SIERRA SKIES RV RESORT
SPECIAL USE PERMIT
APPLICATION

Prepared by:

RUBICON Design Group

LUMOS & ASSOCIATES

October 20, 2016

SIERRA SKIES RV RESORT
SPECIAL USE PERMIT

Prepared for:

Roger Shaheen
3427 Goni Road, #109
Carson City, NV 89706
775-883-3040

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October 20, 2016

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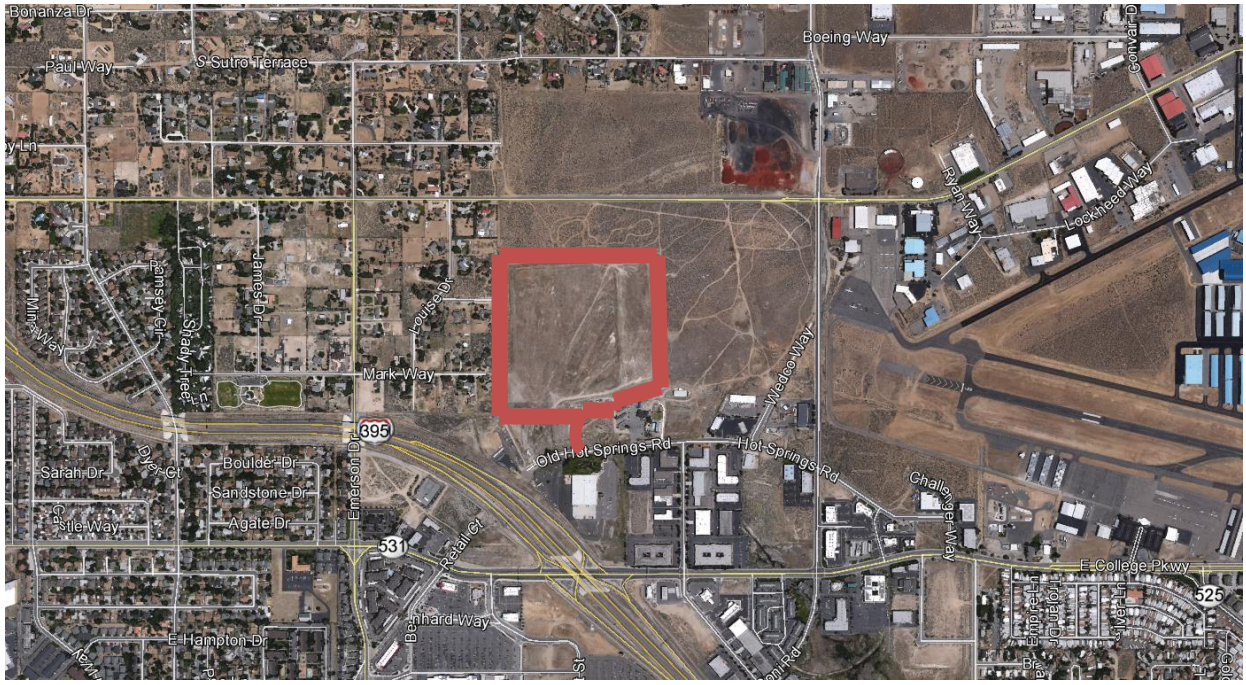
Introduction

This application includes the following request:

- A **Special Use Permit** to allow stays of up to 180 days (an increase from 30 days allowed by zoning) at 1400 Old Hot Springs Road, generally located north of Old Hot Springs Road and east of Louise Drive.

Project Location

The project site (APN 008-123-40) consists of 38.61 acres located north of Old Hot Springs Road, east of Louise Drive, south of Arrowhead Drive and west of Goni Road. Figure 1 (below) depicts the project location.



The project site is located adjacent to several different zoning designations, including PR (Public Regional) to the north (vacant), PC (Public Community) to the east (vacant), TC (Tourist Commercial) to the south (the Carson Hot Springs Resort and vacant), and SF1A (Single-Family Residential 1 Acre) to the west (single family residential). The proposed property is zoned TC (Tourist Commercial) and currently consists of vacant land.

Figure 2 (below) depicts the existing site conditions.

Looking North

Looking East

Looking South

Looking West

Figure 2 – Existing Conditions

Project Summary

The proposed RV Resort will consist of 215 RV parking areas, clubhouse, pool, and assorted amenities located to the northwest of the existing Carson Hot Springs Resort with primary access from Old Hot Springs Road. The project site is currently zoned TC (Tourist Commercial), which allows for the

development of up to 30-day stay RV parks by right. However, per Section 18.04.140 of the Carson City Municipal Code, RV parks allowing stays of up to 180 days require the approval of a Special Use Permit (SUP). Therefore, because the proposed RV Resort will provide spaces which will be available for up to 180 days, a Special Use Permit is required.

As part of this project, several amenities will be provided. An approximately 10,000 square foot clubhouse will be located at the main entrance of the resort. Behind the clubhouse will be a large pool and a walking trail connecting the clubhouse/pool with the rear of the property. Also near the front entrance are a putting green and two one-story buildings, one (3,500 square feet) containing an office, store, and fitness center and the other (1,500 square feet) containing a manager residence. Another 5,000 square foot building will house a restaurant/casino. Two accessory buildings housing showers, restrooms, and laundry facilities will be located on both sides of the property, along with trash enclosure collection areas. Barbecues and fire pits are scattered throughout the property, along with several pet areas.

The project is adjacent to existing single-family residences along the western property line. To mitigate any issues that may result from the development of an RV resort, the site has been designed with a buffer between the two uses. A fence or wall is proposed along the western property line itself. Along with this, a combination walking trail and landscape area will be located between the property line and RV parking spaces to be a minimum of 20 feet wide.

The overall project is proposed to be developed in three phases. The first phase will consist of the central portion of the site, including the clubhouse, pool, office, manager's office, and approximately 70 RV spaces. Phase two is the development of the western side of the property, and Phase 3 consists of the eastern portion of the property.

There will be a total of 374 parking spaces. Included in this count are the RV spaces and scattered parking throughout the site, including adjacent to the manager's residence, clubhouse, restaurant/casino, and check-in area.

The main access to the RV resort will be from Old Hot Springs Drive, with a secondary emergency access from Holly Way near the northwest corner of the site. Street improvements to Old Hot Springs Road, while needed at some point in the future, are not being required by the city at this time.

Landscaping will be provided to city standards and landscape plans will be submitted prior to the development of the site.

Figure 3 (below) depicts the site plan developed for the RV Resort.

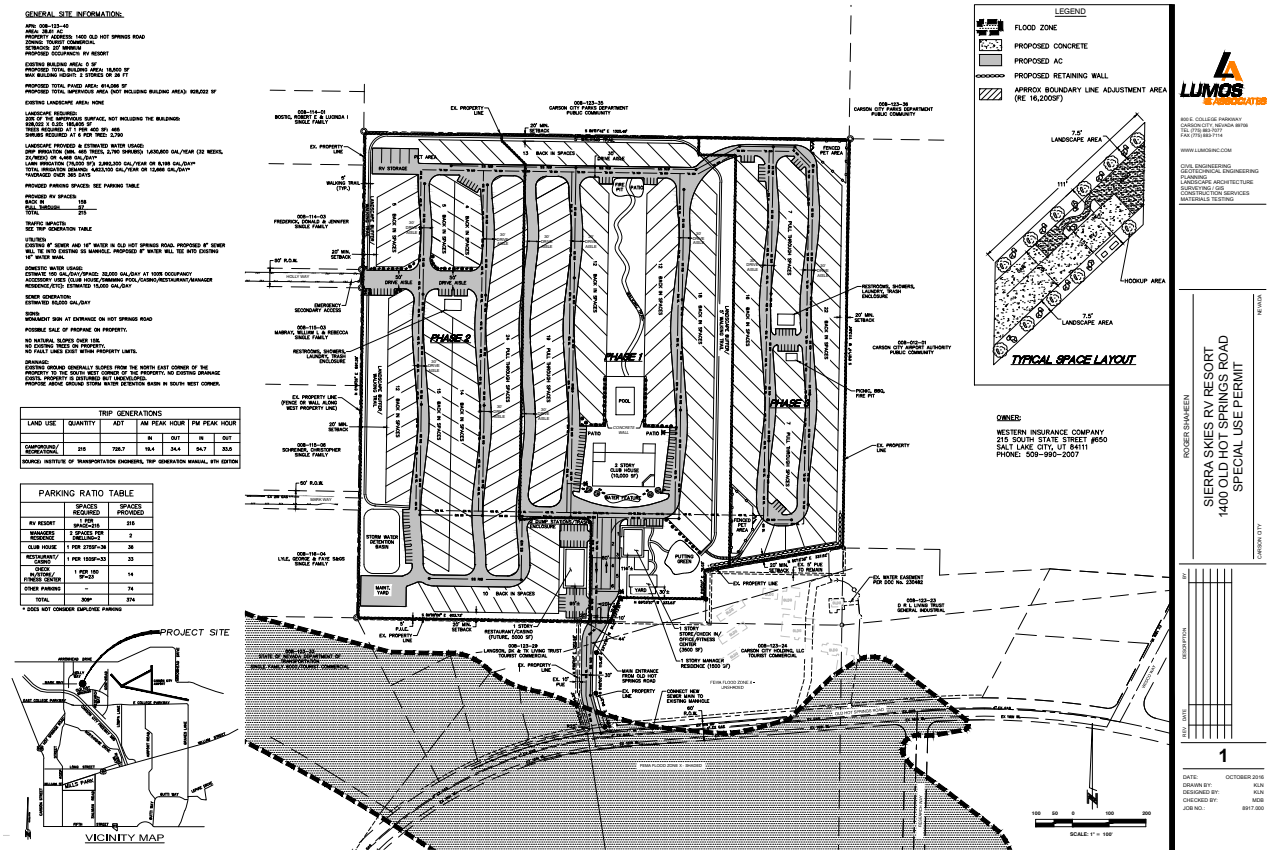


Figure 3 –Site Plan

The exact design of the clubhouse building and other accessory structures has not yet been finalized. However, the applicant has provided photographs of buildings found at other RV resorts to serve as a representation of what other luxury resort facilities look like such as the one proposed. Figure 4 (below) depicts these typical elevations.


DURANGO
RV RESORT
100

Figure 4 – Typical Elevations
(Durango RV Resort, Red Bluff, CA)

Major Project Review

This project was submitted for a Major Project Review earlier this year, with comments being received on April 29, 2016. Since that review, the following changes have been made to the site plan:

- Addition of property line lengths and bearings
- Setback distance changed to 20 feet in the notes and labeled along the property lines
- The maximum building height of 2 stories/26 feet added to notes
- Trash storage locations labeled
- Owner information added
- Distances from property lines to structures added
- Ponds removed from the north side of the pool and from near the putting green at the front of the property
- Recreation areas removed from the west side of the property near the existing residences
- Address and APN updated to reflect recorded lot line adjustment
- Fencing/wall included on west property line adjacent to single-family residential

Master Plan Policy Checklist

Consistent with Carson City Special Use Permit application requirements, this section is taken directly from Carson City documents and forms part of the application process. Responses to the checklist questions are included in this section and are printed in **bold type**.

PURPOSE
The purpose of a development checklist is to provide a list of questions that address whether a development proposal is in conformance with the goals and objectives of the 2006 Carson City Master

Plan that are related to Special Use Permits. This checklist is designed for developers, staff, and decision-makers and is intended to be used as a guide only.

