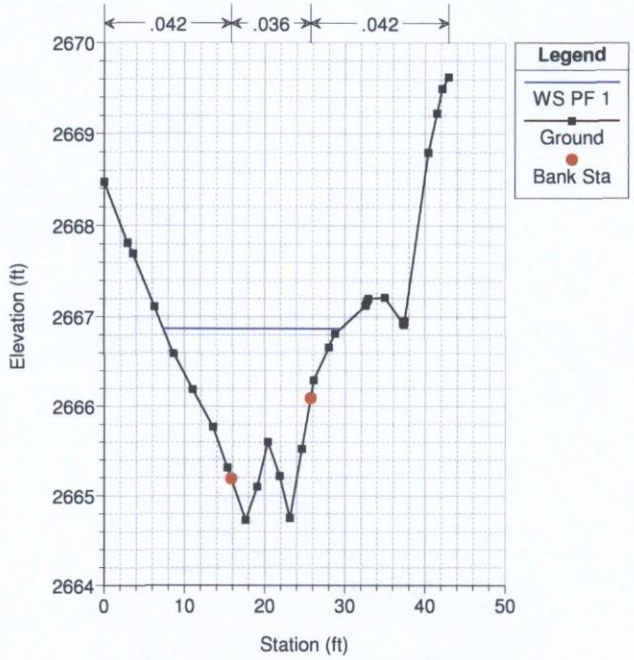
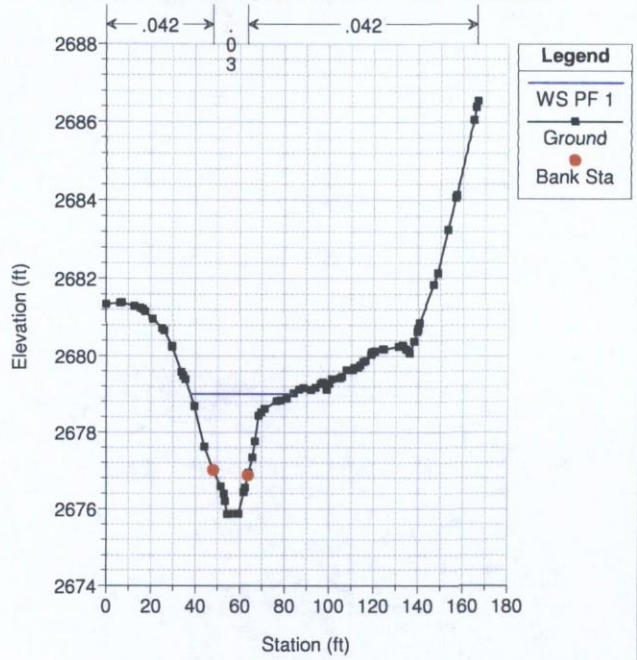


RanchGate Plan: Plan 03

River = River D Reach = Reach 1 RS = 1829.376



RanchGate Plan: Plan 03

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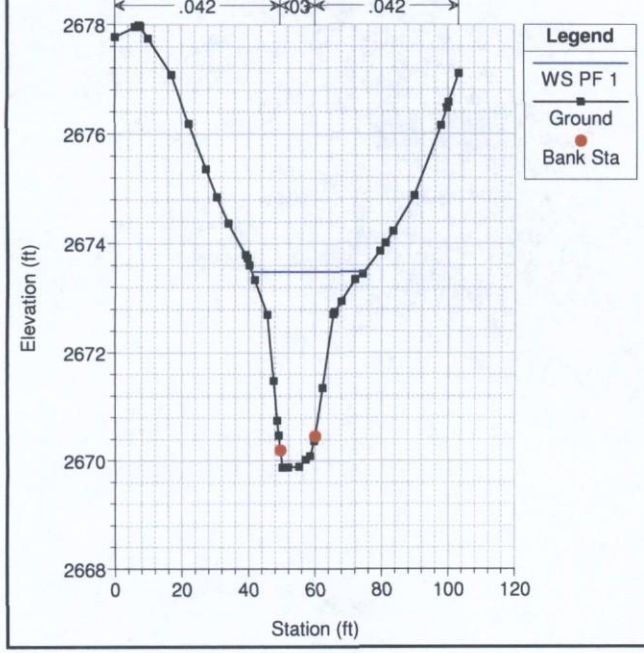
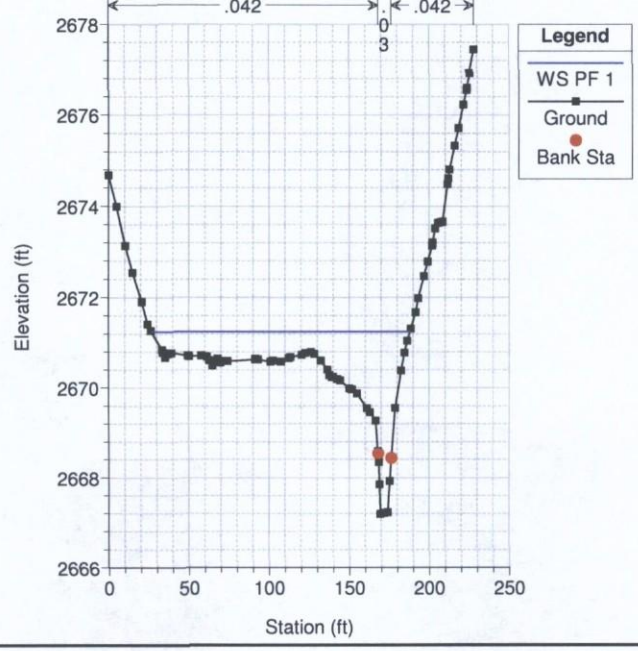


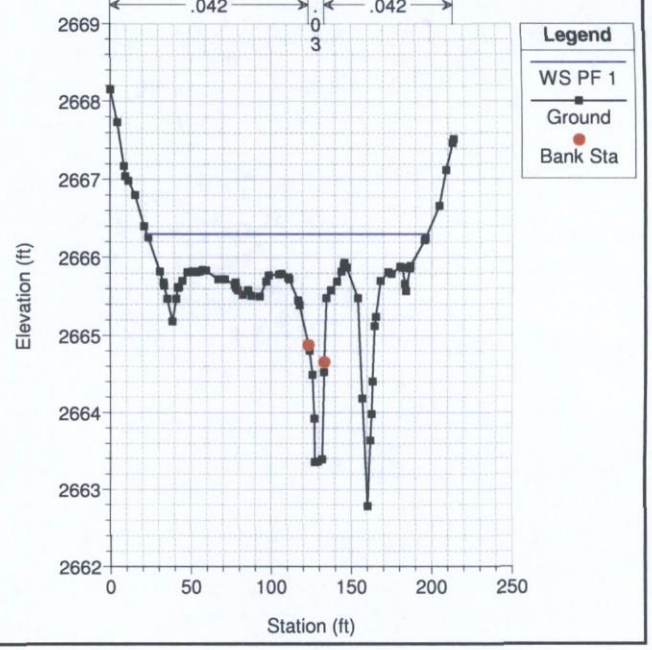
RanchGate Plan: Plan 03

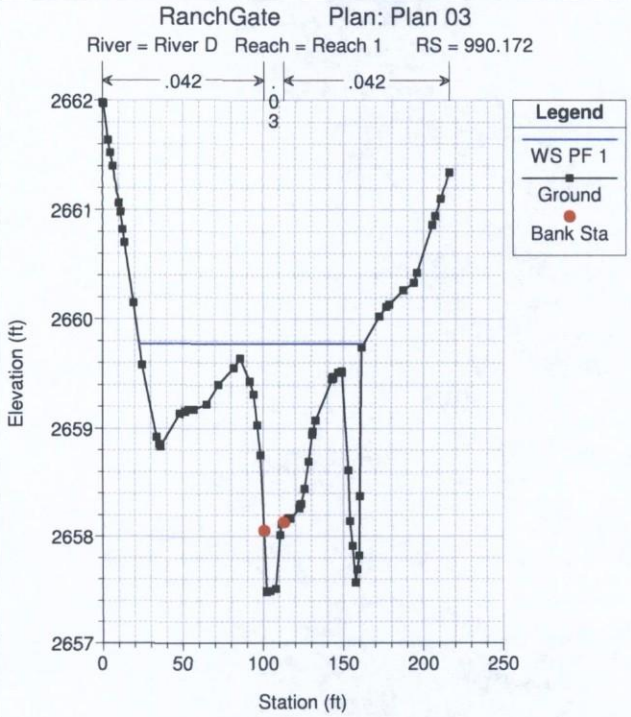
River = River D Reach = Reach 1 RS = 1470.386



RanchGate Plan: Plan 03

River = River D Reach = Reach 1 RS = 1266.216

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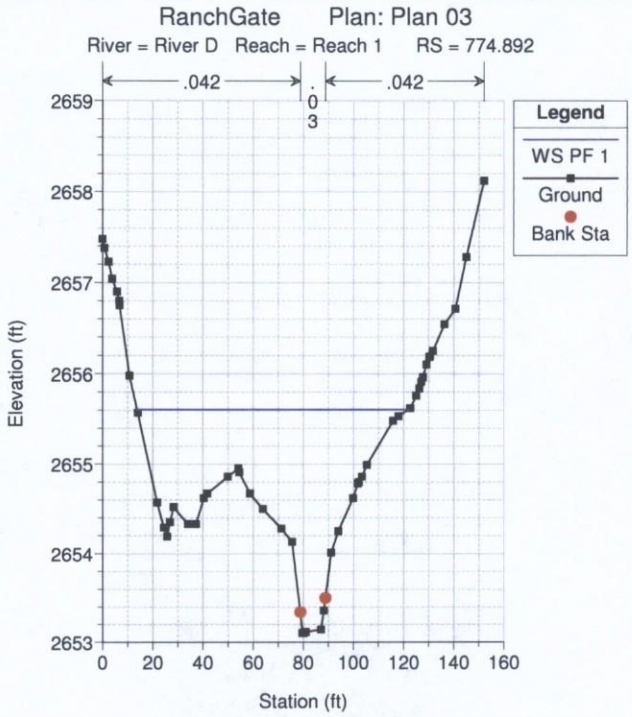
River = River D Reach = Reach 1 RS = 990.172
.042
.042
0.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)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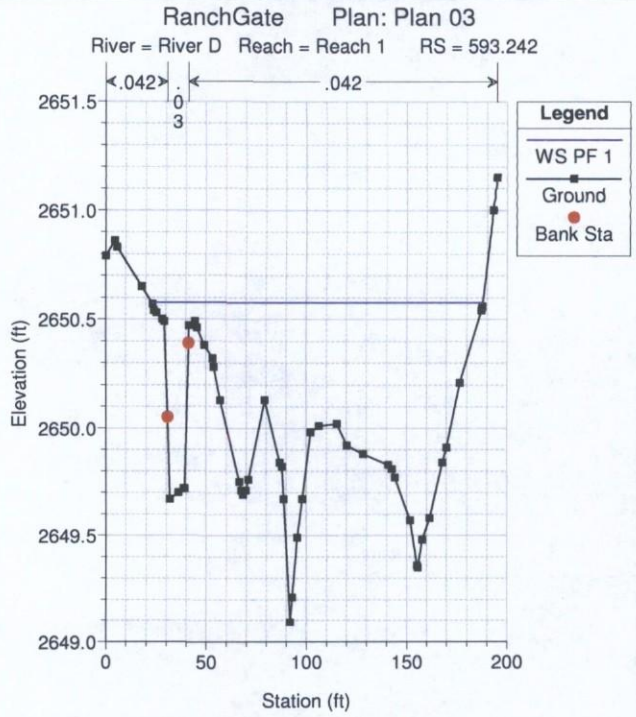
River = River D Reach = Reach 1 RS = 774.892
.042
.042
0.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = River D Reach = Reach 1 RS = 593.242
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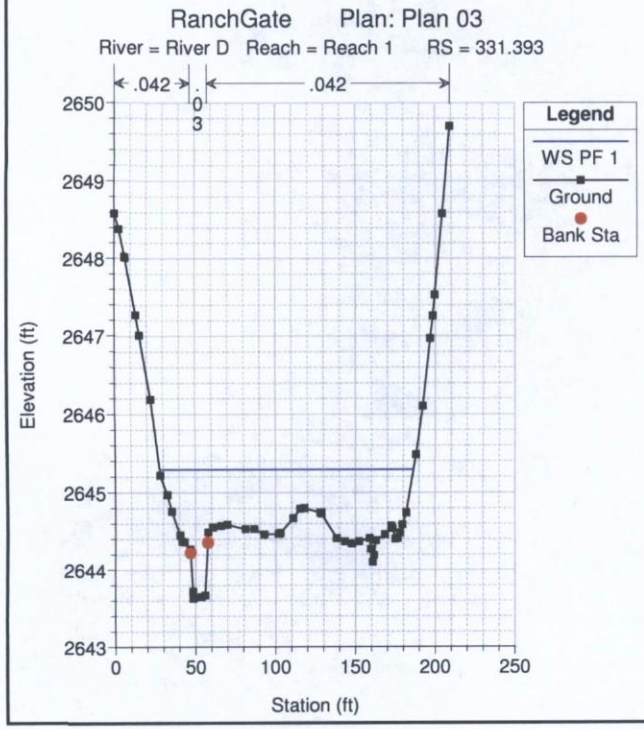
.042
0.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = River D Reach = Reach 1 RS = 331.393
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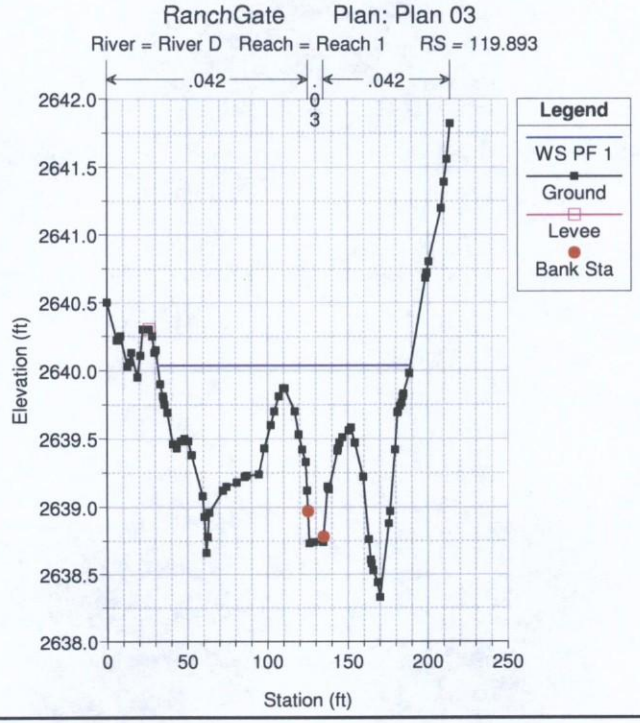
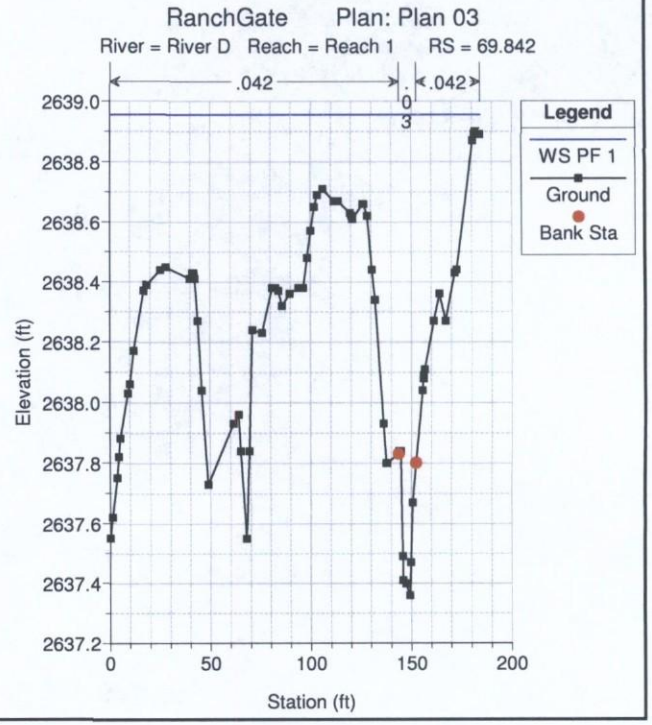
.042
0.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


