CITY OF WILLIAMS PLANNING & ZONING (P&Z) COMMISSION

REGULAR MEETING
FEBRUARY 17, 2022
7:00 P.M.

CITY COUNCIL CHAMBERS
113 S. FIRST STREET
WILLIAMS, ARIZONA

AGENDA

PURSUANT TO A.R.S. #38-431.02, NOTICE IS HEREBY GIVEN TO THE MEMBERS OF THE PLANNING AND ZONING COMMISSION AND THE GENERAL PUBLIC THAT THE COMMISSION WILL HOLD A MEETING OPEN TO THE PUBLIC **THURSDAY, FEBRUARY 17, 2022, AT 7:00 P.M.** IN THE CITY COUNCIL CHAMBERS, 113 S. FIRST STREET, WILLIAMS ARIZONA.:

I. PROCEDURES

A. Call to Order
B. Pledge of Allegiance
C. Roll Call

_____ Chairman Williams
_____ Commissioner Glen
_____ Commissioner Massey
_____ Commissioner Brutvan
_____ Commissioner Hupp
_____ Commissioner Mason
_____ Commissioner Moede

D. Adoption of Agenda

A. Approval of Minutes: December 16, 2021 Minutes

II. PUBLIC PARTICIPATION

The Commission cannot act upon items presented during the public participation portion of the agenda. Individual Commission members may ask questions of the public or may respond to any criticisms, but the members are prohibited by the open meeting law from discussing or considering the items among themselves until the time that the matter is officially placed on the agenda. The open meeting law does, however, allow the Commission to ask staff to review a matter or ask that it be placed on a future Commission agenda.

An individual person has a five-minute time period to speak. If a person has a written presentation that requires more than five minutes to present verbally, he or she should indicate the estimated time required on the sign up sheet. The presiding officer may grant additional time if the agenda for the meeting is not too full. A registered spokesperson for a recognized community organization shall be afforded ten minutes provided other members of the same organization agree before hand to withhold their individual comments on the same subject.

I. Request for a Preliminary Plat approval of a proposed 38 lot Townhomes subdivision and an 18 lot Single Family Subdivision located in the 1100 block of Airport Rd. APN 202-11-005B & 202-11-006 & 3H. *(Steve Iverson).*

- ***Report To the Planning & Zoning Commission***

Certification of Posting

The undersigned hereby certifies that a copy of this notice was duly posted at Williams City Hall interior board and exterior board in accordance with the statement filed by the City Council with the City Clerk.

Date: _____ *Time:*_____ *By:*_____
Sue Bennett, Deputy City Clerk

CITY OF WILLIAMS PLANNING & ZONING (P&Z) COMMISSION

REGULAR MEETING
FEBRUARY 17, 2022
7:00 P.M.

CITY COUNCIL CHAMBERS
113 S. FIRST STREET
WILLIAMS, ARIZONA

AGENDA

- ***Recess to Public Hearing***
- ***Reconvene Regular Planning and Zoning Session***
- ***Discussion and Decision***

II. STAFF REPORT

III. ADJOURN

Certification of Posting

The undersigned hereby certifies that a copy of this notice was duly posted at Williams City Hall interior board and exterior board in accordance with the statement filed by the City Council with the City Clerk.

Date: _____ *Time:*_____ *By:*_____
Sue Bennett, Deputy City Clerk

I. Procedures

A. Call to Order 7:00 PM

Chairman Buck Williams called the meeting to order

B. Pledge of Allegiance

C. Roll Call

Present: Chairman Williams, Commissioner Massey, Commissioner Hupp and Commissioner Brutvan
Absent: Commissioner Glen

D. Adopt Agenda

Motion: *To adopt the agenda as presented.*
Approve: *Approved.*
Moved by *Commissioner Massey* ***Seconded by*** *Commissioner Brutvan*
Motion passed unanimously

E. Approval of Minutes: November 16, 2021

Approve Minutes
Motion: *To approve the minutes of November 16, 2021.*
Approve: *Approved.*
Moved by *Commissioner Hupp* ***Seconded by*** *Commissioner Massey*
Motion passed unanimously

II. PUBLIC PARTICIPATION - None

III. Request for Master Plan (MP) and Rezoning (RZ) 2021.10.02 "Phantom Ranch" (Steve Iverson).

- ***Report to the Planning & Zoning Commission***

Tim briefed the Commissioners and the public that this was our 2nd meeting for discussion and possible recommendation to Council for rezoning of the 87 acres site referred as Phantom Ranch Village. Mr. Iverson is available if any further questions.

Mark Hanson representing Phantom Ranch Village addressed the public and thanked them for returning. They have made revisions based on the public's concerns and gave a brief overview of those changes. On the 400 residential units, the amending plan is for 238 apartments, townhomes, duplexes. Commercial business district, previously northeast corner of site were addressed and replaced with more apartments. Northside of site will be a wedding and event venue center. Types of homes proposed includes smaller single homes duplexes and townhomes. 15 ft setback, with common area. Larger single family

homes 1500 sq. ft. to 2000 sq. ft. will occur in Phase II development. Phase I will be devoted on work force housing. Agreed to include CCR to designate areas and administer penalties if owners turn their homes into Airbnb. Concerned about traffic around the love station. Developer working with the city on extending Grand Canyon Blvd (GBD) north into the development under the new traffic plan most of the traffic will occur on GCB, which will be maintained by the city of Williams, such as snowplowing which should help with some issues. Repaving airport south of I-40 to rodeo road. Concerns about contributions to the city park north of I-40 and west of airport road. We proposed and offered, an increased amount of 1 Million for baseball fields, based upon approval of final plat.

- *Recess to Public Hearing*

Kerry Lynn Moede stated that she appreciates that they have addressed the public concerns, but was still concerned about fire department assistance. Could that 1 Million to parks be allocated to other areas of the City. City will only be able to use the funds on baseball fields. Not an option to use the money on other projects.

Bill Cannon question is how quickly do they think before this project comes to fruition once approved. Also asked about the sewer system, as well as school district potential headcount concerns. Time line approval by city council may occur early next year. Then the final plat approval and we hope to have sample homes but this is a multiyear project. Bill also addressed water issues with this development connecting into the City water. Bill concern is that our current school system is not able to handle 50 plus additional students all at once.

Bill also asked if the developer was willing to phase out their occupancies so that the school district can adjust. The School District is responsible for the planning of additional headcounts and work with the state to handle any adjustments that is required.

Chuck Frerere has a few questions, what's the average price or rent of the average home, the numbers are not available until we begin the building. Will the city and the developer pay for all park and recreation. Will the developer use local contractors; they are trying to use local. Most local contractors are unable to handle this large of a development. Will the city have any infrastructure costs in the development or in the future. No, we are working with the developer so that the city will have no cost to city. Has there been an Economic study on this development.

Rob Krombeen stated that he was once a local resident in the work force looking for housing when he first arrived in Williams and feels the problem is still the same now, we need new development to assist with housing. There are even people living here now that are renting hotel rooms since they cannot locate any housing.

Mike McCully asked if his water rights will be met and how will sewer system

work. Asked for a copy of the report.

Bill Gibbons also addressed the School district issue and asked if we have an Education Plan or any general plan for education.

Camron Maebe likes the design and the appreciated the revisions, on the smaller units will the developer have any ownership of some of the units? Addressed the school, police department and the fire department stated they cannot handle this development. He asked the Commissioners that we do not rezone at this time. The A+ water runs into our creeks who monitors the water quality? They have to meet the state requirements. Camron continued with his opinions.

Chad Hoctor since this proposal was first addressed he has been noting current situation up at the Love station relating to the many trucks that come and go. During the winter this area becomes very congested and with new development will only get worse. Currently we have a 24/7 truck congestion situation even without winter snow.

Greg Sanders feels we give the land to an investor and they walk away and go to another project. The city is left holding the bag and responsible, which is turns goes to the residents in their tax dollars. Does not agree with this project and is totally against it.

Ken Ehles will there be HOA and will they prohibited any Airbnb? And if so, will there will be consequences?

Kristie Weise said that we will increase our population by 30% with this project and the town will change culturally. Work force housing is a bad name for this phase and feels the developer is misleading the public when they refer to work force.

Robin Ecklels expressed her concerns as was stated before. Will the city help with the traffic flow such as extra stops sign? Her concerns are about low density instead of high density.

- *Reconvene Regular Planning and Zoning Session*

Commissioner Hupp mentioned we need to discussed the facts, the sewer system will last how long? If the sewer lasts more than 7 years, will they developer be who we go to for any repairs? Commissioner Hupp asked will the homeowners eventually become responsible for the sewer system. He feels eventually down the road the city or the home owner will be responsible for the maintaining of the system. Addressed a lot of the issues that the public expressed concerns about. Asked the developer if they have spoken to FAA regarding the flight Plan? The developer stated that the sewer system will eventually be the responsibility of the HOA. FAA is aware of the housing development and feel they will not affect the flight Plan. The developer stated they have heard very good concerns and addressed hard questions, but going forward in the

development there will be a lot of unknowns. Commissioner Hupp feels there are too m any holes in this project.

Commissioner Brutvan asked about the actual phase I structure.

- ***Discussion and Decision***

Chairman Williams wanted to address the issue of safety for our residents regarding police and the fire department, he is concerned that they will not be able to handle this development.

Chairman Williams asked that we make a motion to disapprove the rezoning of Phantom Ranch Village

Motion by *Commissioner Hupp* ***Seconded by*** *Chairman Williams*
Motion was not passed unanimously

All in Favor:
Ayes 2
Noes 2

Motion was tied and no action taken.

VI. STAFF REPORT *- None*

V. ADJOURN: 8:42 PM

ATTEST

Buck Williams, Chairman

Sue Bennett, Deputy City Clerk

NOTICE OF PUBLIC HEARING

Notice is hereby given that the City of Williams Planning and Zoning Commission will hold a public hearing on Thursday, February 17, 2022 at 7:00 p.m. and the City Council will hold a public hearing on Thursday, February 24, 2022, at 7:00 p.m. in City of Williams Council Chambers located at 113 S. First Street, Williams, Arizona, 86046. All interested persons may attend and address their comments to the Commission/City Council, or may submit written comments to the Commission/City Council at the above address.

The following public matter will be heard: Request by Steve Iverson, Cataract Creek Unit 1&2 subdivision, for Preliminary Plat approval of a proposed 38 lot Townhomes subdivision and an 18 lot Single Family subdivision located in the 1100 block of Airport Rd. APN 202-11-005B & 202-11-006 & 3H.

Information for this submittal will be on the City website, www.williamsaz.gov If you have any other question please contact Tim Pettit, City Manager, 928-635-4451 ext. 201 or e-mail tpettit@williamsaz.gov .

REPORT TO:

PLANNING & ZONING COMMISSION

CASE NO. Preliminary Plat / PP-2022-01-01; Steve Iverson "Cataract Creek Units 1 & 2"

DRT MEETING: January 19, 2022

PLANNING & ZONING COMMISSION MEETING: February 17, 2022

CITY COUNCIL MEETING: February 24, 2022

REQUEST: Preliminary Plat approval by Steve Iverson, ***Cataract Creek Unit 1*** ***Cataract Creek Unit 2***

PROPOSED LAND USE: ***Cataract Creek Unit 1***- 38 unit Townhome subdivision
Cataract Creek Unit 2- 18 lot Single Family Subdivision

SITE LOCATION: 1100 N. Airport Rd, APN: 202-11-005B & 006

SITE SIZE: Unit 1- 5.10 Acres / Unit 2- 9.15

CONFORMANCE TO CITY OF WILLIAMS GENERAL PLAN:

According to the General Plan adopted December 2013, this request is in compliance with our General Plan.

Cataract Creek Unit 1 is currently zoned CR-Commercial Residential. §158.075 allows for high density residential in the form of; apartments, townhomes, condominiums, etc.

Cataract Creek Unit 2 is currently zoned R1-7/Single Family Residential 7000 sq ft min. lot size

EXISTING AND SURROUNDING ZONING & LAND USE:

On-site – CR & R1-7 Zoning / Vacant Land
East – CR- Commercial Residential / AR- Agricultural Residential
North – ER Estate Residential 15,000 sq. ft. min./Vacant Land
West – ER Estate Residential / Vacant Land
South – R1-7 Single Family / Vacant Land

ACCESS ROAD STATUS:

Property has accessed off of Airport Rd.

EXISTING UTILITIES AND SERVICES STATUS:

All the following utilities will be constructed by the developer and services will follow:
Water, Sewer, Police Protection & Trash Collection – City of Williams;
Fire Protection – City of Williams Volunteer Fire Department;
Electricity – City of Williams-APS;
Natural Gas – UniSource;
Telephone – CenturyLink.

PROPOSED UTILITIES: Water, Sewer, Electric, Natural Gas and Centurylink

BACKGROUND:

1. Preliminary Plat application was submitted and all fees have been paid.
2. DRT reviewed and commented 1/19/22 PPlat submittal was amended
3. Notice of Public Hearing was published in the local paper on February 2nd and February 9th, 2022, and posted on the City Website.
4. Notice of Public Hearing was posted on site, mailed to property owners within 300 feet and posted at City Hall, on January 28th, 2022.
5. To date _____response have been received.
6. The status of required documentation and or issues as follows:
   - Preliminary Plats meet the City Of Williams Subdivision Ord. No Variance requests
   - Utilities have been approved
   - Copy of proposed CCR's
   - All reports are updated and complete (Water and Sewer Impact Analysis, Traffic Impact Analysis, Stormwater)
   - This submittal is in the que and their projected capacity and need for water and sewer treatment has previously been allocated.

STAFF RECOMMENDATION:

Staff recommends approval of Preliminary Plat for Cataract Creek Subdivision Unit 1&2

MODEL MOTIONS-

FOR APPROVAL;

I move to recommend to council, approval of Steve Iverson's request for Preliminary Plat of "Cataract Creek Subdivision Unit 1&2".

FOR DISAPPROVAL:

I move to deny the request by Steve Iverson for approval of Preliminary Plat for Cataract Creek Subdivision 1&2.

PRELIMINARY PLAT NARRATIVE
CATARACT CREEK UNIT 1 AND UNIT 2

Submitted to:

City of Williams

CITY OF WILLIAMS
CATARACT CREEK UNIT 1 AND UNIT 2
PRELIMINARY PLAT NARRATIVE
JANUARY 24, 2022

Prepared by:

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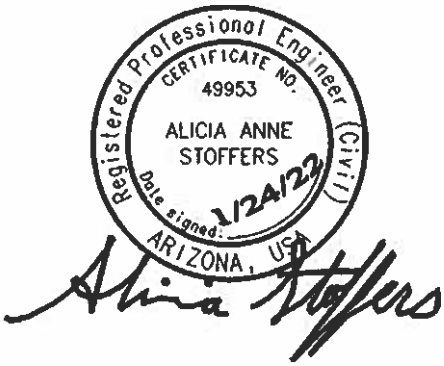


A. INTRODUCTION

The Preliminary Plats for Cataract Creek Unit 1 and Unit 2 Subdivisions are submitted to the City of Williams for consideration. The project will develop vacant land on the north side of Williams, west of Airport Road.

Cataract Creek Unit 1

Area	5.10 acres
Zoning	CR
Use	38 Townhomes
APN	202-11-005B, Phantom Ranch Holdings

Cataract Creek Unit 2

Area	9.15 acres
Zoning	R1-7
Use	18 Single Family Lots
APN	202-11-006,202-11-003H,202-11-005A, Phantom Ranch Development LLC

B. ZONING AND LAND USE

Cataract Creek Subdivision is within the City Limits of the City of Williams. The Preliminary Plats included in this submittal show that the proposed development adheres to the existing Zoning and Land Use category. The City Land Use Map from the Williams General Plan 2013 identifies Multi-Family for the Unit 1 property (6-15 DU/acre). The gross density in the proposed townhome subdivision is 7.45 DU/acres meeting the General Plan requirements. Cataract Creek Unit 2 is identified as Mixed Use and Multi Family in the General Plan. The density for single family residential is identified as 3-5 Du/acre. The proposed Unit 2 subdivision will be single family lots with a portion of the property split into a separate parcel for future apartments. Due to the floodplain and utility infrastructure, the density in Unit 2 will only be 1.9 DU/acre.

The existing zoning on Unit 1 is Commercial Residential (CR). The proposed townhome development is an allowed use in that zoning district. The existing zoning on Unit 2 is Residential (R1-7). In Unit 2, the parcel 202-11-003H will be split to match the existing zoning categories. The portion of the parcel that has been split out of this Preliminary Plat is zoned R3 and is on the east side of the Cataract Creek floodway.

The Cataract Creek Subdivision meets the new land use initiative that was laid out in the Williams General Plan 2013 to "Provide additional workforce housing". Unit 1 and Unit 2 are proposed as townhomes and smaller 7000 sq ft min single family lots. These units are ready to move forward in the City approval process and into construction. Both Units meet the requirements of the City of Williams Zoning Code and The General Plan Land Use mapping.

C. PHASING

Cataract Creek Subdivision Unit 1 and Unit 2 are being proposed at this time. No phasing is anticipated. Unit 1 and Unit 2 will hopefully be under construction in 2022.

D. ACCESS

A Traffic Impact Analysis that addresses Cataract Creek Unit 1 and Unit 2 and will be submitted under separate cover as soon as possible. The analysis indicates that the development will not require any offsite improvements based on traffic loading. The studied intersections all operate with overall acceptable levels of service (LOS C or better) after the development of these parcels. Two entrances on Airport Road are proposed to serve the project. The south access will be a public 60' Right of Way north of the box culvert on Cataract Creek dedicated in the Final Plat of Cataract Creek Unit 2.

The second access will be north of Unit 1 on the Phantom Ranch Village parcel. The owner has agreed to grant a 60' Roadway and a Public Utility easement to the City. Cataract Creek Subdivision will construct the street improvements for access and utility connection. This alignment will still work with future alignment of Grand Canyon Blvd. and follows the existing gas line easement in this location. Eventually when Phantom Ranch Village moves forward and a final plat is recorded, this roadway will be dedicated as public Right of Way.

As required by the City of Williams, the developer will construct half road improvements along the frontage with Airport Road including widening to the City collector roadway standard including curb gutter, and sidewalk. Due to the utility installations of water, sewer and storm drain systems in Airport Road, the entire width of existing pavement from the north property line to the box culvert will be replaced.

E. UTILITY

A Utility Impact Analysis that addresses Cataract Creek Unit 1 and Unit 2 is included in Appendix 2 of this report. The utility infrastructure will be designed with each subdivision in Construction Plans.

1. WATER

Cataract Creek will utilize water from the City of Williams public water system. The City system has capacity and pressures to serve the new subdivision. Offsite improvements are required to extend the public system to the project site. The developer of this project will construct the improvements in accordance with City of Williams and Arizona Department of Environmental Quality standards.