DEVELOPMENT CHECKLIST

The following five themes are those themes that appear in the Carson City Master Plan and which reflect the community's vision at a broad policy level. Each theme looks at how a proposed development can help achieve the goals of the Carson City Master Plan. A check mark indicates that the proposed development meets the applicable Master Plan policy. The Policy Number is indicated at the end of each policy statement summary. Refer to the Comprehensive Master Plan for complete policy language.

CHAPTER 3: A BALANCED LAND USE PATTERN

The Carson City Master Plan seeks to establish a balance of land uses within the community by providing employment opportunities, a diverse choice of housing, recreational opportunities, and retail services.

Is or does the proposed development:

✓ Meet the provisions of the Growth Management Ordinance (1.1d, Municipal Code 18.12)?

The proposed project does not include any permanent residential component. The proposed RV Resort will be connected to the city water and sewer system, but will have a limited impact due to the variable occupancy of the resort.

✓ Encourage the use of sustainable building materials and construction techniques to promote water and energy conservation (1.1e and f)?

Final building design is still in process. However, it makes sense to use modern materials that reduce energy use as it saves money over the life of the project. Landscaping will be designed to reduce water use. These details will be defined in greater depth during the Building Permit phase of the project.

☐ Located in a priority infill development area (1.2a)?

The project site is not in a priority infill area but it is an infill project.

☐ Provide pathway connections and easements consistent with the adopted Unified Pathways Master Plan and maintain access to adjacent public lands (1.4a)?

The property to the north of the project is owned by the Cason City Parks Department which should, when developed, include pathways usable by the visitors of this RV resort. The project itself does provide for a walking trail around the property for the enjoyment of the visitors. However, there is no access proposed between these two properties.

☐ Protect existing site features including mature trees and other character-defining features (1.4c)?

There are no trees or character-defining features currently located on the project site.

☐ At adjacent county boundaries, coordinated with adjacent existing or planned development with regards to compatibility, access, and amenities (1.5a)?

The site is not located along a county boundary.

☐ In identified Mixed-Use areas, promote mixed-use development patterns as appropriate for the surrounding context consistent with the land use descriptions of the applicable Mixed-Use designation, and meet the intent of the Mixed-Use Evaluation Criteria (2.1b, 2.2b, 2.3b, Land Use Districts, Appendix C)?

The site is not within an identified mixed-use area.

✓ Meet adopted standards for transitions between non-residential and residential zoning districts (2.1d)?

The project includes a minimum 20-foot combination landscape buffer and walking trail along the west side of the property adjacent to existing single-family residential units.

☐ Protect environmentally sensitive areas through proper setbacks, dedication, or other mechanisms (3.1b)?

There are no environmentally sensitive areas on the site.

✓ Site outside the primary floodplain and away from geologic hazard areas or follow the required setbacks or other mitigation measures (3.3d, e)?

The majority of the site is outside the primary floodplain with the exception of the very southern end of the access road at Old Hot Springs Road. No buildings are proposed in that area. There are no known geologic hazards present. FEMA identifies the developed portion of the site as Low Risk (unshaded X) flood zone.

✓ Provide for levels of services (i.e. water, sewer, road improvements, sidewalks, etc) consistent with the Land Use designation and adequate for the proposed development (Land Use table descriptions)?

The site will be served by all utilities and city services. No decrease in service is to be expected.

☐ If located within an identified Specific Plan Area (SPA), meet the applicable policies of that SPA (Land Use Map, Chapter 8)?

The site is not within a Specific Plan Area.

CHAPTER 4: EQUITABLE DISTRIBUTION OF RECREATIONAL OPPORTUNITIES

The Carson City Master Plan seeks to continue providing a diverse range of park and recreational opportunities to include facilities and programming for all ages and varying interests to serve both existing and future neighborhoods.

Is or does the proposed developnent:

✓ Provide park facilities commensurate with the demand created and consistent with the City's adopted standards (4.1b)?

The project will provide a variety of outdoor space and recreational amenities on the site which will be open to guests only. This includes a clubhouse, pool, walking trail, and putting green. Due to these amenities, there will be an insignificant impact on City facilities.

☐ Consistent with the Open Space Master Plan and Carson River Master Plan (4.3a)?

The project does not affect overall public open space and has no impact on the River Master Plan.

CHAPTER 5: ECONOMIC VITALITY

The Carson City Master Plan seeks to maintain its strong diversified economic base by promoting principles which focus on retaining and enhancing the strong employment base, include a broader range of retail services in targeted areas, and include the roles of technology, tourism, recreational amenities, and other economic strengths vital to a successful community.

Is or does the proposed development:

☐ Encourage a citywide housing mix consistent with the labor force and non-labor force populations (5.1j)

This project does not provide any permanent additional housing.

☐ Encourage the development of regional retail centers (5.2a)

This project does not include any retail but it does support existing retail operations by locating potential customers close to businesses.

☐ Encourage reuse or redevelopment of underused retail spaces (5.2b)?

By adding potential customers close to existing businesses, this project should be seen as encouraging local retail.

✓ Support heritage tourism activities, particularly those associated with historic resources, cultural institutions and the State Capitol (5.4a)?

Due to its location adjacent to Carson Hot Springs, there is potential for this project to support visitors of the neighboring hot springs facility.

☐ Promote revitalization of the Downtown core (5.6a)?

By locating this project within the existing City boundary it could be argued that it encourages greater use of nearby retail, including downtown businesses. However, it will have little direct impact on specific revitalization efforts.

☐ Incorporate additional housing in and around the Downtown, including lofts, condominiums, duplexes, live-work units (5.6c)?

This project does not provide any permanent additional housing.

CHAPTER 6: LIVABLE NEIGHBORHOODS AND ACTIVITY CENTERS

The Carson City Master Plan seeks to promote safe, attractive and diverse neighborhoods, compact mixed-use activity centers, and a vibrant, pedestrian-friendly Downtown.

Is or does the proposed development:

✓ Use durable, long-lasting building materials (6.1a)?

The project appearance will be an improvement over the surrounding area and will utilize durable materials that are suitable for the northern Nevada climate.

✓ Promote variety and visual interest through the incorporation of varied building styles and colors, garage orientation and other features (6.1b)?

The project will provide new buildings with articulation, interesting architectural features, and contemporary colors.

✓ Promote variety and visual interest through the incorporation of well-articulated building facades, clearly identified entrances and pedestrian connections, landscaping and other features consistent with the Development Standards (6.1c)?

The included typical elevation exhibits show that the proposed buildings are articulated and provide visual appeal. Pedestrian pathways and entrances will be obvious and well-marked. Overall site landscaping will be provided.

✓ Provide appropriate height, density and setback transitions and connectivity to surrounding development to ensure compatibility with surrounding development for infill projects or adjacent to existing rural neighborhoods (6.2a, 9.3b 9.4a)?

The project will be complementary to surrounding development in terms of height, density, and setbacks. A buffer is provided between uses and will therefore be compatible.

☐ If located in an identified Mixed-Use Activity Center area, contain the appropriate mix, size and density of land uses consistent with the Mixed-Use district policies (7.1a, b)?

The project is not in a mixed-use activity center.

☐ If located Downtown:

o Integrate an appropriate mix and density of uses (8.1a, e)?

The project is not located downtown.

o Include buildings at the appropriate scale for the applicable Downtown Character Area (8.1b)?

The project is not located downtown.

o Incorporate appropriate public spaces, plazas and other amenities (8.1d)?

The project is not located downtown.

☐ Incorporate a mix of housing models and densities appropriate for the project location and size (9.1a)?

This project does not provide any permanent additional housing.

CHAPTER 7: A CONNECTED CITY

The Carson City Master Plan seeks to promote a sense of community by linking its many neighborhoods, employment areas, activity centers, parks, recreational amenities and schools with an extensive system of interconnected roadways, multi-use pathways, bicycle facilities, and sidewalks.

Is or does the proposed amendment:

✓ Promote transit-supportive development patterns (e.g. mixed-use, pedestrian-oriented, higher density) along major travel corridors to facilitate future transit (11.2b)?

The project is located along existing streets and is close to major arterials. The site is therefore suitable

for accessing public transit and for pedestrian travel.

✓ Maintain and enhance roadway connections and networks consistent with the Transportation Master Plan (11.2c)?

The project is accessed by the existing roadway network and provides development close to major arterial roadways.

☐ Provide appropriate pathways through the development and to surrounding lands, including parks and public lands, consistent with the Unified Pathways Master Plan and the proposed use and density (12.1a, c)?

While the project does include walking trails within the site, there are no connectors to off-site trails. Therefore, there will be no impact to local trails or pathways.

Special Use Permit Application Questionnaire (Findings)

The following questions form a portion of the SUP application and are considered the legal findings for approving a Special Use Permit. These questions replicate, and in some cases expand on, the findings listed in Carson City Municipal Code *Section 18.02.080 Special Use Permit Findings*

Responses to these questions are addressed in **bold face** type:

Question 1. How will the proposed development further and be in keeping with, and not contrary to, the goals of the Master Plan Elements?

This project directly supports the Master Plan by providing a buffer between adjacent uses, by adding potential customers close to existing commercial development and roadways, and by being an infill project.

Question 2. Will the effect of the proposed development be detrimental to the immediate vicinity? To the general neighborhood?

The project will not be a detriment to the immediate vicinity or general neighborhood in that there are buffers built into the project to minimize impacts.

A. Surrounding zoning includes: PR (Public Regional) to the north, PC (Public Community) to the east, TC (Tourist Commercial) to the south, and SF1A (Single-Family Residential 1 Acre) to the west.

B. The project architecture will be an upgrade to what is currently found in the general area. The project includes amenities and upgrades that will make the overall site more appealing both to residents and to neighbors.

C. This project will not be detrimental to the enjoyment or development of surrounding property in that it will not change any use patterns in the neighborhood. Parking will be contained on site and the new clubhouse will add to the overall appeal of the property.

D. Streets in the area are sized for this type of use and so can accommodate this project with ease. The included traffic letter makes clear that there are no expected impacts from the moderate traffic increase. This traffic letter was developed through consultation with City staff, including Planning, Public Works, Transportation, and Engineering.

The site is already served by city services, including emergency vehicles. It is therefore already part of planned response times. Emergency services provision does not present any unusual problems.

E. Benefits from the project include additional tourism money, infrastructure-efficient infill, and additional customers to surrounding businesses.

Question 3. Has sufficient consideration been exercised by the applicant in adapting the project to existing improvements in the vicinity?

In general, the project is entirely adapted to existing improvements in that it utilizes the existing: zoning, roadways, and driveways. No major site changes are required.

A. The project will not generate new students in the area. Any new development has the ability to impacts the Sheriff's department but there is nothing in this project that would cause an abnormal impact. Developing the site could have a positive impact in that improved lighting and landscaping that discourages illicit activity can be installed.

B. Limited site grading will be needed with this project. However, the new buildings will require additional drainage mitigation. The project design has been developed through discussion with city Engineering staff.

C. The site will be served by the public water system and there are no known service delivery problems in the area. The project team met with City staff, through the major project review process, and no service delivery problems were identified.

D. The site will be connected to the area sewage system. Similar to water service, the project team met with City staff to discuss sewer needs. An existing gravity sewer main in Old Hot Springs Road will be extended to the site as part of the project development.

E. No road improvements are required. Any impacts from an increase in traffic will be mitigated by the signal light planned to be installed at Research Way and College Parkway.

F. The project team includes a licensed civil engineer. Input has been provided by City staff.

G. Lighting will be the minimum required to provide site security. It will not be allowed to shine directly onto adjoining property, through the use of modern cut-off light fixtures.

H. The site will be developed with perimeter landscaping that will remain in place with this project. A landscape plan, showing upgrades to the site, will be submitted prior to project development.