RanchGate Plan: Plan 03
River = River D Reach = Reach 1 RS = 119.893
.042
.042
0.03
Legend
WS PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)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River = River D Reach = Reach 1 RS = 69.842
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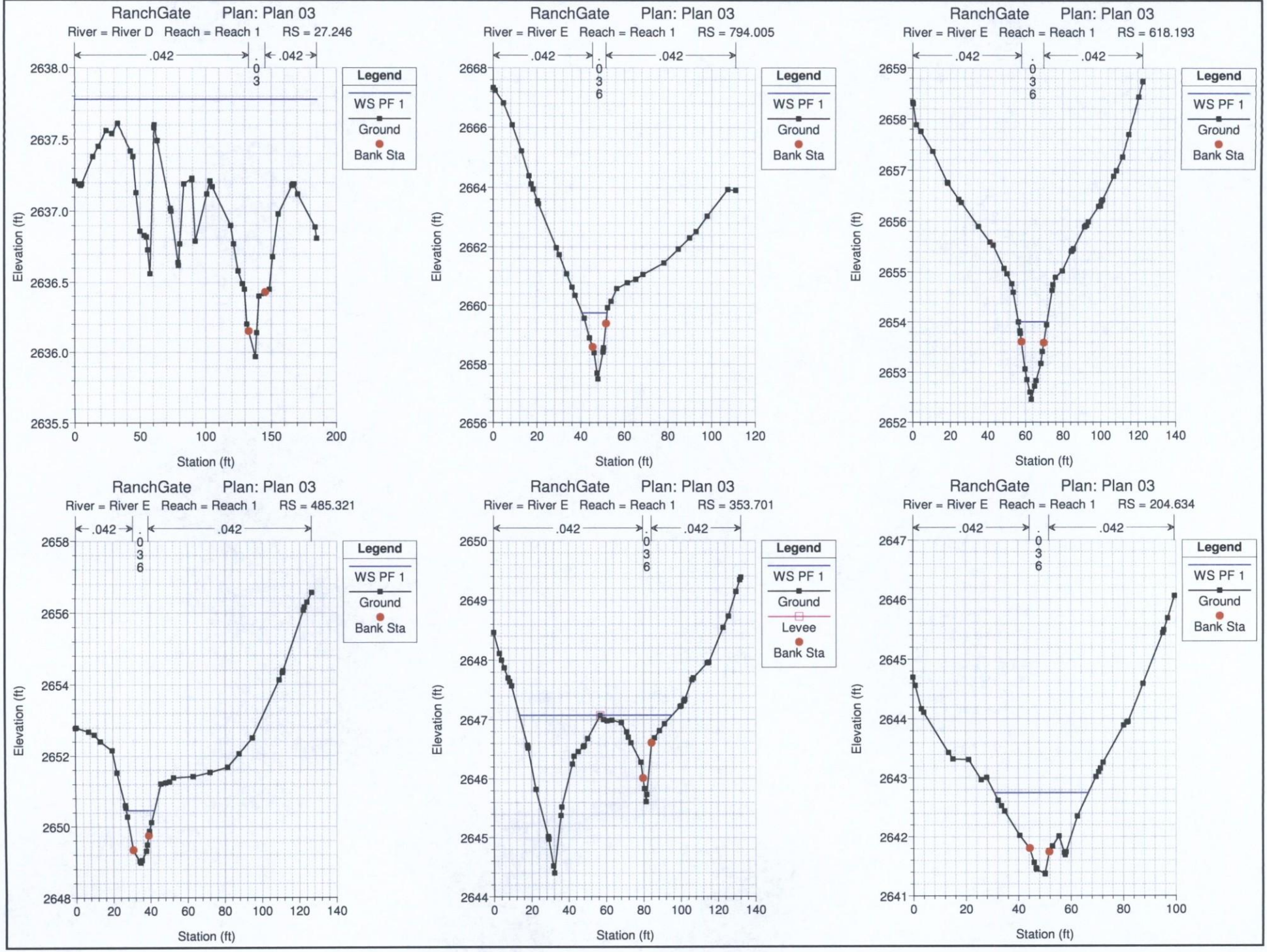
.042
0.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)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River = River D Reach = Reach 1 RS = 27.246
.042
.042
.03
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
RanchGate Plan: Plan 03
River = River E Reach = Reach 1 RS = 794.005
.042
.042
.036
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
RanchGate Plan: Plan 03
River = River E Reach = Reach 1 RS = 618.193
.042
.042
.036
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
RanchGate Plan: Plan 03
River = River E Reach = Reach 1 RS = 485.321
.042
.042
.036
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)
RanchGate Plan: Plan 03
River = River E Reach = Reach 1 RS = 353.701
.042
.042
.036
Legend
WS PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)
RanchGate Plan: Plan 03
River = River E Reach = Reach 1 RS = 204.634
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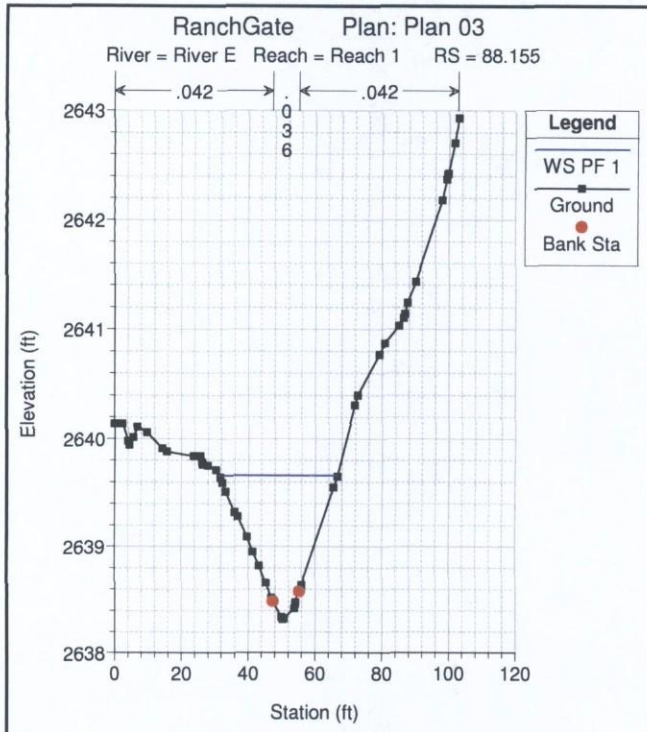
.042
.036
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


RanchGate Plan: Plan 03
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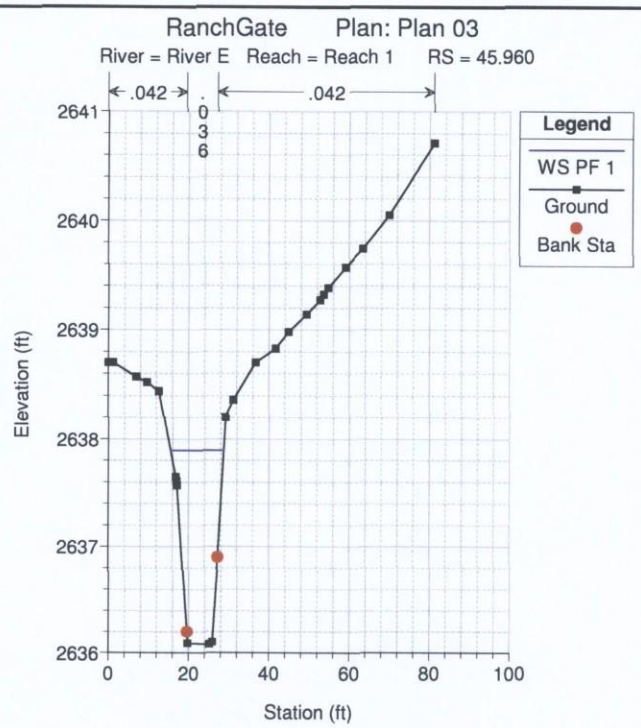
.036
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


RanchGate Plan: Plan 03
River = River E Reach = Reach 1 RS = 45.960
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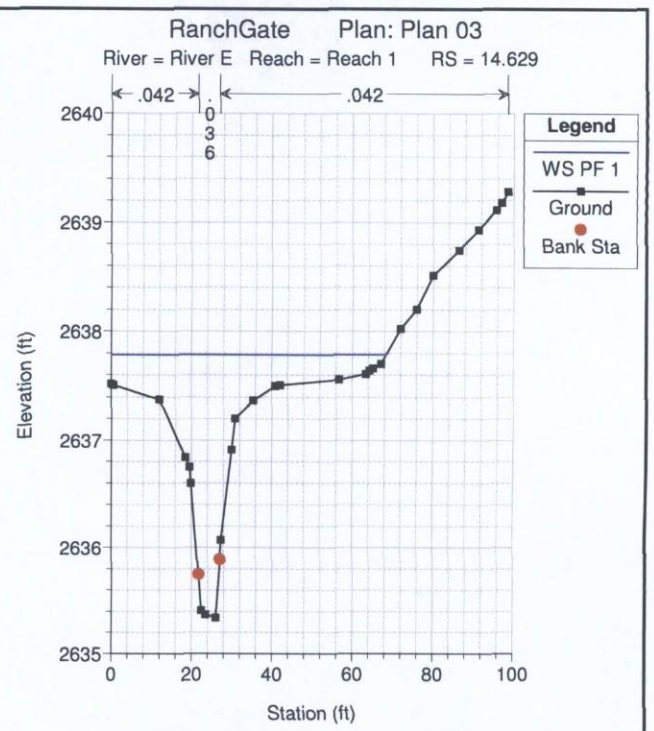
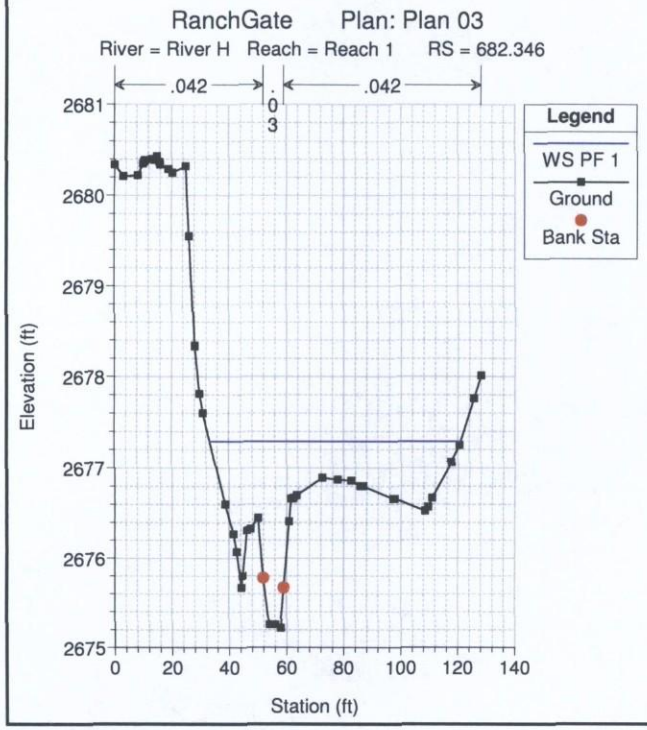
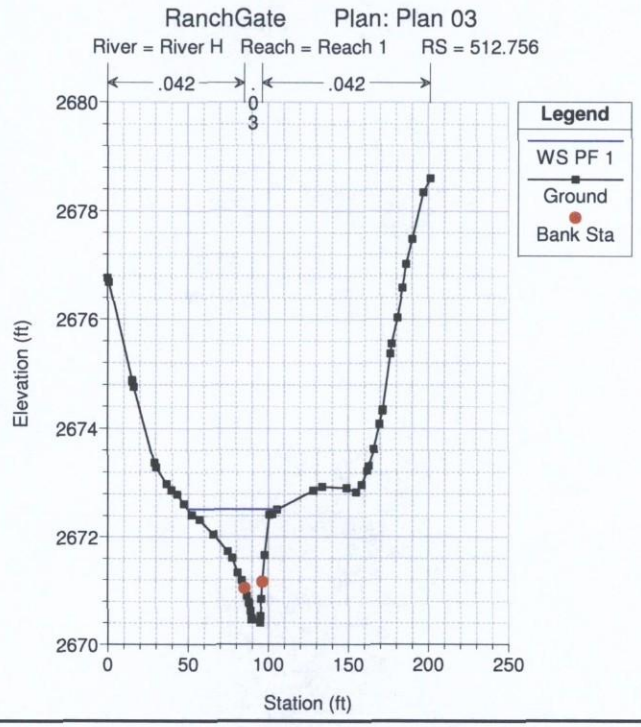
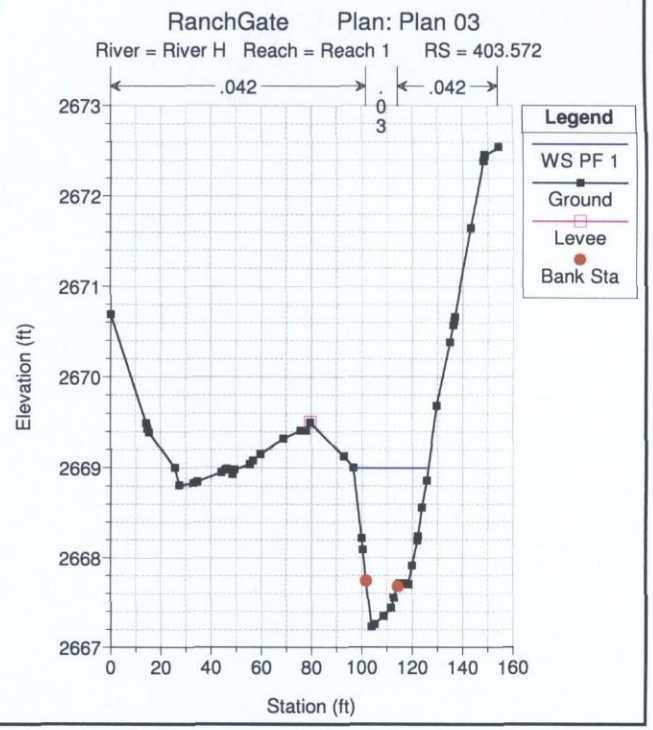
.036
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


RanchGate Plan: Plan 03
River = River E Reach = Reach 1 RS = 14.629
.042
.036
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


RanchGate Plan: Plan 03
River = River H Reach = Reach 1 RS = 682.346
.042
.03
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


RanchGate Plan: Plan 03
River = River H Reach = Reach 1 RS = 512.756
.042
.03
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