A 10" public watermain to the site from the existing system at Ellen Way and Airport will be constructed within the existing right of way of Airport Road. Construction of the waterline will include fire hydrants and services. This connection is adequate to provide potable water pressures and fire flows to the Cataract Creek subdivision. The 10" water main will be stubbed to the north property line of this project for connection to the planned waterline loop in the future Grand Canyon Blvd. The 8" water main network within the subdivision will be stubbed to the property

boundaries within the dedicated public right of way for future extension by adjacent parcel developments.

2. SEWER

The City of Williams has indicated that the additional wastewater flows from this development be accepted at the Williams Wastewater Treatment Plant. Cataract Creek Unit 1 and Unit 2 will construct gravity sewers that flow to a proposed lift station near the West Cataract Creek box culvert under Airport Road. The project will construct the lift station with a utility easement in Unit 2. The sewer collection system and the lift station will become part of the public utility system.

The Williams Treatment Plant has a permitted operating capacity of 0.98 million gallons per day (MGD). In 2021, peak flows at the plant were recorded at 0.84 MGD. The City is studying the capacity and planning a wastewater plant expansion, but it may be several years before the construction will occur. This limits the additional future development of the surrounding area. Cataract Creek is reserving Tract F in Unit 2 for the possible future site of a private wastewater treatment facility. The collection system is designed to convey the future adjacent projects to that site if needed. Currently the lots that are served by that gravity line will flow by gravity to the lift station at Airport Road. This gravity line will provide the outlet for the future plant.

If the private wastewater plant is not needed or allowed in the future, Tract F will remain as open space.

3. RECLAIMED WATER

The wastewater for this project will be lifted to the existing Wastewater Treatment Plant. No reclaimed water will be created or available for Cataract Creek Unit 1 and Unit 2.

4. NATURAL GAS

Natural gas will be available to the new subdivision for service from Unisource Energy. New service lines will be installed underground within public right of way. There is also an existing 4" gas main in an existing easement that is on the exterior of the Cataract Creek parcels on the Phantom Ranch Village property. The existing utility and easement will be protected in place.

5. ELECTRIC

Electric service is available to the new subdivision from Arizona Public Service (APS). Existing facilities are in Airport Road. New service lines will be installed underground within public right of way.

F. STORMWATER

A Preliminary Drainage Report that addresses Cataract Creek Unit 1 and Unit 2 is included in Appendix 1 of this report. The detention and storm drain improvements will be designed with each set of Construction Plans.

Cataract Creek Unit 1 and Unit 2 are currently undeveloped with no major drainage paths. The site sheet flows from the west to the existing Airport Road Right of Way and the West Cataract Creek Floodplain. This project will mitigate impact of the development by using a detention basin in each unit with rate control to match the pre-development flow rates.

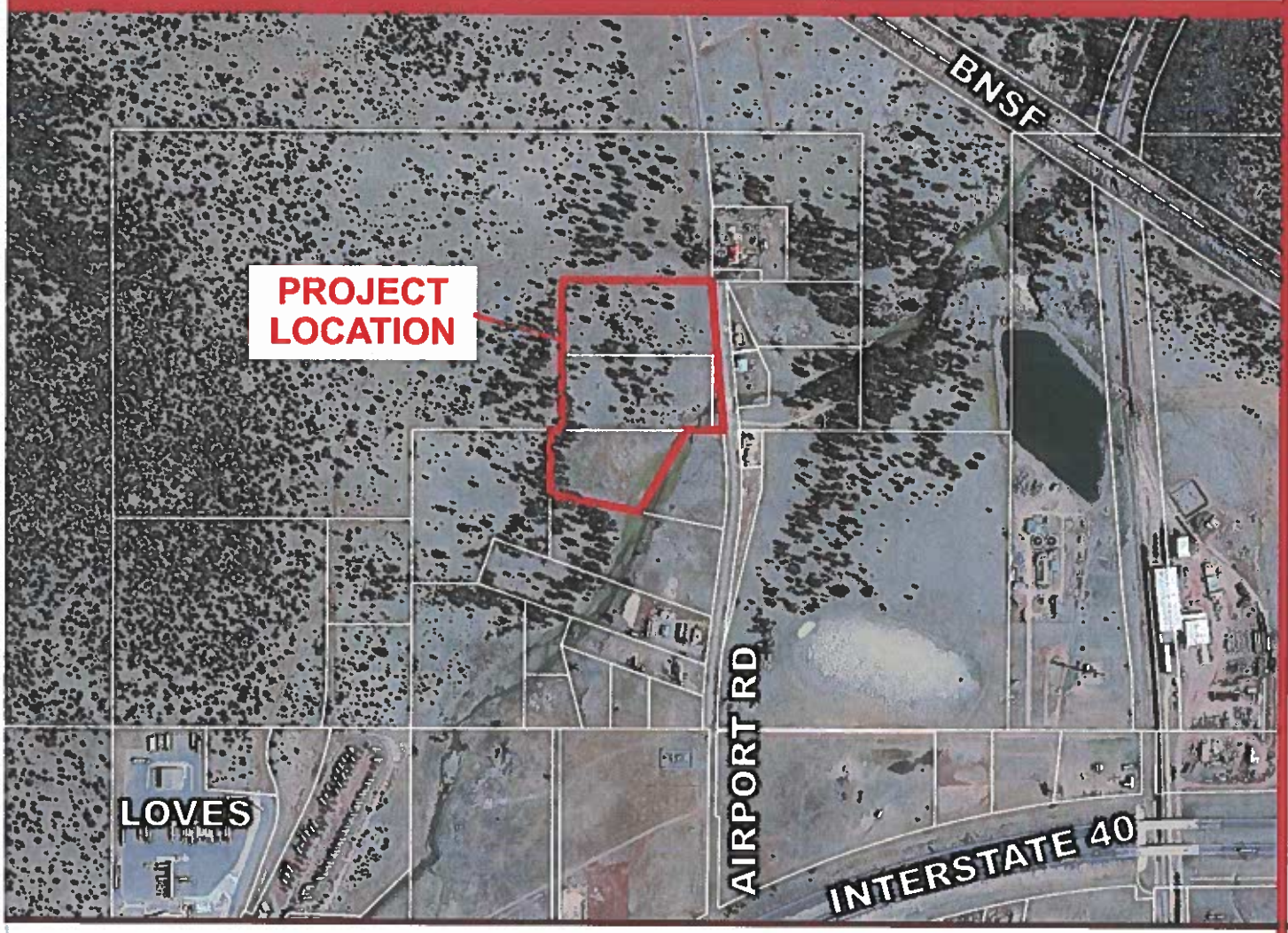
The offsite sheet flow from the west will impact Cataract Creek Unit 1 and Unit 2. A minor diversion ditch is proposed on the Phantom Ranch Village parcel within a drainage easement to catch the existing flow and divert it around the Cataract Creek site to the existing flow locations. When the adjacent property develops, the same flow locations can be used to provide outlet paths for the post development flow patterns.

G. OPEN SPACE

Each of the Units has space reserved for open space that will be utilized for stormwater detention, floodplain, passive recreation and landscaping.

H. APPENDICES

1. PRELIMINARY DRAINAGE REPORT
2. UTILITY IMPACT ANALYSIS



CATARACT CREEK UNIT 1 & 2
PRELIMINARY DRAINAGE REPORT

Prepared for:

STEVE IVERSON

CATARACT CREEK UNIT 1 & 2
PRELIMINARY DRAINAGE REPORT
JANUARY 11, 2022

Prepared by:

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APPENDIX A – FIGURES AND MAPS

USDA Web Soil Survey – Hydrologic Soil Group Map (located north of project area)
Existing Onsite and Offsite Watershed Delineation
Proposed Watershed Delineation

APPENDIX B – HYDROLOGIC DATA

NOAA Atlas 14 Rainfall Depths
Curve Number Tables
Watershed Input Summary

1.0 INTRODUCTION

This is the Preliminary Drainage Report for the Cataract Creek Unit 1 and Unit 2 Preliminary Plat submittals within the City of Williams. Both projects are separate plats but are adjacent. Due to the close connection in drainage patterns and roadways, the drainage analysis has been combined. The project site is adjacent to Airport Rd in Williams, AZ (see figure below). The Cataract Creek Unit 1 Preliminary Plat includes 38 proposed townhome lots (outlined in green below) and Cataract Creek Unit 2 Preliminary Plat includes 18 Single Family Residential (R1-7) lots (outlined in red below).

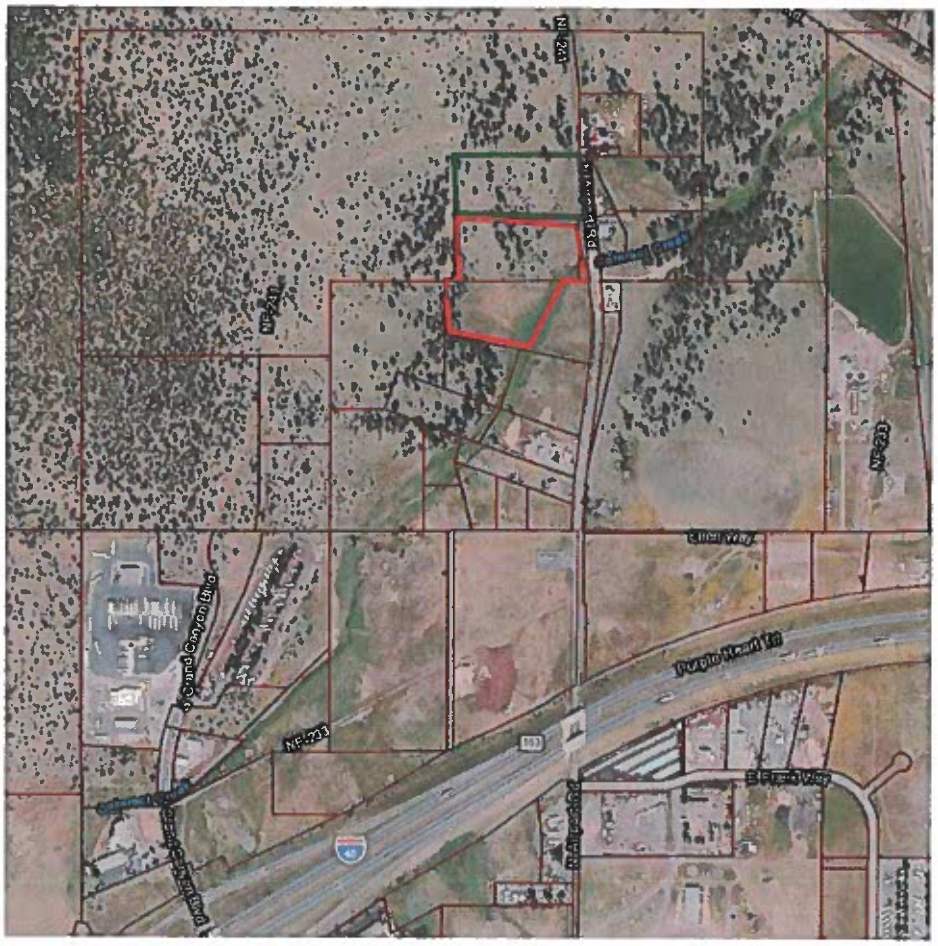


Figure 1.1 – Project location map (Green-Unit 1, Red Unit 2)

All onsite flows eventually enter Cataract Creek and flow to the northeast. There are no defined channels onsite, and the majority of the existing drainage traverses the site in sheet flow and shallow concentrated flow. A portion of the existing site to the north leaves in an existing 18" CMP culvert under Airport Road (Outlet 1) and crosses private property before entering Cataract Creek. The majority of the onsite drainage leaves the site as shallow concentrated flows along Airport Rd and the Cataract Creek floodplain (Outlet 2).

2.0 FLOOD ZONE

The Cataract Creek Unit 1 property (shown in green below) is located in Zone X per FEMA FIRM 04005C6339G and 04005C6343G (effective 9/3/2010). The Cataract Creek Unit 2 property (shown in red below) has portions of the site that are in Zone X, Zone AE, and the Regulatory Floodway per FEMA FIRM 04005C6339G and 04005C6343G (effective 9/3/2010).

Zone AE: The Special Flood Hazard Area (SFHA) with the 1-percent-annual-chance flood (base flood elevations are provided).
Zone X: Areas of minimal flood hazard, which are the areas outside the Special Flood Hazard Area (SFHA) and higher than the elevation of the 0.2-percent-annual-chance flood.
Regulatory Floodway: the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

The Regulatory Floodway has been established to identify the area that is necessary to allow the 100-year flood flow to pass through without causing any adverse impact upstream or downstream. Typically, the area outside of the floodway is considered the floodway fringe – an area that can be subject to encroachment without causing any adverse impact upstream or downstream. This is an area where encroachment may be permitted. Refer to City of Williams Ordinance No. 858 Floodplain Management.

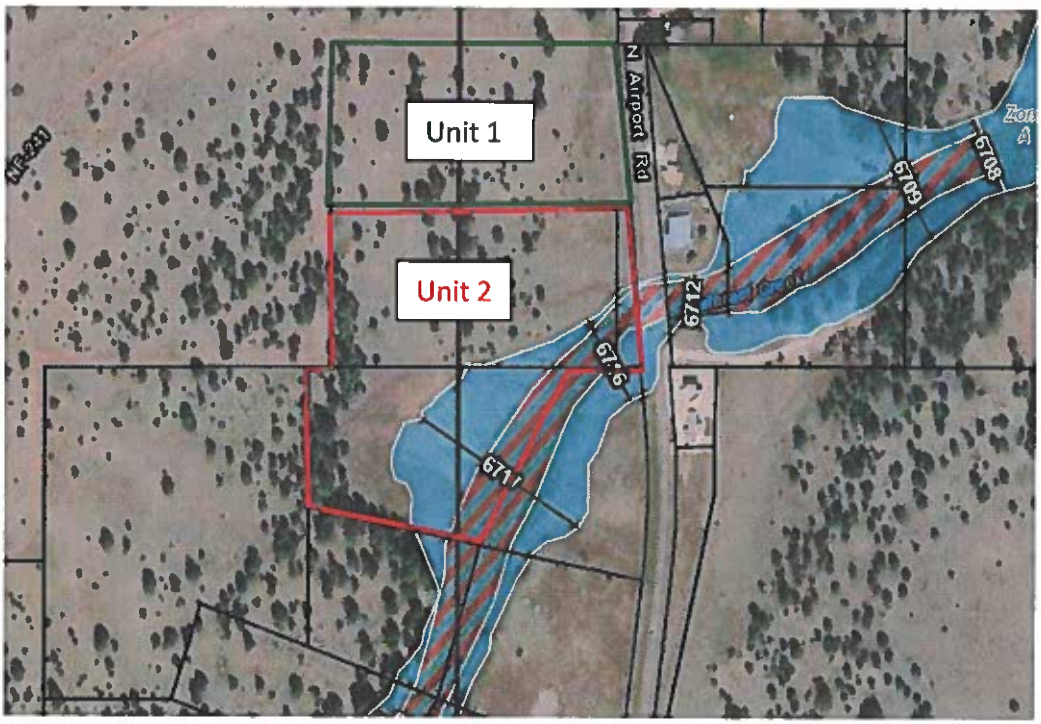


Figure 2.1 – FEMA's Flood Insurance Rate Map (FIRM) for the subject site

3.0 OBJECTIVES AND PROCEDURES

The purpose of this drainage report is to support the Preliminary Plat submittals to the City of Williams. This report outlines the hydrologic and hydraulic calculations (H&H) for the proposed development. The project will use following manuals for the H&H calculations:

1. Coconino County Drainage Design Criteria
2. USDA – Technical Release 55, Urban Hydrology for Small Watersheds

Per the City of Williams Drainage and Detention Criteria (July 2017), storm drainage facilities shall be designed and constructed to ensure that the post-development flows from the development site are not greater than the pre-development flows for the 2, 10, and 100-year storm events.

4.0 HYDROLOGY

4.1 WATERSHED DESCRIPTION

4.1.1. EXISTING WATERSHEDS

The project site is generally located along mild to moderate slopes (<10%) that all drain toward Airport Rd and Cataract Creek. Offsite flow enters the site as a mixture of sheet flow and shallow concentrated flow. See Appendix A for a delineation of the existing onsite and offsite watersheds. A portion of the existing site (subbasin EX-1) drains to the northeast where it enters an existing 18" CMP culvert under Airport Road (Outlet 1) and eventually drains to the east across private property to Cataract Creek. The majority of the existing site (subbasins EX-2 and EX-3) drains to the south and east where it sheet flows to Airport Rd and the Cataract Creek floodplain (Outlet 2).

4.1.2. PROPOSED WATERSHEDS

The proposed onsite drainage will outfall to Cataract Creek. Subbasin PR-1 will enter a detention basin (Basin 1) where flows will meter into an underground storm drain system constructed in Airport Road to convey the drainage to Cataract Creek. Subbasin PR-2 will enter a separate detention basin (Basin 2) where flows will meter out directly into the Cataract Creek floodplain. All offsite flows will either be routed around the site or through the site in channels that bypass the detention systems. Per the Williams Drainage and Detention Criteria, post-development flows shall not exceed pre-development flows for the 2, 10, and 100-year storm events. Because the watershed for the project site is less than one square mile, the six-hour duration will be used for all hydrologic calculations. Two detention basins will be constructed to provide the necessary attenuation.

4.2 RAINFALL DEPTH

Rainfall depths are referenced from the National Oceanic and Atmospheric Administration (NOAA) Atlas 14. Refer to Appendix B for the referenced rainfall depths.

4.3 TIME OF CONCENTRATION CALCULATIONS

The two predominant types of flow in the watersheds are sheet flow and shallow concentrated flow. Time of concentration (Tc) calculations were performed differently depending on the type of flow. For flow paths that incorporated more than one type of flow, travel times were added together. Due to the majority of the project site having relatively small watersheds, Tc's were calculated to be below 10 minutes for both the existing and proposed condition. To provide a difference in Tc's for the existing and proposed condition, all existing onsite watersheds were given Tc's of 12 minutes, while all onsite proposed watersheds were given minimum Tc's of 10 minutes. Detailed time of concentration calculations will be provided with the Final Drainage Report.

4.4 RUNOFF CALCULATION METHODOLOGY

The SCS Curve Number (CN) method was used for runoff calculations for both the pre- and post-development flows. Specifically, Technical Release 55 (TR-55) *Urban Hydrology for Small Watersheds* from the USDA was referenced to identify curve numbers based on the type of cover. Per TR-55, impervious areas yield a CN of 98 regardless of hydrologic soil group (HSG). The predominant land cover in the existing watersheds can be categorized as *Pinyon-Juniper with Grass Understory*. This type of land cover is identified in TR-55 under *Semiarid Rangelands*.