I. Parking for the proposed use can be contained on the site. With the project, a total of 374 off-street parking spaces is provided. The site plan shows the location and dimensions of these spaces.

Appendix A

Carson City Special Use Permit Application

Carson City Planning Division
108 E. Proctor Street · Carson City NV 89701
Phone: (775) 887-2180 • E-mail: planning@carson.org

FILE # SUP – 16 -

APPLICANT	PHONE #
Roger Shaheen	775-883-3040

MAILING ADDRESS, CITY, STATE, ZIP
3427 Goni Road #109, Carson City, NV 89706

EMAIL ADDRESS
rlsfoxwood@gmail.com

PROPERTY OWNER	PHONE #
Western Insurance Company	509-990-2007

MAILING ADDRESS, CITY, STATE, ZIP
215 S. State St. #650, Salt Lake City, UT 84111

EMAIL ADDRESS
tzinkgraf@stillmanconsulting.com

APPLICANT AGENT/REPRESENTATIVE	PHONE #
Lumos & Associates	775-883-7077

MAILING ADRESS, CITY STATE, ZIP
(Kristin Tokheim) 800 E. College Parkway, Carson City NV 89706

EMAIL ADDRESS
ktokheim@lumosinc.com

FOR OFFICE USE ONLY:

CCMC 18.02

SPECIAL USE PERMIT

FEE: $2,450.00 MAJOR
$2,200.00 MINOR (Residential zoning districts)
+ noticing fee

SUBMITTAL PACKET

- ☐ 8 Completed Application Packets (1 Original + 7 Copies) including:
- ☐ Application Form
- ☐ Written Project Description
- ☐ Site Plan
- ☐ Building Elevation Drawings and Floor Plans
- ☐ Proposal Questionnaire With Both Questions and Answers Given
- ☐ Applicant's Acknowledgment Statement
- ☐ Documentation of Taxes Paid-to-Date (1 copy)
- ☐ Project Impact Reports (Engineering) (4 copies)
- ☐ CD containing application digital data (to be submitted once the application is deemed complete by staff)

Application Reviewed and Received By:

Submittal Deadline: See attached PC application submittal schedule.
Note: Submittals must be of sufficient clarity and detail such that all departments are able to determine if they can support the request. Additional Information may be required.

Project's Assessor Parcel Number(s):	Street Address ZIP Code
008-123-40	1400 Old Hot Springs Road, 89706

Project's Master Plan Designation	Project's Current Zoning	Nearest Major Cross Street(s)
Community/Regional Commercial	TC (Tourist Commercial)	Research Way

Briefly describe your proposed project: (Use additional sheets or attachments if necessary). In addition to the brief description of your project and proposed use, provide additional page(s) to show a more detailed summary of your project and proposal. In accordance with Carson City Municipal Code (CCMC) Section: 18.02.080, or Development Standards, Division 04, Section 140, a request to allow as a conditional use is as follows:

Request to allow for an extended-stay (up to 180-days) for the Sierra Skies RV Resort planned at 1400 Old Hot Springs Road.

PROPERTY OWNER'S AFFIDAVIT

I, Len Stillman, being duly deposed, do hereby affirm that I am the record owner of the subject property, and that I have knowledge of, and I agree to the filing of this application.

Signature _____ Address 215 S State #650 Salt Lake City UT 84111 Date 10/14/16

Use additional page(s) if necessary for other names.

STATE OF ~~NEVADA~~ Utah)
COUNTY Salt Lake)

On October 14, 2016, Len Stillman, personally appeared before me, a notary public, personally known (or proved) to me to be the person whose name is subscribed to the foregoing document and who acknowledged to me that he/she executed the foregoing document.

Melissa Christi Keithley Comm. Expires 7-23-2017
Notary Public

NOTE: If your project is located within the historic district, airport area, or downtown area, it may need to be scheduled before the Historic Resources Commission, the Airport Authority, and/or the Redevelopment Authority Citizens Committee prior to being scheduled for review by the Planning Commission. Planning personnel can help you make the above determination.

MELISSA CHRISTI KEITHLEY
NOTARY PUBLIC-STATE OF UTAH
COMMISSION# 668065
COMM. EXP. 07-23-2017

Appendix B

Reduced Site Plan

GENERAL SITE INFORMATION:

APN: 008-123-40
AREA: 38.61 AC
PROPERTY ADDRESS: 1400 OLD HOT SPRINGS ROAD
ZONING: TOURIST COMMERCIAL
SETBACKS: 20' MINIMUM
PROPOSED OCCUPANCY: RV RESORT

EXISTING BUILDING AREA: 0 SF
PROPOSED TOTAL BUILDING AREA: 18,500 SF
MAX BUILDING HEIGHT: 2 STORIES OR 26 FT

PROPOSED TOTAL PAVED AREA: 614,066 SF
PROPOSED TOTAL IMPERVIOUS AREA (NOT INCLUDING BUILDING AREA): 928,022 SF

EXISTING LANDSCAPE AREA: NONE

LANDSCAPE REQUIRED:
20% OF THE IMPERVIOUS SURFACE, NOT INCLUDING THE BUILDINGS:
928,022 X 0.20: 185,605 SF
TREES REQUIRED AT 1 PER 400 SF: 465
SHRUBS REQUIRED AT 6 PER TREE: 2,790

LANDSCAPE PROVIDED & ESTIMATED WATER USAGE:
DRIP IRRIGATION (MIN. 465 TREES, 2,790 SHRUBS): 1,630,800 GAL/YEAR (32 WEEKS, 2X/WEEK) OR 4,468 GAL/DAY*
LAWN IRRIGATION (75,000 SF): 2,992,300 GAL/YEAR OR 8,198 GAL/DAY*
TOTAL IRRIGATION DEMAND: 4,623,100 GAL/YEAR OR 12,666 GAL/DAY*
*AVERAGED OVER 365 DAYS

PROVIDED PARKING SPACES: SEE PARKING TABLE

PROVIDED RV SPACES:

BACK IN	158
PULL THROUGH	57
TOTAL	215

TRAFFIC IMPACTS:
SEE TRIP GENERATION TABLE

UTILITIES:
EXISTING 8" SEWER AND 16" WATER IN OLD HOT SPRINGS ROAD. PROPOSED 8" SEWER WILL TIE INTO EXISTING SS MANHOLE. PROPOSED 8" WATER WILL TEE INTO EXISTING 16" WATER MAIN.

DOMESTIC WATER USAGE:
ESTIMATE 150 GAL/DAY/SPACE: 32,000 GAL/DAY AT 100% OCCUPANCY
ACCESSORY USES (CLUB HOUSE/SWIMMING POOL/CASINO/RESTAURANT/MANAGER RESIDENCE/ETC): ESTIMATED 15,000 GAL/DAY

SEWER GENERATION:
ESTIMATED 50,000 GAL/DAY

SIGNS:
MONUMENT SIGN AT ENTRANCE ON HOT SPRINGS ROAD

POSSIBLE SALE OF PROPANE ON PROPERTY.

NO NATURAL SLOPES OVER 15%
NO EXISTING TREES ON PROPERTY.
NO FAULT LINES EXIST WITHIN PROPERTY LIMITS.

DRAINAGE:
EXISTING GROUND GENERALLY SLOPES FROM THE NORTH EAST CORNER OF THE PROPERTY TO THE SOUTH WEST CORNER OF THE PROPERTY. NO EXISTING DRAINAGE EXISTS. PROPERTY IS DISTURBED BUT UNDEVELOPED.
PROPOSE ABOVE GROUND STORM WATER DETENTION BASIN IN SOUTH WEST CORNER.

TRIP GENERATIONS

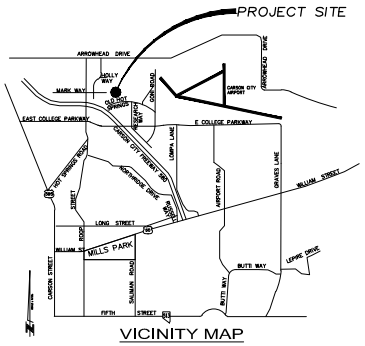
LAND USE	QUANTITY	ADT	AM PEAK HOUR		PM PEAK HOUR	
			IN	OUT	IN	OUT
CAMPGROUND/ RECREATIONAL	215	726.7	19.4	34.4	54.7	33.5

SOURCE: INSTITUTE OF TRANSPORTATION ENGINEERS, TRIP GENERATION MANUAL, 9TH EDITION

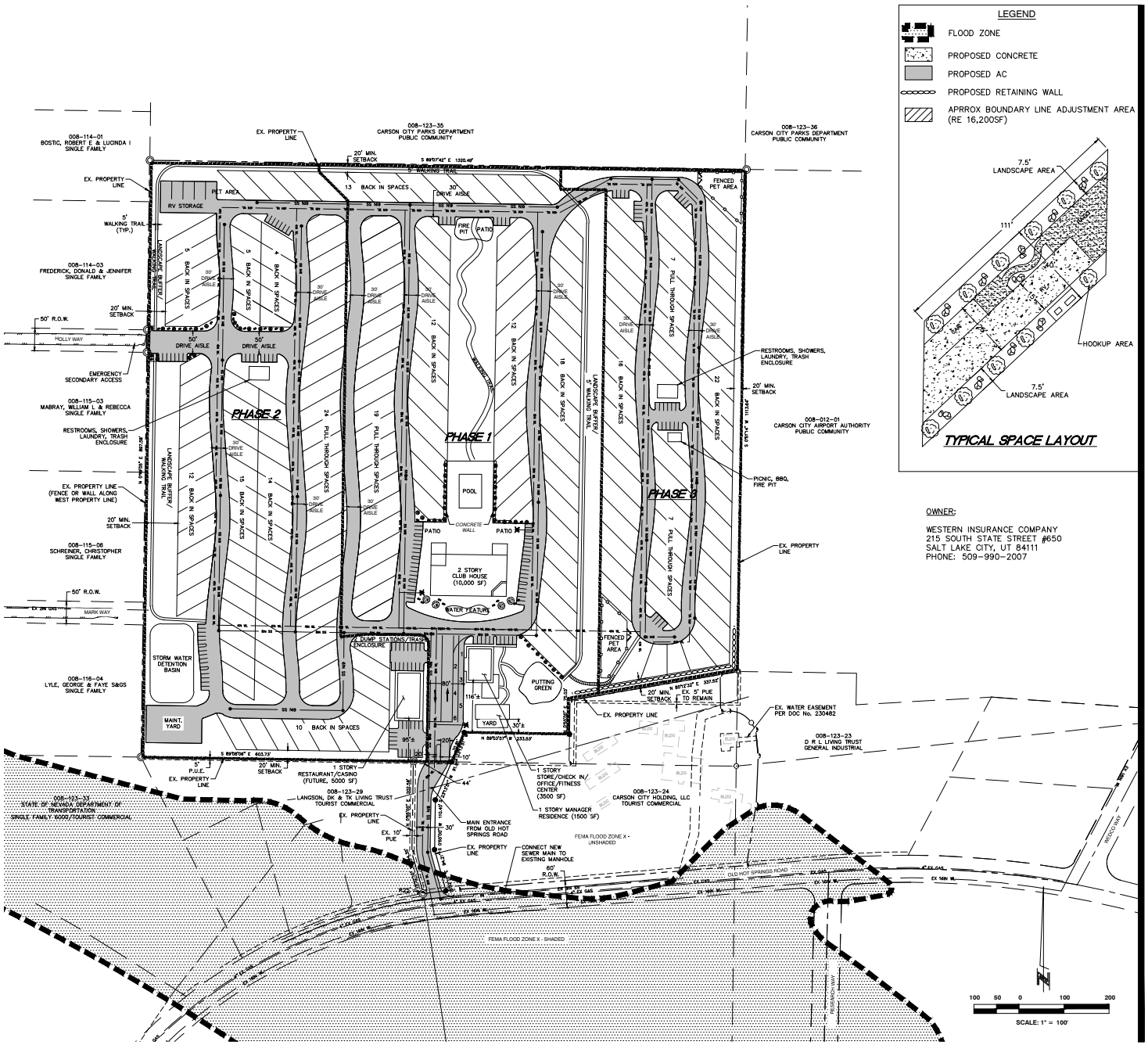
PARKING RATIO TABLE

	SPACES REQUIRED	SPACES PROVIDED
RV RESORT	1 PER SPACE=215	215
MANAGERS RESIDENCE	2 SPACES PER DWELLING=2	2
CLUB HOUSE	1 PER 275SF=36	36
RESTAURANT/ CASINO	1 PER 150SF=33	33
CHECK IN/STORE/ FITNESS CENTER	1 PER 150 SF=23	14
OTHER PARKING	–	74
TOTAL	309*	374