RanchGate Plan: Plan 03
River = River H Reach = Reach 1 RS = 403.572
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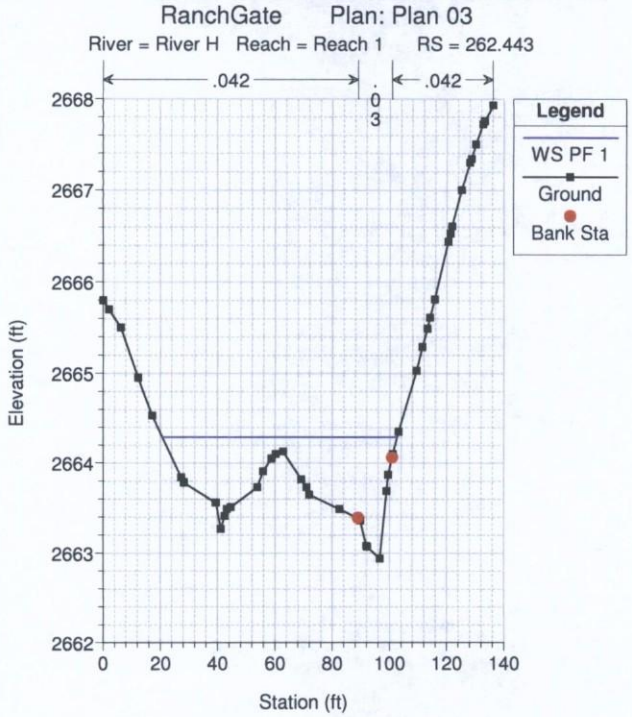
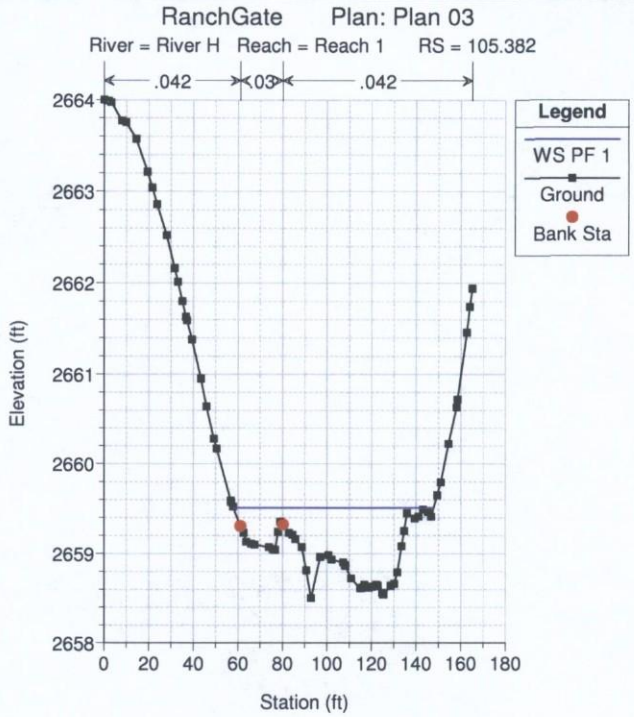
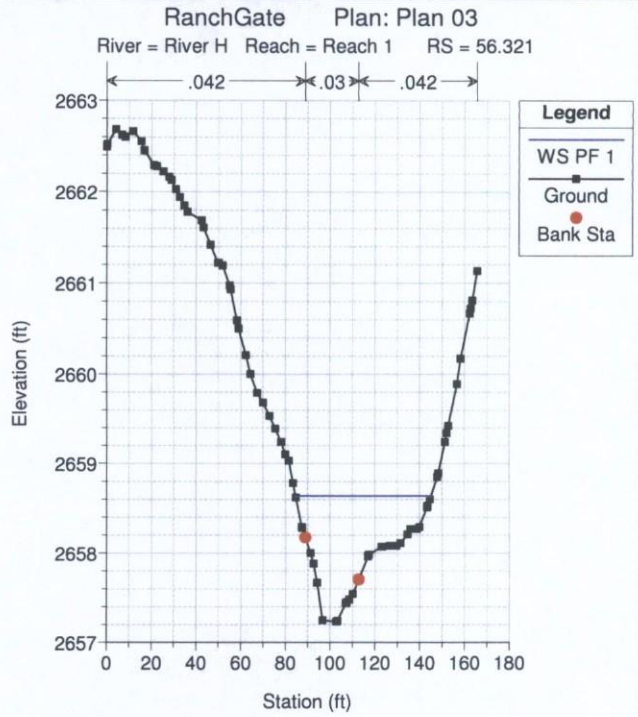
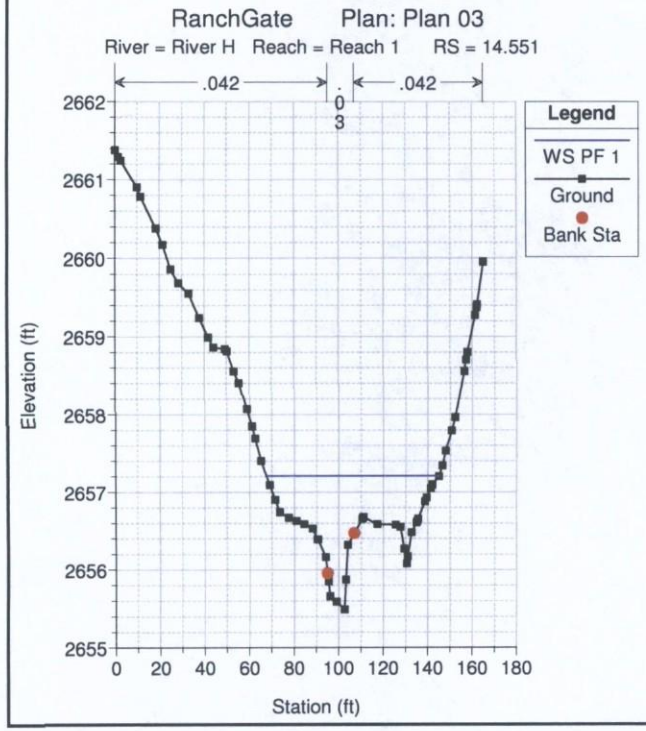
.03
.042
Legend
WS PF 1
Ground
Levee
Bank Sta
Elevation (ft)
Station (ft)


RanchGate Plan: Plan 03
River = River H Reach = Reach 1 RS = 262.443
.042
.03
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


RanchGate Plan: Plan 03
River = River H Reach = Reach 1 RS = 105.382
.042
.03
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


RanchGate Plan: Plan 03
River = River H Reach = Reach 1 RS = 56.321
.042
.03
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)


RanchGate Plan: Plan 03
River = River H Reach = Reach 1 RS = 14.551
.042
.03
.042
Legend
WS PF 1
Ground
Bank Sta
Elevation (ft)
Station (ft)

Appendix F: Storage Calculations

128th Street and Ranch Gate Drive
C Value & Proposed Storage Calculations

Reference: FCDMC, *Drainage Manual Volume 1- Design Criteria*, August 2013.
City of Scottsdale Drainage Design Manual, August 2012.

V = C (P/12) A
where: C = Runoff Coefficient

Hydraulic Soil Type D

R1-43 = 0.61
R1-70 = 0.60
Undisturbed desert = 0.45
Roads = 0.95
Desert Landscaping = 0.83
Mountain Terrain (slopes >10%) = 0.80

P = 100-year, 2-hour Precipitation Depth = 2.82 inches
P = First Flush Depth = 0.5 inches
A = Disturbed Area, acres

Landuse	Area (Ac)	100-Year Runoff Coefficient	100-year 2-hr Runoff Volume (AF)	Area Req (Ac)= VR/1.5 to 2	First Flush Runoff Volume (AF)
Proposed Conditions					
Developed 130x165 (R1-70)	5.68	0.60	0.80		0.02
Developed 130x150 (R1-43)	6.54	0.61	0.94		0.02
Roads	3.41	0.95	0.76		0.04
Re-seeded Road Disturbance	1.04	0.83	0.20		0.03
Storage Area	0.41	0.83	0.08		0.03
Re-Seeded Utility Easements	0.17	0.83	0.03		0.03
Total/Weighted C	**17.26**	**0.69**	**2.82**	**1.66**	**0.15**

Existing Conditions		
Undistrubed Desert	7.08	0.45
Mountain Terrain	10.18	0.80
Weighted C (existing) =	**17.26**	**0.66**

RANCH GATE & 128TH STREET
Storage Provided Calculations

Note: Volume computations based upon Conic Method where
Incremental Volume = h/3(A1+A2+(A1*A2) ^ 0.5)

Basin A

Elevation	Area (sq. ft.)	Area (Ac.)	Average Area (Ac.)	Volume Provided (AF)
2657.0	4595.7	0.11		
2658.0	5852.9	0.13	5224	0.12
2659.0	7210.5	0.17	6532	0.15
2660.0	8668.7	0.20	7940	0.18
2661.0	10029.1	0.23	9349	0.21
			Total =	**0.67**

Basin C

Elevation	Area (sq. ft.)	Area (Ac.)	Average Area (Ac.)	Volume Provided (AF)
2642.0	5820.0	0.13		
2643.0	7398.4	0.17	6609	0.15
2644.0	9156.0	0.21	8277	0.19
2645.0	11174.6	0.26	10165	0.23
2646.0	13448.5	0.31	12312	0.28
			Total =	**0.86**

Appendix G: Stormwater Waiver

Request for Stormwater Storage Waiver

City of Scottsdale Case Numbers:

___ - PA - ___ ___ - ZN - ___ ___ - UP - ___ ___ - DR - ___ ___ - PP - ___ PC#_____

The applicant/developer must complete and submit this form to the city for processing and obtain approval of waiver request ***before submitting improvement plans***. Denial of the waiver may require the developer to submit a revised site plan to the Development Review Board.

Date January 13,2015 **Project Name** Ranch Gate & 128th Street

Project Location Section 11, T4N R5E Assessor's Parcels 217-01-025A; Southwest corner of 128th Street and Ranch Gate Road

Applicant Contact Paul Haas, PE **Company Name** Hoskin Ryan Consultants

Phone (602) 252-8384 Ext. 129 Fax (602) 252-8385 E-mail haas@hoskinryan.com

Address 6245 N. 24th Parkway, Suite 100 Phoenix Arizona 85016-2029

Waiver Criteria

A project must meet at least one of three criteria listed below for the city to consider waiving some or all required stormwater storage. **However, regardless of the criteria, a waiver will only be granted if the applicant can demonstrate that the effect of a waiver will not increase the potential for flooding on any property.** Check the applicable box and provide a signed engineering report and supporting engineering analysis that demonstrate the project meets the criteria and that the effect of a waiver will not increase the potential for flooding on any property.

If the runoff for the project has been included in a storage facility at another location, the applicant must demonstrate that the stormwater storage facility was specifically designed to accommodate runoff from the subject property and that the runoff will be conveyed to this location through an adequately designed conveyance facility.

☐ 1. The development is adjacent to a conveyance facility that an engineering analysis shows is designed and constructed to handle the additional runoff from the site as a result of development.

☐ 2. The development is on a parcel less than one-half acre in size.

☑ 3. Stormwater storage requirements conflict with requirements of the Environmentally Sensitive Lands Ordinance (ESLO).

For a full storage waiver, a conflict with ESLO is limited to:

- Property located in the hillside landform as defined in the city Zoning Ordinance
- Property in the upper desert landform that has a land slope steeper than 5% as defined in the city Zoning Ordinance
- Property within the ESL zoning overlay district where the only viable location for a stormwater storage basin requires blasting

This full waiver only applies to those portions of property meeting one of these three requirements.

Partial waivers are available for projects or portions of properties within the Environmentally Sensitive Lands Zoning Overlay District, not meeting any of the three full waiver criteria above, if post-development peak discharge rates do not exceed pre-development conditions, based on the 10- and 100-year storm events.

By signing below, I certify that the stated project meets the waiver criteria selected above as demonstrated by the attached documentation.

Paul M. Haas
Engineer

1/13/15
Date

Planning, Neighborhood & Transportation Division

7447 E Indian School Road, Suite 105, Scottsdale, AZ 85251 ◆ Phone: 480-312-2500 ◆ Fax: 480-312-7781

Request for Stormwater Storage Waiver

City of Scottsdale Case Numbers:

___ - PA - ___ ___ - ZN - ___ ___ - UP - ___ ___ - DR - ___ ___ - PP - ___ PC#_____

CITY STAFF TO COMPLETE THIS PAGE

Project Name _____

Check Appropriate Boxes:

☐ Meets waiver criteria (specify): ☐ 1 ☐ 2 ☐ 3

☐ Recommend approve waiver.

☐ Recommend deny waiver:
- ☐ None of waiver criteria met.
- ☐ Downstream conditions prohibit waiver of any storage.
- ☐ Other:

Explain: _____

_____

☐ Return waiver request:
- ☐ Insufficient data provided.
- ☐ Other: _____

Explain: _____

_____

Recommended Conditions of Waiver:
- ☐ All storage requirements waived.
- ☐ Post-development peak discharge rates do not exceed pre-development conditions.
- ☐ Other:

Explain: _____

_____

☐ **Waiver approved per above conditions.**

☐ **Waiver denied.**

_____ _____

Floodplain Administrator or Designee Date

Planning, Neighborhood & Transportation Division

7447 E Indian School Road, Suite 105, Scottsdale, AZ 85251 • Phone: 480-312-2500 • Fax: 480-312-7781

Request for Stormwater Storage Waiver

City of Scottsdale Case Numbers:

___ - PA - ____ ____ - ZN - ____ ____ - UP - ____ ____ - DR - ___ ____ - PP - ____ PC#_____

In-Lieu Fee and In-Kind Contributions

In-lieu fees are only applicable to projects where post-development peak discharge rates exceed pre-development levels, based on the 10- and 100-year storm events. If the city grants a waiver, the developer is required to calculate and contribute an in-lieu fee based on what it would cost the city to provide a storage basin, sized as described below, including costs such as land acquisition, construction, landscaping, design, construction management, and maintenance over a 75-year design life. The fee for this cost is $1.87 per cubic foot of stormwater storage for a virtual storage basin designed to mitigate the increase in runoff associated with the 100-year/2-hour storm event. The applicant may submit site-specific in-lieu fee calculations subject to the Floodplain Administrator's approval.

The Floodplain Administrator considers in-kind contributions on a case-by-case basis. An in-kind contribution can serve as part of or instead of the calculated in-lieu fee. In-kind contributions must be stormwater related and must constitute a public benefit. In-lieu fees and in-kind contributions are subject to the approval of the Floodplain Administrator or designee.

Project Name Ranch Gate & 128th Street

The waived stormwater storage volume is calculated using a simplified approach as follows:

$V = \Delta CRA$; where

V = stormwater storage volume required, in cubic feet,
ΔC = increase in weighted average runoff coefficient over disturbed area ($C_{post} - C_{pre}$),
R = 100-year/2-hour precipitation depth, in feet (DSPM, Appendix 4-1D, page 11), and
A = area of disturbed ground, in square feet

Furthermore,

$V_w = V - V_p$; where
V_w = volume waived,
V = volume required, and
V_p = volume provided

R = 0.235
ΔC= 0.03
A = 751770
V = 5,300
V_p= 44,665
V_w= 0

☐ An in-lieu fee will be paid, based on the following calculations and supporting documentation:
In-lieu fee ($) = V_w (cu. ft.) x $1.87 per cubic foot = _____

☐ An in-kind contribution will be made, as follows:

_____
_____
_____

☑ No in-lieu fee is required. Reason:
Post development rates do not exceed pre-development rates.

Approved by:

_____ _____
Floodplain Administrator or Designee Date

Planning, Neighborhood & Transportation Division
7447 E Indian School Road, Suite 105, Scottsdale, AZ 85251 • Phone: 480-312-2500 • Fax: 480-312-7781

Appendix H: Warning and Disclaimer of Liability

Appendix 4-6B

WARNING AND DISCLAIMER OF LIABILITY

The City's Stormwater and Floodplain Management Ordinance is intended to minimize the occurrence of losses, hazards and conditions adversely affecting the public health, safety and general welfare which might result from flooding.

The Stormwater and Floodplain Management Ordinance identifies floodplains, floodways, flood fringes and special flood hazard areas. However, a property outside these areas could be inundated by floods. Also, much of the City is a dynamic flood area; floodways, floodplains, flood fringes and special flood hazard areas may shift from one location to another, over time, due to natural processes.

WARNING AND DISCLAIMER OF LIABILITY

The flood protection provided by the Stormwater and Floodplain Management Ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering considerations. Floods larger than the base flood can and will occur on rare occasions. Floodwater heights may be increased by constructed or natural causes. The Stormwater and Floodplain Management Ordinance does not create liability on the part of the city, any officer or employee thereof, or the federal, state or county government for any flood damages that result from reliance on the Ordinance or any administrative decision lawfully made thereunder.

Compliance with the Stormwater and Floodplain Management Ordinance does not ensure complete protection from flooding. Flood-related problems such as natural erosion, streambed meander, or constructed obstructions and diversions may occur and have an adverse effect in the event of a flood. You are advised to consult your own engineer or other expert regarding these considerations.

I have read and understand the above.