To identify the curve number, an average of HSG C and HSG D was taken. While the USDA's Web Soil Survey (WSS) does not have soil data within the project site, the two main HSG's in Northern Arizona are HSG C and HSG D. To confirm this assumption, soil data was verified with the nearest studied area. A soil map can be found in Appendix A that shows a mixture of HSG C and HSG D in a study area a few miles to the north of the project site.

Bentley Pond Pack (Version 10.02, CONNECT edition) was used for all preliminary runoff, detention, and outlet release calculations. Runoff calculations were performed for the 2, 10, and 100-year storm events, as required per the City of Williams Drainage and Detention Criteria. Hydrologic modeling input parameters can be found in Appendix B. Because the watershed for the project site is less than a square mile, the six-hour duration storm was used for all hydrologic calculations.

4.5 RAINFALL LOSSES

Per Technical Release 55, rainfall losses are termed *Initial Abstractions* (I_a) which include water retained in surface depressions, water intercepted by vegetation, and water lost through evaporation and infiltration. I_a is highly variable but can be generally assumed based on soil and cover parameters. While many site-specific studies have been performed and I_a can be estimated based on empirical data, it is simplified and calculated based on CN.

4.6 EXISTING CONDITION

The existing watershed for the subject site is entirely an undisturbed Pinyon-Juniper rangeland with native grasses. Runoff generated by the existing watersheds all reach Cataract Creek. See Appendix A for an existing watershed delineation exhibit. See Section 4.8, Table 4.3 for a flow rate summary of the existing onsite and offsite watersheds. Hydrologic modeling input parameters can be found in Appendix B.

4.7 PROPOSED CONDITION

The proposed development for the project site will consist of residential homes and roadways with full frontage improvements. The proposed drainage will outfall to the same outlet locations as the existing condition, maintaining historical flow patterns. See Section 4.8, Table 4.3 for a flow rate summary of the unattenuated condition.

The easterly portion of the cul-de-sac at the south end of Skeleton Point Road is encroaching into FEMA Flood Zone AE. This is permitted per the City of Williams Ordinance No. 858 Floodplain Management, which defines floodplain areas outside of the defined floodway to be floodway fringe zones, subject to encroachment without causing a rise in flood waters elevations above acceptable values. The Base Flood Elevation (BFE) at this location is approximately 6717 ft and the cul-de-sac finish grade elevation will be set above the BFE.

4.8 STORMWATER ATTENUATION FACILITIES

The proposed development will increase flow rates leaving the site. Therefore, two detention basins are proposed to attenuate flows to be equal to the pre-developed condition. Per the City of Williams Drainage and Detention Criteria, post-developed flow rates leaving the site shall not exceed pre-developed flow rates leaving the site for the 2, 10, and 100-year storm events.

Table 4.1 – Detention Basin 1 summary

Parameter	Quantity	Unit
Basin Depth	3	ft
Side Slopes	3:1	H:V
Total Required Storage	17,000	ft^3
Total Storage Provided	22,000	ft^3
Minimum Elevation	6716	ft
Maximum Elevation	6719	ft
Outlet Elevation	6716.25	ft
Free board	0.81	ft

Table 4.2 – Detention Basin 2 summary

Parameter	Quantity	Unit
Basin Depth	3	ft
Side Slopes	3:1	H:V
Total Required Storage	28,800	ft^3
Total Storage Provided	35,000	ft^3
Minimum Elevation	6714	ft
Maximum Elevation	6717	ft
Outlet Elevation	6714.25	ft
Free board	0.53	ft

The outlet elevations show in the tables above are generally set at 3 inches above the basin floor elevations. This level of dead storage can be considered negligible for ponding depths that would require an underdrain system. Table 4.3 below summarizes the attenuated flow rates leaving the site.

Table 4.3 – Existing, unattenuated, and attenuated flow rates leaving the site

Label	Scenario	Existing Peak Flow (ft^3/s)	Proposed Unattenuated Peak Flow (ft^3/s)	Proposed Attenuated Peak Flow (ft^3/s)
OUTLET 1	2-Year	1.8	6.3	1.8
OUTLET 2	2-Year	9.2	15.4	9.2
OUTLET 1	10-Year	5.9	12.2	5.3
OUTLET 2	10-Year	31.3	40.1	30.8
OUTLET 1	100-Year	15.8	24.9	14.5
OUTLET 2	100-Year	87.3	100.4	82.5

Detention Basin 2, located southeast of the cul-de-sac at the south end of Skeleton Point Road, is encroaching into Flood Zone AE. This is permitted per City of Williams Ordinance No. 858 Floodplain Management, which defines floodplain areas outside of the defined floodway to be floodway fringe zones, subject to encroachment without causing a rise in flood water elevations above acceptable values. The Base Flood Elevation (BFE) at this location is approximately 6717 ft, and the cul-de-sac elevation will be above the BFE. The top of berm finish grade elevation on Detention Basin 2 is 6717 ft and the basin floor elevation is 6714 ft.

The top of berm elevation of Detention Basin 2 was set to be at the BFE to limit the amount of stormwater surcharging into the basin as much as possible. The outlet of Detention Basin 2 will still be below the BFE, which would allow surcharging once Cataract Creek has reached the BFE. However, it is important to note that despite the outlet being below the BFE, Detention Basin 2 will still provide the necessary mitigation for the proposed development due to the differences in the time to peak for the watershed within the proposed development and the main watershed of West Cataract Creek; the onsite watersheds will beat the peak of West Cataract Creek. In other words, by the time Cataract Creek has reached a water surface elevation (WSE) that would begin to surcharge into Detention Basin 2, the system will have already provided the necessary attenuation.

5.0 HYDRAULICS

5.1 STORM DRAIN FACILITIES

An underground storm drain system is proposed in Airport Road. This system will contain the existing offsite flows that will be routed around the site as well as the rate-controlled flow from Detention Basin 1. This system will outlet at the existing concrete box culvert under airport road at Cataract Creek. It is important to note that the existing drainage that flows to the 18" CMP culvert under Airport Rd is undersized. Flow rates in larger storm events will result in overtopping of Airport Rd. The new storm drain system will protect private property to the east of Airport Rd. The diameter and depth of the new system will be designed and provided with the Final Drainage Report.

Airport Road, per the City of Williams, is a Collector Road at future buildout. Frontage improvements on Airport will include curb and gutter per the City Collector Road section. The internal roadway system will also have storm drains as needed to convey drainage to the proposed detention basins and provide all weather access to the subdivisions. Per the Williams Drainage and Detention Criteria, pavement drainage for Collector Roads shall be designed for the 10-year storm. However, since detention calculations have been performed for the 100-year storm, inlets and catch basins will intercept flow for the 100-year storm. For all roads, no greater than 1 foot flow over the roadway will be allowed for the 100-year frequency storm. Detailed inlet/catch basin interception efficiency calculations will be provided with the Final Drainage Report.

5.2 DETENTION BASIN OUTLET CONTROL

The outlet control from Detention Basin 1 will be a CMP culvert that ties into the underground storm drain in Airport Road. The elevation of this outlet will be set so that the main system in Airport Rd does not surcharge back into Detention Basin 1. A rectangular contracted weir wall is proposed for the outlet control of Detention Basin 2. The weir wall will be constructed from either grouted CMU block or cast in-place concrete. Both detention basins will incorporate an emergency overflow spillway in the event that the primary outlet becomes clogged. Detailed outlet calculations will be included with the Final Drainage Report.

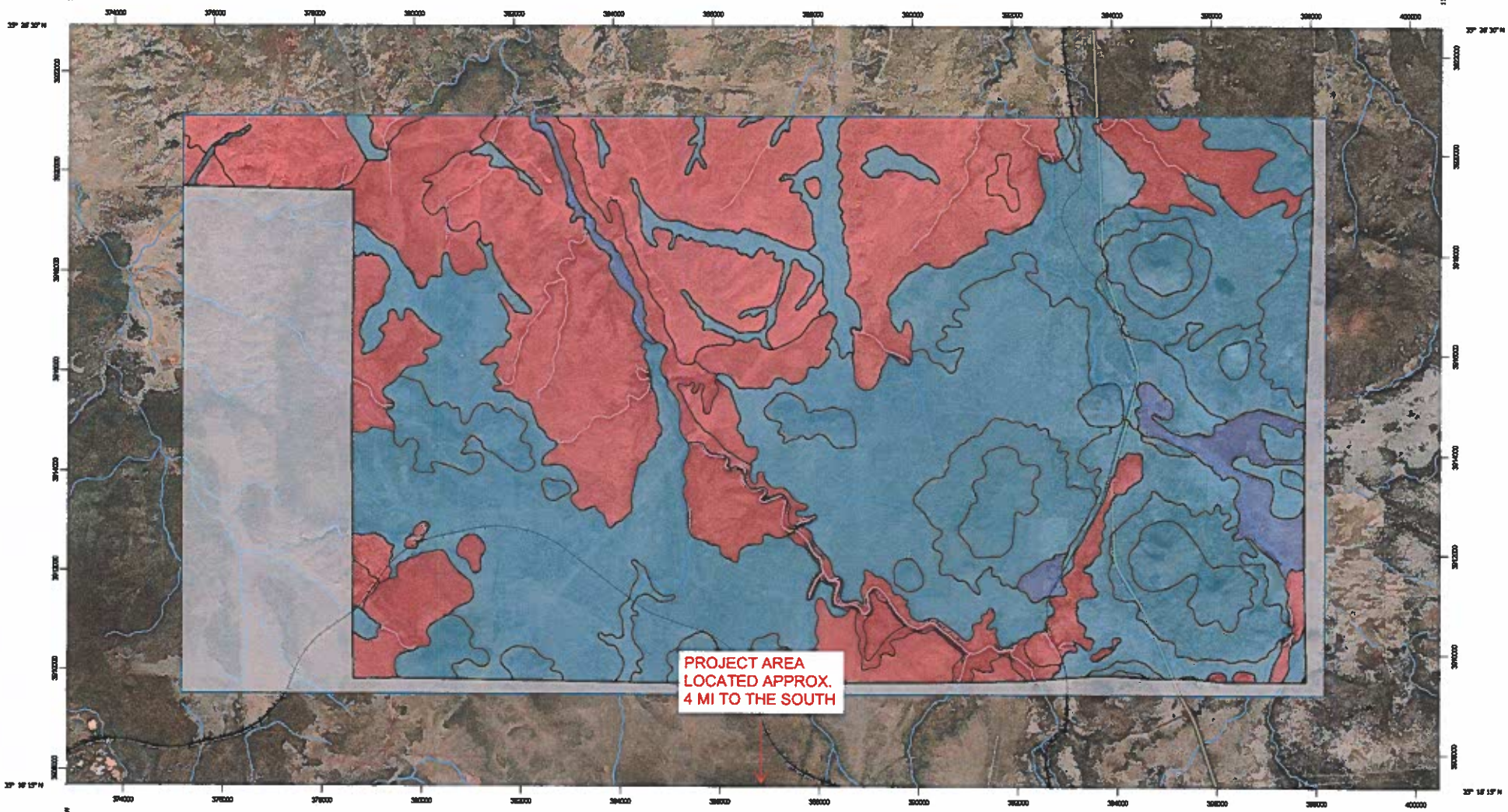
6.0 CONCLUSIONS

- This project includes improvements within Flood Zone AE, which is permitted under City of Williams Ordinance No. 858.
- This project does not include improvements within the Regulatory Floodway.
- Both detention basins have been designed to limit the post-developed flow rates to be less than the pre-developed flow rates for the 2, 10, and 100-year storm events.
- By the time Detention Basin 2 surcharges, it will have already provided the necessary attenuation due to the concept of *beat the peak*.
- The points of discharge for the proposed condition will match the existing condition, thereby maintaining historical flow patterns.
- A Final Drainage Report will be included with the Final Plat.

APPENDIX A – FIGURES AND MAPS

USDA Web Soil Survey Map
Existing Onsite and Offsite Watershed Delineation
Proposed Watershed Delineation

Hydrologic Soil Group—Coconino County Area, Arizona, Central Part; and Kaibab National Forests, Arizona, Parts of Coconino, Mohave and Yavapai Counties
(Iverson South)



Map Scale: 1:74,400 if printed on B landscape (17" x 11") sheet.

N

0 1000 2000 4000 6000 Meters

0 3500 7000 14000 21000 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 12N WGS84

Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Coconino County Area, Arizona, Central Part
Survey Area Data: Version 16, Sep 15, 2021

Soil Survey Area: Kaibab National Forests, Arizona, Parts of Coconino, Mohave and Yavapai Counties
Survey Area Data: Version 10, Sep 16, 2021

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 2, 2014—Oct 14, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
3	Aut-Cross association, moderately sloping	C	2,760.3	4.2%
4	Aut-Lynx association, gently sloping	C	47.5	0.1%
9	Daze-Deama association, moderately steep	D	175.2	0.3%
10	Deama gravelly loam, 2 to 15 percent slopes	D	154.3	0.2%
11	Deama stony loam, 1 to 15 percent slopes	D	134.6	0.2%
12	Deama-Rock outcrop complex, 8 to 30 percent slopes	D	13,310.6	20.2%
15	Disterheff very gravelly sandy clay loam, 1 to 15 percent slopes	C	141.7	0.2%
29	Paymaster-Lynx association, gently sloping	B	288.8	0.4%
33	Poley-Tusayan association, gently sloping	C	608.5	0.9%
42	Showlow gravelly fine sandy loam, 8 to 30 percent slopes	C	93.9	0.1%
48	Thunderbird-Rock outcrop complex, 30 to 60 percent slopes	D	730.0	1.1%
49	Thunderbird-Springerville association, strongly sloping	D	6,385.2	9.7%
55	Tusayan-Lynx association, gently sloping	C	734.6	1.1%
57	Valle gravelly silt loam, 0 to 8 percent slopes	B	1,141.7	1.7%
59	Wilaha-Wukoki association, steep	C	2,150.0	3.3%
60	Winona gravelly loam, 0 to 8 percent slopes	D	71.1	0.1%
65	Winona-Rock outcrop complex, 30 to 70 percent slopes	D	784.5	1.2%

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
70	Ziegler gravelly loam, 0 to 8 percent slopes	C	3,111.7	4.7%
71	Ziegler-Cross association, moderately sloping	C	16,166.4	24.5%
72	Ziegler-Wilaha association, strongly sloping	C	6,081.6	9.2%
Subtotals for Soil Survey Area			**55,072.2**	**83.5%**
Totals for Area of Interest			**65,950.5**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
NOTCOM	No Digital Data Available		10,850.9	16.5%
Subtotals for Soil Survey Area			**10,850.9**	**16.5%**
Totals for Area of Interest			**65,950.5**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

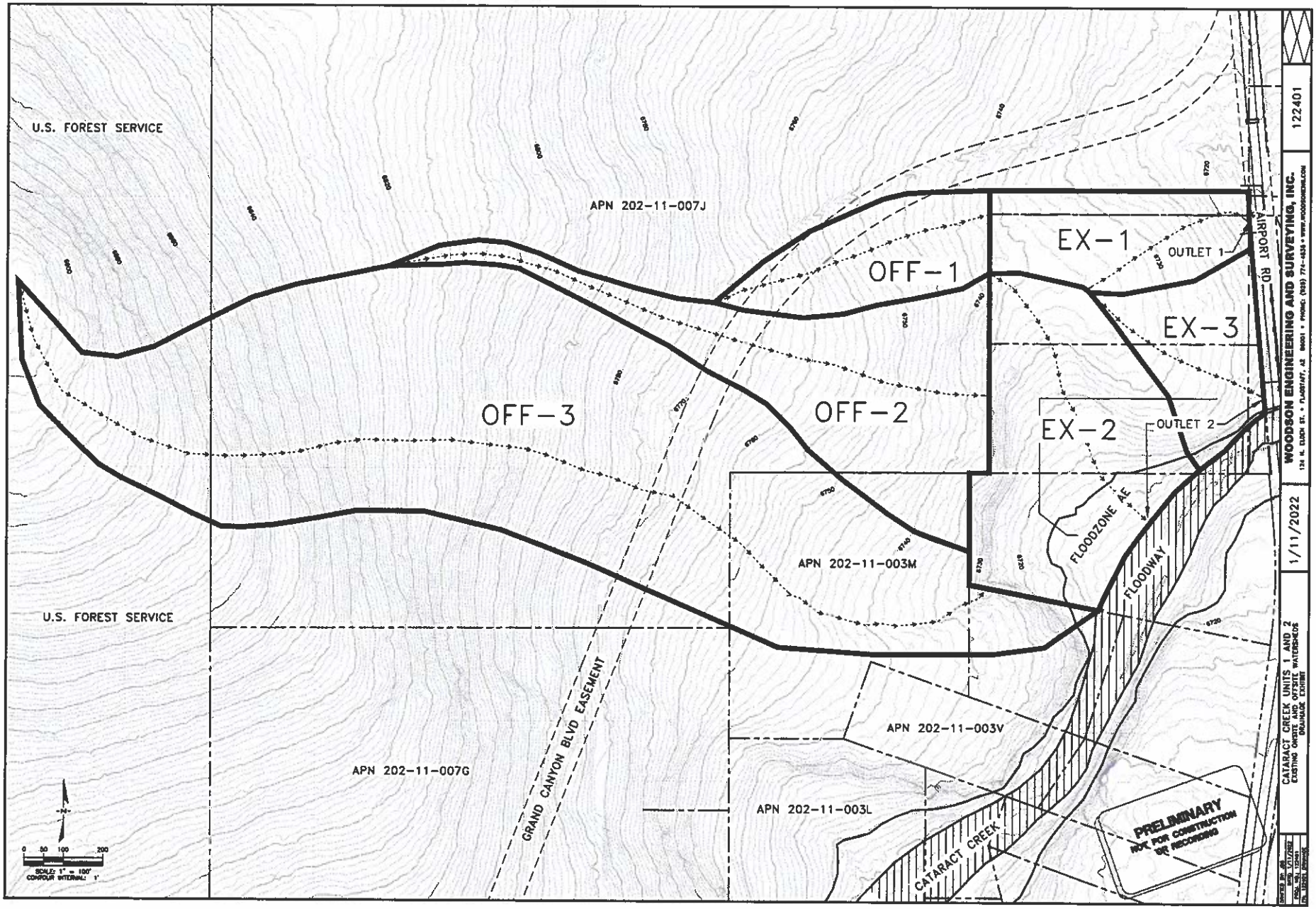
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