* DOES NOT CONSIDER EMPLOYEE PARKING



VICINITY MAP



LEGEND

- FLOOD ZONE
- PROPOSED CONCRETE
- PROPOSED AC
- PROPOSED RETAINING WALL
- APRROX BOUNDARY LINE ADJUSTMENT AREA (RE 16,200SF)

TYPICAL SPACE LAYOUT

OWNER:

WESTERN INSURANCE COMPANY
215 SOUTH STATE STREET #650
SALT LAKE CITY, UT 84111
PHONE: 509-990-2007

LUMOS & ASSOCIATES
800 E. COLLEGE PARKWAY
CARSON CITY, NEVADA 89706
TEL (775) 883-7077
FAX (775) 883-7114
WWW.LUMOSINC.COM
CIVIL ENGINEERING
GEOTECHNICAL ENGINEERING
PLANNING
LANDSCAPE ARCHITECTURE
SURVEYING / GIS
CONSTRUCTION SERVICES
MATERIALS TESTING

ROGER SHAHEEN

SIERRA SKIES RV RESORT
1400 OLD HOT SPRINGS ROAD
SPECIAL USE PERMIT

CARSON CITY NEVADA

REV	DATE	DESCRIPTION	BY

1

DATE: OCTOBER 2016
DRAWN BY: KLN
DESIGNED BY: KLN
CHECKED BY: MDB
JOB NO.: 8917.000

L:\LAP\cv\8917.000 - 1400 Old Hot Springs Rd, Carson City, NV\8917.000 BASE.dwg, SUP SITE PLAN, 10/19/2016 01:35 pm, kristenh

Appendix C

Photo Representations of Building Elevations

Sierra Skies RV Resort
Example Building Elevations
(Example Photos of Durango RV Resort, Red Bluff, CA)

Appendix D

Applicant's Acknowledgement

ACKNOWLEDGMENT OF APPLICANT

I certify that the forgoing statements are true and correct to the best of my knowledge and belief. I agree to fully comply with all conditions as established by the Planning Commission. I am aware that this permit becomes null and void if the use is not initiated within one-year of the date of the Planning Commission's approval; and I understand that this permit may be revoked for violation of any of the conditions of approval. I further understand that approval of this application does not exempt me from all City code requirements.

Roger Shaheen — Applicant

10-19-16 — Date

Appendix E

Documentation of Taxes Paid

Treasurer Home | Assessor Data Inquiry | Back to Last Page

Secured Tax Inquiry Detail for Parcel # 008-123-40

Property Location: 1400 OLD HOT SPRINGS RD
Billed to: WESTERN INSURANCE COMPANY
P O BOX 21030
RENO, NV 89515-0000

Tax Year: 2016-17
Roll #: 018666
District: 2.4
Tax Service:
Land Use Code: 140

Code Table

Current Owner: WESTERN INSURANCE COMPANY
215 S STATE ST #650
SALT LAKE CITY, UT 84111-0000

Outstanding Taxes:

Prior Year	Tax	Penalty/Interest	Total	Amount Paid	Total Due
No Prior Year Taxes					
Current Year					
08/15/16	1,676.56		1,676.56	1,676.56	.00
10/03/16	1,674.00		1,674.00	1,674.00	.00
01/02/17	1,674.00		1,674.00	.00	1,674.00
03/06/17	1,674.00		1,674.00	.00	3,348.00
Totals:	**6,698.56**	**.00**	**6,698.56**	**3,350.56**	

History

Additional Information

	2016-17	2015-16	2014-15	2013-14	2012-13
Tax Rate	3.5200	3.5200	3.5400	3.5600	3.5600
Tax Cap Percent	.2	3.2	3.0	4.2	6.4
Abatement Amount					1,629.49

Appendix F

Water and Sewer Impact Letter

LUMOS & ASSOCIATES

October 19, 2016

Hope Sullivan, Planning Manager
Carson City Community Development
Planning Division
108 E. Proctor Street
Carson City, NV 89701

RE: Water and Sewer Impact Letter for the Proposed Sierra Skies RV Resort

Dear Hope:

Lumos & Associates, Inc. has prepared this water and sewer impact letter to support the Special Use Permit (SUP) and Growth Management applications for the proposed Sierra Skies RV Resort at 1400 Old Hot Springs Road (APN 008-123-40). The luxury RV Resort will consist of approximately 215 RV spaces, a club house, office building, manager's residence, restroom/laundry facilities, and associated facilities. The SUP is being requested to allow stays of up to 180 days from 30 days as currently permitted by zoning. The proposed water and sewer improvements to serve the RV Resort and its effects on the City's utility systems are described below.

WATER DEMANDS

Projected water demands for the RV Resort include both domestic and irrigation demands. Full hookups are planned for the RV Resort which includes an individual water connection at each RV space. Projected water demands are summarized in the table below. The average day demand (ADD) is estimated at 59,700 gallons per day (gpd).

Demand Type	Average Day Demand (gpd)
RV Spaces (215 Total)	32,000[1]
Accessory Uses	15,000[2]
Landscape Irrigation (trees, shrubs, turf)	12,700[3]
Total	59,700

[1] Demand factor of 150 gpd per RV space.

[2] Accessory uses include club house, swimming pool, manager's residence, laundry facilities, central showers/restrooms, potential future restaurant/casino, etc.

[3] Total annual irrigation demand of 4,623,100 gallons over 32 irrigation weeks per year averaged over 365 days.

The RV Resort will be served by the City's public water system. The proposed on-site water system includes waterlines ranging from 4-inch to 8-inch diameter (not including service connections) which will connect into an existing 16-inch water main in Old Hot Springs Road. The

800 E. College Parkway, Carson City, NV 89706 / Tel: 775.883.7077 / Fax: 775.883.7114 / www.lumosinc.com

project site is located near a pressure zone split within the City's distribution system (the 4960 zone and 4800 zone). The City has indicated that pressures in the 4960 zone near the project site entrance on Old Hot Springs Road range from 80 to 100 pounds per square inch (psi). Pressures in the 4800 zone, however, could be as low as 40 psi near the project site during booster pumping. The preferred connection is to the 4960 zone so that adequate pressures can be maintained during all demand scenarios without the need for booster pumping. If the City requires connection to the 4800 zone, a privately-owned booster pump will be needed to maintain minimum pressures meeting the requirements of the Nevada Administrative Code (NAC) and Carson City Municipal Code (CCMC).

In accordance with City requirements, the development will be served by a single water meter located near the property line. A reduced pressure backflow assembly will be located behind the water meter within the property boundaries.

Based on input from the City, it appears that water demands associated with the proposed RV Resort will not have any significant impacts on the City's water system.

FIRE FLOW

The largest proposed building at the RV Resort will be the club house at approximately 10,000 square feet (preliminary sizing). Based on this floor area, the minimum fire flow per the International Fire Code (IFC) is 1,500 gallons per minute (gpm) for a duration of 2 hours. As required by the Fire Marshal, an electronically monitored fire sprinkler system will be installed in the club house. The IFC allows a 50% reduction in fire flow with an approved automatic sprinkler system, however, the minimum required fire flow after the reduction is still 1,500 gpm.

The City does not have any recent fire flow tests in the project site area so a test will need to be conducted and results submitted to the City during the design phase of the project.

Correspondence with City Public Works staff has indicated that sufficient capacity should be available in the City's water system for fire flow demands associated with the proposed RV Resort.

SEWER FLOWS

Full hookups for the RV Resort will include a sewer connection at each RV space. Sewer flows will also be generated from accessory uses at the resort (club house, manager's residence, laundry facilities, central showers/restrooms, and potential future restaurant/casino). Peak sewer flows for the RV resort are estimated at 50,000 gpd.

The RV Resort will be served by the City's public sewer system for collection and treatment. The proposed on-site sewer system includes 6-inch to 8-inch diameter gravity sewer pipelines (not including laterals) which will connect into an existing 8-inch gravity sewer main in Old Hot Springs Road. The existing 8-inch sewer main in Old Hot Springs Road ends approximately 300 feet west of the intersection with Research Way. The project will include an extension of the existing 8-inch sewer to the entrance of the RV Resort. From the point of connection, wastewater will gravity

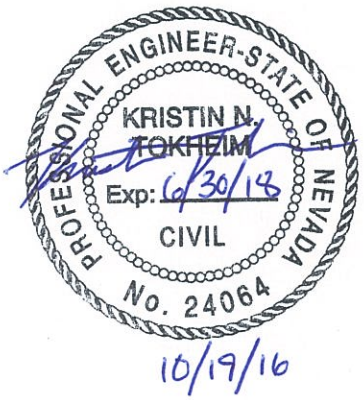
flow east along Old Hot Springs Road, south along Research Way, and then east along College Parkway. City Public Works staff have indicated that the 8-inch PVC sewer main in Old Hot Springs Road and Research Way is only at 8% capacity (or less) and the 18-inch concrete main in College Parkway is only at 10% capacity.

Based on input from the City, there is more than sufficient capacity within the City's sewer mains near the project area to handle flows from the RV Resort.

In summary, the proposed Sierra Skies RV Resort will not have any significant effects on the City's water and sewer systems. There is sufficient capacity within the City's infrastructure to meet the projected water demands, fire flows, and sewer flows. Please feel free to contact me at 775.883.7077 or ktokheim@lumosinc.com with any questions.

Sincerely,

Kristin Tokheim, P.E.
Senior Engineer



Appendix G

Traffic Impact Letter

LUMOS & ASSOCIATES

October 19, 2016

Hope Sullivan, Planning Manager
Carson City Community Development
Planning Division
108 E. Proctor Street
Carson City, NV 89701

RE: Traffic Impact Letter for the Proposed Sierra Skies RV Resort

Dear Hope:

Pursuant to the Carson City Special Use Permit (SUP) requirements, Lumos & Associates, Inc. has prepared the following traffic impact letter to support the SUP application. The proposed Sierra Skies RV Resort will be located at 1400 Old Hot Springs Road (APN 008-123-40) and will consist of approximately 215 RV spaces, a club house, office building, manager's residence, and associated facilities. The SUP is being requested to allow stays of up to 180 days from 30 days as currently permitted by zoning.

Carson City Development Standards Section 12.13.1 indicates that traffic studies are required under one or more of the following conditions: 1) the proposed development generates 80 or more peak hour trips; 2) the proposed development generates 500 or more total trips per day; 3) cumulative phasing results in conditions 1 or 2; 4) the city engineer determines a study is necessary; or 5) the proposed development triggers the need for a traffic signal. Projected traffic impacts from the Sierra Skies RV Resort are summarized below.