Plan Check #	Owner	Date
		1/14/15

Native Resources
INTERNATIONAL

Native Plant Inventory

Ranchgate & 128th
SWC of Ranchgate Road & 128th Street
Scottsdale, AZ

1/8/2014

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1	Graythorn	4	NS	Wide Base
2	Mesquite	4	S	
3	Catclaw Acacia	10	NS	Wide Base
4	Blue Palo Verde	8	NS	Trunk Form / Leaning
5	Catclaw Acacia	6	NS	Wide Base
6	Mesquite	6	S	
7	Mesquite	5	S	
8	Whitethorn Acacia	8	NS	Wide Base
9	Blue Palo Verde	5	S	
10	Catclaw Acacia	6	NS	Wide Base
11	Blue Palo Verde	5	S	
12	Catclaw Acacia	8	NS	Wide Base
13	Blue Palo Verde	22	NS	Branch Dieback / Cambium Damage
14	Mesquite	4	S	
15	Catclaw Acacia	14	NS	Wide Base
16	Graythorn	6	NS	Wide Base
17	Catclaw Acacia	20	NS	Wide Base
18	Catclaw Acacia	12	NS	Wide Base
19	Blue Palo Verde	5	S	
20	Catclaw Acacia	12	NS	Wide Base
21	Blue Palo Verde	10	S	
22	Catclaw Acacia	12	NS	Wide Base
23	Catclaw Acacia	14	NS	Wide Base
24	Catclaw Acacia	8	NS	Wide Base
25	Catclaw Acacia	7	NS	Wide Base
26	Catclaw Acacia	12	NS	Cluster
27	Catclaw Acacia	8	NS	Wide Base
28	Catclaw Acacia	8	NS	Wide Base
29	Blue Palo Verde	5	S	
30	Catclaw Acacia	4	NS	Wide Base
31	Blue Palo Verde	4	S	
32	Graythorn	5	NS	Wide Base
33	Catclaw Acacia	8	NS	Wide Base
34	Catclaw Acacia	7	NS	Wide Base
35	Catclaw Acacia	10	NS	Wide Base
36	Blue Palo Verde	5	NS	Trunk Form / Leaning
37	Catclaw Acacia	12	NS	Wide Base / Leaning
38	Hackberry	8	NS	Wide Base / Leaning
39	Catclaw Acacia	10	NS	Wide Base / Leaning
40	Catclaw Acacia	6	NS	Wide Base / Leaning

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
41	Graythorn	6	NS	Wide Base / Leaning
42	Catclaw Acacia	6	NS	Wide Base / Leaning
43	Catclaw Acacia	5	NS	Wide Base / Leaning
44	Catclaw Acacia	5	NS	Wide Base / Leaning
45	Catclaw Acacia	6	NS	Wide Base / Leaning
46	Hackberry	14	NS	Wide Base / Leaning
47	Hackberry	16	NS	Wide Base / Leaning
48	Mesquite	8	S	
49	Catclaw Acacia	8	NS	Wide Base
50	Catclaw Acacia	6	NS	Wide Base
51	Catclaw Acacia	7	NS	Wide Base
52	Catclaw Acacia	16	NS	Cluster
53	Catclaw Acacia	6	NS	Cluster
54	Graythorn	5	NS	Wide Base
55	Graythorn	6	NS	Wide Base
56	Catclaw Acacia	10	NS	Wide Base
57	Graythorn	7	NS	Wide Base
58	Catclaw Acacia	6	NS	Wide Base
59	Mesquite	10	NS	Wide Base / Trunk Form
60	Catclaw Acacia	7	NS	Wide Base
61	Catclaw Acacia	6	NS	Wide Base
62	Catclaw Acacia	5	NS	Wide Base
63	Catclaw Acacia	6	NS	Wide Base
64	Graythorn	6	NS	Wide Base
65	Catclaw Acacia	7	NS	Wide Base
66	Catclaw Acacia	7	NS	Wide Base
67	Blue Palo Verde	9	S	
68	Catclaw Acacia	6	NS	Wide Base
69	Graythorn	8	NS	Wide Base
70	Catclaw Acacia	4	NS	Wide Base
71	Catclaw Acacia	6	NS	Wide Base
72	Catclaw Acacia	7	NS	Wide Base
73	Catclaw Acacia	5	NS	Wide Base
74	Catclaw Acacia	8	NS	Wide Base
75	Blue Palo Verde	8	NS	Branch Dieback / Trunk Damage
76	Catclaw Acacia	6	NS	Wide Base
77	Catclaw Acacia	6	NS	Wide Base
78	Catclaw Acacia	6	NS	Wide Base
79	Catclaw Acacia	5	NS	Wide Base
80	Catclaw Acacia	4	NS	Wide Base
81	Graythorn	5	NS	Wide Base
82	Catclaw Acacia	4	NS	Wide Base
83	Catclaw Acacia	5	NS	Wide Base
84	Catclaw Acacia	4	NS	Wide Base
85	Mesquite	6	S	
86	Catclaw Acacia	6	NS	Cluster
87	Catclaw Acacia	4	NS	Cluster
88	Graythorn	6	NS	Wide Base
89	Catclaw Acacia	4	NS	Wide Base
90	Catclaw Acacia	6	NS	Cluster
91	Catclaw Acacia	12	NS	Cluster
92	Catclaw Acacia	7	NS	Cluster
93	Scrub Oak	7	NS	Cluster

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
94	Scrub Oak	40	NS	Cluster
95	Whitethorn Acacia	6	S	
96	Blue Palo Verde	6	S	
97	Blue Palo Verde	7	S	
98	Catclaw Acacia	6	NS	Trunk Form / Leaning
99	Catclaw Acacia	7	NS	Wide Base
100	Catclaw Acacia	7	NS	Wide Base
101	Whitethorn Acacia	7	S	
102	Whitethorn Acacia	10	NS	Wide Base
103	Whitethorn Acacia	10	S	
104	Whitethorn Acacia	6	S	
105	Catclaw Acacia	5	NS	Wide Base
106	Catclaw Acacia	5	NS	Wide Base
107	Whitethorn Acacia	4	S	
108	Catclaw Acacia	14	NS	Wide Base
109	Foothills Palo Verde	5	S	
110	Catclaw Acacia	8	NS	Wide Base
111	Catclaw Acacia	6	NS	Wide Base
112	Catclaw Acacia	5	NS	Wide Base
113	Catclaw Acacia	6	NS	Wide Base
114	Mesquite	8	S	
115	Graythorn	4	NS	Wide Base
116	Graythorn	9	NS	Cluster
117	Catclaw Acacia	5	NS	Wide Base
118	Catclaw Acacia	5	NS	Wide Base
119	Catclaw Acacia	4	NS	Wide Base
120	Catclaw Acacia	6	NS	Wide Base
121	Graythorn	9	NS	Cluster
122	Catclaw Acacia	4	NS	Wide Base
123	Catclaw Acacia	5	NS	Wide Base
124	Catclaw Acacia	5	NS	Wide Base
125	Foothills Palo Verde	4	S	
126	Catclaw Acacia	5	NS	Wide Base
127	Catclaw Acacia	4	NS	Wide Base
128	Catclaw Acacia	4	NS	Wide Base
129	Catclaw Acacia	6	NS	Wide Base
130	Catclaw Acacia	4	NS	Wide Base
131	Catclaw Acacia	4	NS	Wide Base
132	Hackberry	10	NS	Cluster
133	Catclaw Acacia	6	NS	Wide Base
134	Catclaw Acacia	4	NS	Wide Base
135	Graythorn	4	NS	Wide Base
136	Catclaw Acacia	4	NS	Wide Base
137	Catclaw Acacia	6	NS	Wide Base
138	Catclaw Acacia	4	NS	Wide Base
139	Catclaw Acacia	5	NS	Wide Base
140	Catclaw Acacia	4	NS	Wide Base
141	Catclaw Acacia	5	NS	Wide Base
142	Hackberry	18	NS	Wide Base
143	Catclaw Acacia	5	NS	Wide Base
144	Graythorn	6	NS	Wide Base
145	Catclaw Acacia	8	NS	Wide Base
146	Catclaw Acacia	4	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
147	Catclaw Acacia	4	NS	Wide Base
148	Catclaw Acacia	5	NS	Wide Base
149	Catclaw Acacia	6	NS	Wide Base
150	Catclaw Acacia	4	NS	Wide Base
151	Mesquite	7	S	
152	Catclaw Acacia	14	NS	Wide Base
153	Catclaw Acacia	7	NS	Wide Base
154	Catclaw Acacia	8	NS	Wide Base
155	Graythorn	6	NS	Wide Base
156	Hackberry	12	NS	Wide Base
157	Catclaw Acacia	6	NS	Cluster
158	Catclaw Acacia	6	NS	Wide Base
159	Catclaw Acacia	12	NS	Wide Base
160	Catclaw Acacia	14	NS	Wide Base
161	Catclaw Acacia	5	NS	Wide Base
162	Blue Palo Verde	7	S	
163	Blue Palo Verde	4	NS	Trunk Form / Leaning
164	Blue Palo Verde	7	S	
165	Hackberry	14	NS	Wide Base
166	Blue Palo Verde	8	S	
167	Graythorn	5	NS	Fire Damage / Wide Base
168	Graythorn	4	NS	Fire Damage / Wide Base
169	Graythorn	6	NS	Fire Damage / Wide Base
170	Graythorn	7	NS	Wide Base
171	Graythorn	7	NS	Wide Base
172	Catclaw Acacia	6	NS	Wide Base
173	Blue Palo Verde	7	S	
174	Blue Palo Verde	9	S	
175	Catclaw Acacia	4	NS	Wide Base
176	Catclaw Acacia	4	NS	Wide Base
177	Catclaw Acacia	7	NS	Wide Base
178	Catclaw Acacia	12	NS	Wide Base
179	Hackberry	10	NS	Wide Base
180	Catclaw Acacia	7	NS	Wide Base
181	Catclaw Acacia	4	NS	Wide Base
182	Hackberry	40	NS	Cluster
183	Catclaw Acacia	5	NS	Wide Base
184	Catclaw Acacia	14	NS	Wide Base
185	Catclaw Acacia	7	NS	Wide Base
186	Catclaw Acacia	10	NS	Wide Base
187	Catclaw Acacia	5	NS	Wide Base
188	Mesquite	4	S	
189	Hackberry	5	NS	Wide Base
190	Catclaw Acacia	7	NS	Wide Base
191	Catclaw Acacia	6	NS	Wide Base
192	Catclaw Acacia	7	NS	Wide Base
193	Hackberry	12	NS	Wide Base
194	Hackberry	10	NS	Wide Base
195	Hackberry	9	NS	Cluster
196	Catclaw Acacia	4	NS	Wide Base
197	Catclaw Acacia	5	NS	Wide Base
198	Catclaw Acacia	7	NS	Wide Base
199	Hackberry	12	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
200	Catclaw Acacia	5	NS	Wide Base
201	Catclaw Acacia	4	NS	Wide Base
202	Blue Palo Verde	6	S	
203	Mesquite	7	S	
204	Catclaw Acacia	4	NS	Wide Base
205	Catclaw Acacia	6	NS	Cluster
206	Catclaw Acacia	4	NS	Wide Base
207	Blue Palo Verde	10	NS	Trunk Form / Leaning
208	Hackberry	12	NS	Wide Base / Dieback
209	Mesquite	8	NS	Wide Base / Cambium Damage
210	Hackberry	10	NS	Wide Base / Dieback
211	Catclaw Acacia	4	NS	Wide Base / Dieback
212	Catclaw Acacia	6	NS	Wide Base
213	Blue Palo Verde	4	NS	Declining / Dieback
214	Catclaw Acacia	5	NS	Wide Base
215	Catclaw Acacia	4	NS	Wide Base
216	Catclaw Acacia	5	NS	Wide Base
217	Foothills Palo Verde	4	S	
218	Catclaw Acacia	8	NS	Wide Base
219	Catclaw Acacia	5	NS	Wide Base
220	Foothills Palo Verde	7	NS	Exposed Roots
221	Foothills Palo Verde	5	S	
222	Catclaw Acacia	6	NS	Wide Base
223	Foothills Palo Verde	4	S	
224	Catclaw Acacia	5	NS	Wide Base
225	Catclaw Acacia	4	NS	Wide Base
226	Hackberry	6	NS	Wide Base
227	Catclaw Acacia	4	NS	Wide Base
228	Catclaw Acacia	4	NS	Wide Base
229	Catclaw Acacia	6	NS	Wide Base
230	Catclaw Acacia	6	NS	Wide Base
231	Foothills Palo Verde	6	S	
232	Foothills Palo Verde	6	S	
233	Foothills Palo Verde	7	NS	Exposed Roots
234	Foothills Palo Verde	8	NS	Branch Dieback / Trunk Damage
235	Foothills Palo Verde	6	S	
236	Foothills Palo Verde	7	S	
237	Mesquite	4	S	
238	Catclaw Acacia	5	NS	Wide Base
239	Catclaw Acacia	4	NS	Wide Base
240	Catclaw Acacia	5	NS	Wide Base
241	Catclaw Acacia	8	NS	Cluster
242	Catclaw Acacia	6	NS	Wide Base
243	Hackberry	10	NS	Wide Base
244	Foothills Palo Verde	5	S	
245	Foothills Palo Verde	7	S	
246	Catclaw Acacia	7	NS	Wide Base
247	Catclaw Acacia	5	NS	Wide Base
248	Foothills Palo Verde	4	S	
249	Foothills Palo Verde	7	NS	Exposed Roots / Rocks
250	Foothills Palo Verde	7	S	
251	Catclaw Acacia	8	NS	Wide Base
252	Catclaw Acacia	6	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
253	Catclaw Acacia	5	NS	Wide Base
254	Foothills Palo Verde	6	S	
255	Catclaw Acacia	5	NS	Wide Base
256	Graythorn	5	NS	Trunk Form / Leaning
257	Foothills Palo Verde	6	NS	Exposed Roots / Root Growth
258	Foothills Palo Verde	5	NS	Exposed Roots / Root Growth
259	Catclaw Acacia	6	NS	Wide Base
260	Catclaw Acacia	6	NS	Wide Base
261	Catclaw Acacia	5	NS	Wide Base
262	Catclaw Acacia	8	NS	Wide Base
263	Foothills Palo Verde	6	S	
264	Catclaw Acacia	5	NS	Wide Base
265	Whitethorn Acacia	4	S	
266	Whitethorn Acacia	10	NS	Wide Base
267	Catclaw Acacia	6	NS	Wide Base
268	Catclaw Acacia	6	NS	Wide Base
269	Mesquite	7	S	
270	Catclaw Acacia	5	NS	Wide Base
271	Catclaw Acacia	5	NS	Wide Base
272	Catclaw Acacia	6	NS	Wide Base
273	Catclaw Acacia	5	NS	Wide Base
274	Foothills Palo Verde	5	S	
274	Mesquite	9	S	
276	Foothills Palo Verde	4	S	
277	Catclaw Acacia	10	NS	Cluster
278	Catclaw Acacia	8	NS	Wide Base
279	Catclaw Acacia	5	NS	Wide Base
280	Catclaw Acacia	5	NS	Wide Base
281	Catclaw Acacia	6	NS	Wide Base
282	Catclaw Acacia	5	NS	Wide Base
283	Catclaw Acacia	4	NS	Wide Base
284	Catclaw Acacia	7	NS	Wide Base
285	Catclaw Acacia	12	NS	Wide Base
286	Graythorn	8	NS	Wide Base
287	Foothills Palo Verde	4	S	
288	Catclaw Acacia	12	NS	Wide Base
289	Blue Palo Verde	6	S	
290	Foothills Palo Verde	6	S	
291	Graythorn	6	NS	Cluster
292	Catclaw Acacia	8	NS	Wide Base
293	Mesquite	6	NS	Fire Damage
294	Catclaw Acacia	8	NS	Wide Base
295	Catclaw Acacia	5	NS	Wide Base
296	Foothills Palo Verde	6	S	
297	Catclaw Acacia	5	NS	Wide Base
298	Catclaw Acacia	7	NS	Wide Base
299	Blue Palo Verde	5	S	
300	Cottonwood	14	NS	Cluster
301	Cottonwood	5	NS	Cluster
302	Catclaw Acacia	7	NS	Wide Base
303	Catclaw Acacia	7	NS	Wide Base
304	Foothills Palo Verde	16	NS	Branch Dieback
305	Mesquite	4	S	