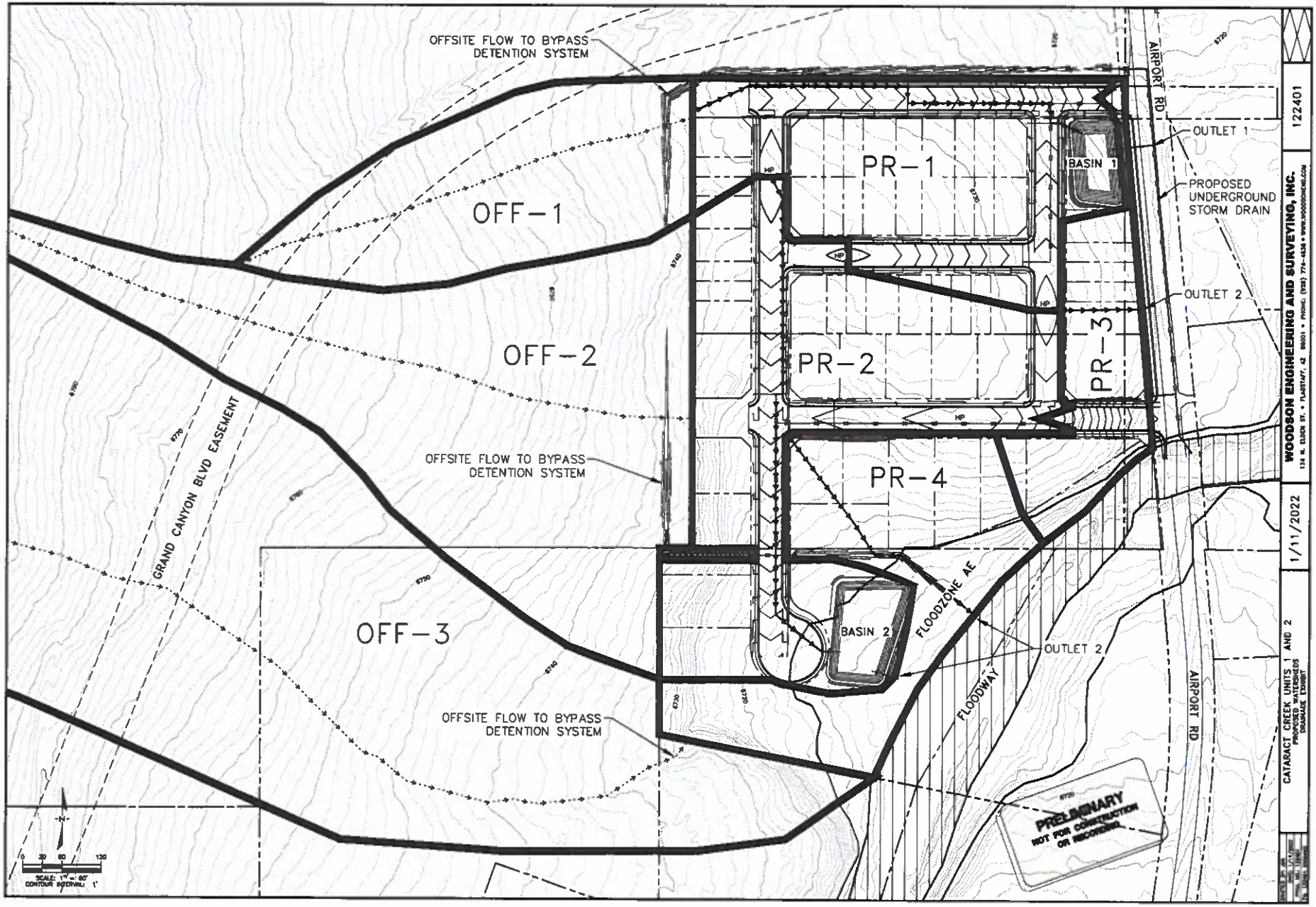
Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher


U.S. FOREST SERVICE
APN 202-11-007J
OFF-1
EX-1
OUTLET 1
AIRPORT RD
EX-3
OFF-3
OFF-2
EX-2
OUTLET 2
FLOODZONE AE
FLOODWAY
APN 202-11-003M
U.S. FOREST SERVICE
GRAND CANYON BLVD EASEMENT
APN 202-11-003V
APN 202-11-007G
APN 202-11-003L
CATARACT CREEK
PRELIMINARY
NOT FOR CONSTRUCTION OR RECORDING
SCALE: 1" = 100'
CONTOUR INTERVAL: 1'
WOODSON ENGINEERING AND SURVEYING, INC.
122401
1/11/2022
CATARACT CREEK UNITS 1 AND 2
EXISTING ONSITE AND OFFSITE WATERSHEDS
DRAINAGE EXHIBIT


OFFSITE FLOW TO BYPASS DETENTION SYSTEM
OFF-1
OFF-2
OFF-3
PR-1
PR-2
PR-3
PR-4
BASIN 1
BASIN 2
OUTLET 1
OUTLET 2
PROPOSED UNDERGROUND STORM DRAIN
AIRPORT RD
GRAND CANYON BLVD EASEMENT
FLOODZONE AE
FLOODWAY
PRELIMINARY
NOT FOR CONSTRUCTION OR RECORDING
WOODSON ENGINEERING AND SURVEYING, INC.
122401
1/11/2022
CATARACT CREEK, UNITS 1 AND 2
PROPOSED WATERSHED DRAINAGE EXHIBIT

APPENDIX B – HYDROLOGIC DATA & CALCULATIONS

NOAA Atlas 14 Rainfall Depths
Curve Number Tables
Watershed Input Summary

NOAA Atlas 14, Volume 1, Version 5
Location name: Williams, Arizona, USA*
Latitude: 35.2691°, Longitude: -112.1877°
Elevation: 6728.87 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.232 (0.201-0.270)	0.299 (0.259-0.349)	0.405 (0.349-0.470)	0.493 (0.423-0.571)	0.618 (0.525-0.714)	0.724 (0.609-0.835)	0.839 (0.696-0.969)	0.964 (0.788-1.12)	1.15 (0.918-1.34)	1.30 (1.02-1.54)
10-min	0.352 (0.305-0.411)	0.455 (0.394-0.530)	0.616 (0.531-0.715)	0.750 (0.644-0.868)	0.941 (0.799-1.09)	1.10 (0.927-1.27)	1.28 (1.06-1.48)	1.47 (1.20-1.70)	1.75 (1.40-2.04)	1.99 (1.56-2.34)
15-min	0.437 (0.379-0.510)	0.564 (0.488-0.658)	0.764 (0.659-0.886)	0.929 (0.798-1.08)	1.17 (0.990-1.35)	1.37 (1.15-1.58)	1.58 (1.31-1.83)	1.82 (1.49-2.11)	2.17 (1.73-2.53)	2.46 (1.93-2.90)
30-min	0.588 (0.510-0.686)	0.760 (0.658-0.885)	1.03 (0.887-1.19)	1.25 (1.07-1.45)	1.57 (1.33-1.81)	1.84 (1.55-2.12)	2.13 (1.77-2.46)	2.45 (2.00-2.84)	2.92 (2.33-3.41)	3.31 (2.60-3.91)
60-min	0.728 (0.631-0.849)	0.941 (0.814-1.10)	1.27 (1.10-1.48)	1.55 (1.33-1.79)	1.94 (1.65-2.25)	2.28 (1.92-2.63)	2.64 (2.19-3.05)	3.03 (2.48-3.51)	3.61 (2.89-4.22)	4.10 (3.22-4.84)
2-hr	0.861 (0.757-0.988)	1.09 (0.958-1.25)	1.44 (1.26-1.65)	1.74 (1.51-1.98)	2.17 (1.87-2.47)	2.53 (2.15-2.87)	2.93 (2.46-3.33)	3.36 (2.79-3.84)	4.00 (3.24-4.60)	4.54 (3.60-5.25)
3-hr	0.951 (0.844-1.08)	1.20 (1.07-1.37)	1.55 (1.37-1.76)	1.84 (1.62-2.09)	2.26 (1.98-2.57)	2.62 (2.26-2.96)	3.02 (2.58-3.42)	3.46 (2.91-3.94)	4.11 (3.38-4.71)	4.65 (3.76-5.38)
6-hr	1.17 (1.05-1.31)	1.45 (1.31-1.63)	1.80 (1.62-2.02)	2.11 (1.89-2.37)	2.56 (2.26-2.87)	2.92 (2.56-3.27)	3.31 (2.87-3.72)	3.74 (3.20-4.21)	4.36 (3.65-4.96)	4.89 (4.02-5.59)
12-hr	1.49 (1.33-1.67)	1.84 (1.65-2.07)	2.26 (2.02-2.53)	2.60 (2.32-2.91)	3.07 (2.72-3.43)	3.43 (3.02-3.85)	3.82 (3.33-4.28)	4.20 (3.64-4.73)	4.81 (4.11-5.46)	5.32 (4.49-6.07)
24-hr	1.71 (1.59-1.83)	2.13 (2.00-2.29)	2.66 (2.48-2.85)	3.08 (2.88-3.30)	3.67 (3.41-3.92)	4.12 (3.82-4.42)	4.61 (4.23-4.93)	5.09 (4.64-5.46)	5.76 (5.20-6.20)	6.28 (5.61-6.80)
2-day	2.06 (1.92-2.23)	2.57 (2.39-2.78)	3.21 (2.98-3.47)	3.73 (3.46-4.01)	4.44 (4.10-4.78)	5.01 (4.61-5.39)	5.60 (5.12-6.02)	6.21 (5.63-6.70)	7.03 (6.31-7.62)	7.68 (6.84-8.36)
3-day	2.21 (2.05-2.38)	2.76 (2.56-2.98)	3.45 (3.21-3.73)	4.01 (3.72-4.32)	4.80 (4.43-5.16)	5.42 (4.98-5.83)	6.07 (5.55-6.53)	6.74 (6.11-7.27)	7.67 (6.88-8.32)	8.40 (7.46-9.15)
4-day	2.35 (2.19-2.55)	2.94 (2.74-3.18)	3.69 (3.43-3.98)	4.30 (3.99-4.63)	5.15 (4.75-5.54)	5.83 (5.36-6.27)	6.55 (5.97-7.05)	7.28 (6.59-7.85)	8.30 (7.44-9.01)	9.11 (8.09-9.93)
7-day	2.80 (2.60-3.01)	3.49 (3.25-3.76)	4.34 (4.04-4.67)	5.04 (4.68-5.41)	6.01 (5.55-6.44)	6.77 (6.23-7.26)	7.57 (6.94-8.13)	8.40 (7.65-9.04)	9.53 (8.59-10.3)	10.4 (9.30-11.3)
10-day	3.14 (2.92-3.38)	3.91 (3.64-4.22)	4.84 (4.51-5.20)	5.58 (5.19-5.99)	6.57 (6.10-7.06)	7.33 (6.77-7.87)	8.11 (7.45-8.71)	8.89 (8.13-9.56)	9.92 (8.99-10.7)	10.7 (9.65-11.6)
20-day	4.20 (3.91-4.51)	5.23 (4.88-5.62)	6.37 (5.94-6.84)	7.23 (6.73-7.76)	8.34 (7.74-8.93)	9.14 (8.47-9.79)	9.93 (9.17-10.6)	10.7 (9.83-11.5)	11.7 (10.7-12.5)	12.4 (11.3-13.3)
30-day	5.09 (4.72-5.50)	6.33 (5.87-6.86)	7.71 (7.14-8.34)	8.73 (8.08-9.44)	10.0 (9.26-10.9)	11.0 (10.1-11.9)	11.9 (10.9-12.9)	12.8 (11.7-13.9)	13.9 (12.7-15.2)	14.8 (13.3-16.1)
45-day	6.10 (5.66-6.58)	7.58 (7.06-8.21)	9.25 (8.59-10.0)	10.5 (9.75-11.4)	12.2 (11.2-13.2)	13.4 (12.3-14.5)	14.6 (13.4-15.8)	15.7 (14.3-17.1)	17.2 (15.6-18.7)	18.3 (16.5-20.0)
60-day	7.06 (6.56-7.63)	8.78 (8.16-9.50)	10.6 (9.89-11.5)	12.0 (11.2-13.0)	13.8 (12.7-14.9)	15.0 (13.9-16.2)	16.2 (14.9-17.6)	17.4 (15.9-18.8)	18.8 (17.2-20.4)	19.8 (18.0-21.6)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based depth-duration-frequency (DDF) curves
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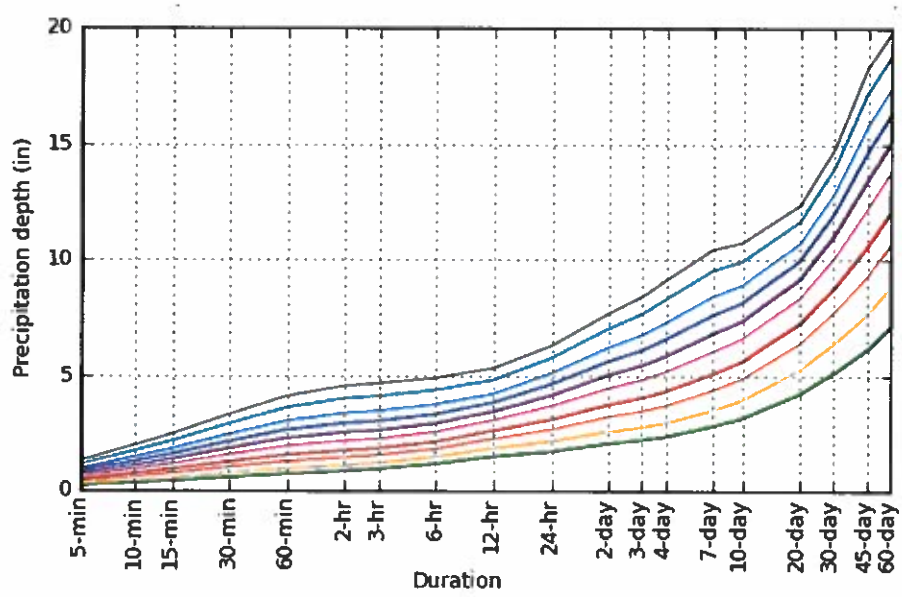

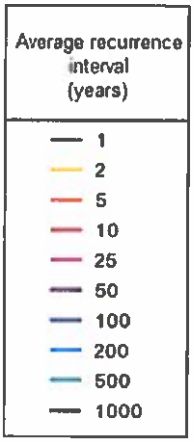

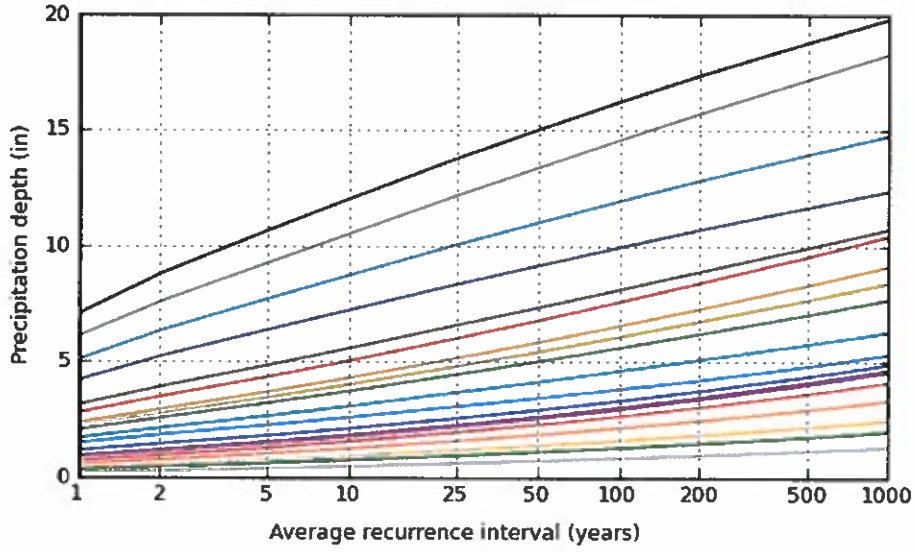

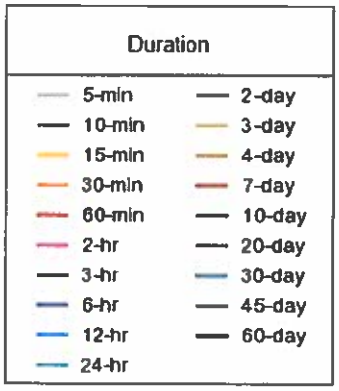

NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Tue Jan 11 20:52:30 2022

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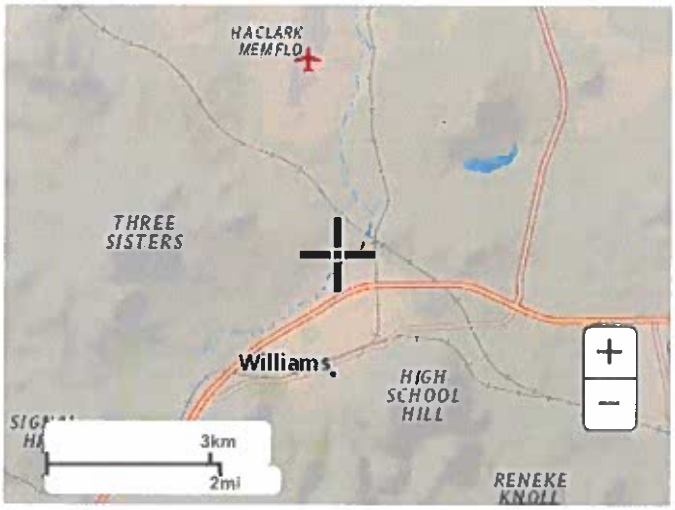
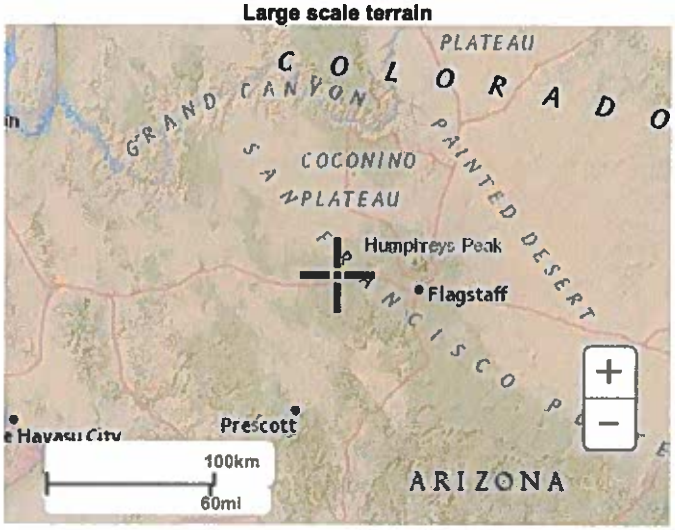
Maps & aerials

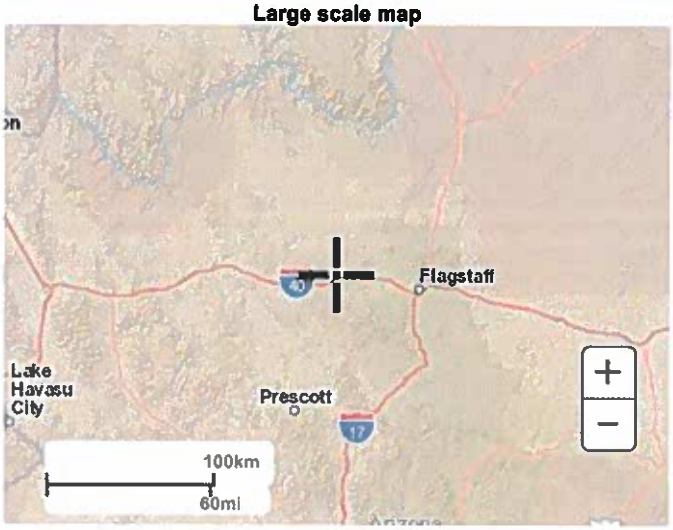
Small scale terrain



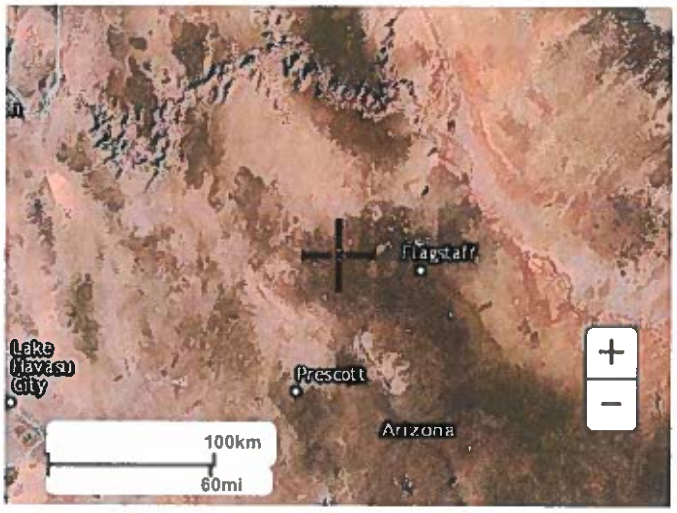
Large scale terrain



Large scale map



Large scale aerial



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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Table 2-2a Runoff curve numbers for urban areas [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type and hydrologic condition	Average percent impervious area [2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only) [4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2-inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation) [5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

[1] Average runoff condition, and $I_a = 0.2S$.