Trip generations for the proposed development were calculated using generation rates from the Institute of Transportation Engineers (ITE), Trip Generation Manual as summarized in the table below. Total average daily trips are estimated at 726.7, AM peak hour trips are estimated at 53.8, and PM peak hour trips are estimated at 88.2.

Projected Trip Generations [1]

Land Use	Quantity (RV Spaces)	Average Daily Trips[2]	AM Peak Hour[3]			PM Peak Hour[3]		
			In	Out	Total	In	Out	Total
Campground/ Recreational	215	726.7	19.4	34.4	53.8	54.7	33.5	88.2

[1] Source: Institute of Transportation Engineers, Trip Generation Manual, 9th Edition.

[2] Average daily trip rates unavailable in ITE Manual for campground/RV parks (code 416). Estimated using average daily trip rate for recreation homes (code 260) and multiplying by ratio of peak hour trips for campground/RV parks to peak hour trips for recreation homes.

[3] Estimated from peak hour rates for campground/RV parks (code 416).

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The main entrance to the proposed development will be through Old Hot Springs Road and a secondary emergency access is planned through the west side of the property at Holly Way. Because of the nature of the proposed development and the need for a controlled inlet/outlet (i.e., RV check-ins and check-outs), a secondary permanent access is not planned and has been confirmed acceptable by the City's Transportation Manager. The nearest major intersection to the proposed development is Research Way and College Parkway. The City's Transportation Manager has indicated that a traffic signal will be installed at this intersection in the near future and will help mitigate concerns with traffic-related impacts from the proposed RV Resort.

In summary, the proposed Sierra Skies RV Resort may require a traffic study based on trip generation estimates. If required, a traffic study will be prepared and submitted during the design phase of the project. Please feel free to contact me at 775.883.7077 or ktokheim@lumosinc.com with any questions.

Sincerely,

Kristin Tokheim, P.E.
Senior Engineer

Appendix H

Conceptual Drainage Study

CONCEPTUAL DRAINAGE STUDY
TO ACCOMPANY THE SPECIAL USE PERMIT APPLICATION

for the

Sierra Skies RV Resort
APN 008-123-40
Carson City, Nevada

Prepared For:

Roger Shaheen

3427 Goni Road #109
Carson City, NV 89706

Prepared By:

LUMOS & ASSOCIATES, INC.
800 East College Parkway
Carson City, Nevada 89706
Phone: (775) 883-7077
FAX: (775) 883-7114

October, 2016
Job No. 8917.000

10/19/16

Contents

Appendices

I. Introduction

A. Description of Project

This conceptual drainage report presents the findings of the preliminary drainage study for the Special Use Permit (SUP) application for APN 008-123-40 located in Section 5, Township 15N, Range 20E of the Mount Diablo Meridian. It identifies the existing and conceptually proposed site conditions, and the potential drainage improvements. This study has been conducted in accordance with the Carson City Municipal Code and Carson City Development Standards.

The proposed project consists of the construction of a luxury RV Resort and associated building and facilities. The RV Resort would include approximately 215 RV spaces, club house, store/office, pool, laundry facilities, walking trail and necessary roadway and utility improvements to support the development. The property is currently undeveloped, disturbed, and overgrown with invasive weeds.

B. Existing Site Conditions

The property, located at 1400 Old Hot Springs Road, was used previously as a stockpile and disposal site for the construction of the new I-580 corridor through the northern portion of Carson City. The site is currently undeveloped and consists of 38.61 acres that has been filled by a previous grading operation. It is bound by undeveloped property to the north and east. It is bounded to the west by blocks 8, 9 and 12 of the East Addition of the Eagle Valley Vista Subdivision. The project location is bounded to the south by several properties including a storage yard for NDOT, the Carson Hot Springs Resort and an undeveloped 2.24-acre parcel. South of the 2.24-acre parcel are two smaller parcels, one is undeveloped and the other is owned by California Broadband Corp. which has a small communications building.

C. General Location Map

See Appendix A for an APN Map and Location Map.

II. Existing and Proposed Hydrology

A. Discuss existing and proposed drainage basin boundaries

Existing

There are several drainage subbasins on the property currently. There is one large drainage subbasin (subbasin 1) on the project site that is 30.15 acres. Outside of this subbasin, off-site flows from the north combine with subbasin 2 and are channeled to the west and then south along the perimeter of the property. Precipitation that falls on the southern (subbasin 3) and eastern (subbasin 4) sides of the property outside of the basin flows southwardly down the manmade hill onto the adjacent properties. Towards the southwestern portion of the property, there is an existing detention pond with an outflow structure that discharges into a channel

that runs along the westernmost portion of the project location. All 30.15 acres of subbasin 1 flows into this detention pond. See Appendix A for a drainage map.

Off-site flow is channelized on the north side of the property and conveyed west. At the northwest corner of the property there is a sedimentation basin where the channelized flow from the basin north of the property is combined with flows from a larger basin that originates in the hills to the north. From the sedimentation basin storm water flows travel south along the western side of the property where they eventually join the NDOT drainage system.

Proposed

The proposed drainage will be graded so that the entire property is the same drainage basin. Grading will be designed so that runoff will no longer exit the property to the south, but will instead be routed on-site to a detention basin in the southwest corner. The channel that runs along the north and west sides of the property will be reshaped to convey the off-site flow that enters the project site along the perimeter of the property to its current discharge point. Since the proposed development is an RV Resort, valley gutters and other surface conveyance features will be kept to a minimum to make the access roads and vehicle spaces more RV friendly.

Off-site flows will be routed along the perimeter of the project site in a similar manner as the existing conditions. The drainage basin that is intercepted by the channel on the north side is small and not expected to produce much runoff. As the channel turns south on the west side it converges with runoff from larger drainage basins that originate in the hills north of the property. The two flows will be collected and channelized along the west side where it will join with the onsite flows in the new detention pond.

Drainage Basin Map

See Appendix A for the Drainage Basin Map

B. Design Storm and 100-Year, 24-Hour Flow Calculations

Table 1: Flow Calculations

Basin	**Pre-Development (cfs)**		**Post-Development (cfs)**		**Increase (cfs)**	
	5-Year	100-Year	5-Year	100-Year	5-Year	100-Year
Basin	0.903	1.61	1.918	3.418	1.015	1.808

Volume calculations were performed in order to determine a preliminary size for the detention basin. The increased runoff due to the 5-year 24-hour storm event is approximately 27,722 cubic feet. Volume calculations are provided in Appendix B along with the Rational Method calculations. Supplemental information used for calculations is included in Appendix C.

C. Existing Drainage Problems

There are no known drainage problems on-site, however, anecdotal information was collected during a field visit from a resident located west of the project site indicating a flooding issue in the past. Apparently the existing drainage channel had overflowed and flooded the resident's home. This issue will be taken into consideration when performing final grading and storm water containment design.

D. On-site and Downstream Drainage

On-site drainage currently sheet flows from northeast to southwest across the elevated portion of the property to a detention pond located in the southwest corner. The proposed condition would be similar in that proposed grading would allow the water to flow from northeast to southwest.

Runoff discharged from the existing detention pond on the project site flows to the channel along the western perimeter of the property and joins the NDOT drainage system. The proposed site conditions would be very similar, but with the new detention pond in a different location as shown in Appendix A. The proposed condition will increase runoff. The increase in runoff will be detained in the proposed detention basin.

E. Floodplain

The project site is located outside of the 100-year floodplain. There is a small portion on the southernmost tip of the property where a proposed access road will connect to Old Hot Springs Road that is located in FEMA Zone X. A FEMA Firmette for the project location is included in Appendix C.

III. Proposed Drainage Facilities (on-site and off-site)

A. Routing of flow in and/or around site, downstream, and location of drainage facilities

On-Site Flow

The proposed design will be graded such that runoff will generally flow across the site from the northeast corner to the southwest corner where it will be routed into a new detention pond. The new detention pond will be sized to detain the increase in storm water runoff for a 5-year 24-hour event as required by Carson City Code. Above ground drainage features, like valley gutters, will be kept to a minimum for RV friendly access roads and vehicle spaces.

Off-Site Flow

Off-site flows will be routed along the perimeter of the project site in a drainage channel in the same general manner as currently routed. The offsite drainage basin directly north of the property is small and not expected to produce much runoff and will be collected by the reshaped channel along the northern border. As this channel

that turns south along the west property line it is intercepted by runoff from larger drainage basins that originate in the hills north of the property. These flows will be collected and channelized along the west side where it will join with the on-site flows in the new detention pond.

B. Mitigation Measures

Best Management Practices techniques should be implemented to manage the quantity and improve the quality of storm water runoff, minimize local erosion, and minimize potential discharges to adjacent properties.

C. Floodplain Modifications

The Sierra Skies RV Resort improvements will not require any modification of the floodplain.

D. Exhibit

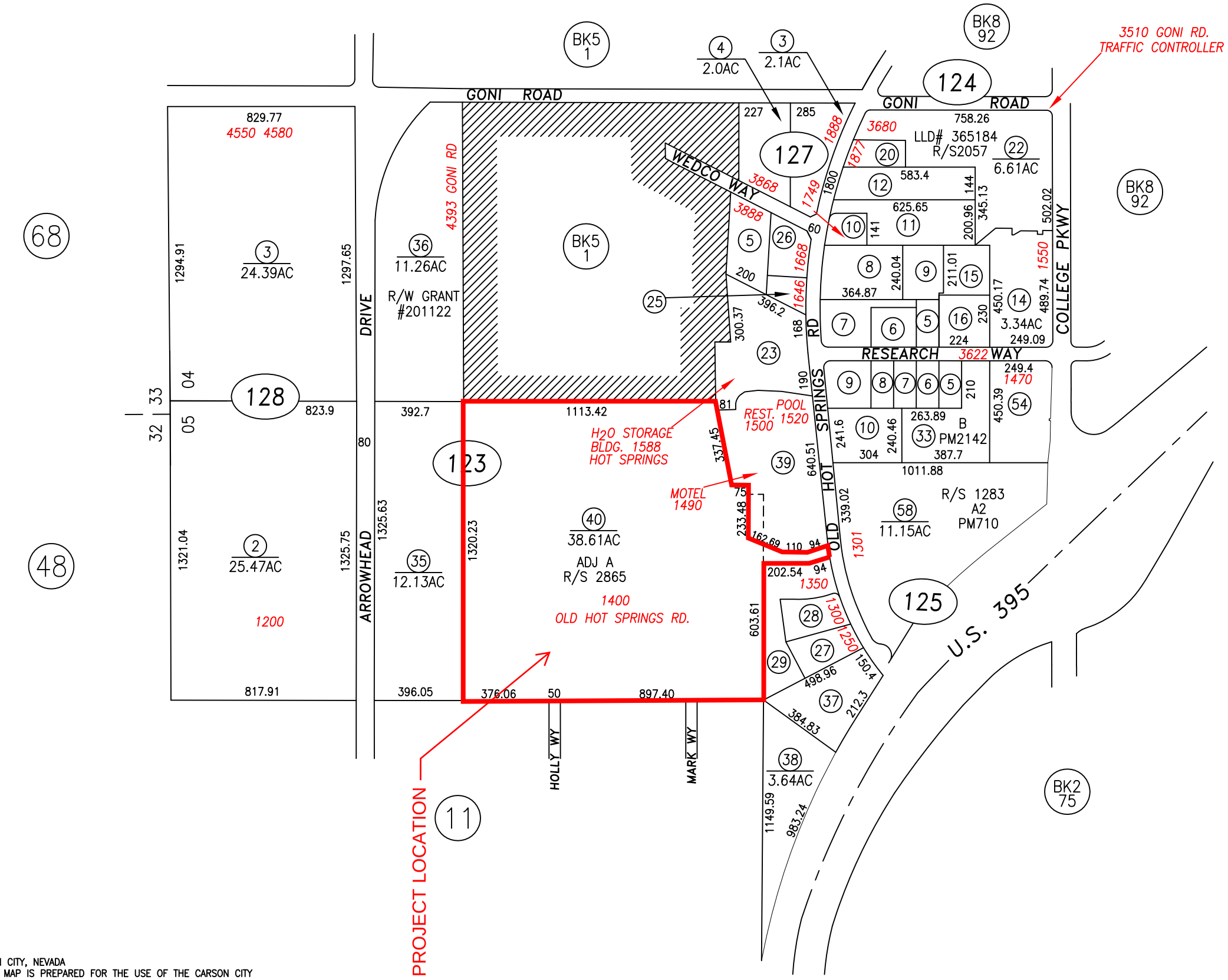
A copy of the SUP map showing proposed improvements and drainage features is included in Appendix A.