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
306	Catclaw Acacia	5	NS	Wide Base
307	Catclaw Acacia	14	NS	Cluster
308	Catclaw Acacia	5	NS	Wide Base
309	Catclaw Acacia	6	NS	Wide Base
310	Catclaw Acacia	5	NS	Wide Base
311	Catclaw Acacia	7	NS	Wide Base
312	Catclaw Acacia	5	NS	Wide Base
313	Catclaw Acacia	6	NS	Wide Base
314	Catclaw Acacia	5	NS	Wide Base
315	Hackberry	9	NS	Wide Base
316	Catclaw Acacia	10	NS	Cluster
317	Catclaw Acacia	24	NS	Cluster
318	Catclaw Acacia	20	NS	Cluster
319	Catclaw Acacia	6	NS	Cluster
320	Mesquite	6	S	
321	Catclaw Acacia	16	NS	Cluster
322	Catclaw Acacia	8	NS	Wide Base
323	Catclaw Acacia	24	NS	Cluster
324	Catclaw Acacia	12	NS	Cluster
325	Catclaw Acacia	8	NS	Wide Base
326	Hackberry	10	NS	Wide Base
327	Catclaw Acacia	6	NS	Wide Base
328	Blue Palo Verde	6	S	
329	Foothills Palo Verde	6	S	
330	Foothills Palo Verde	4	S	
331	Hackberry	12	NS	Wide Base
332	Catclaw Acacia	4	NS	Wide Base
333	Catclaw Acacia	7	NS	Wide Base
334	Catclaw Acacia	5	NS	Wide Base
335	Catclaw Acacia	6	NS	Wide Base
336	Foothills Palo Verde	4	S	
337	Foothills Palo Verde	6	S	
338	Catclaw Acacia	5	NS	Wide Base
339	Catclaw Acacia	12	NS	Cluster
340	Catclaw Acacia	7	NS	Cluster
341	Catclaw Acacia	5	NS	Wide Base
342	Catclaw Acacia	6	NS	Wide Base
343	Catclaw Acacia	5	NS	Wide Base
344	Catclaw Acacia	4	NS	Wide Base
345	Catclaw Acacia	4	NS	Wide Base
346	Catclaw Acacia	4	NS	Wide Base
347	Foothills Palo Verde	5	NS	Branch Dieback / Trunk Damage
348	Catclaw Acacia	6	NS	Wide Base
349	Catclaw Acacia	9	NS	Cluster
350	Catclaw Acacia	7	NS	Wide Base
351	Catclaw Acacia	10	NS	Wide Base
352	Graythorn	5	NS	Wide Base
353	Graythorn	5	NS	Wide Base
354	Catclaw Acacia	4	NS	Wide Base
355	Catclaw Acacia	6	NS	Wide Base
356	Catclaw Acacia	4	NS	Wide Base
357	Hackberry	8	NS	Wide Base
358	Catclaw Acacia	6	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
359	Graythorn	5	NS	Wide Base
360	Catclaw Acacia	4	NS	Wide Base
361	Catclaw Acacia	4	NS	Wide Base
362	Catclaw Acacia	7	NS	Cluster
363	Catclaw Acacia	5	NS	Wide Base
364	Catclaw Acacia	6	NS	Wide Base
365	Catclaw Acacia	6	NS	Wide Base
366	Catclaw Acacia	5	NS	Wide Base
367	Catclaw Acacia	5	NS	Wide Base
368	Graythorn	8	NS	Cluster
369	Graythorn	6	NS	Wide Base
370	Mesquite	22	NS	Branch Dieback / Cambium Damage
371	Catclaw Acacia	5	NS	Wide Base
372	Hackberry	7	NS	Wide Base
373	Catclaw Acacia	8	NS	Cluster
374	Foothills Palo Verde	6	NS	Exposed Roots
375	Catclaw Acacia	4	NS	Wide Base
376	Catclaw Acacia	5	NS	Wide Base
377	Catclaw Acacia	6	NS	Wide Base
378	Catclaw Acacia	6	NS	Wide Base
379	Catclaw Acacia	7	NS	Wide Base
380	Hackberry	20	NS	Cluster
381	Catclaw Acacia	4	NS	Wide Base
382	Catclaw Acacia	6	NS	Cluster
383	Catclaw Acacia	6	NS	Cluster
384	Catclaw Acacia	5	NS	Wide Base
385	Catclaw Acacia	4	NS	Wide Base
386	Catclaw Acacia	4	NS	Wide Base
387	Catclaw Acacia	8	NS	Cluster
388	Catclaw Acacia	5	NS	Wide Base
389	Hackberry	8	NS	Cluster
390	Catclaw Acacia	5	NS	Wide Base
391	Catclaw Acacia	8	NS	Cluster
392	Catclaw Acacia	6	NS	Wide Base
393	Catclaw Acacia	4	NS	Wide Base
394	Whitethorn Acacia	10	NS	Wide Base
395	Catclaw Acacia	5	NS	Wide Base
396	Foothills Palo Verde	5	S	
397	Foothills Palo Verde	4	S	
398	Catclaw Acacia	5	NS	Wide Base
399	Mesquite	8	S	
400	Catclaw Acacia	6	NS	Wide Base
401	Catclaw Acacia	6	NS	Wide Base
402	Catclaw Acacia	5	NS	Wide Base
403	Catclaw Acacia	4	NS	Wide Base
404	Catclaw Acacia	4	NS	Wide Base
405	Catclaw Acacia	4	NS	Wide Base
406	Foothills Palo Verde	6	NS	Fire Damage / Branch Attachment
407	Catclaw Acacia	7	NS	Cluster
408	Catclaw Acacia	10	NS	Cluster
409	Catclaw Acacia	5	NS	Wide Base
410	Catclaw Acacia	6	NS	Wide Base
411	Catclaw Acacia	4	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
412	Catclaw Acacia	5	NS	Wide Base
413	Catclaw Acacia	4	NS	Wide Base
414	Catclaw Acacia	5	NS	Wide Base
415	Whitethorn Acacia	5	NS	Wide Base
416	Mesquite	8	S	
417	Catclaw Acacia	6	NS	Wide Base
418	Catclaw Acacia	6	NS	Wide Base
419	Catclaw Acacia	10	NS	Cluster
420	Catclaw Acacia	5	NS	Wide Base
421	Catclaw Acacia	6	NS	Wide Base
422	Catclaw Acacia	4	NS	Wide Base
423	Catclaw Acacia	8	NS	Cluster
424	Catclaw Acacia	5	NS	Wide Base
425	Catclaw Acacia	9	NS	Cluster
426	Catclaw Acacia	4	NS	Wide Base
427	Catclaw Acacia	5	NS	Wide Base
428	Catclaw Acacia	5	NS	Wide Base
429	Foothills Palo Verde	6	S	
430	Graythorn	6	NS	Cluster
431	Graythorn	8	NS	Cluster
432	Mesquite	7	S	
433	Catclaw Acacia	5	NS	Wide Base
434	Hackberry	8	NS	Wide Base
435	Catclaw Acacia	4	NS	Wide Base
436	Catclaw Acacia	5	NS	Wide Base
437	Catclaw Acacia	6	NS	Wide Base
438	Graythorn	10	NS	Wide Base
439	Foothills Palo Verde	4	S	
440	Catclaw Acacia	4	NS	Wide Base
441	Catclaw Acacia	4	NS	Wide Base
442	Catclaw Acacia	5	NS	Wide Base
443	Hackberry	12	NS	Cluster
444	Hackberry	10	NS	Cluster
445	Foothills Palo Verde	7	NS	Exposed Roots
446	Foothills Palo Verde	6	S	
447	Whitethorn Acacia	20	NS	Wide Base
448	Hackberry	30	NS	Cluster
449	Hackberry	15	NS	Cluster
450	Hackberry	7	NS	Wide Base
451	Hackberry	10	NS	Cluster
452	Hackberry	15	NS	Cluster
453	Catclaw Acacia	7	NS	Wide Base
454	Foothills Palo Verde	4	S	
455	Foothills Palo Verde	7	S	
456	Catclaw Acacia	12	NS	Wide Base
457	Catclaw Acacia	4	NS	Wide Base
458	Mesquite	8	NS	Fire Damage
459	Catclaw Acacia	6	NS	Wide Base
460	Foothills Palo Verde	5	S	
461	Catclaw Acacia	4	S	
462	Catclaw Acacia	5	NS	Wide Base
463	Catclaw Acacia	4	NS	Wide Base
464	Foothills Palo Verde	5	S	

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
465	Foothills Palo Verde	6	S	
466	Foothills Palo Verde	4	S	
467	Catclaw Acacia	5	NS	Wide Base
468	Catclaw Acacia	6	NS	Wide Base
469	Foothills Palo Verde	6	S	
470	Foothills Palo Verde	7	NS	Fire Damage / Trunk Damage
471	Foothills Palo Verde	5	S	
472	Catclaw Acacia	4	NS	Wide Base
473	Catclaw Acacia	6	NS	Wide Base
474	Catclaw Acacia	6	NS	Wide Base
475	Catclaw Acacia	5	NS	Wide Base
476	Foothills Palo Verde	4	S	
477	Catclaw Acacia	7	NS	Wide Base
478	Catclaw Acacia	7	NS	Wide Base
479	Hackberry	8	NS	Wide Base
480	Catclaw Acacia	5	NS	Wide Base
481	Foothills Palo Verde	4	S	
482	Catclaw Acacia	6	NS	Wide Base
483	Catclaw Acacia	4	NS	Wide Base
484	Catclaw Acacia	4	NS	Wide Base
485	Foothills Palo Verde	6	NS	Exposed Roots
486	Catclaw Acacia	6	NS	Wide Base
487	Catclaw Acacia	4	NS	Wide Base
488	Foothills Palo Verde	5	NS	Rocks
489	Catclaw Acacia	6	NS	Wide Base
490	Foothills Palo Verde	7	S	
491	Graythorn	6	S	
492	Catclaw Acacia	6	NS	Wide Base
493	Catclaw Acacia	5	NS	Wide Base
494	Graythorn	4	NS	Cluster
495	Catclaw Acacia	7	NS	Wide Base
496	Foothills Palo Verde	7	S	
497	Foothills Palo Verde	4	S	
498	Catclaw Acacia	6	NS	Wide Base
499	Catclaw Acacia	4	NS	Wide Base
500	Catclaw Acacia	6	NS	Wide Base
501	Foothills Palo Verde	6	NS	Rocks
502	Catclaw Acacia	6	NS	Wide Base
503	Whitethorn Acacia	8	NS	Wide Base / Fire Damage
504	Catclaw Acacia	8	NS	Cluster / Fire Damage
505	Catclaw Acacia	5	NS	Wide Base
506	Catclaw Acacia	5	NS	Wide Base
507	Catclaw Acacia	6	NS	Wide Base
508	Catclaw Acacia	6	NS	Cluster
509	Catclaw Acacia	5	NS	Wide Base
510	Barrel	5	NS	Declining
511	Hackberry	8	NS	Wide Base
512	Foothills Palo Verde	5	S	
513	Foothills Palo Verde	5	S	
514	Foothills Palo Verde	6	S	
515	Foothills Palo Verde	6	S	
516	Foothills Palo Verde	7	S	
517	Foothills Palo Verde	4	S	