[2] The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.

[3] CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.

[4] Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.

[5] Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2d Runoff curve numbers for arid and semiarid rangelands [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition [2]	A [3]	B	C	D
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80	87	93
	Fair		71	81	89
	Good		62	74	85
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66	74	79
	Fair		48	57	63
	Good		30	41	48
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75	85	89
	Fair		58	73	80
	Good		41	61	71
Sagebrush with grass understory.	Poor		67	80	85
	Fair		51	63	70
	Good		35	47	55
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77	85	88
	Fair	55	72	81	86
	Good	49	68	79	84

1 Average runoff condition, and I_a = 0.2S. For range in humid regions, use table 2-2c.
2 Poor: <30% ground cover (litter, grass, and brush overstory).
Fair: 30 to 70% ground cover.
Good: > 70% ground cover.
3 Curve numbers for group A have been developed only for desert shrub.

Watershed Summary:

Subbasin ID	Land Cover	CN	Area (ac)	Weighted CN	Tc (min)
EX-1	Pinyon-Juniper	76.5	3.438	76.5	12.00
EX-2	Pinyon-Juniper	76.5	7.811	76.5	12.00
EX-3	Pinyon-Juniper	76.5	2.955	76.5	12.00
OFF-1	Pinyon-Juniper	76.5	3.308	76.5	12.10
OFF-2	Pinyon-Juniper	76.5	8.301	76.5	15.71
OFF-3	Pinyon-Juniper	76.5	29.864	76.5	23.28
PR-1	Impervious	98	1.294	91.65	10.00
	Residential (1/8 ac)	91	1.863		
	Open Space (fair)	81.5	0.690		
PR-2	Impervious	98	1.646	89.24	10.00
	Residential (1/8 ac)	91	1.027		
	Residential (1/4 ac)	85	1.895		
	Open Space (fair)	81.5	1.061		
PR-3	Impervious	98	0.146	86.94	10.00
	Residential (1/8 ac)	91	0.479		
	Residential (1/4 ac)	85	0.579		
	Open Space (fair)	81.5	0.449		
PR-4	Residential (1/4 ac)	85	1.247	82.52	10.00
	Open Space (fair)	81.5	3.020		

WOODSON
ENGINEERING & SURVEYING
124 N. Elden Street • Flagstaff, AZ 86001
(928) 774-4636 • www.woodsoneng.com

January 24, 2022

Tim Pettit
City of Williams
113 South 1st St
Williams, AZ 86046

Re: Cataract Creek Unit 1 and Unit 2 Preliminary Plats
Utility Impact Analysis
WE #122401

Dear Tim:

This is the Utility impact Analysis for the Cataract Creek Unit 1 and Unit 2 Preliminary Plat submittals within the City of Williams. Both projects are separate plats but are adjacent. Due to the close connection in water supply and wastewater collection, the utility analysis has been combined. The project site is adjacent to Airport Rd in Williams, AZ. The Cataract Creek Unit 1 Preliminary Plat includes 38 proposed townhome lots and Cataract Creek Unit 2 Preliminary Plat includes 18 Single Family Residential (R1-7) lots. The items listed below are probable impacts on the City of Williams system for the public water and sewer service to the site. This analysis is based on the Preliminary Plats dated 1/24/22.

WATER SYSTEM

1. Water Demand

Residential	Units	Zoning	Population	AVG Daily Unit (gpcpd)	AVG Daily Demand (gpd)	PEAK Daily Demand (gpd) (Peaking factor 3)
Townhomes	38	CR	2.5	100	9,500	28,500
Single Family	18	R1-7	3.5	120	7,560	22,680
TOTAL	56				17,060	51,180

2. Phase 1 Water Infrastructure and Impacts

a. *Offsite 10" Water Main Airport Road, approximately 2000 LF.*
Starting at the existing 10" water main near Ellen and Airport Road, Cataract Creek Unit 1 will extend the main north to the project and across the frontage within the Airport Road pavement. The proposed 10" Water main extension in Airport Road will provide the flow needed to supply the new development for both of the proposed subdivisions.

b. *Onsite: 8" Network in Public RW*
Hydraulic results (Attached) from the City of Williams Water Model indicate an available fire flow of 1,901 gpm (1000 gpm min SFR) at the proposed treatment plant in the southwest section of Cataract Creek Unit 2 with a residual pressure of 20 psi. The static pressures are 85 psi (40 psi min) at the highest point of Cataract Creek Unit 1 at J-775. The City system is adequate to provide service to the 56 Lots from the 10" Water Main extension in Airport Road.

WASTEWATER SYSTEM

1. Wastewater Generation

RESIDENTIAL	Units	Zoning	Population	AVG Daily Unit (gpcpd)	AVG Daily Flow (gpd)	PEAK Daily Flow (3.62 peak Factor) (gpd)
Townhomes	38	CR	2.5	80	7,600	27,512
Single Family	18	R1-7	3.5	80	5,040	18,245
TOTAL	56				12,640	45,757

2. Phase 1 Wastewater Infrastructure and Impacts

a. The City has indicated that the Cataract Creek Unit 1 and Unit 2 will be accepted at the Williams Wastewater Treatment Plant. A public gravity main will be constructed in Airport Road and in the West Cataract Creek floodplain to convey Unit 1 and Unit 2 to a lift station at Airport Road near the existing box culvert. The Lift station will be located within Tract F in Unit 2. That tract will be dedicated to include public utility rights.

b. A Utility Design report will be submitted with the construction plans with calculations for the sizing and capacity of the gravity collection system.

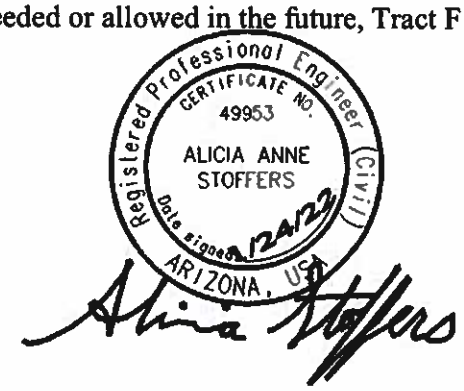
c. The City is studying the capacity and planning a wastewater plant expansion, but it may be several years before the construction will occur. This limits the additional future development of the surrounding area. Cataract Creek is reserving Tract F in Unit 2 for the possible future site of a private wastewater treatment facility at the end of Skeleton Point Road. This location is uniquely suited to collect the wastewater from the surrounding region due to topography. The collection system in Units 1 and 2 are designed to convey the future adjacent projects to that site if needed. Currently the lots that are served by that gravity line in Skeleton Point will connect to the gravity line in the West Cataract Creek floodplain and the lift station.

d. If the private wastewater plant is not needed or allowed in the future, Tract F will remain as open space.

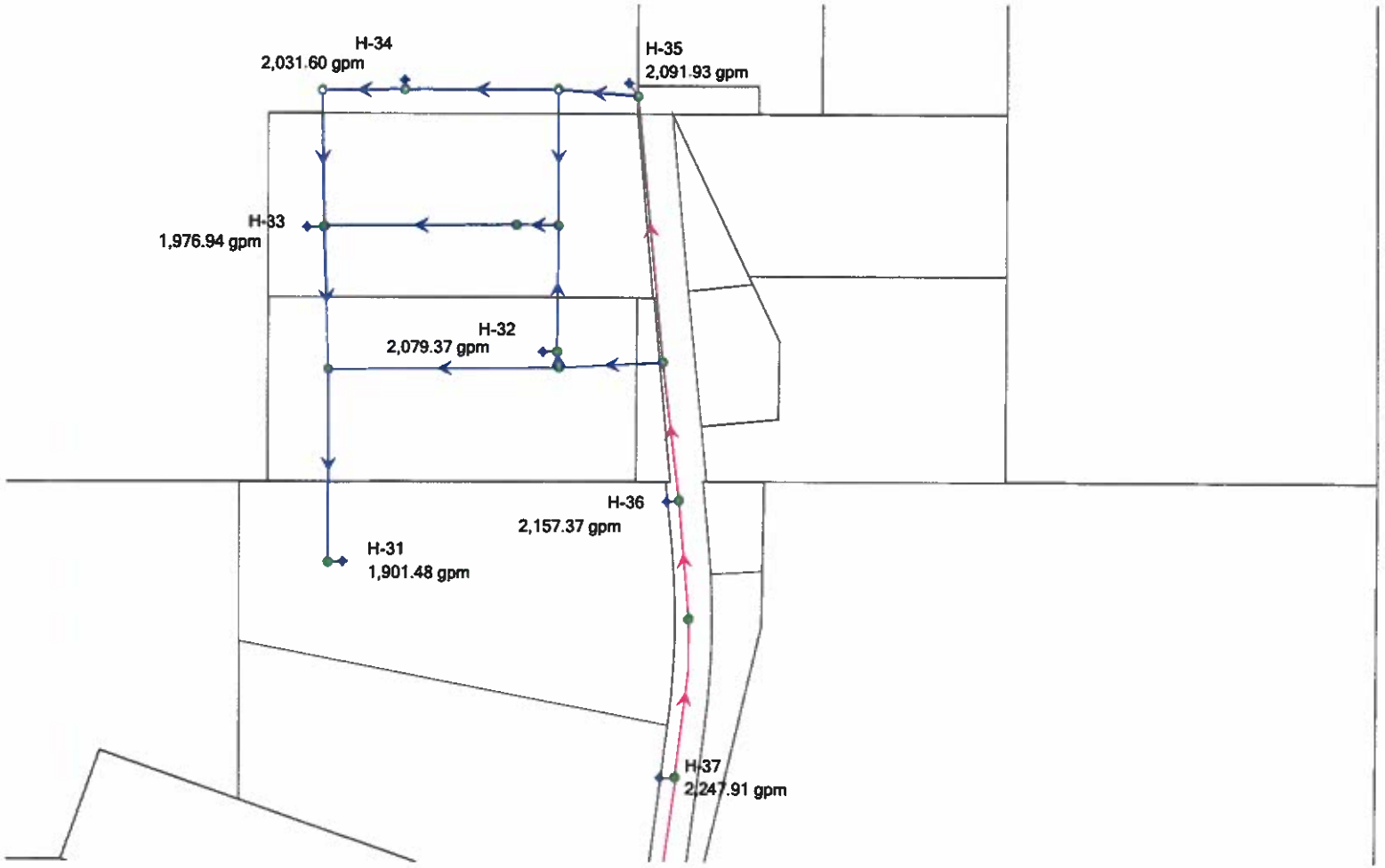
Sincerely,

WOODSON ENGINEERING

Alicia Stoffers, PE
Sr. Project Manager



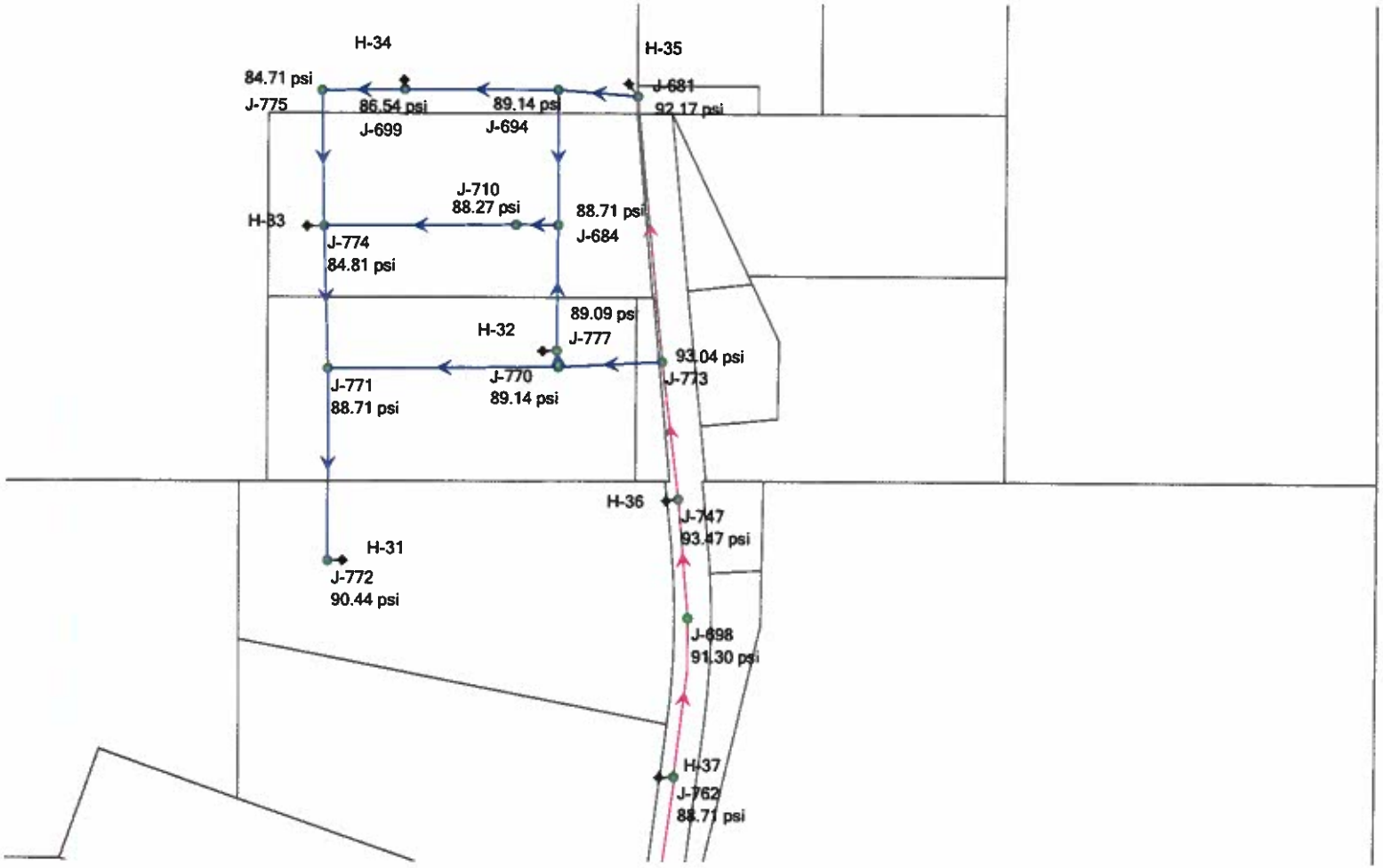
Scenario: Fire Flow



FlexTable: Hydrant Table

Label	Elevation (ft)	Fire Flow (Available) (gpm)	Pressure (Calculated Residual) (psi)	Junction w/ Minimum Pressure (Zone @ Total Flow Needed)
H-35	6,714.00	2,091.92	24.09	J-775
H-33	6,731.00	1,976.94	20.00	J-774
H-32	6,721.00	2,079.36	20.43	J-775
H-34	6,727.00	2,031.59	20.00	J-775
11830	6,722.00	2,247.94	21.10	J-775
H-36	6,711.00	2,157.37	26.55	J-775
H-31	6,718.00	1,901.47	20.00	H-33