IV. Conclusions

The Sierra Skies RV Resort improvements will be designed in accordance with Carson City Municipal Code and Carson City Development Standards. The project will not have a detrimental effect on surrounding properties in terms of storm water. The increase in storm water runoff will be detained on-site and will not affect the downstream storm water system.

Appendix A

Maps



PARCELS 008-123-24 & 34 ARE NOW 008-123-39 & 40 R/S 2865
UPDATE PARCELS 008-123-37 & 38 PER DOC #465731 062816

CARSON CITY, NEVADA
THIS MAP IS PREPARED FOR THE USE OF THE CARSON CITY ASSESSOR FOR ASSESSMENT AND ILLUSTRATIVE PURPOSES ONLY, IT DOES NOT REPRESENT A SURVEY. NO LIABILITY IS ASSUMED AS TO THE SUFFICIENCY OR ACCURACY OF THE DATA DELINEATED HEREON. YOU CAN VIEW AND PRINT OUR MAPS AT NO CHARGE FROM OUR WEBSITE AT: http://ccapps.org/publicgis/

BLOCK 123

APN	PARCEL INFO	LAND AREA AC
8-123-05	A PM 1882	1.50
8-123-23	R/S 2307 LL ADJ	3.94
8-123-25	1 PM 2335	0.50
8-123-26	2 PM 2335	0.97
8-123-27	3A PM 2366	1.00
8-123-28	3B PM 2366	1.02
8-123-29	3C PM 2366	2.24
8-123-37	4 PM 2143	2.62
8-123-39	ADJ 2A R/S 2865	5.94

BLOCK 124

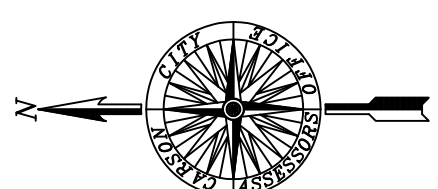
APN	PARCEL INFO	LAND AREA AC
8-124-05	1B PM 1058	0.48
8-124-06	LL ADJ BK 410 PG 367	0.80
8-124-07	LL ADJ BK 410 PG 367	1.23
8-124-08	1A-1 PM 1816	1.97
8-124-09	1A-2 R/S 1844	0.98
8-124-10	1 PM 952	0.56
8-124-11	2 PM 952	2.42
8-124-12	2 PM 670	2.00
8-124-14	2-C R/S 2359	3.34
8-124-15	2-A PM 2007	1.04
8-124-16	2-B PM 2007	1.18
8-124-20	3-A PM 2011	0.68

BLOCK 125

APN	PARCEL INFO	LAND AREA AC
8-125-05	3B PM 1446	0.48
8-125-06	4D PM 1057	0.48
8-125-07	4C PM 1057	0.48
8-125-08	4B-2 PM 1066	0.48
8-125-09	4B-1 PM 1066	0.97
8-125-10	4A-1 PM 1636	1.74
8-125-33	B PM 2142	2.74
8-125-54	A PM 2142	2.81

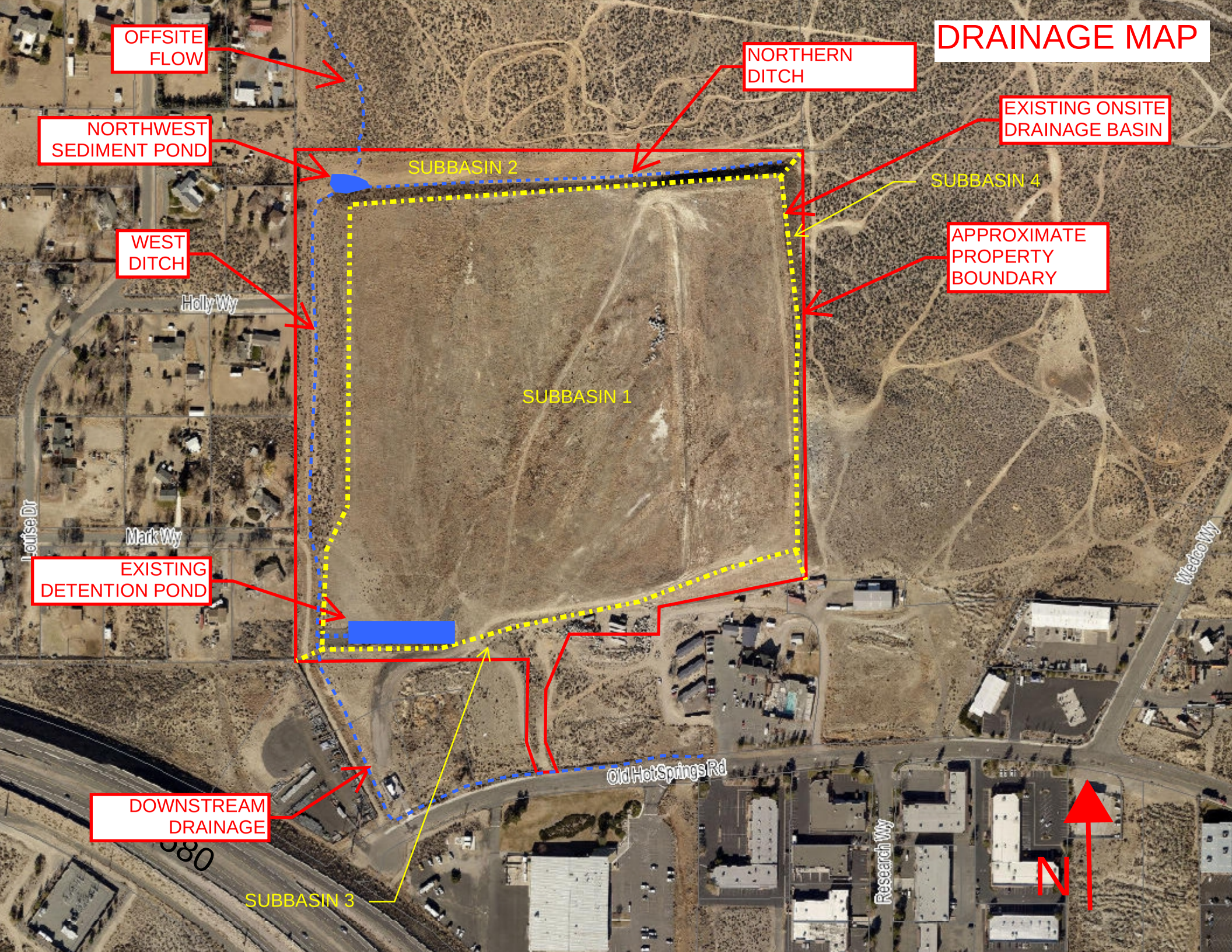
BLOCK 127

APN	PARCEL INFO	LAND AREA AC
8-127-03	B-3 PM1054 LESS R/W	2.10
8-127-04	B-2 PM1054 LESS R/W	2.10



SCALE:1" = 500'
REVISED:06/30/2016


LOCATION MAP
APPROXIMATE PROPERTY BOUNDARY
Holly Wy
Louise Dr
Mark Wy
Old Hot Springs Rd
Research Wy
Wedco Wy
I-580
N


DRAINAGE MAP
OFFSITE FLOW
NORTHERN DITCH
EXISTING ONSITE DRAINAGE BASIN
NORTHWEST SEDIMENT POND
SUBBASIN 2
SUBBASIN 4
WEST DITCH
APPROXIMATE PROPERTY BOUNDARY
Holly Wy
SUBBASIN 1
Louise Dr
Mark Wy
EXISTING DETENTION POND
Wedco Wy
Old Hot Springs Rd
DOWNSTREAM DRAINAGE
Research Wy
SUBBASIN 3
N

EXISTING OFFSITE FLOW PATH

NORTHERN CHANNEL

EXISTING PROPERTY BOUNDARY

CULVERT UNDER ROADWAY

HOLLY WAY

NEW CHANNEL

MARK WAY

PROPOSED DETENTION POND LOCATION

FEMA ZONE X

OLD HOT SPRINGS ROAD

EX 16IN W

EX GAS

EX 8IN W

BLDG

100 50 0 100 200

SCALE: 1" = 100'

N

LUMOS & ASSOCIATES

800 E. COLLEGE PARKWAY
CARSON CITY, NEVADA 89706
TEL (775) 883-7077
FAX (775) 883-7114

WWW.LUMOSINC.COM

CIVIL ENGINEERING
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LANDSCAPE ARCHITECTURE
SURVEYING / GIS
CONSTRUCTION SERVICES
MATERIALS TESTING

ROGER SHAHEEN

SIERRA SKIES RV RESORT
1400 OLD HOT SPRINGS ROAD
SPECIAL USE PERMIT/PROPOSED DRAINAGE

CARSON CITY NEVADA

REV	DATE	DESCRIPTION	BY

1

DATE:	OCTOBER 2016
DRAWN BY:	CAS
DESIGNED BY:	KLN
CHECKED BY:	MDB
JOB NO.:	8917.000

L:\LAP\proj\8917.000 - 1100 Mark Way\Civil\Hydrology\8917000 BASE-drainage.dwg,MPR, 10/19/2016 8:51:1 pm rsantmit

Appendix B

Calculations

Sierra Skies RV Resort
Drainage Calculation
Rational Method
October 2016

Basin Pre-Development

5-year, 24-hr Storm Event
Formula: Q = C * i * A

1) Runoff Coefficient C

	Range	Design Value
Impervious Areas =	.7 - .95	0.9
Pervious Areas =	0.1 - 0.3	0.3

2) Total Area (A)

Impervious	Pervious	Units
0	1,681,852	Sq. Ft.
0.00	38.61	Acres

3) Weighted "C" Value

	Design Value	Areas (Acres)	Total
Impervious Areas =	0.9	0.00	0.00
Pervious Areas =	0.3	38.61	11.58
Total		38.61	11.58
C (Total/Total Area) =		0.30	

4) Time of Concentration (Tc = Lo + Lsc + Lc)

Overland Flow - Lo (Min)	Shallow Concentrated Flow - Lsc (Min)	Channel Flow Lc (Min)
4.2	21.8	0.0
	Time of Concentration (Tc) =	26.0

5) Peak Flow Rate (Q = CiA)

Intensity @ Tc (in/hr)	Peak Flow Rate (cfs)
0.078	0.903

****NOTE: Tc Minimum = 10 Minutes**

100-year, 24-hr Storm Event
Formula: Q = C * i * A

1) Runoff Coefficient C

	Range	Design Value
Impervious Areas	.7 - .95	0.90
Pervious Areas =	0.1 - 0.3	0.3

2) Total Area (A)