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
518	Catclaw Acacia	5	NS	Wide Base
519	Catclaw Acacia	6	NS	Cluster
520	Hackberry	18	NS	Cluster
521	Foothills Palo Verde	4	NS	Fire Damage / Branch Attachment
522	Catclaw Acacia	4	NS	Wide Base
523	Catclaw Acacia	6	NS	Wide Base
524	Catclaw Acacia	8	NS	Wide Base
525	Catclaw Acacia	5	NS	Wide Base
526	Catclaw Acacia	7	NS	Wide Base
527	Catclaw Acacia	12	NS	Wide Base
528	Catclaw Acacia	6	NS	Wide Base
529	Catclaw Acacia	4	NS	Wide Base
530	Graythorn	6	NS	Wide Base
531	Catclaw Acacia	5	NS	Wide Base
532	Graythorn	5	S	
533	Foothills Palo Verde	5	S	
534	Hackberry	14	NS	Wide Base
535	Graythorn	5	NS	Cluster
536	Graythorn	7	NS	Cluster
537	Catclaw Acacia	6	NS	Wide Base
538	Blue Palo Verde	6	S	
539	Graythorn	5	NS	Wide Base
540	Catclaw Acacia	7	NS	Rocks
541	Catclaw Acacia	8	NS	Wide Base
542	Foothills Palo Verde	4	S	
543	Catclaw Acacia	4	NS	Wide Base
544	Catclaw Acacia	8	NS	Wide Base
545	Catclaw Acacia	5	NS	Wide Base
546	Catclaw Acacia	6	NS	Wide Base
547	Catclaw Acacia	5	NS	Wide Base
548	Catclaw Acacia	6	NS	Wide Base
549	Catclaw Acacia	10	NS	Wide Base
550	Catclaw Acacia	5	NS	Wide Base
551	Catclaw Acacia	5	NS	Wide Base
552	Catclaw Acacia	7	NS	Wide Base
553	Catclaw Acacia	9	NS	Cluster
554	Hackberry	7	NS	Wide Base
555	Catclaw Acacia	6	NS	Wide Base
556	Graythorn	4	NS	Wide Base
557	Catclaw Acacia	5	NS	Wide Base
558	Catclaw Acacia	12	NS	Cluster
559	Catclaw Acacia	15	NS	Cluster
560	Foothills Palo Verde	7	NS	Wide Base / Leaning
561	Catclaw Acacia	8	NS	Wide Base
562	Catclaw Acacia	6	NS	Wide Base
563	Catclaw Acacia	5	NS	Wide Base
564	Blue Palo Verde	4	S	
565	Catclaw Acacia	6	NS	Wide Base
566	Catclaw Acacia	5	NS	Wide Base
567	Catclaw Acacia	8	NS	Cluster
568	Catclaw Acacia	8	NS	Wide Base
568	Catclaw Acacia	8	NS	Wide Base
570	Catclaw Acacia	6	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
571	Catclaw Acacia	12	NS	Cluster
572	Foothills Palo Verde	4	S	
573	Foothills Palo Verde	8	S	
574	Catclaw Acacia	20	NS	Wide Base
575	Catclaw Acacia	12	NS	Wide Base
576	Catclaw Acacia	10	NS	Wide Base
577	Catclaw Acacia	12	NS	Wide Base
578	Catclaw Acacia	30	NS	Cluster
579	Graythorn	14	NS	Wide Base
580	Catclaw Acacia	10	NS	Wide Base
581	Catclaw Acacia	14	NS	Cluster
582	Catclaw Acacia	5	NS	Wide Base
583	Catclaw Acacia	5	NS	Wide Base
584	Catclaw Acacia	8	NS	Wide Base
585	Catclaw Acacia	6	NS	Wide Base
586	Catclaw Acacia	6	NS	Wide Base
587	Catclaw Acacia	4	NS	Wide Base
588	Catclaw Acacia	6	NS	Wide Base
589	Foothills Palo Verde	4	S	
590	Catclaw Acacia	4	NS	Wide Base
591	Catclaw Acacia	15	NS	Cluster
592	Catclaw Acacia	16	NS	Cluster
593	Foothills Palo Verde	6	NS	Flared Roots / Root Growth
594	Foothills Palo Verde	5	NS	Flared Roots / Root Growth
595	Foothills Palo Verde	5	NS	Trunk Form / Root Growth
596	Foothills Palo Verde	7	NS	Exposed Roots / Root Growth
597	Foothills Palo Verde	6	NS	Exposed Roots / Root Growth
598	Foothills Palo Verde	5	NS	Exposed Roots / Root Growth
599	Catclaw Acacia	7	NS	Wide Base
600	Catclaw Acacia	6	NS	Wide Base
601	Catclaw Acacia	6	NS	Cluster
602	Hackberry	8	NS	Wide Base
603	Catclaw Acacia	6	NS	Wide Base
604	Catclaw Acacia	6	NS	Wide Base
605	Catclaw Acacia	7	NS	Wide Base
606	Catclaw Acacia	4	NS	Wide Base
607	Catclaw Acacia	6	NS	Wide Base
608	Catclaw Acacia	5	NS	Wide Base
609	Catclaw Acacia	5	NS	Wide Base
610	Catclaw Acacia	4	NS	Wide Base
611	Catclaw Acacia	5	NS	Wide Base
612	Catclaw Acacia	7	NS	Cluster
613	Catclaw Acacia	5	NS	Wide Base
614	Catclaw Acacia	7	NS	Wide Base
615	Catclaw Acacia	4	NS	Wide Base
616	Blue Palo Verde	7	NS	Wash / Leaning
617	Catclaw Acacia	10	NS	Wide Base / Leaning
618	Blue Palo Verde	8	S	
619	Foothills Palo Verde	4	NS	Exposed Roots / Root Growth
620	Catclaw Acacia	8	NS	Wide Base / Leaning
621	Hackberry	20	NS	Cluster
622	Catclaw Acacia	6	NS	Wide Base
623	Catclaw Acacia	6	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
624	Catclaw Acacia	4	NS	Wide Base
625	Catclaw Acacia	5	NS	Wide Base
626	Catclaw Acacia	4	NS	Wide Base
627	Hackberry	7	NS	Wide Base
628	Catclaw Acacia	5	NS	Wide Base
629	Graythorn	5	NS	Wide Base
630	Hackberry	5	NS	Wide Base
631	Catclaw Acacia	5	NS	Wide Base
632	Hackberry	18	NS	Cluster
633	Graythorn	5	NS	Wide Base
634	Hackberry	22	NS	Cluster
635	Catclaw Acacia	5	NS	Trunk Form / Split Trunk
637	Catclaw Acacia	4	NS	Wide Base
637	Catclaw Acacia	4	NS	Wide Base
638	Foothills Palo Verde	8	S	
639	Foothills Palo Verde	4	S	
640	Catclaw Acacia	4	NS	Wide Base
641	Catclaw Acacia	5	NS	Wide Base
642	Catclaw Acacia	6	NS	Wide Base
643	Catclaw Acacia	5	NS	Wide Base
644	Hackberry	5	NS	Wide Base
645	Catclaw Acacia	5	NS	Wide Base
646	Catclaw Acacia	5	NS	Wide Base
647	Catclaw Acacia	6	NS	Cluster
648	Catclaw Acacia	4	NS	Wide Base
649	Catclaw Acacia	5	NS	Wide Base
650	Graythorn	6	NS	Wide Base
651	Catclaw Acacia	6	NS	Cluster
652	Catclaw Acacia	6	NS	Cluster
653	Catclaw Acacia	10	NS	Cluster
654	Hackberry	10	NS	Wide Base
655	Catclaw Acacia	8	NS	Cluster
656	Hackberry	18	NS	Cluster
657	Hackberry	15	NS	Cluster
658	Hackberry	12	NS	Cluster
659	Hackberry	8	NS	Wide Base
660	Catclaw Acacia	6	NS	Wide Base
661	Catclaw Acacia	7	NS	Wide Base
662	Catclaw Acacia	8	NS	Wide Base / Split Trunck
663	Catclaw Acacia	12	NS	Wide Base
664	Graythorn	5	NS	Wash
665	Mesquite	8	S	Multiple Trunk
666	Foothills Palo Verde	4	S	
667	Foothills Palo Verde	4	S	
668	Catclaw Acacia	4	NS	Wide Base
669	Catclaw Acacia	6	NS	Wide Base
670	Catclaw Acacia	10	NS	Wide Base
671	Catclaw Acacia	5	NS	Wide Base
672	Catclaw Acacia	5	NS	Wide Base
673	Catclaw Acacia	6	NS	Wide Base
674	Catclaw Acacia	5	NS	Wide Base
675	Catclaw Acacia	6	NS	Wide Base
676	Hackberry	12	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
677	Foothills Palo Verde	4	S	
678	Foothills Palo Verde	7	S	
679	Foothills Palo Verde	5	NS	Exposed Roots
680	Catclaw Acacia	7	NS	Wide Base
681	Foothills Palo Verde	5	S	
682	Foothills Palo Verde	4	S	
683	Catclaw Acacia	4	NS	Wide Base
684	Catclaw Acacia	5	NS	Wide Base
685	Foothills Palo Verde	5	NS	Cluster / Root Growth
686	Catclaw Acacia	8	NS	Cluster
687	Foothills Palo Verde	4	S	
688	Foothills Palo Verde	6	S	
689	Catclaw Acacia	5	NS	Trunk Form / Trunk Damage
690	Graythorn	4	NS	Cluster
691	Graythorn	5	NS	Wide Base
692	Hackberry	20	NS	Cluster
693	Foothills Palo Verde	6	S	
694	Foothills Palo Verde	6	NS	Exposed Roots / In Wash
695	Catclaw Acacia	6	NS	Wide Base
696	Mesquite	7	NS	Fire Damage / Wide Base
697	Catclaw Acacia	5	NS	Wide Base
698	Graythorn	6	NS	Cluster
699	Catclaw Acacia	4	NS	Wide Base
700	Catclaw Acacia	6	NS	Wide Base
701	Catclaw Acacia	5	NS	Wide Base
702	Catclaw Acacia	18	NS	Wide Base
703	Catclaw Acacia	5	NS	Wide Base
704	Foothills Palo Verde	5	NS	Fire Damage / Branch Attachment
705	Catclaw Acacia	7	NS	Wide Base
706	Hackberry	7	NS	Wide Base
707	Graythorn	5	NS	Wide Base
708	Scrub Oak	18	NS	Cluster
709	Catclaw Acacia	5	NS	Wide Base
710	Catclaw Acacia	6	NS	Wide Base
711	Catclaw Acacia	5	NS	Fire Damage / Leaning
712	Foothills Palo Verde	4	S	
713	Foothills Palo Verde	4	NS	Exposed Roots
714	Foothills Palo Verde	4	S	
715	Graythorn	7	NS	Wide Base
716	Graythorn	16	NS	Cluster
717	Foothills Palo Verde	4	S	
718	Catclaw Acacia	10	NS	Wide Base
719	Foothills Palo Verde	6	S	
720	Foothills Palo Verde	5	S	
721	Catclaw Acacia	6	NS	Wide Base
722	Graythorn	5	NS	Wide Base
723	Catclaw Acacia	7	NS	Wide Base
724	Graythorn	20	NS	Wide Base
725	Catclaw Acacia	7	NS	Wide Base
726	Catclaw Acacia	4	NS	Wide Base
727	Graythorn	5	NS	Fire Damage / Wide Base
728	Catclaw Acacia	5	NS	Wide Base
729	Catclaw Acacia	20	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
730	Foothills Palo Verde	4	S	
731	Foothills Palo Verde	7	S	
732	Catclaw Acacia	8	NS	Wide Base
733	Catclaw Acacia	14	NS	Wide Base
734	Catclaw Acacia	6	NS	Wide Base
735	Foothills Palo Verde	4	NS	Exposed Roots
736	Foothills Palo Verde	6	NS	Exposed Roots
737	Foothills Palo Verde	8	NS	Exposed Roots
738	Foothills Palo Verde	7	NS	Exposed Roots
739	Foothills Palo Verde	8	NS	Exposed Roots
740	Catclaw Acacia	8	NS	Wide Base
741	Foothills Palo Verde	6	NS	Wash
742	Foothills Palo Verde	4	NS	Wash
743	Catclaw Acacia	10	NS	Wide Base
744	Graythorn	5	NS	Wide Base
745	Hackberry	12	NS	Cluster
746	Catclaw Acacia	8	NS	Wide Base
747	Catclaw Acacia	7	NS	Wide Base
748	Catclaw Acacia	7	NS	Wide Base
749	Catclaw Acacia	4	NS	Wide Base
750	Catclaw Acacia	4	NS	Wide Base
751	Catclaw Acacia	5	NS	Wide Base
752	Catclaw Acacia	5	NS	Wide Base
753	Catclaw Acacia	5	NS	Wide Base
754	Catclaw Acacia	12	NS	Cluster
755	Scrub Oak	8	NS	Wide Base
756	Catclaw Acacia	6	NS	Wide Base
757	Scrub Oak	8	NS	Cluster
758	Catclaw Acacia	5	NS	Wide Base
759	Foothills Palo Verde	6	NS	Exposed Roots
760	Catclaw Acacia	5	NS	Fire Damage
761	Foothills Palo Verde	6	NS	Wash / Root Growth
762	Catclaw Acacia	5	NS	Wide Base
763	Catclaw Acacia	12	NS	Cluster
764	Catclaw Acacia	7	NS	Wide Base
765	Catclaw Acacia	6	NS	Rocks
766	Catclaw Acacia	5	NS	Wide Base
767	Catclaw Acacia	6	NS	Wide Base
768	Catclaw Acacia	5	NS	Wide Base
769	Catclaw Acacia	5	NS	Wide Base
770	Foothills Palo Verde	4	S	
771	Mesquite	4	S	
772	Catclaw Acacia	5	NS	Wide Base
773	Catclaw Acacia	6	NS	Wide Base
774	Catclaw Acacia	7	NS	Wide Base
775	Catclaw Acacia	8	NS	Wide Base
776	Whitethorn Acacia	6	NS	Fire Damage / Cambium Damage
777	Catclaw Acacia	6	NS	Cluster
778	Catclaw Acacia	5	NS	Fire Damage
779	Catclaw Acacia	7	NS	Cluster
780	Catclaw Acacia	8	NS	Wide Base
781	Catclaw Acacia	6	NS	Wide Base
782	Catclaw Acacia	6	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
783	Foothills Palo Verde	7	NS	Exposed Roots
784	Catclaw Acacia	5	NS	Wide Base
785	Catclaw Acacia	7	NS	Wide Base
786	Catclaw Acacia	5	NS	Wide Base
787	Catclaw Acacia	8	NS	Cluster
788	Catclaw Acacia	7	NS	Wide Base
789	Foothills Palo Verde	7	NS	Fire Damage / Cambium Damage
790	Catclaw Acacia	6	NS	Wide Base
791	Catclaw Acacia	5	NS	Wide Base
792	Catclaw Acacia	5	NS	Wide Base
793	Graythorn	4	NS	Wide Base
794	Catclaw Acacia	6	NS	Wide Base
795	Catclaw Acacia	5	NS	Cluster
796	Catclaw Acacia	18	NS	Cluster
797	Foothills Palo Verde	6	S	
798	Hackberry	12	NS	Cluster
799	Hackberry	8	NS	Wide Base
800	Hackberry	16	NS	Cluster
801	Foothills Palo Verde	4	S	
802	Catclaw Acacia	30	NS	Cluster
803	Foothills Palo Verde	6	S	
804	Catclaw Acacia	8	NS	Wide Base
805	Foothills Palo Verde	5	S	
806	Foothills Palo Verde	4	S	
807	Catclaw Acacia	4	NS	Trunk Form / Leaning
808	Catclaw Acacia	4	NS	Wide Base
809	Catclaw Acacia	6	NS	Wide Base
810	Catclaw Acacia	5	NS	Wide Base
811	Foothills Palo Verde	4	S	
812	Foothills Palo Verde	7	NS	Exposed Roots / Root Growth
813	Catclaw Acacia	6	NS	Wide Base
814	Foothills Palo Verde	5	S	
815	Foothills Palo Verde	4	S	
816	Foothills Palo Verde	6	NS	Trunk Form / Root Growth
817	Foothills Palo Verde	7	NS	Exposed Roots / Root Growth
818	Foothills Palo Verde	4	S	
819	Catclaw Acacia	7	NS	Wide Base
820	Graythorn	5	NS	Fire Damage / Dieback
821	Catclaw Acacia	8	NS	Cluster
822	Catclaw Acacia	6	NS	Cluster
823	Catclaw Acacia	7	NS	Wide Base
824	Foothills Palo Verde	4	S	
825	Foothills Palo Verde	4	NS	Wash / Root Growth
826	Catclaw Acacia	6	NS	Wide Base
827	Catclaw Acacia	4	NS	Wide Base
828	Catclaw Acacia	5	NS	Wide Base
829	Mesquite	7	S	
830	Foothills Palo Verde	5	S	
831	Hackberry	30	NS	Cluster
832	Catclaw Acacia	8	NS	Wide Base
833	Foothills Palo Verde	6	S	
834	Foothills Palo Verde	6	NS	Proximity to #833
835	Catclaw Acacia	5	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
836	Catclaw Acacia	10	NS	Cluster
837	Graythorn	6	NS	Wide Base
838	Foothills Palo Verde	7	S	
839	Foothills Palo Verde	5	S	
840	Foothills Palo Verde	5	S	
841	Foothills Palo Verde	4	S	
842	Catclaw Acacia	6	NS	Wide Base
843	Catclaw Acacia	8	NS	Wide Base
844	Catclaw Acacia	10	NS	Wide Base
845	Foothills Palo Verde	7	NS	Exposed Roots
846	Foothills Palo Verde	5	S	
847	Catclaw Acacia	5	NS	Wide Base
848	Foothills Palo Verde	4	NS	Exposed Roots / In Wash
849	Catclaw Acacia	6	NS	Wide Base
850	Catclaw Acacia	8	NS	Wide Base
851	Catclaw Acacia	6	NS	Wide Base
852	Catclaw Acacia	10	NS	Cluster
853	Catclaw Acacia	8	NS	Cluster
854	Catclaw Acacia	5	NS	Wide Base
855	Catclaw Acacia	7	NS	Wide Base
856	Catclaw Acacia	9	NS	Cluster
857	Catclaw Acacia	4	NS	Wide Base
858	Catclaw Acacia	5	NS	Wide Base
859	Catclaw Acacia	4	NS	Wide Base
860	Foothills Palo Verde	6	S	
861	Foothills Palo Verde	7	S	
862	Catclaw Acacia	5	NS	Wide Base
863	Catclaw Acacia	12	NS	Cluster
864	Catclaw Acacia	4	NS	Wash
865	Catclaw Acacia	4	NS	Trunk Form / Slope
866	Catclaw Acacia	7	NS	Wide Base
867	Catclaw Acacia	4	NS	Wide Base
868	Catclaw Acacia	7	NS	Wide Base
869	Foothills Palo Verde	4	S	
870	Catclaw Acacia	5	NS	Wide Base
871	Catclaw Acacia	6	NS	Wide Base
872	Catclaw Acacia	8	NS	Cluster
873	Hackberry	10	NS	Cluster
874	Hackberry	6	NS	Wide Base
875	Hackberry	6	NS	Wide Base
876	Foothills Palo Verde	8	S	
877	Catclaw Acacia	7	NS	Wide Base
878	Catclaw Acacia	8	NS	Cluster
879	Graythorn	6	NS	Wide Base
880	Catclaw Acacia	5	NS	Wide Base
881	Graythorn	8	NS	Wide Base
882	Hackberry	10	NS	Wide Base
883	Catclaw Acacia	5	NS	Wide Base
884	Foothills Palo Verde	6	NS	Fire Damage / Cambium Damage
885	Catclaw Acacia	6	NS	Wide Base
886	Catclaw Acacia	4	NS	Wide Base
887	Catclaw Acacia	5	NS	Wide Base
888	Catclaw Acacia	5	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
889	Catclaw Acacia	6	NS	Wide Base
890	Catclaw Acacia	6	NS	Wide Base
891	Graythorn	8	NS	Cluster
892	Catclaw Acacia	12	NS	Cluster
893	Catclaw Acacia	6	NS	Wide Base
894	Catclaw Acacia	15	NS	Cluster
895	Foothills Palo Verde	6	NS	Wash
896	Foothills Palo Verde	4	S	
897	Catclaw Acacia	5	NS	Wide Base
898	Catclaw Acacia	6	NS	Wide Base
899	Foothills Palo Verde	4	NS	Fire Damage / Trunk Damage
900	Catclaw Acacia	5	NS	Wide Base
901	Catclaw Acacia	12	NS	Cluster
902	Catclaw Acacia	5	NS	Wide Base
903	Catclaw Acacia	6	NS	Wide Base
904	Graythorn	6	NS	Wide Base
905	Catclaw Acacia	5	NS	Wide Base
906	Catclaw Acacia	4	NS	Wide Base
907	Graythorn	6	NS	Wide Base
908	Catclaw Acacia	4	NS	Wide Base
909	Catclaw Acacia	5	NS	Wide Base
910	Catclaw Acacia	12	NS	Cluster
911	Catclaw Acacia	8	NS	Wide Base
912	Foothills Palo Verde	5	S	
913	Foothills Palo Verde	7	S	
914	Catclaw Acacia	5	NS	Wide Base
915	Foothills Palo Verde	8	NS	Wide Base / Fire Damage
916	Foothills Palo Verde	4	NS	Trunk Form / Trunk Damage
917	Foothills Palo Verde	5	NS	Trunk Form / Root Growth
918	Graythorn	5	NS	Wide Base
919	Catclaw Acacia	5	NS	Wide Base
920	Catclaw Acacia	7	NS	Wide Base
921	Catclaw Acacia	5	NS	Wide Base
922	Foothills Palo Verde	6	S	
923	Foothills Palo Verde	5	S	
924	Foothills Palo Verde	4	S	
925	Graythorn	5	NS	Wide Base
926	Foothills Palo Verde	4	S	
927	Catclaw Acacia	6	NS	Wide Base
928	Catclaw Acacia	7	NS	Wide Base
929	Catclaw Acacia	6	NS	Wide Base
930	Hackberry	6	NS	Wide Base
931	Hackberry	16	NS	Wide Base
932	Catclaw Acacia	4	NS	Wide Base
933	Foothills Palo Verde	4	S	
934	Foothills Palo Verde	4	S	
935	Catclaw Acacia	8	NS	Wide Base
936	Foothills Palo Verde	7	S	
937	Foothills Palo Verde	4	S	
938	Catclaw Acacia	6	NS	Wide Base
939	Graythorn	12	NS	Cluster
940	Graythorn	6	NS	Wide Base
941	Foothills Palo Verde	6	S	