Scenario: Base

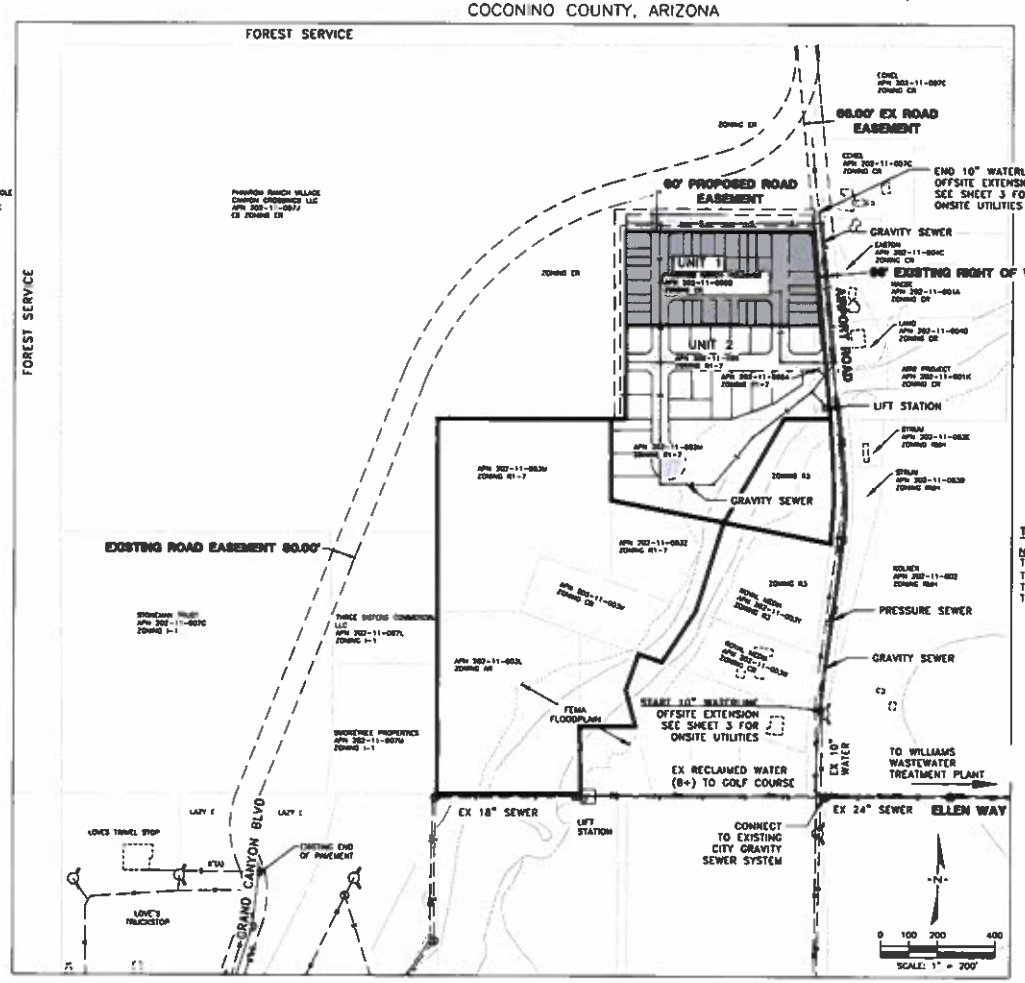


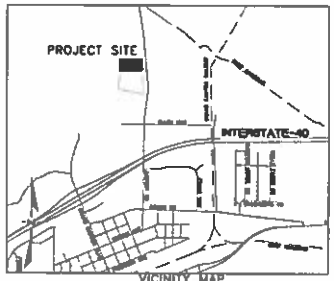
FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)
J-681	6,714.00	0.00	92.17
J-684	6,722.00	5.20	88.71
J-694	6,721.00	0.00	89.14
J-698	6,716.00	0.00	91.30
J-699	6,727.00	0.00	86.54
J-710	6,723.00	0.00	88.27
J-747	6,711.00	0.00	93.47
J-762	6,722.00	0.00	88.71
J-770	6,721.00	2.50	89.14
J-771	6,722.00	2.50	88.71
J-772	6,718.00	5.00	90.44
J-773	6,711.98	0.00	93.04
J-774	6,731.00	4.16	84.81
J-775	6,731.24	0.00	84.71
J-777	6,721.12	0.00	89.09

CATARACT CREEK UNIT 1
PRELIMINARY PLAT

A PROPOSED IMPROVEMENT IN THE SW CORNER OF SECTION 21, TOWNSHIP 22 NORTH, RANGE 2 EAST, GILA AND SALT RIVER BASE AND MERIDIAN, COCONINO COUNTY, ARIZONA





LEGEND

EXISTING PROPERTY LINE
EXISTING ROAD CENTERLINE
EXISTING EASEMENT
EXISTING MAJOR CONTOUR
EXISTING MINOR CONTOUR
EXISTING FLOWLINE
EXISTING WATER LINE
EXISTING SANITARY SEWER LINE
EXISTING STORM DRAIN
EXISTING GAS LINE
EXISTING OVERHEAD ELECTRIC LINE
EXISTING UNDERGROUND ELECTRIC LINE
EXISTING CABLE TV LINE
EXISTING TELEPHONE LINE
EXISTING FIBER OPTIC LINE
EXISTING BARBED WIRE FENCE
EXISTING CHAIN LINK FENCE
EXISTING WOOD FENCE
EXISTING WALL
EXISTING CONCRETE
EXISTING ASPHALT
EXISTING PAVEMENT
PROPOSED PROPERTY LINE
PROPOSED ROAD CENTERLINE
PROPOSED EASEMENT
PROPOSED MAJOR CONTOUR
PROPOSED MINOR CONTOUR
PROPOSED FLOWLINE
PROPOSED WATER LINE
PROPOSED SANITARY SEWER LINE
PROPOSED STORM DRAIN
EXISTING WATER VALVE
EXISTING WATER METER
EXISTING FIRE HYDRANT
EXISTING SANITARY SEWER MANHOLE
EXISTING STORM DRAIN MANHOLE
EXISTING GAS VALVE
EXISTING ELECTRIC METER
EXISTING MISCELLANEOUS MANHOLE
EXISTING UTILITY POLE
EXISTING GUY ANCHOR
EXISTING LIGHT POLE
EXISTING SIGN POST
EXISTING BOLLARD
FOUND SECTION CORNER AS NOTED
FOUND RIGHT-OF-WAY MONUMENT AS NOTED
FOUND REBAR AS NOTED
FOUND MONUMENT AS NOTED
FOUND PIPE AS NOTED
FOUND PANEL AS NOTED
FOUND NAIL AS NOTED
PROPOSED WATER VALVE
PROPOSED WATER METER
PROPOSED FIRE HYDRANT
PROPOSED SANITARY SEWER MANHOLE
PROPOSED STORM DRAIN MANHOLE
PROPOSED CATCH BASIN

PROJECT INFORMATION

PROPERTY ADDRESS	NONE ASSIGNED WEST OF AIRPORT ROAD, 0.5 MILES NORTH OF ELLEN
TOTAL ACREAGE	5.10 AC.
APN	202-11-005B
EXISTING ZONING:	COMMERCIAL RESIDENTIAL (CR)
EXISTING LAND USE	MULTI FAMILY (8-15 DU/ACRE) - WILLIAMS GENERAL PLAN 2013
PROPOSED LAND USE	TOWNHOMES 38 LOTS
GROSS DENSITY	38/5.10 = 7.45 DU/ACRE
NET DENSITY	38/(5.10-1.47 R/W) = 10.47 DU/ACRE

FLOOD NOTE

THE ENTIRE PROPERTY FALLS WITHIN FLOOD ZONE "X" (AREAS OF MINIMAL FLOODING) AS NOTED ON "FEMA" FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER: 04005C8338C AND 04005C8343C EFFECTIVE 9/3/2010.

DRAINAGE STATEMENT

SEE ATTACHED REPORT BY WOODSON ENGINEERING

TRACT DEDICATION

NAME	AREA (AC)	USE	DEDICATED TO
TRACT A	1.42	RIGHT OF WAY	CITY OF WILLIAMS
TRACT B	0.28	OPEN SPACE/UTILITIES	HOME OWNERS ASSOCIATION
TRACT C	0.15	OPEN SPACE	HOME OWNERS ASSOCIATION
TRACT D	0.05	RIGHT OF WAY	CITY OF WILLIAMS

Sheet List Table

Sheet Number	Sheet Title
1	COVER
2	PRELIMINARY PLAT
3	GRADING AND DRAINAGE
4	ONSITE UTILITY PLAN
5	BOUNDARY SURVEY

WOODSON
ENGINEERING & SURVEYING
124 N. ELDEN ST. FLAGSTAFF, AZ 86001
(928) 774-4636 WWW.WOODSONENG.COM

OWNER/DEVELOPER
CANYON CROSSING LLC
STEVE IVERSON
217 W ROUTE 66
WILLIAMS, AZ 86046
(928)978-4430

ENGINEER/SURVEYOR
WOODSON ENGINEERING AND SURVEYING, INC.
124 N. ELDEN ST.
FLAGSTAFF, AZ 86001
(928) 774-4636

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122401

1/24/22

CATARACT CREEK UNIT 1
PHANTOM RANCH HOLDINGS
PRELIMINARY PLAT

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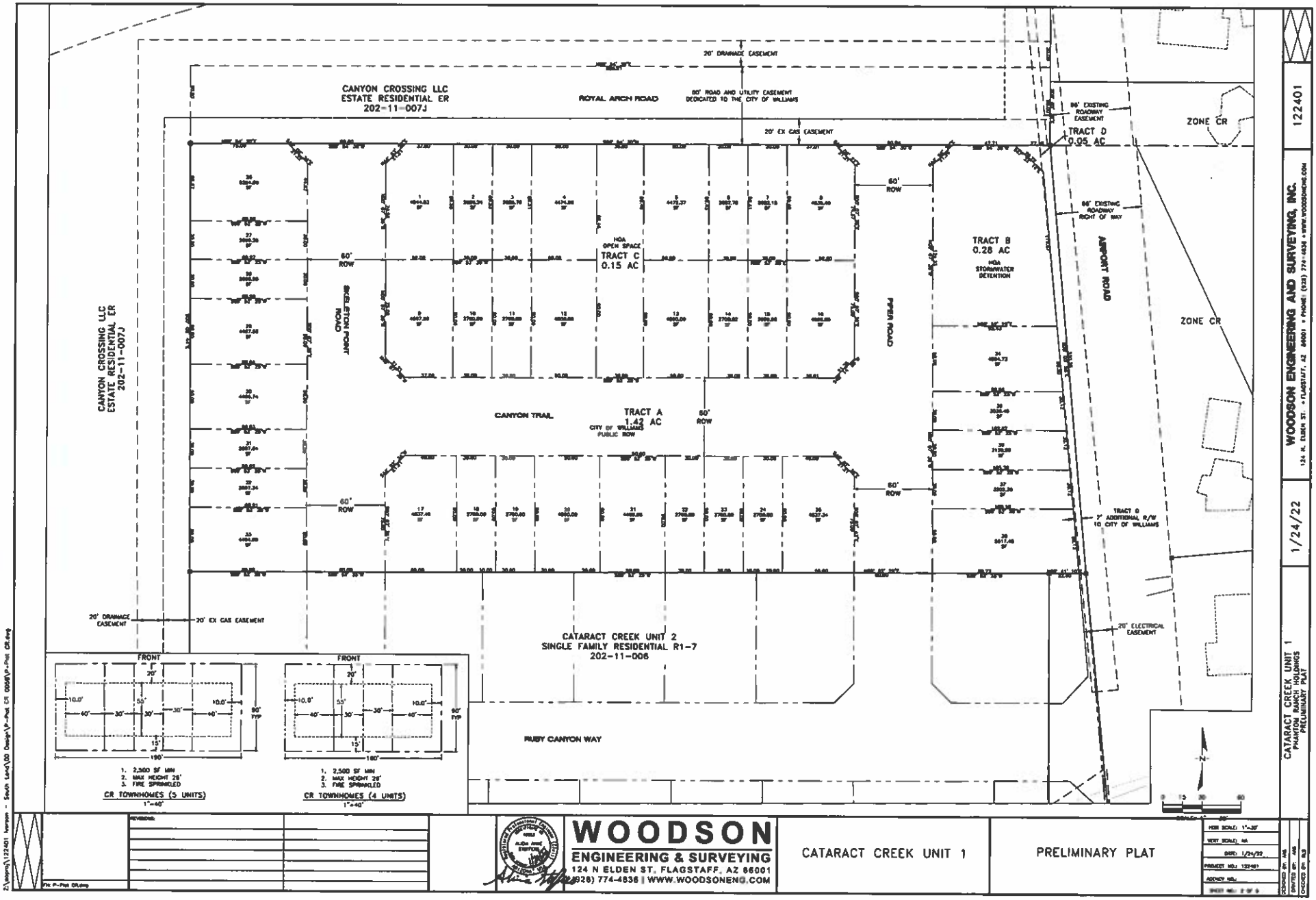

REVISIONS:	WOODSON ENGINEERING & SURVEYING 124 N ELDEN ST, FLAGSTAFF, AZ 86001 (928) 774-4836 | WWW.WOODSONENG.COM	CATARACT CREEK UNIT 1	PRELIMINARY PLAT	HOR SCALE: 1"=30' VERT SCALE: NA DATE: 1/24/22 PROJECT NO.: 122401 AGENCY NO.:

WOODSON ENGINEERING AND SURVEYING, INC.
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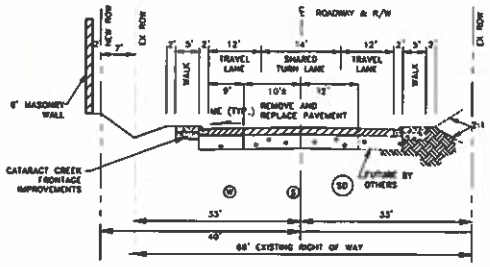
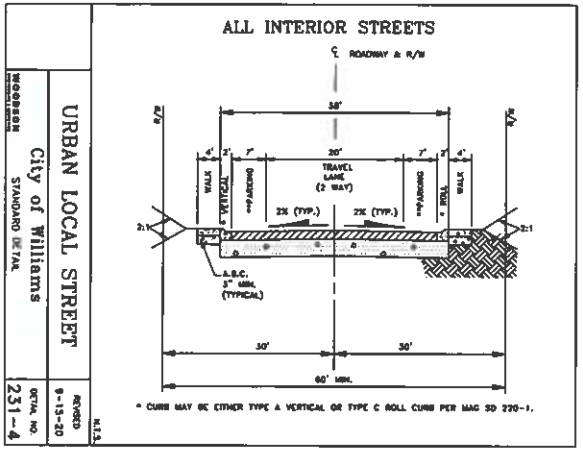
122401

1/24/22

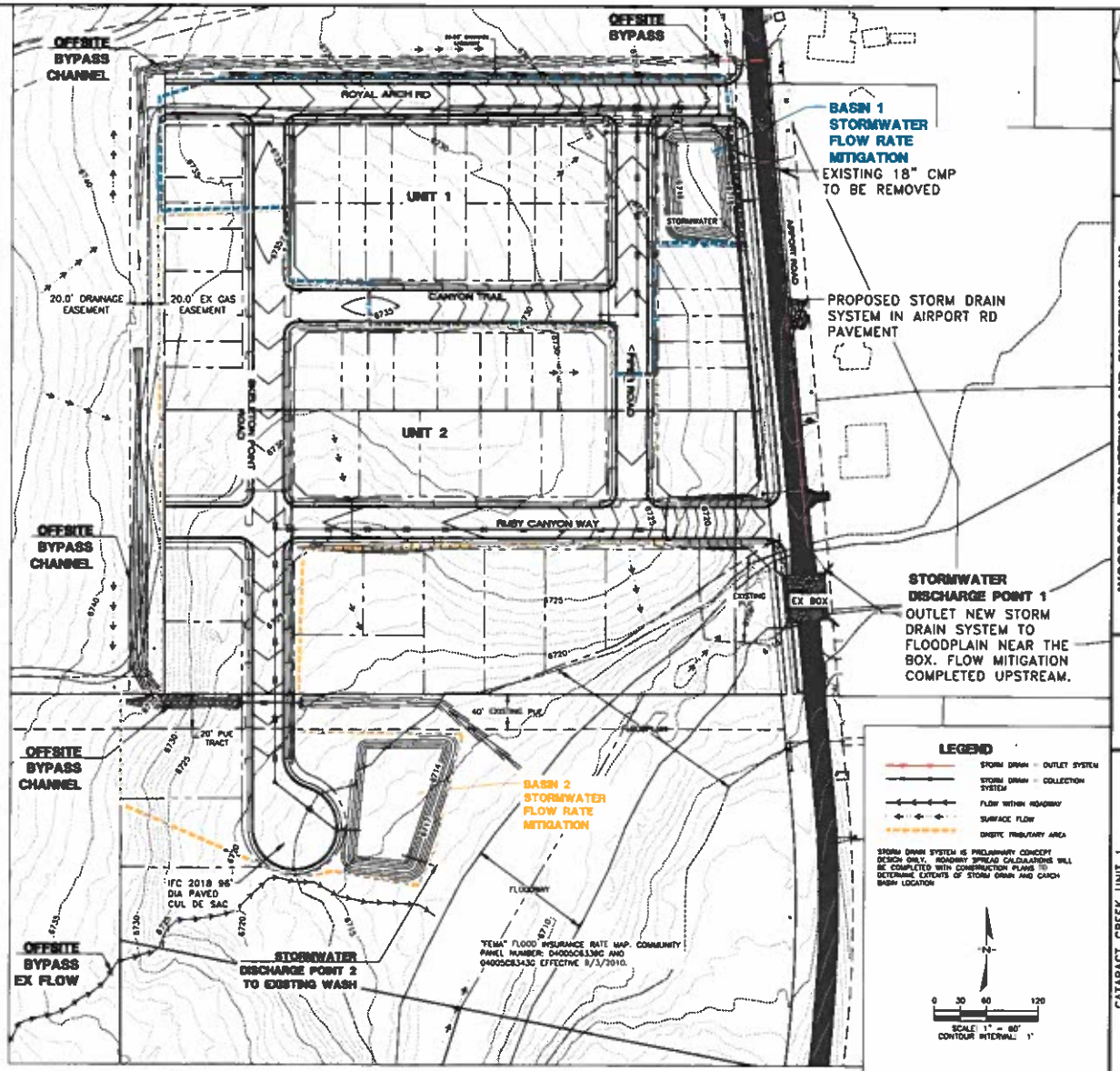
CATARACT CREEK UNIT 1
PHANTOM RANCH HOLDINGS
PRELIMINARY PLAT



PROPOSED AIRPORT ROAD SECTION
NOT TO SCALE



WOODSON STANDARD DETAIL	URBAN LOCAL STREET	
	City of Williams	REVISED 9-15-20
	DETAIL NO. 231-4	



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122401

1/24/22

CATARACT CREEK UNIT 1
PHANTOM RANCH HOLDINGS
PRELIMINARY PLAT

WOODSON ENGINEERING & SURVEYING	CATARACT CREEK UNIT 1	PRELIMINARY PLAT GRADING AND DRAINAGE
124 N ELDEN ST. FLAGSTAFF, AZ 86001 (928) 774-4636 | WWW.WOODSONENG.COM		

HOR. SCALE: 1"=60'
VERT. SCALE: NA
DATE: 1/24/22
PROJECT NO.: 122401
AGENCY NO.:
SHEET NO.: 3 OF 5
DESIGNED BY: MB
DRAWN BY: MB
CHECKED BY: RLS