Impervious	Pervious	Units
0	1,681,852	Sq. Ft.
0.00	38.61	Acres

3) Weighted "C" Value

	Design Value	Areas (Acres)	Total
Impervious Areas =	0.9	0.00	0.00
Pervious Areas =	0.3	38.61	11.58
Total		38.61	11.58
C (Total/Total Area) =		0.30	

4) Time of Concentration (Tc = Lo + Lsc + Lc)

Overland Flow - Lo (Min)	Shallow Concentrated Flow - Lsc (Min)	Channel Flow Lc (Min)
4.2	21.8	0.0
	Time of Concentration (Tc) =	26.0

5) Peak Flow Rate (Q = CiA)

Intensity @ Tc (in/hr)	Peak Flow Rate (cfs)
0.139	1.610

****NOTE: Tc Minimum = 10 Minutes**

Sierra Skies RV Resort
Drainage Calculation
Rational Method
October 2016

Basin Post-Development

5-year, 24-hr Storm Event
Formula: Q = C * i * A

1) Runoff Coefficient C

	Range	Design Value
Impervious Areas =	.7 - .95	0.9
Pervious Areas =	0.1 - 0.3	0.3

2) Total Area (A)

Impervious	Pervious	Units
944,075	737,860	Sq. Ft.
21.67	16.94	Acres

3) Weighted "C" Value

	Design Value	Areas (Acres)	Total
AC and Concrete =	0.9	21.67	19.51
Pervious Areas =	0.3	16.94	5.082
Total		38.61	24.59
C (Total/Total Area) =		0.64	

4) Time of Concentration (Tc = Lo + Lsc + Lc)

Overland Flow - Lo (Min)	Shallow Concentrated Flow - Lsc (Min)	Channel Flow Lc (Min)
4.2	21.8	0.0
	Time of Concentration (Tc) =	26.0

5) Peak Flow Rate (Q = CiA)

Intensity @ Tc (in/hr)	Peak Flow Rate (cfs)
0.078	1.918

****NOTE: Tc Minimum = 10 Minutes**

100-year, 24-hr Storm Event
Formula: Q = C * i * A

1) Runoff Coefficient C

	Range	Design Value
Impervious Areas =	.7 - .95	0.9
Pervious Areas =	0.1 - 0.3	0.3

2) Total Area (A)

Impervious	Pervious	Units
944,075	737,860	Sq. Ft.
21.67	16.94	Acres

3) Weighted "C" Value

	Design Value	Areas (Acres)	Total
AC and Concrete =	0.9	21.67	19.51
Pervious Areas =	0.3	16.94	5.082
Total		38.61	24.59
C (Total/Total Area) =		0.64	

4) Time of Concentration (Tc = Lo + Lsc + Lc)

Overland Flow - Lo (Min)	Shallow Concentrated Flow - Lsc (Min)	Channel Flow Lc (Min)
4.2	21.8	0.0
	Time of Concentration (Tc) =	26.0

5) Peak Flow Rate (Q = CiA)

Intensity @ Tc (in/hr)	Peak Flow Rate (cfs)
0.139	3.418

****NOTE: Tc Minimum = 10 Minutes**

Sierra Skies RV Resort
Retention Basin Calculations
5 Year Frequency @ 24 Duration

$$Volume = c * depth * area$$

	c (Runoff Coefficient)	d (Depth, in)	a (Area, sf)	Volume (cu. Ft)
Future	0.64	1.87	1,681,852	167,737
Existing	0.30	3.33	1,681,852	140,014
Design Volume	Volumes based the delta value of the existing vs proposed			27,723

Appendix C

Supplemental Information

MAP SCALE 1" = 500'

250 0 500 1000 FEET

50 0 150 200 METERS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0084F

FIRM

FLOOD INSURANCE RATE MAP

CARSON CITY, NEVADA

INDEPENDENT CITY

PANEL 84 OF 275

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CARSON CITY	320001	0084	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
3200010084F

MAP REVISED
FEBRUARY 19, 2014

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

NOAA Atlas 14, Volume 1, Version 5
Location name: Carson City, Nevada, USA*
Latitude: 39.1955°, Longitude: -119.7541°
Elevation: 4717.52 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/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**1.19** (1.02-1.39)	**1.46** (1.28-1.75)	**1.96** (1.69-2.33)	**2.44** (2.06-2.88)	**3.20** (2.64-3.80)	**3.91** (3.12-4.67)	**4.74** (3.66-5.72)	**5.74** (4.26-7.04)	**7.33** (5.12-9.19)	**8.77** (5.83-11.2)
10-min	**0.900** (0.774-1.06)	**1.12** (0.972-1.33)	**1.49** (1.28-1.78)	**1.85** (1.57-2.19)	**2.44** (2.01-2.89)	**2.98** (2.38-3.55)	**3.61** (2.79-4.35)	**4.37** (3.24-5.36)	**5.58** (3.90-7.00)	**6.68** (4.45-8.53)
15-min	**0.744** (0.640-0.880)	**0.924** (0.804-1.10)	**1.24** (1.06-1.46)	**1.53** (1.30-1.81)	**2.02** (1.66-2.39)	**2.46** (1.96-2.93)	**2.98** (2.30-3.60)	**3.61** (2.68-4.43)	**4.61** (3.22-5.78)	**5.52** (3.67-7.05)
30-min	**0.500** (0.432-0.592)	**0.624** (0.540-0.740)	**0.832** (0.714-0.988)	**1.03** (0.876-1.22)	**1.36** (1.12-1.61)	**1.65** (1.32-1.98)	**2.01** (1.55-2.42)	**2.43** (1.80-2.98)	**3.10** (2.17-3.89)	**3.72** (2.47-4.75)
60-min	**0.310** (0.267-0.366)	**0.386** (0.334-0.457)	**0.515** (0.441-0.611)	**0.638** (0.542-0.755)	**0.839** (0.692-0.996)	**1.02** (0.818-1.22)	**1.24** (0.960-1.50)	**1.50** (1.12-1.85)	**1.92** (1.34-2.41)	**2.30** (1.53-2.94)
2-hr	**0.208** (0.184-0.238)	**0.258** (0.229-0.296)	**0.329** (0.290-0.376)	**0.392** (0.341-0.447)	**0.486** (0.412-0.558)	**0.570** (0.473-0.662)	**0.666** (0.538-0.781)	**0.782** (0.610-0.930)	**0.982** (0.733-1.22)	**1.17** (0.841-1.48)
3-hr	**0.166** (0.148-0.187)	**0.206** (0.186-0.233)	**0.259** (0.231-0.292)	**0.302** (0.267-0.340)	**0.363** (0.316-0.411)	**0.415** (0.355-0.474)	**0.473** (0.396-0.546)	**0.548** (0.449-0.643)	**0.671** (0.533-0.819)	**0.788** (0.609-0.998)
6-hr	**0.115** (0.103-0.129)	**0.144** (0.129-0.161)	**0.179** (0.159-0.200)	**0.206** (0.183-0.231)	**0.243** (0.213-0.274)	**0.272** (0.235-0.308)	**0.302** (0.256-0.345)	**0.336** (0.280-0.389)	**0.386** (0.313-0.455)	**0.430** (0.341-0.515)
12-hr	**0.076** (0.067-0.085)	**0.095** (0.085-0.107)	**0.119** (0.106-0.134)	**0.139** (0.122-0.156)	**0.164** (0.143-0.186)	**0.184** (0.159-0.210)	**0.205** (0.174-0.236)	**0.225** (0.188-0.263)	**0.253** (0.205-0.301)	**0.275** (0.218-0.333)
24-hr	**0.049** (0.045-0.055)	**0.062** (0.056-0.069)	**0.078** (0.071-0.086)	**0.091** (0.082-0.101)	**0.109** (0.098-0.121)	**0.124** (0.110-0.137)	**0.139** (0.123-0.154)	**0.154** (0.135-0.172)	**0.175** (0.151-0.197)	**0.192** (0.164-0.218)
2-day	**0.029** (0.026-0.033)	**0.037** (0.033-0.042)	**0.047** (0.042-0.053)	**0.055** (0.049-0.062)	**0.067** (0.059-0.075)	**0.076** (0.067-0.086)	**0.085** (0.074-0.097)	**0.095** (0.082-0.109)	**0.109** (0.093-0.126)	**0.120** (0.100-0.141)
3-day	**0.022** (0.019-0.024)	**0.027** (0.024-0.031)	**0.035** (0.031-0.039)	**0.041** (0.037-0.046)	**0.050** (0.044-0.056)	**0.057** (0.050-0.064)	**0.064** (0.056-0.073)	**0.072** (0.062-0.083)	**0.083** (0.070-0.096)	**0.092** (0.076-0.108)
4-day	**0.018** (0.016-0.020)	**0.022** (0.020-0.025)	**0.029** (0.026-0.033)	**0.034** (0.030-0.038)	**0.041** (0.036-0.047)	**0.047** (0.041-0.054)	**0.054** (0.046-0.061)	**0.061** (0.052-0.069)	**0.070** (0.059-0.081)	**0.078** (0.064-0.091)
7-day	**0.012** (0.010-0.013)	**0.015** (0.013-0.017)	**0.019** (0.017-0.022)	**0.023** (0.020-0.026)	**0.028** (0.024-0.031)	**0.032** (0.028-0.036)	**0.036** (0.031-0.041)	**0.040** (0.034-0.046)	**0.046** (0.039-0.053)	**0.051** (0.042-0.060)
10-day	**0.009** (0.008-0.010)	**0.012** (0.010-0.013)	**0.015** (0.013-0.017)	**0.018** (0.016-0.020)	**0.022** (0.019-0.024)	**0.024** (0.021-0.028)	**0.027** (0.024-0.031)	**0.031** (0.026-0.035)	**0.035** (0.029-0.040)	**0.038** (0.032-0.044)
20-day	**0.006** (0.005-0.006)	**0.007** (0.006-0.008)	**0.009** (0.008-0.010)	**0.011** (0.010-0.012)	**0.013** (0.011-0.015)	**0.015** (0.013-0.016)	**0.016** (0.014-0.018)	**0.018** (0.016-0.020)	**0.020** (0.017-0.023)	**0.022** (0.018-0.025)
30-day	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.010** (0.009-0.011)	**0.011** (0.010-0.012)	**0.012** (0.011-0.014)	**0.013** (0.012-0.015)	**0.015** (0.013-0.017)	**0.016** (0.014-0.019)
45-day	**0.003** (0.003-0.004)	**0.004** (0.004-0.005)	**0.005** (0.005-0.006)	**0.006** (0.006-0.007)	**0.008** (0.007-0.008)	**0.008** (0.007-0.009)	**0.009** (0.008-0.010)	**0.010** (0.009-0.011)	**0.011** (0.010-0.012)	**0.012** (0.010-0.013)
60-day	**0.003** (0.003-0.003)	**0.004** (0.003-0.004)	**0.005** (0.004-0.005)	**0.006** (0.005-0.006)	**0.006** (0.006-0.007)	**0.007** (0.006-0.008)	**0.008** (0.007-0.009)	**0.008** (0.007-0.009)	**0.009** (0.008-0.010)	**0.010** (0.008-0.011)