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
942	Graythorn	6	NS	Wide Base
943	Hackberry	8	NS	Wide Base
944	Catclaw Acacia	6	NS	Wide Base
945	Graythorn	4	NS	Wide Base
946	Catclaw Acacia	5	NS	Wide Base
947	Catclaw Acacia	12	NS	Cluster
948	Catclaw Acacia	7	NS	Wide Base
949	Hackberry	8	NS	Wide Base
950	Foothills Palo Verde	4	S	
951	Graythorn	10	NS	Wide Base
952	Foothills Palo Verde	6	S	
953	Catclaw Acacia	7	NS	Wide Base
954	Catclaw Acacia	5	NS	Wide Base
955	Catclaw Acacia	5	NS	Wide Base
956	Catclaw Acacia	8	NS	Cluster
957	Catclaw Acacia	8	NS	Cluster
958	Graythorn	12	NS	Cluster
959	Catclaw Acacia	4	NS	Wide Base
960	Graythorn	5	NS	Wide Base
961	Mesquite	5	S	
962	Catclaw Acacia	5	NS	Wide Base
963	Hackberry	8	NS	Wide Base
964	Catclaw Acacia	5	NS	Wide Base
965	Foothills Palo Verde	6	NS	Trunk Form / Root Growth
966	Foothills Palo Verde	5	S	
967	Catclaw Acacia	5	NS	Wide Base
968	Catclaw Acacia	6	NS	Wide Base
969	Foothills Palo Verde	6	NS	In Wash / Root Growth
970	Foothills Palo Verde	6	S	
971	Catclaw Acacia	5	NS	Wide Base
972	Catclaw Acacia	20	NS	Cluster
973	Foothills Palo Verde	10	NS	Fire Damage / Branch Attachment
974	Hackberry	6	NS	Wide Base
975	Catclaw Acacia	10	NS	Wide Base
976	Graythorn	7	NS	Cluster
977	Catclaw Acacia	5	NS	Wide Base
978	Catclaw Acacia	6	NS	Wide Base
979	Catclaw Acacia	6	NS	Wide Base
980	Catclaw Acacia	8	NS	Cluster
981	Whitethorn Acacia	16	NS	Fire Damage / Wide Base
982	Catclaw Acacia	10	NS	Wide Base
983	Whitethorn Acacia	12	NS	Wide Base
984	Catclaw Acacia	5	NS	Wide Base
985	Scrub Oak	20	NS	Cluster
986	Catclaw Acacia	16	NS	Cluster
987	Catclaw Acacia	4	NS	Wide Base
988	Catclaw Acacia	4	NS	Wide Base
989	Catclaw Acacia	6	NS	Wide Base
990	Yucca elata	6	S	
991	Catclaw Acacia	5	NS	Wide Base
992	Whitethorn Acacia	18	NS	Wide Base
993	Graythorn	8	NS	Wide Base
994	Mesquite	7	NS	Fire Damage / Insect Damage

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
995	Catclaw Acacia	20	NS	Wide Base
996	Catclaw Acacia	6	NS	Wide Base
997	Catclaw Acacia	8	NS	Wide Base
998	Catclaw Acacia	5	NS	Wide Base
999	Catclaw Acacia	6	NS	Wide Base
1000	Catclaw Acacia	7	NS	Wide Base
1001	Catclaw Acacia	8	NS	Cluster
1002	Catclaw Acacia	10	NS	Cluster
1003	Catclaw Acacia	5	NS	Wide Base
1004	Catclaw Acacia	12	NS	Cluster
1005	Hackberry	7	NS	Wide Base
1006	Hackberry	6	NS	Wide Base
1007	Catclaw Acacia	10	NS	Wide Base
1008	Catclaw Acacia	6	NS	Wide Base
1009	Mesquite	6	NS	Fire Damage / Declining
1010	Mesquite	7	NS	Fire Damage/ Declining
1011	Catclaw Acacia	5	NS	Wide Base
1012	Catclaw Acacia	7	NS	Wide Base
1013	Mesquite	7	S	
1014	Graythorn	5	NS	Wide Base
1015	Catclaw Acacia	12	NS	Wide Base
1016	Catclaw Acacia	7	NS	Wide Base
1017	Catclaw Acacia	12	NS	Cluster
1018	Mesquite	7	NS	Wash / On Slope
1019	Catclaw Acacia	8	NS	Wide Base
1020	Catclaw Acacia	5	NS	Wide Base
1021	Catclaw Acacia	7	NS	Wide Base
1022	Catclaw Acacia	5	NS	Wide Base
1023	Mesquite	22	NS	Fire Damage / Wide Base
1024	Mesquite	4	NS	Trunk Form / Leaning
1025	Yucca elata	9	S	3 heads
1026	Foothills Palo Verde	4	NS	Wash / Leaning
1027	Catclaw Acacia	6	NS	Wide Base
1028	Mesquite	4	NS	Wash / On Slope
1029	Catclaw Acacia	4	NS	Trunk Form / Leaning
1030	Mesquite	5	NS	Fire Damage / Branch Attachment
1031	Catclaw Acacia	6	NS	Wide Base
1032	Mesquite	9	NS	Fire Damage / Branch Attachment
1033	Mesquite	7	NS	Exposed Roots / In Wash
1034	Catclaw Acacia	6	NS	Wide Base
1035	Catclaw Acacia	16	NS	Cluster
1036	Catclaw Acacia	7	NS	Wide Base
1037	Foothills Palo Verde	7	NS	Rocks
1038	Catclaw Acacia	8	NS	Cluster
1039	Catclaw Acacia	6	NS	Wide Base
1040	Catclaw Acacia	8	NS	Wide Base
1041	Foothills Palo Verde	7	NS	Rocks
1042	Catclaw Acacia	6	NS	Wide Base
1043	Catclaw Acacia	8	NS	Wide Base
1044	Mesquite	8	S	
1045	Catclaw Acacia	5	NS	Wide Base
1046	Yucca elata	7	S	3 heads
1047	Mesquite	9	S	

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1048	Catclaw Acacia	6	NS	Wide Base
1049	Catclaw Acacia	6	NS	Wide Base
1050	Mesquite	7	NS	Fire Damage
1051	Yucca elata	6	S	2 heads
1052	Mesquite	7	NS	Fire Damage / Branch Attachment
1053	Catclaw Acacia	12	NS	Cluster
1054	Mesquite	9	NS	Fire Damage / Branch Attachment
1055	Catclaw Acacia	5	NS	Wide Base
1056	Catclaw Acacia	4	NS	Wide Base
1057	Catclaw Acacia	5	NS	Wide Base
1058	Catclaw Acacia	4	NS	Wide Base
1059	Catclaw Acacia	6	NS	Wide Base
1060	Catclaw Acacia	5	NS	Wide Base
1061	Catclaw Acacia	4	NS	Wide Base
1062	Hackberry	6	NS	Wide Base
1063	Hackberry	8	NS	Wide Base
1064	Hackberry	6	NS	Wide Base
1065	Catclaw Acacia	6	NS	Wide Base
1066	Whitethorn Acacia	4	S	
1067	Whitethorn Acacia	8	NS	Cluster
1068	Mesquite	5	NS	Fire Damage
1069	Hackberry	16	NS	Wide Base
1070	Catclaw Acacia	10	NS	Cluster
1071	Catclaw Acacia	6	NS	Wide Base
1072	Whitethorn Acacia	4	S	
1073	Catclaw Acacia	6	NS	Wide Base
1074	Catclaw Acacia	5	NS	Wide Base
1075	Catclaw Acacia	7	NS	Wide Base
1076	Mesquite	8	NS	Fire Damage / Branch Attachment
1077	Yucca elata	6	S	3 heads
1078	Catclaw Acacia	6	NS	Wide Base
1079	Catclaw Acacia	8	NS	Cluster
1080	Catclaw Acacia	8	NS	Wide Base
1081	Catclaw Acacia	4	NS	Wide Base
1082	Catclaw Acacia	10	NS	Wide Base
1083	Catclaw Acacia	6	NS	Wide Base
1084	Catclaw Acacia	4	NS	Wide Base
1085	Catclaw Acacia	8	NS	Cluster
1086	Catclaw Acacia	5	NS	Wide Base
1087	Foothills Palo Verde	7	S	
1088	Mesquite	6	NS	Fire Damage / Cambium Damage
1089	Catclaw Acacia	8	NS	Cluster
1090	Catclaw Acacia	6	NS	Cluster
1091	Mesquite	8	NS	Fire Damage / Branch Attachment
1092	Catclaw Acacia	5	NS	Wide Base
1093	Catclaw Acacia	4	NS	Wide Base
1094	Foothills Palo Verde	6	S	
1095	Foothills Palo Verde	5	S	
1096	Catclaw Acacia	7	NS	Wide Base
1097	Catclaw Acacia	4	NS	Wide Base
1098	Catclaw Acacia	7	NS	Wide Base
1099	Catclaw Acacia	5	NS	Wide Base
1100	Catclaw Acacia	4	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1101	Catclaw Acacia	5	NS	Wide Base
1102	Catclaw Acacia	5	NS	Wide Base
1103	Graythorn	5	NS	Wide Base
1104	Foothills Palo Verde	4	S	
1105	Mesquite	4	NS	Trunk Form / Leaning
1106	Blue Palo Verde	9	S	
1107	Catclaw Acacia	5	NS	Wide Base
1108	Mesquite	14	NS	Wide Base / Fire Damage
1109	Catclaw Acacia	20	NS	Wide Base
1110	Catclaw Acacia	6	NS	Wide Base
1111	Catclaw Acacia	7	NS	Wide Base
1112	Catclaw Acacia	7	NS	Wide Base
1113	Catclaw Acacia	8	NS	Wide Base
1114	Mesquite	7	S	
1115	Catclaw Acacia	6	NS	Wide Base
1116	Graythorn	8	NS	Wide Base
1117	Catclaw Acacia	6	NS	Cluster
1118	Mesquite	7	S	
1119	Catclaw Acacia	6	NS	Cluster
1120	Blue Palo Verde	7	S	
1121	Blue Palo Verde	13	S	
1122	Mesquite	5	S	
1123	Catclaw Acacia	6	NS	Wide Base
1124	Catclaw Acacia	8	NS	Cluster
1125	Catclaw Acacia	6	NS	Wide Base
1126	Catclaw Acacia	6	NS	Wide Base
1127	Catclaw Acacia	8	NS	Wide Base
1128	Hackberry	5	NS	Wide Base
1129	Catclaw Acacia	4	NS	Wide Base
1130	Catclaw Acacia	4	NS	Wide Base
1131	Catclaw Acacia	6	NS	Wide Base
1132	Mesquite	6	NS	Wide Base / Fire Damage
1133	Catclaw Acacia	4	NS	Wide Base
1134	Catclaw Acacia	5	NS	Wide Base
1135	Graythorn	6	NS	Wide Base / Fire Damage
1136	Catclaw Acacia	7	NS	Wide Base
1137	Catclaw Acacia	5	NS	Wide Base
1138	Whitethorn Acacia	7	NS	Wide Base / Fire Damage
1139	Whitethorn Acacia	8	NS	Wide Base / Fire Damage
1140	Hackberry	8	NS	Wide Base
1141	Hackberry	6	NS	Wide Base
1142	Whitethorn Acacia	7	S	
1143	Catclaw Acacia	5	NS	Wide Base
1144	Catclaw Acacia	5	NS	Wide Base
1145	Catclaw Acacia	6	NS	Wide Base
1146	Catclaw Acacia	10	NS	Wide Base
1147	Catclaw Acacia	7	NS	Wide Base
1148	Catclaw Acacia	4	NS	Wide Base
1149	Whitethorn Acacia	10	NS	Wide Base / Fire Damage
1150	Catclaw Acacia	10	NS	Wide Base / Fire Damage
1151	Whitethorn Acacia	4	NS	Wide Base
1152	Whitethorn Acacia	6	NS	Wide Base / Fire Damage
1153	Catclaw Acacia	5	NS	Wide Base / Fire Damage