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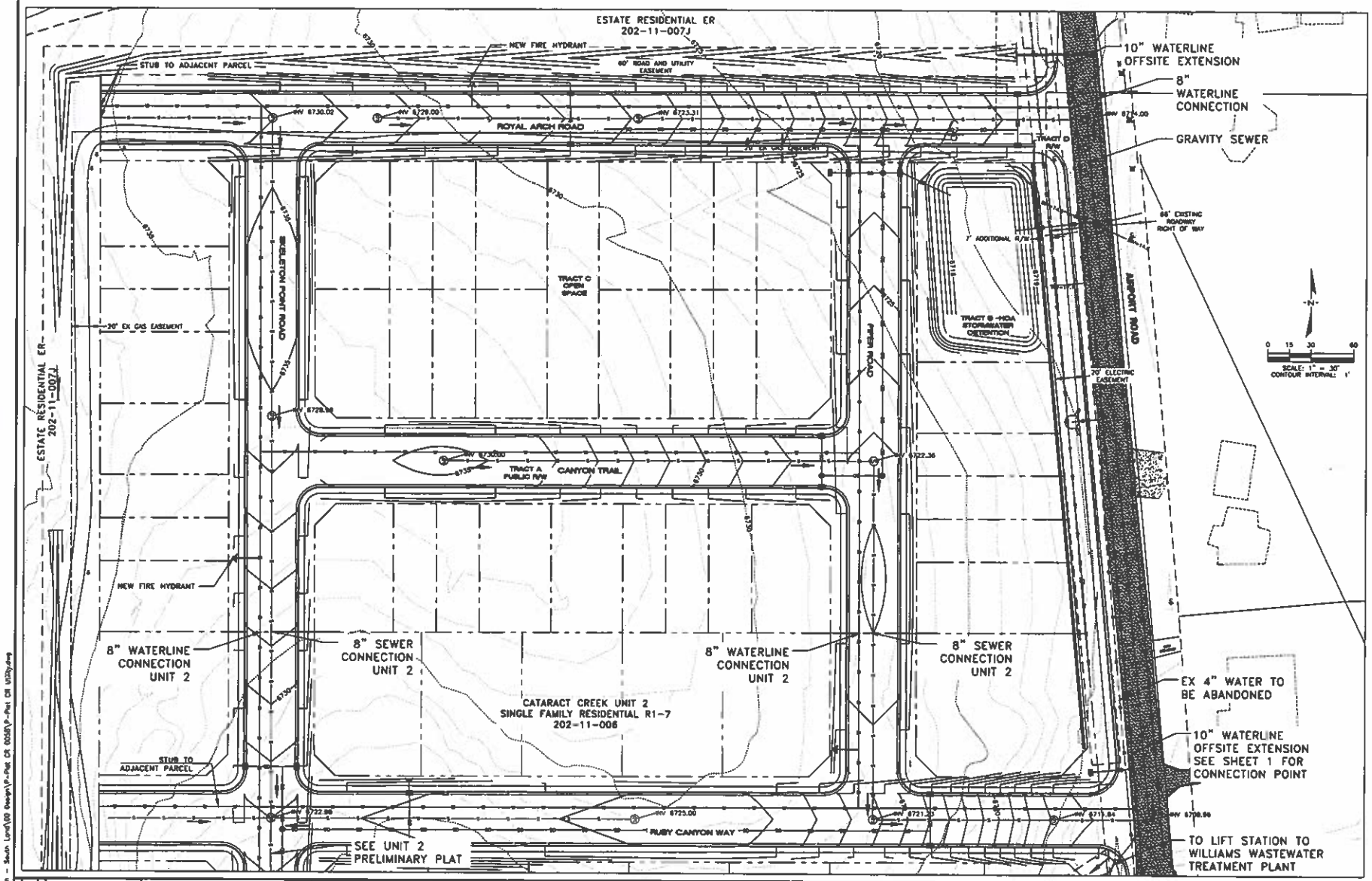

CATARACT CREEK UNIT 1
PHANTOM RANCH HOLDINGS
PRELIMINARY PLAT

1/24/22

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CATARACT CREEK UNIT 1

PRELIMINARY PLAT
ONSITE UTILITY PLAN

HOR SCALE: 1"=30'
VERT SCALE: NA
DATE: 1/24/22
PROJECT NO.: 122401
AGENCY NO.:
SHEET NO.: 4 OF 5

DESIGNED BY: MB
DRAFTED BY: MB
CHECKED BY: RJS

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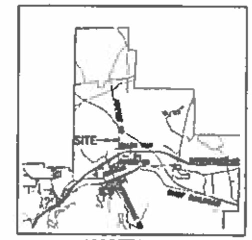
BOUNDARY and TOPOGRAPHICAL SURVEY

PORTION OF SECTION 21, TOWNSHIP 22 NORTH, RANGE 2 EAST,
GILA AND SALT RIVER MERIDIAN,
CITY OF WILLIAMS, COCONINO COUNTY, ARIZONA



SCALE: 1" = 30'
CONTOUR INTERVAL = 1'

SURVEY CONTROL NOTES

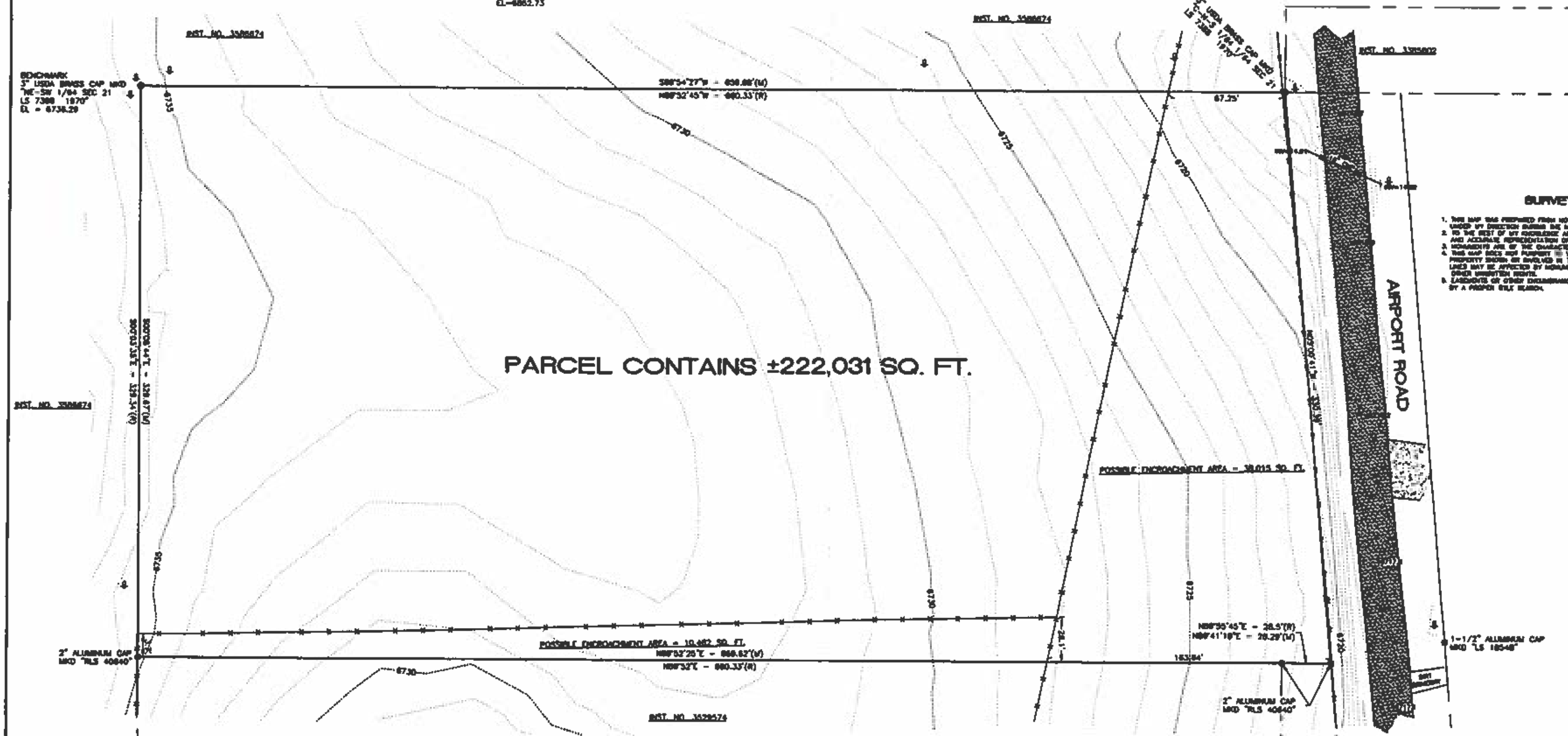
FIELD MEASUREMENTS USED TO PREPARE THIS MAP WERE MADE IN MAY, 2018.

BASIS OF BEARINGS: GEODETIC NORTH DERIVED FROM GPS OBSERVATIONS. THE LABELED BEARING BETWEEN ANY TWO POINTS SHOWN HEREON MAY BE USED AS A BASIS OF BEARINGS.

BASIS OF ELEVATIONS: NAVD 88

GPS OBSERVATIONS MADE UTILIZING:

NGS CONTROL POINT "A 341" – PID FR0147
±670' EAST OF W ¼ COR SEC 26 N=1548084.15
E= 628115.48
EL=6862.73



SURVEY NOTES

1. THIS MAP WAS PREPARED FROM NOTES OF A FIELD SURVEY PERFORMED UNDER MY DIRECTION DURING THE MONTH OF
2. TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS A COMPLETE AND ACCURATE REPRESENTATION OF SAID SURVEY.
3. MONUMENTS ARE OF THE CHARACTER AND OCCUPY THE POSITIONS SHOWN.
4. THIS MAP DOES NOT PURPORT TO VERIFY THE OWNERSHIP OF ANY PROPERTY SHOWN OR INVOLVED IN THIS SURVEY. ACTUAL OWNERSHIP LINES MAY BE AFFECTED BY MONUMENTS, LINES OF OCCUPATION, AND OTHER UNWRITTEN RIGHTS.
5. EASEMENTS OR OTHER ENCUMBRANCES OF RECORD SHOULD BE DETERMINED BY A PROPER TITLE SEARCH.

LEGEND

CONCRETE, EXISTING
ASPHALT, EXISTING
OVERHEAD ELECTRIC LINE, EXISTING
BARBED WIRE FENCE, EXISTING
GAS MARKER POST, EXISTING
UTILITY POLE, EXISTING
SECTION CORNER AS NOTED
FOUND MONUMENT AS NOTED
(M) MEASURED DATA
(R) RECORD DATA

DOCUMENTS CONSULTED

INST. NO. 3808503
INST. NO. 3588674
INST. NO. 3529574
INST. NO. 3385602

EXPIRES 12-31-2020

SHEET 1 OF 1

BOUNDARY AND TOPOGRAPHICAL SURVEY

118402

WOODSON ENGINEERING AND SURVEYING INC.
124 N. ELDEN ST. • FLAGSTAFF, AZ 86001 • PHONE: (928) 774-4636 FAX: (928) 774-4646

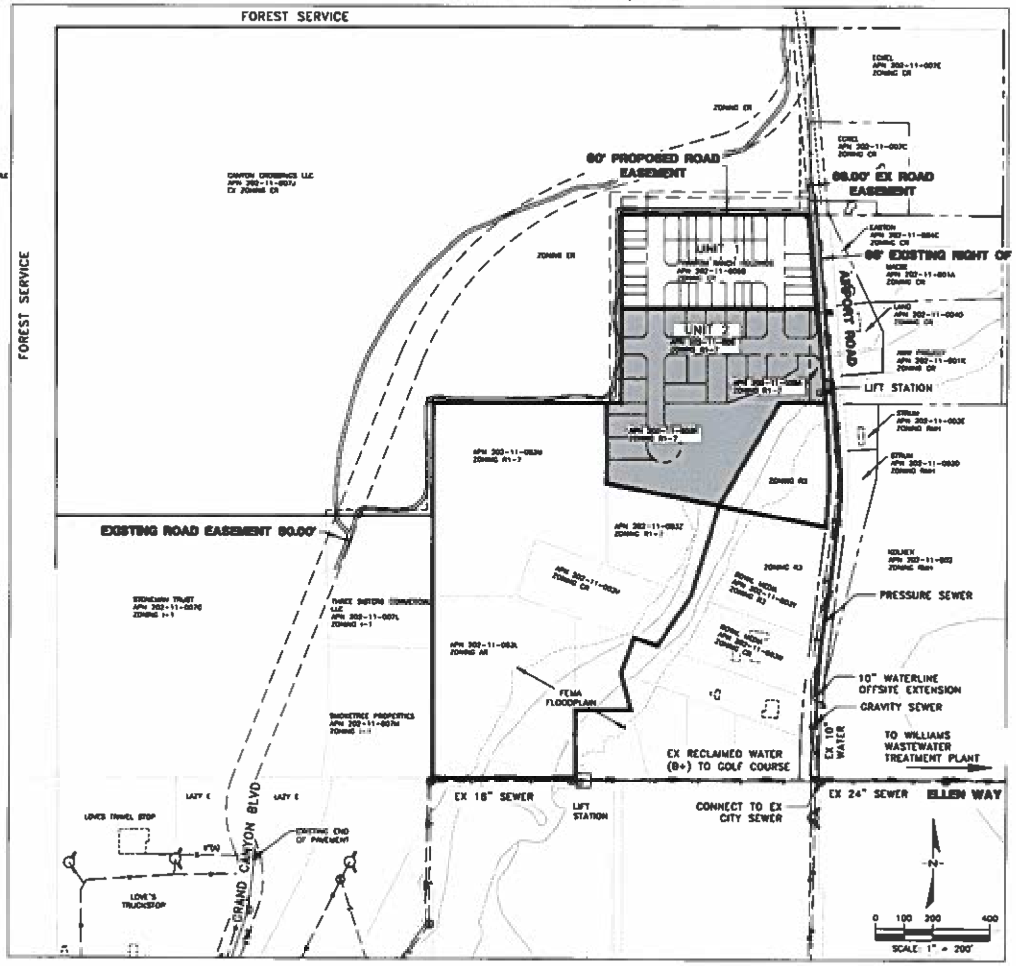
5-8-2018

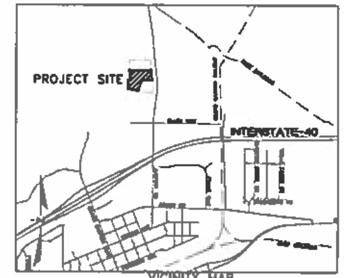
CATARACT CREEK UNIT 2
PRELIMINARY PLAT

A PROPOSED IMPROVEMENT IN THE SW CORNER OF SECTION 21, TOWNSHIP 22 NORTH, RANGE 2 EAST, GILA AND SALT RIVER BASE AND MERIDIAN, COCONINO COUNTY, ARIZONA

LEGEND

- EXISTING PROPERTY LINE
- EXISTING ROAD CENTERLINE
- EXISTING EASEMENT
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING FLOWLINE
- EXISTING WATER LINE
- EXISTING SANITARY SEWER LINE
- EXISTING STORM DRAIN
- EXISTING GAS LINE
- EXISTING OVERHEAD ELECTRIC LINE
- EXISTING UNDERGROUND ELECTRIC LINE
- EXISTING CABLE TV LINE
- EXISTING TELEPHONE LINE
- EXISTING FIBER OPTIC LINE
- EXISTING BARBED WIRE FENCE
- EXISTING CHAIN LINK FENCE
- EXISTING WOOD FENCE
- EXISTING WALL
- EXISTING CONCRETE
- EXISTING STRUCTURE
- EXISTING PAVEMENT
- PROPOSED PROPERTY LINE
- PROPOSED ROAD CENTERLINE
- PROPOSED EASEMENT
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED FLOWLINE
- PROPOSED WATER LINE
- PROPOSED SANITARY SEWER LINE
- PROPOSED STORM DRAIN
- EXISTING WATER VALVE
- EXISTING WATER METER
- EXISTING FIRE HYDRANT
- EXISTING SANITARY SEWER MANHOLE
- EXISTING STORM DRAIN MANHOLE
- EXISTING GAS VALVE
- EXISTING GAS METER
- EXISTING ELECTRIC METER
- EXISTING MISCELLANEOUS MANHOLE
- EXISTING UTILITY POLE
- EXISTING GUY ANCHOR
- EXISTING LIGHT POLE
- EXISTING SIGN POST
- EXISTING BOLLARD
- FOUND SECTION CORNER AS NOTED
- FOUND RIGHT-OF-WAY MONUMENT AS NOTED
- FOUND REBAR AS NOTED
- FOUND MONUMENT AS NOTED
- FOUND PIPE AS NOTED
- FOUND PANEL AS NOTED
- FOUND NAIL AS NOTED
- PROPOSED WATER VALVE
- PROPOSED WATER METER
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM DRAIN MANHOLE
- PROPOSED CATCH BASIN





VICINITY MAP
NOT TO SCALE

PROJECT INFORMATION

PROPERTY ADDRESS	NONE ASSIGNED WEST OF AIRPORT ROAD, 0.5 MILES NORTH OF ELLEN
TOTAL ACREAGE	9.15 AC
APN	202-11-006 (5.0 AC) 202-11-003H (3.81) 202-11-005A (0.34 AC)
EXISTING ZONING:	SINGLE FAMILY RESIDENTIAL (R1-7) (3-5 DU/ACRE)
EXISTING LAND USE	MULTI FAMILY AND MIXED USE WILLIAMS GENERAL PLAN 2013
PROPOSED LAND USE	18 LOTS SINGLE FAMILY RESIDENTIAL
GROSS DENSITY	18/9.15 = 1.97 DU/ACRE
NET DENSITY	18/(9.15-1.94 RW) = 2.50 DU/ACRE

FLOOD NOTE

A PORTION OF THE PROPERTY FALLS WITHIN FLOOD ZONE "X" (AREAS OF MINIMAL FLOODING) AND ZONE "AE" AS NOTED ON "FEMA" FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NUMBER: 04005C6339G AND 04005C6343G EFFECTIVE 9/3/2010.

DRAINAGE STATEMENT

SEE ATTACHED PRELIMINARY DRAINAGE REPORT BY WOODSON ENGINEERING

TRACT DEDICATION

NAME	AREA	USE	DEDICATED TO
TRACT E	1.94 AC	RIGHT OF WAY	CITY OF WILLIAMS
TRACT F	3.38 AC	OPEN SPACE UTILITIES FLOODPLAIN	HOME OWNERS ASSOCIATION
TRACT G	0.13 AC	UTILITIES	HOME OWNERS ASSOCIATION

Sheet List Table	
Sheet Number	Sheet Title
1	COVER
2	PRELIMINARY PLAT
3	GRADING AND DRAINAGE
4	ONSITE UTILITY PLAN
5	BOUNDARY SURVEY

WOODSON
ENGINEERING & SURVEYING
124 N. ELDEN ST. FLAGSTAFF, AZ 86001
(928) 774-4636 WWW.WOODSONENG.COM

OWNER/DEVELOPER
PHANTOM RANCH DEVELOPMENT LLC
STEVE IVERSON
217 W ROUTE 66
WILLIAMS, AZ 86046
(928)978-4450

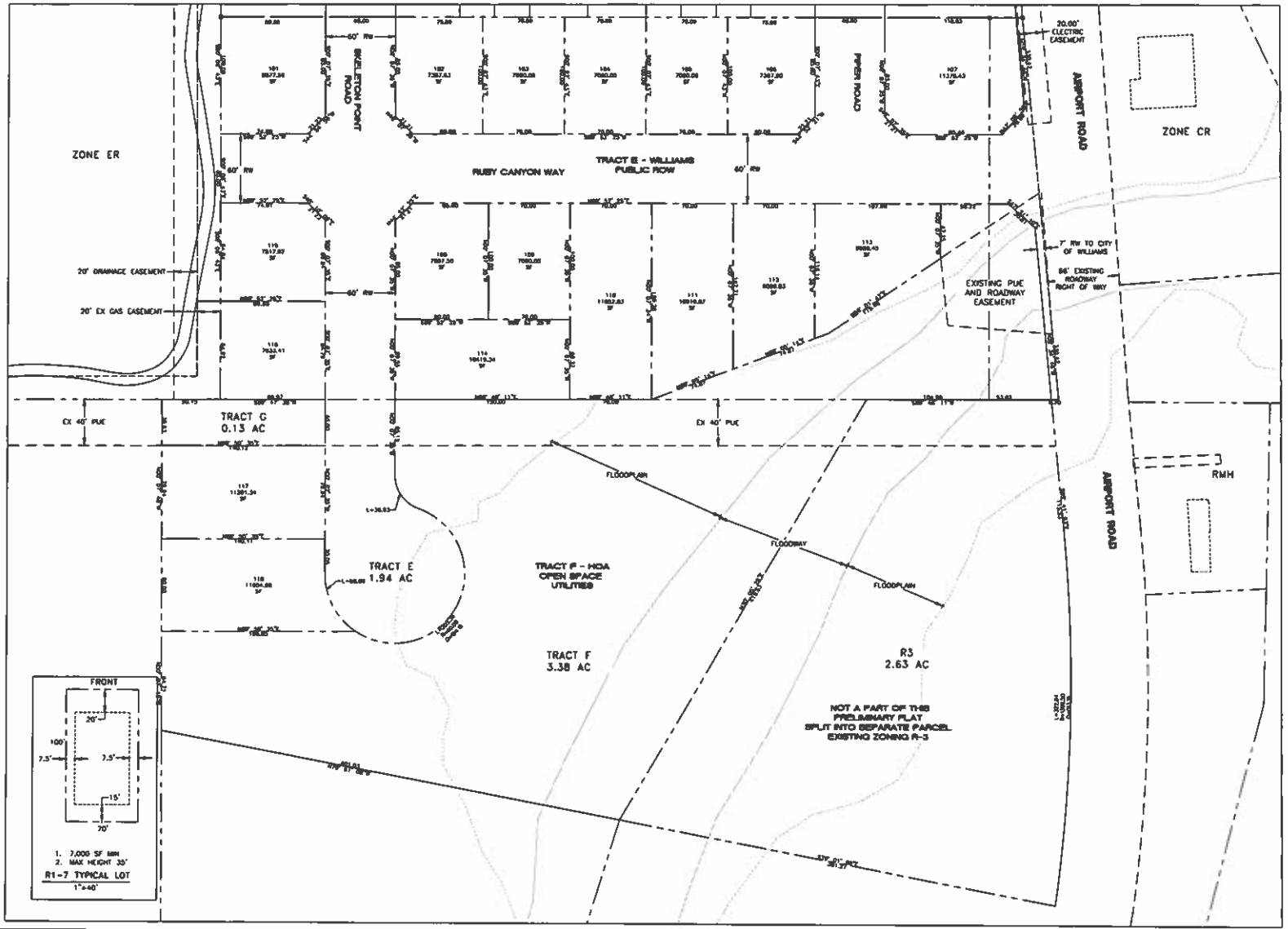
ENGINEER/SURVEYOR
WOODSON ENGINEERING AND SURVEYING, INC.
124 N. ELDEN ST.
FLAGSTAFF, AZ 86001
(928) 774-4636

122401

WOODSON ENGINEERING AND SURVEYING, INC.
124 N. ELDEN ST. • FLAGSTAFF, AZ 86001 • PHONE: (928) 774-4636 • WWW.WOODSONENG.COM

1/24/22

CATARACT CREEK UNIT 2
PHANTOM RANCH DEVELOPMENT LLC
PRELIMINARY PLAT



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1/24/22

CATARACT CREEK UNIT 2
PHANTOM RANCH DEVELOPMENT LLC
PRELIMINARY PLAT

REVISIONS

WOODSON
ENGINEERING & SURVEYING
124 N ELDEN ST, FLAGSTAFF, AZ 86001
(928) 774-4636 | WWW.WOODSONENG.COM

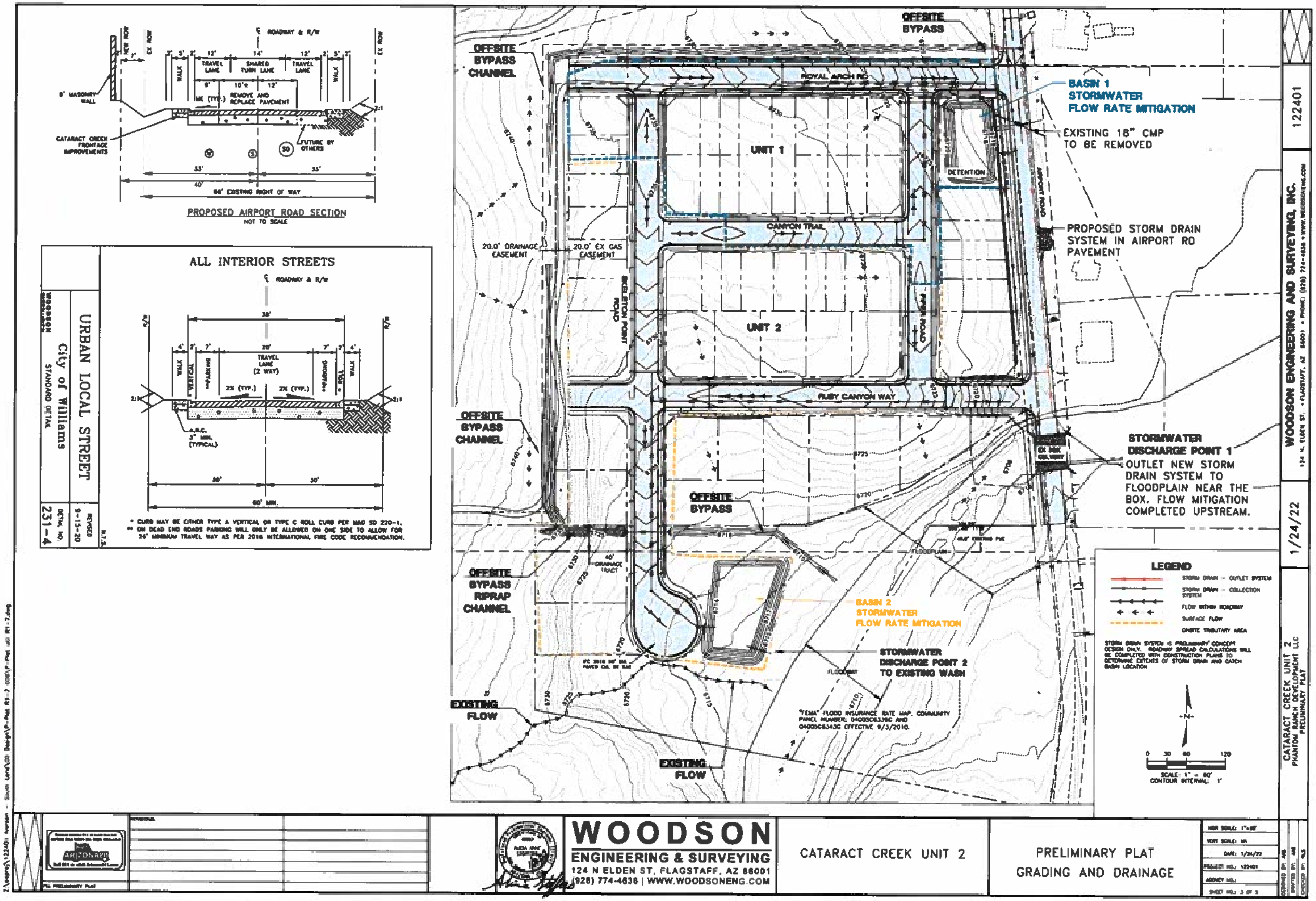
CATARACT CREEK UNIT 2

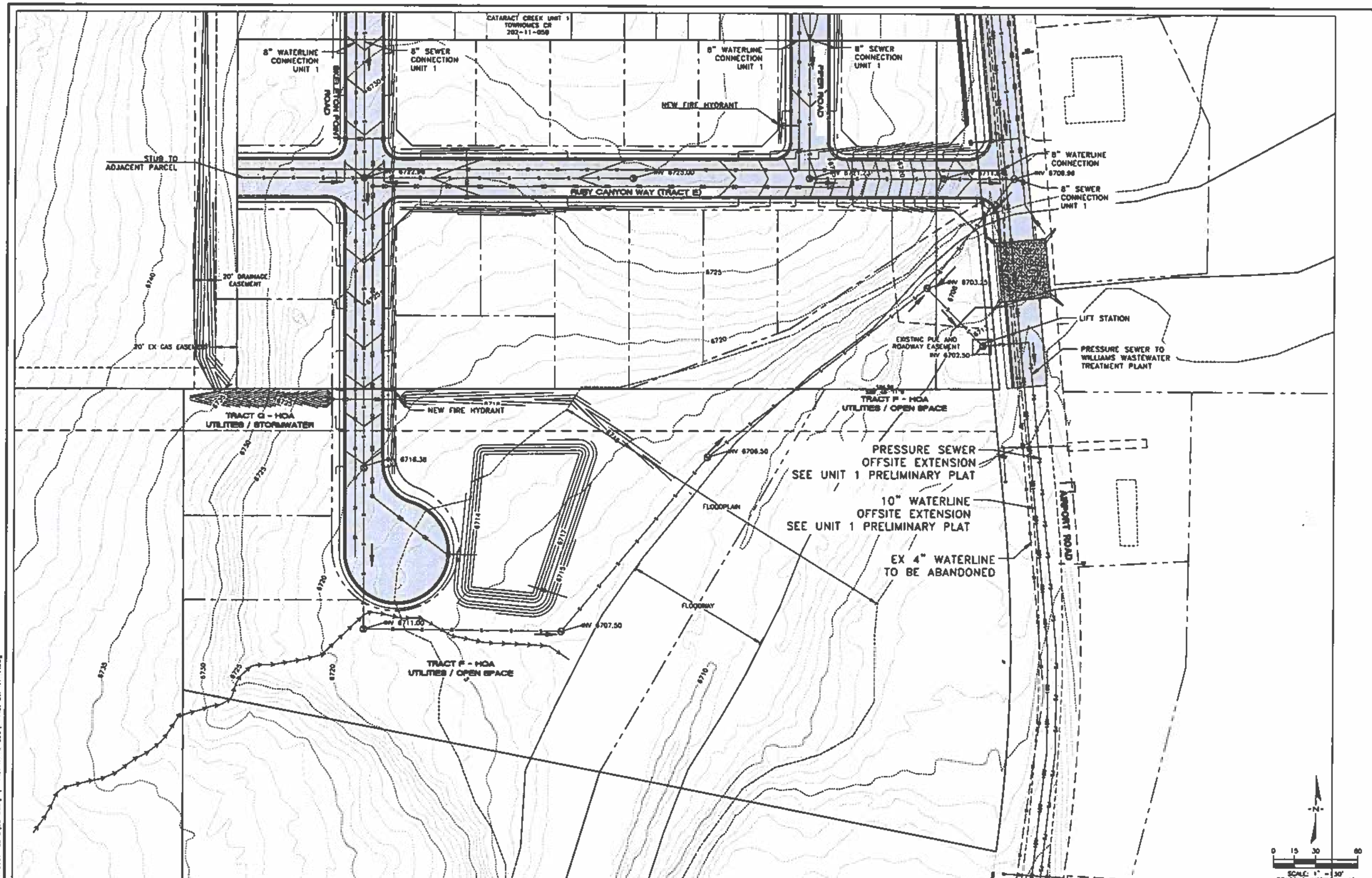
PRELIMINARY PLAT

HOR. SCALE: 1"=40'
VERT. SCALE: NA
DATE: 1/24/22
PROJECT NO.: 122401
AGENCY NO.:
SHEET NO.: 3 OF 5

DESIGNED BY: MB
DRAWN BY: MB
CHECKED BY: RLS

Z:\Projects\122401 Ivanpah - South Land\00 Design\P-Plat R1-7 DOS\P-Plat01-7.dwg


PROPOSED AIRPORT ROAD SECTION
NOT TO SCALE
ALL INTERIOR STREETS
URBAN LOCAL STREET
City of Williams
STANDARD DETAIL
REVISED 9-15-20
DETAIL NO. 231-4
OFFSITE BYPASS CHANNEL
OFFSITE BYPASS
ROYAL ARCH RD
UNIT 1
UNIT 2
CANYON TRAIL
SKELETON POINT ROAD
PIPER ROAD
RUBY CANYON WAY
AIRPORT ROAD
DETENTION
20.0' DRAINAGE EASEMENT
20.0' EX GAS EASEMENT
BASIN 1
STORMWATER
FLOW RATE MITIGATION
EXISTING 18" CMP
TO BE REMOVED
PROPOSED STORM DRAIN
SYSTEM IN AIRPORT RD
PAVEMENT
STORMWATER
DISCHARGE POINT 1
OUTLET NEW STORM
DRAIN SYSTEM TO
FLOODPLAIN NEAR THE
BOX. FLOW MITIGATION
COMPLETED UPSTREAM.
OFFSITE BYPASS RIPRAP CHANNEL
BASIN 2
STORMWATER
FLOW RATE MITIGATION
STORMWATER
DISCHARGE POINT 2
TO EXISTING WASH
EXISTING FLOW
LEGEND
SCALE: 1" = 60'
CONTOUR INTERVAL: 1'
WOODSON
ENGINEERING & SURVEYING
124 N ELDEN ST, FLAGSTAFF, AZ 86001
(928) 774-4636 | WWW.WOODSONENG.COM
CATARACT CREEK UNIT 2
PRELIMINARY PLAT
GRADING AND DRAINAGE
WOODSON ENGINEERING AND SURVEYING, INC.
1/24/22
122401
CATARACT CREEK UNIT 2
PHANTOM RANCH DEVELOPMENT LLC
PRELIMINARY PLAT



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CATARACT CREEK UNIT 2

PRELIMINARY PLAT
ONSITE UTILITY PLAN

HOR SCALE: 1"=30'
VERT SCALE: NA
DATE: 1/24/22
PROJECT NO.: 122401
SHEET NO.: 4 OF 5

CATARACT CREEK UNIT 2
PHANTOM RANCH DEVELOPMENT LLC
PRELIMINARY PLAT

1/24/22

WOODSON ENGINEERING AND SURVEYING, INC.
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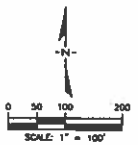
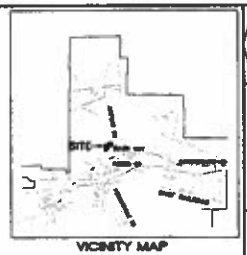
122401

RECORD OF SURVEY

PORTION OF SECTION 21, TOWNSHIP 22 NORTH, RANGE 2 EAST,
GILA AND SALT RIVER MERIDIAN, CITY OF WILLIAMS, COCONINO COUNTY, ARIZONA,
CONTAINING 33.71 ACRES





VICINITY MAP
WILLIAMS, ARIZONA (NOT TO SCALE)

SURVEY CONTROL NOTES

FIELD MEASUREMENTS USED TO PREPARE THIS MAP WERE MADE IN JANUARY, 2022.

BASIS OF BEARINGS: GEODETIC NORTH DERIVED FROM GPS OBSERVATIONS. THE LABELED BEARING BETWEEN ANY TWO POINTS SHOWN HEREON MAY BE USED AS A BASIS OF BEARINGS.

LINE TABLE		
LINE NO.	BEARING	LENGTH
L1(M)	N89° 46' 29"E	46.75'
L1(R)	N89° 47' 20"E	50.00'
L2(M)	N89° 46' 10"E	53.62'
L2(R)	N89° 46' 25"E	53.62'
L3(M)	S00° 41' 03"E	115.53'
L3(R)	S00° 40' 31"E	115.53'
L4(M)	N70° 36' 52"W	86.02'
L4(R)	N70° 36' 52"W	86.02'
L5(M)	S19° 22' 45"W	134.15'
L5(R)	S19° 22' 30"W	134.31'
L6(M)	S14° 44' 08"E	134.40'
L6(R)	S14° 48' 07"E	134.47'
L7(M)	N89° 41' 10"E	28.28'
L7(R)	N89° 05'E	30.6'
L8(M)	S05° 34' 46"E	330.42'
L8(R)	S05° 16'"E	330.6'
L9(M)	S89° 29' 31"W	8.20'
L10(M)	N00° 08' 15"W	328.93'
L10(R)	N00° 03'E	328.5'

LEGEND

- SECTION CORNER AS NOTED
- FOUND RIGHT-OF-WAY MONUMENT AS NOTED
- FOUND REBAR AS NOTED
- FOUND MONUMENT AS NOTED
- FOUND PIPE AS NOTED
- FOUND 1/2" REBAR WITH CAP MARKED "LS 14630 RLS 18215"
- FOUND NAIL AS NOTED

SURVEY NOTES

1. THIS MAP WAS PREPARED FROM NOTES OF A FIELD SURVEY PERFORMED UNDER MY DIRECTION DURING THE MONTH OF
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5. EASEMENTS OR OTHER ENCUMBRANCES OF RECORD SHOULD BE DETERMINED BY A PROPER TITLE SEARCH.
6. ON THE DATE THIS DRAWING WAS CREATED THE COCONINO COUNTY RECORDERS OFFICE INDICATED THAT THE OWNER WAS WILLIAMS GREEN INVESTORS LP.

122401	
WOODSON ENGINEERING AND SURVEYING, INC.	124 N. ELDEN ST. • FLAGSTAFF, AZ 86001 • PHONE: (928) 774-4638 • WWW.WOODSONENG.COM
1-15-2022	
RECORD OF SURVEY	

SHEET 1 OF 1