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1154	Whitethorn Acacia	6	NS	Wide Base
1155	Whitethorn Acacia	5	NS	Trunk Form / Leaning
1156	Whitethorn Acacia	6	NS	Wide Base / Fire Damage
1157	Catclaw Acacia	6	NS	Wide Base / Fire Damage
1158	Catclaw Acacia	7	NS	Wide Base / Fire Damage
1159	Catclaw Acacia	6	NS	Wide Base / Fire Damage
1160	Catclaw Acacia	4	NS	Wide Base / Fire Damage
1161	Catclaw Acacia	6	NS	Wide Base
1162	Graythorn	5	S	
1163	Catclaw Acacia	5	NS	Wide Base
1164	Catclaw Acacia	4	NS	Wide Base
1165	Yucca elata	8	S	
1166	Mesquite	7	S	Multiple Trunk
1167	Catclaw Acacia	7	NS	Fire Damage / Poor Structure
1168	Catclaw Acacia	5	NS	Wide Base
1169	Hackberry	18	NS	Cluster
1170	Catclaw Acacia	5	NS	Wide Base
1171	Catclaw Acacia	6	NS	Wide Base
1172	Catclaw Acacia	5	NS	Wide Base
1173	Catclaw Acacia	6	NS	Wide Base
1174	Mesquite	5	S	
1175	Catclaw Acacia	6	NS	Wide Base
1176	Catclaw Acacia	6	NS	Wide Base
1177	Catclaw Acacia	5	NS	Wide Base
1178	Catclaw Acacia	6	NS	Wide Base
1179	Catclaw Acacia	4	NS	Wide Base
1180	Catclaw Acacia	4	NS	Wide Base
1181	Catclaw Acacia	4	NS	Wide Base
1182	Mesquite	4	NS	Fire Damage / Trunk Damage
1183	Foothills Palo Verde	6	S	
1184	Foothills Palo Verde	4	S	
1185	Catclaw Acacia	6	NS	Wide Base
1186	Catclaw Acacia	8	NS	Wide Base
1187	Catclaw Acacia	5	NS	Wide Base
1188	Catclaw Acacia	8	NS	Wide Base
1189	Catclaw Acacia	6	NS	Cluster
1190	Catclaw Acacia	6	NS	Cluster
1191	Graythorn	5	NS	Cluster
1192	Foothills Palo Verde	4	S	
1193	Mesquite	12	NS	Fire Damage / Wide Base
1194	Catclaw Acacia	5	NS	Wide Base
1195	Mesquite	4	NS	Fire Damage / Wide Base
1196	Catclaw Acacia	6	NS	Wide Base
1197	Hackberry	4	NS	Wide Base
1198	Catclaw Acacia	6	NS	Wide Base
1199	Catclaw Acacia	5	NS	Wide Base
1200	Catclaw Acacia	8	NS	Cluster
1201	Catclaw Acacia	10	NS	Cluster
1202	Foothills Palo Verde	5	S	
1203	Foothills Palo Verde	4	S	
1204	Catclaw Acacia	6	NS	Cluster
1205	Catclaw Acacia	5	NS	Wide Base
1206	Catclaw Acacia	4	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1207	Catclaw Acacia	6	NS	Wide Base
1208	Foothills Palo Verde	4	S	
1209	Foothills Palo Verde	4	S	
1210	Foothills Palo Verde	6	S	
1211	Foothills Palo Verde	6	S	
1212	Foothills Palo Verde	4	S	
1213	Catclaw Acacia	6	NS	Wide Base
1214	Catclaw Acacia	5	NS	Wide Base
1215	Graythorn	8	NS	Wide Base
1216	Graythorn	6	NS	Wide Base
1217	Mesquite	7	NS	Fire Damage / Trunk Damage
1218	Mesquite	8	NS	Fire Damage / Trunk Damage
1219	Mesquite	14	NS	Branch Dieback / Cambium Damage
1220	Mesquite	15	NS	Branch Dieback / Cambium Damage
1221	Hackberry	16	NS	Wide Base
1222	Catclaw Acacia	5	NS	Wide Base
1223	Catclaw Acacia	5	NS	Wide Base
1224	Hackberry	6	NS	Wide Base
1225	Foothills Palo Verde	8	NS	Fire Damage / Trunk Damage
1226	Hackberry	8	NS	Cluster
1227	Hackberry	8	NS	Cluster
1228	Hackberry	8	NS	Cluster
1229	Hackberry	8	NS	Cluster
1230	Yucca elata	6	S	
1231	Yucca elata	5	S	
1232	Yucca elata	6	NS	4 heads / Wide Base
1233	Yucca elata	7	NS	5 heads / Wide Base
1234	Catclaw Acacia	5	NS	Wide Base
1235	Catclaw Acacia	4	NS	Wide Base
1236	Catclaw Acacia	5	NS	Wide Base
1237	Catclaw Acacia	6	NS	Wide Base
1238	Graythorn	5	NS	Wide Base
1239	Yucca elata	4	NS	3 heads / Damaged
1240	Hackberry	18	NS	Wide Base
1241	Yucca elata	7	S	3 heads
1242	Mesquite	7	S	
1243	Graythorn	8	NS	Wide Base
1244	Catclaw Acacia	8	NS	Cluster
1245	Graythorn	6	NS	Wide Base
1246	Catclaw Acacia	6	NS	Wide Base
1247	Graythorn	8	NS	Cluster
1248	Graythorn	7	NS	Wide Base
1249	Yucca elata	5	NS	5 heads / Declining
1250	Yucca elata	7	S	3 heads
1251	Hackberry	24	NS	Cluster
1252	Hackberry	12	NS	Cluster
1253	Catclaw Acacia	7	NS	Cluster
1254	Mesquite	6	S	
1255	Catclaw Acacia	24	NS	Wide Base
1256	Graythorn	8	NS	Wide Base
1257	Catclaw Acacia	5	NS	Fire Damage
1258	Catclaw Acacia	6	NS	Wide Base
1259	Catclaw Acacia	6	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1260	Catclaw Acacia	6	NS	Wide Base
1261	Catclaw Acacia	5	NS	Wide Base
1262	Catclaw Acacia	4	NS	Wide Base
1263	Catclaw Acacia	8	NS	Cluster
1264	Yucca elata	6	S	2 heads
1265	Mesquite	6	NS	Wide Base
1266	Mesquite	5	S	
1267	Hackberry	10	NS	Fire Damage / Wide Base
1268	Catclaw Acacia	5	NS	Wide Base
1269	Catclaw Acacia	5	NS	Wide Base
1270	Catclaw Acacia	4	NS	Wide Base
1271	Catclaw Acacia	10	NS	Cluster
1272	Mesquite	4	S	
1273	Catclaw Acacia	8	NS	Wide Base
1274	Catclaw Acacia	12	NS	Cluster
1275	Catclaw Acacia	6	NS	Wide Base
1276	Catclaw Acacia	20	NS	Cluster
1277	Foothills Palo Verde	4	NS	Exposed Roots
1278	Catclaw Acacia	12	NS	Cluster
1279	Catclaw Acacia	6	NS	Wide Base
1280	Catclaw Acacia	6	NS	Wide Base
1281	Graythorn	8	NS	Cluster
1282	Hackberry	10	NS	Wide Base
1283	Mesquite	7	NS	Fire Damage / Cambium Damage
1284	Whitethorn Acacia	6	S	
1285	Catclaw Acacia	6	NS	Wide Base
1286	Catclaw Acacia	4	NS	Wide Base
1287	Hackberry	14	NS	Cluster
1288	Catclaw Acacia	12	NS	Cluster
1289	Catclaw Acacia	8	NS	Wide Base
1290	Mesquite	5	S	
1291	Catclaw Acacia	5	NS	Wide Base
1292	Catclaw Acacia	6	NS	Wide Base
1293	Mesquite	6	S	
1294	Mesquite	7	NS	Fire Damage
1295	Catclaw Acacia	20	NS	Cluster
1296	Graythorn	5	NS	Wide Base
1297	Catclaw Acacia	30	NS	Wide Base
1298	Catclaw Acacia	6	NS	Wide Base
1299	Catclaw Acacia	5	NS	Wide Base
1300	Graythorn	6	NS	Fire Damage
1301	Yucca elata	5	S	2 heads
1302	Mesquite	18	NS	Fire Damage / Cambium Damage
1303	Catclaw Acacia	8	NS	Wide Base
1304	Hackberry	8	NS	Branch Dieback / In Rocks
1305	Mesquite	5	NS	Fire Damage / Wide Base
1306	Mesquite	8	NS	Fire Damage / Cambium Damage
1307	Catclaw Acacia	16	NS	Cluster
1308	Catclaw Acacia	7	NS	Wide Base
1309	Catclaw Acacia	4	NS	Wide Base
1310	Graythorn	10	NS	Cluster
1311	Catclaw Acacia	24	NS	Wide Base
1312	Graythorn	12	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1313	Catclaw Acacia	4	NS	Wide Base
1314	Catclaw Acacia	6	NS	Wide Base
1315	Catclaw Acacia	4	NS	Wide Base
1316	Catclaw Acacia	4	NS	Wide Base
1317	Catclaw Acacia	8	NS	Cluster
1318	Yucca elata	4	NS	6 heads / Declining
1319	Catclaw Acacia	8	NS	Wide Base
1320	Yucca elata	5	S	2 heads
1321	Yucca elata	6	S	
1322	Catclaw Acacia	6	NS	Wide Base
1323	Catclaw Acacia	8	NS	Wide Base
1324	Catclaw Acacia	5	NS	Wide Base
1325	Catclaw Acacia	7	NS	Wide Base
1326	Foothills Palo Verde	4	S	
1327	Catclaw Acacia	4	NS	Wide Base
1328	Catclaw Acacia	6	NS	Wide Base
1329	Catclaw Acacia	6	NS	Wide Base
1330	Catclaw Acacia	5	NS	Wide Base
1331	Yucca elata	6	NS	6 heads / Wide Base
1332	Catclaw Acacia	6	NS	Wide Base
1333	Mesquite	8	NS	Fire Damage / Wide Base
1334	Catclaw Acacia	8	NS	Cluster
1335	Catclaw Acacia	16	NS	Cluster
1336	Catclaw Acacia	7	NS	Wide Base
1337	Catclaw Acacia	5	NS	Wide Base
1338	Catclaw Acacia	6	NS	Wide Base
1339	Catclaw Acacia	8	NS	Wide Base
1340	Catclaw Acacia	5	NS	Wide Base
1341	Graythorn	4	S	
1342	Catclaw Acacia	4	NS	Wide Base
1343	Graythorn	5	NS	Fire Damage / Poor Structure
1344	Catclaw Acacia	16	NS	Cluster
1345	Catclaw Acacia	5	NS	Wide Base
1346	Scrub Oak	30	NS	Cluster
1347	Scrub Oak	18	NS	Cluster
1348	Whitethorn Acacia	16	NS	Fire Damage / Wide Base
1349	Whitethorn Acacia	14	NS	Wide Base
1350	Whitethorn Acacia	16	NS	Fire Damage / Wide Base
1351	Catclaw Acacia	8	NS	Wide Base
1352	Catclaw Acacia	10	NS	Wide Base
1353	Catclaw Acacia	11	NS	Cluster
1354	Catclaw Acacia	8	NS	Wide Base / In Rocks
1355	Catclaw Acacia	4	NS	Wide Base / In Rocks
1356	Catclaw Acacia	5	NS	Wide Base / In Rocks
1357	Catclaw Acacia	4	NS	Wide Base / In Rocks
1358	Catclaw Acacia	6	NS	Wide Base / In Rocks
1359	Catclaw Acacia	4	NS	Wide Base
1360	Catclaw Acacia	6	NS	Wide Base / In Rocks
1361	Mesquite	8	S	
1362	Catclaw Acacia	20	NS	Wide Base
1363	Catclaw Acacia	16	NS	Wide Base
1364	Catclaw Acacia	5	NS	Wide Base
1365	Catclaw Acacia	6	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1366	Hackberry	30	NS	Cluster
1367	Catclaw Acacia	5	NS	Wide Base
1368	Catclaw Acacia	8	NS	Cluster
1369	Catclaw Acacia	5	NS	Wide Base
1370	Catclaw Acacia	6	NS	Wide Base
1371	Graythorn	8	NS	Cluster
1372	Graythorn	8	NS	Wide Base
1373	Graythorn	8	NS	Wide Base
1374	Graythorn	6	NS	Wide Base
1375	Mesquite	4	S	
1376	Foothills Palo Verde	4	S	
1377	Catclaw Acacia	12	NS	Wide Base
1378	Catclaw Acacia	4	NS	Wide Base
1379	Graythorn	8	NS	Cluster
1380	Graythorn	6	NS	Wide Base
1381	Catclaw Acacia	8	NS	Wide Base
1382	Catclaw Acacia	8	NS	Wide Base
1383	Catclaw Acacia	6	NS	Wide Base
1384	Catclaw Acacia	8	NS	Wide Base
1385	Yucca elata	7	NS	3 heads / Declining
1386	Yucca elata	8	NS	4 heads / Declining
1387	Foothills Palo Verde	7	S	
1388	Catclaw Acacia	6	NS	Wide Base
1389	Foothills Palo Verde	6	NS	Exposed Roots / Root Growth
1390	Catclaw Acacia	5	NS	Wide Base
1391	Catclaw Acacia	4	NS	Wide Base
1392	Catclaw Acacia	6	NS	Wide Base
1393	Catclaw Acacia	8	NS	Wide Base
1394	Catclaw Acacia	12	NS	Wide Base
1395	Catclaw Acacia	24	NS	Cluster
1396	Catclaw Acacia	5	NS	Wide Base
1397	Yucca elata	7	NS	5 heads / Wide Base
1398	Graythorn	5	NS	Wide Base
1399	Catclaw Acacia	20	NS	Cluster
1400	Catclaw Acacia	5	NS	Wide Base
1401	Catclaw Acacia	4	NS	Wide Base
1402	Catclaw Acacia	18	NS	Cluster
1403	Catclaw Acacia	6	NS	Wide Base
1404	Catclaw Acacia	12	NS	Cluster
1405	Catclaw Acacia	5	NS	Wide Base
1406	Catclaw Acacia	6	NS	Wide Base
1407	Catclaw Acacia	6	NS	Wide Base
1408	Mesquite	8	NS	Fire Damage / Cambium Damage
1409	Mesquite	12	NS	Fire Damage / Cambium Damage
1410	Catclaw Acacia	5	NS	Wide Base
1411	Catclaw Acacia	7	NS	Cluster
1412	Mesquite	8	S	
1413	Catclaw Acacia	4	NS	Wide Base
1414	Catclaw Acacia	6	NS	Wide Base
1415	Catclaw Acacia	5	NS	Wide Base
1416	Catclaw Acacia	5	NS	Wide Base
1417	Catclaw Acacia	9	NS	Wide Base
1418	Foothills Palo Verde	7	S	

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1419	Mesquite	10	NS	Fire Damage / Cambium Damage
1420	Catclaw Acacia	5	NS	Wide Base
1421	Catclaw Acacia	4	NS	Wide Base
1422	Catclaw Acacia	16	NS	Cluster
1423	Catclaw Acacia	6	NS	Wide Base
1424	Catclaw Acacia	5	NS	Wide Base
1425	Catclaw Acacia	5	NS	Wide Base
1426	Catclaw Acacia	6	NS	Wide Base
1427	Catclaw Acacia	10	NS	Cluster
1428	Catclaw Acacia	4	NS	Wide Base
1429	Foothills Palo Verde	8	S	Multiple Trunk
1430	Catclaw Acacia	5	NS	Wide Base
1431	Catclaw Acacia	20	NS	Cluster
1432	Mesquite	5	NS	Fire Damage / Cambium Damage
1433	Catclaw Acacia	6	NS	Fire Damage / Cambium Damage
1434	Catclaw Acacia	18	NS	Cluster
1435	Catclaw Acacia	4	NS	Wide Base
1436	Catclaw Acacia	6	NS	Wide Base
1437	Catclaw Acacia	8	NS	Wide Base
1438	Catclaw Acacia	12	NS	Wide Base
1439	Catclaw Acacia	6	NS	Wide Base
1440	Catclaw Acacia	4	NS	Wide Base
1441	Graythorn	4	NS	Wide Base
1442	Catclaw Acacia	10	NS	Cluster
1443	Catclaw Acacia	4	NS	Wide Base
1444	Catclaw Acacia	5	NS	Wide Base
1445	Catclaw Acacia	5	NS	Wide Base
1446	Catclaw Acacia	5	NS	Wide Base
1447	Scrub Oak	8	NS	Cluster
1448	Scrub Oak	40	NS	Cluster
1449	Catclaw Acacia	7	NS	Wide Base
1450	Foothills Palo Verde	9	S	
1451	Catclaw Acacia	4	NS	Wide Base
1452	Catclaw Acacia	8	NS	Cluster
1453	Yucca elata	6	S	
1454	Yucca elata	8	S	2 heads
1455	Catclaw Acacia	18	NS	Cluster
1456	Catclaw Acacia	5	NS	Wide Base
1457	Catclaw Acacia	7	NS	Wide Base
1458	Catclaw Acacia	7	NS	Wide Base
1459	Catclaw Acacia	10	NS	Wide Base
1460	Scrub Oak	36	NS	Cluster
1461	Catclaw Acacia	6	NS	Wide Base
1462	Catclaw Acacia	5	NS	Wide Base
1463	Catclaw Acacia	12	NS	Cluster
1464	Scrub Oak	10	NS	Cluster
1465	Catclaw Acacia	16	NS	Wide Base
1466	Catclaw Acacia	5	NS	Wide Base
1467	Scrub Oak	9	NS	Cluster
1468	Catclaw Acacia	10	NS	Wide Base
1469	Graythorn	8	NS	Wide Base
1470	Catclaw Acacia	5	NS	Wide Base
1471	Catclaw Acacia	6	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1472	Catclaw Acacia	4	NS	Wide Base
1473	Catclaw Acacia	8	NS	Wide Base
1474	Foothills Palo Verde	7	S	
1475	Catclaw Acacia	4	NS	Wide Base
1476	Catclaw Acacia	12	NS	Wide Base
1477	Catclaw Acacia	12	NS	Wide Base
1478	Catclaw Acacia	5	NS	Wide Base
1479	Catclaw Acacia	6	NS	Wide Base
1480	Catclaw Acacia	8	NS	Wide Base
1481	Catclaw Acacia	5	NS	Wide Base
1482	Mesquite	8	S	
1483	Catclaw Acacia	10	NS	Wide Base
1484	Catclaw Acacia	10	NS	Cluster
1485	Catclaw Acacia	5	NS	Cluster
1486	Catclaw Acacia	7	NS	Cluster
1487	Catclaw Acacia	4	NS	Cluster
1488	Catclaw Acacia	4	NS	Cluster
1489	Catclaw Acacia	4	NS	Cluster
1490	Catclaw Acacia	7	NS	Wide Base
1491	Catclaw Acacia	5	NS	Wide Base
1492	Catclaw Acacia	6	NS	Wide Base
1493	Catclaw Acacia	7	NS	Wide Base
1494	Catclaw Acacia	6	NS	Wide Base
1495	Hackberry	8	NS	Wide Base
1496	Catclaw Acacia	7	NS	Wide Base
1497	Graythorn	6	NS	Wide Base
1498	Catclaw Acacia	4	NS	Wide Base
1499	Hackberry	8	NS	Wide Base
1500	Graythorn	8	NS	Wide Base
1501	Catclaw Acacia	4	NS	Wide Base
1502	Graythorn	5	NS	Wide Base
1503	Catclaw Acacia	6	NS	Wide Base
1504	Catclaw Acacia	6	NS	Wide Base
1505	Catclaw Acacia	14	NS	Cluster
1506	Catclaw Acacia	4	NS	Wide Base
1507	Catclaw Acacia	6	NS	Wide Base
1508	Mesquite	4	S	
1509	Mesquite	12	NS	Wide Base
1510	Mesquite	7	S	
1511	Catclaw Acacia	10	NS	Wide Base
1512	Catclaw Acacia	16	NS	Wide Base
1513	Catclaw Acacia	6	NS	Wide Base
1514	Catclaw Acacia	5	NS	Wide Base
1515	Catclaw Acacia	5	NS	Wide Base
1516	Hackberry	8	NS	Wide Base
1517	Catclaw Acacia	7	NS	Wide Base
1518	Catclaw Acacia	8	NS	Wide Base
1519	Catclaw Acacia	8	NS	Wide Base
1520	Catclaw Acacia	5	NS	Wide Base
1521	Catclaw Acacia	5	NS	Wide Base
1522	Catclaw Acacia	6	NS	Wide Base
1523	Blue Palo Verde	10	S	
1524	Hackberry	6	NS	Wide Base

Plant #	Common Name	Caliper (in)/ Height (ft)	Status	Comments
1525	Catclaw Acacia	6	NS	Trunk Form / Leaning
1526	Mesquite	6	S	
1527	Catclaw Acacia	7	NS	Wide Base
1528	Mesquite	12	NS	Wide Base

Summary	Trees	Cacti
Salvageable	213	16
Non-Salvageable	1289	10
Remain-In-Place	0	0
Total	**1502**	**26**

Legend

S = Salvageable
NS = Non-Salvageable
RIP = Remain-In-Place