[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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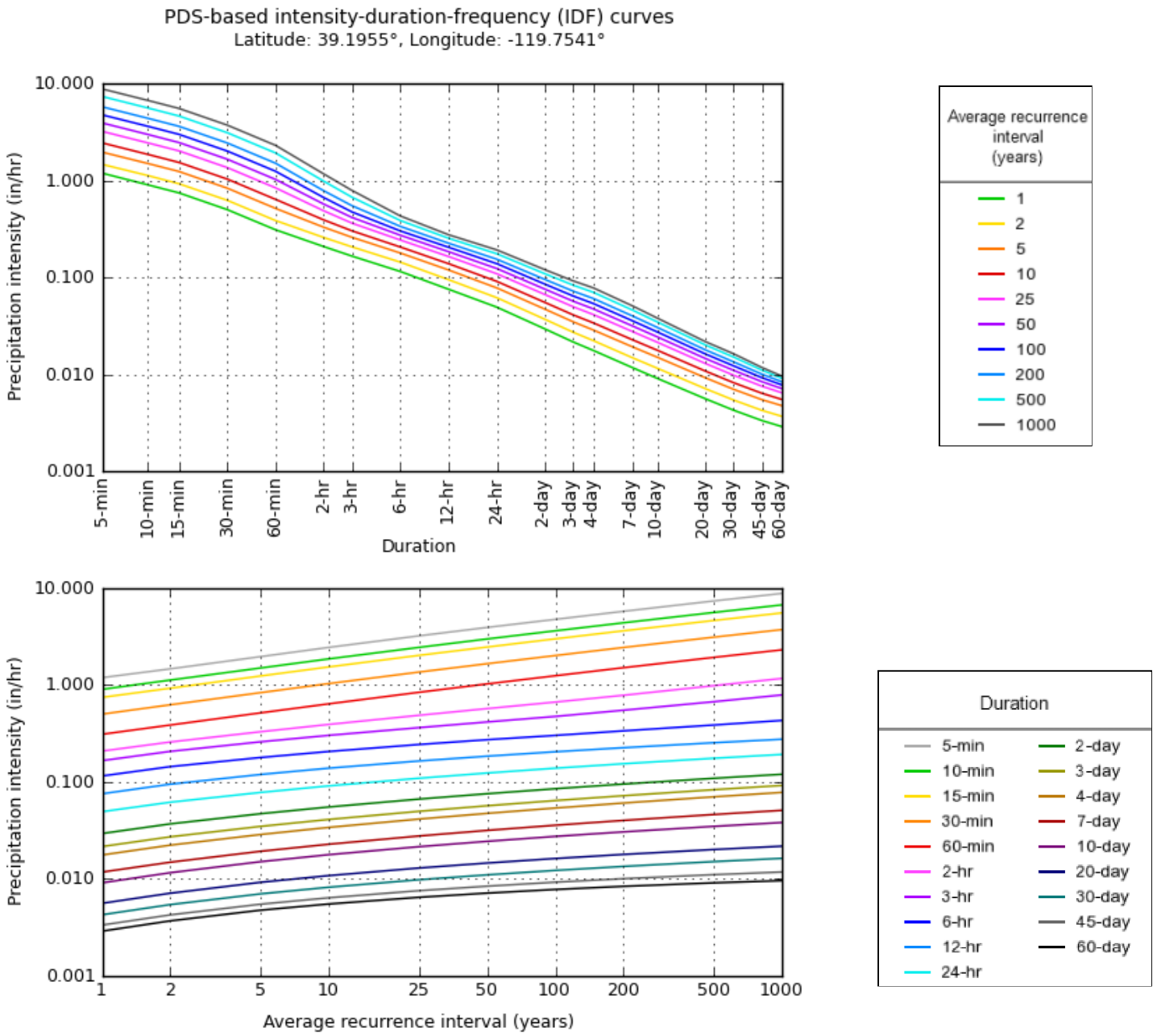
PF graphical



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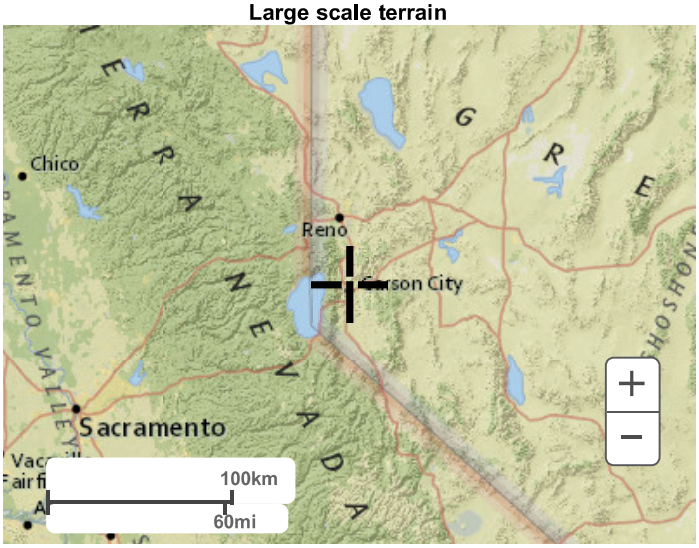
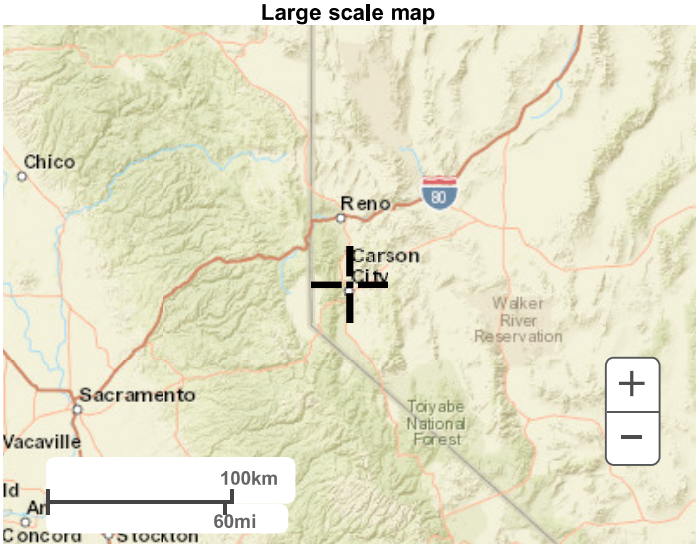
Maps & aerials

Small scale terrain

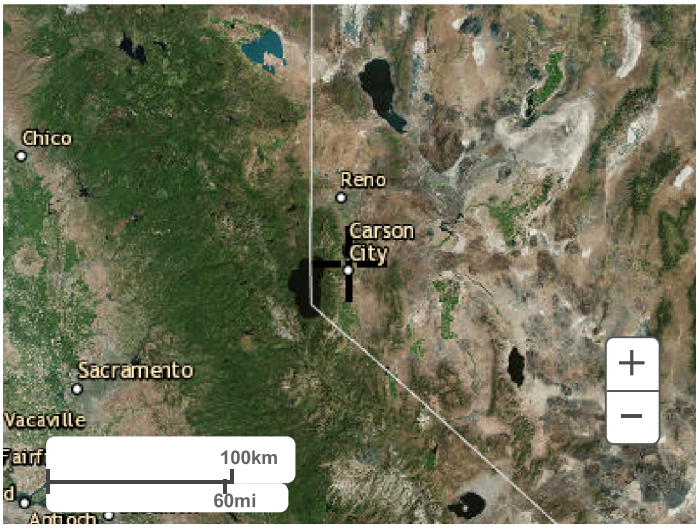
Large scale terrain



Large scale map



Large scale aerial



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Disclaimer

NOAA Atlas 14, Volume 1, Version 5
Location name: Carson City, Nevada, USA*
Latitude: 39.1955°, Longitude: -119.7541°
Elevation: 4717.52 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	**0.099** (0.085-0.116)	**0.122** (0.107-0.146)	**0.163** (0.141-0.194)	**0.203** (0.172-0.240)	**0.267** (0.220-0.317)	**0.326** (0.260-0.389)	**0.395** (0.305-0.477)	**0.478** (0.355-0.587)	**0.611** (0.427-0.766)	**0.731** (0.486-0.934)
10-min	**0.150** (0.129-0.177)	**0.187** (0.162-0.221)	**0.249** (0.213-0.296)	**0.309** (0.262-0.365)	**0.406** (0.335-0.482)	**0.496** (0.396-0.591)	**0.602** (0.465-0.725)	**0.728** (0.540-0.894)	**0.930** (0.650-1.17)	**1.11** (0.741-1.42)
15-min	**0.186** (0.160-0.220)	**0.231** (0.201-0.274)	**0.309** (0.265-0.366)	**0.383** (0.325-0.453)	**0.504** (0.415-0.597)	**0.614** (0.491-0.733)	**0.746** (0.576-0.899)	**0.903** (0.669-1.11)	**1.15** (0.806-1.45)	**1.38** (0.918-1.76)
30-min	**0.250** (0.216-0.296)	**0.312** (0.270-0.370)	**0.416** (0.357-0.494)	**0.516** (0.438-0.610)	**0.678** (0.559-0.805)	**0.827** (0.661-0.988)	**1.00** (0.776-1.21)	**1.22** (0.901-1.49)	**1.55** (1.08-1.95)	**1.86** (1.24-2.37)
60-min	**0.310** (0.267-0.366)	**0.386** (0.334-0.457)	**0.515** (0.441-0.611)	**0.638** (0.542-0.755)	**0.839** (0.692-0.996)	**1.02** (0.818-1.22)	**1.24** (0.960-1.50)	**1.50** (1.12-1.85)	**1.92** (1.34-2.41)	**2.30** (1.53-2.94)
2-hr	**0.416** (0.369-0.476)	**0.516** (0.458-0.591)	**0.658** (0.580-0.752)	**0.783** (0.682-0.894)	**0.972** (0.825-1.11)	**1.14** (0.946-1.32)	**1.33** (1.07-1.56)	**1.56** (1.22-1.86)	**1.96** (1.47-2.43)	**2.33** (1.68-2.97)
3-hr	**0.498** (0.445-0.561)	**0.620** (0.558-0.701)	**0.778** (0.693-0.877)	**0.907** (0.802-1.02)	**1.09** (0.948-1.23)	**1.25** (1.06-1.42)	**1.42** (1.19-1.64)	**1.65** (1.35-1.93)	**2.02** (1.60-2.46)	**2.37** (1.83-3.00)
6-hr	**0.690** (0.619-0.771)	**0.861** (0.774-0.966)	**1.07** (0.955-1.20)	**1.23** (1.09-1.38)	**1.46** (1.27-1.64)	**1.63** (1.41-1.85)	**1.81** (1.53-2.07)	**2.01** (1.67-2.33)	**2.31** (1.87-2.72)	**2.58** (2.04-3.09)
12-hr	**0.910** (0.811-1.02)	**1.14** (1.02-1.29)	**1.44** (1.28-1.62)	**1.67** (1.47-1.88)	**1.98** (1.73-2.24)	**2.22** (1.91-2.53)	**2.46** (2.09-2.84)	**2.71** (2.26-3.17)	**3.05** (2.47-3.63)	**3.32** (2.63-4.01)
24-hr	**1.19** (1.07-1.31)	**1.48** (1.35-1.65)	**1.87** (1.70-2.07)	**2.19** (1.98-2.42)	**2.62** (2.35-2.90)	**2.96** (2.65-3.28)	**3.33** (2.94-3.70)	**3.70** (3.24-4.13)	**4.21** (3.63-4.74)	**4.61** (3.92-5.24)
2-day	**1.41** (1.27-1.59)	**1.77** (1.59-2.00)	**2.26** (2.02-2.54)	**2.65** (2.37-2.98)	**3.19** (2.83-3.60)	**3.63** (3.19-4.11)	**4.09** (3.57-4.65)	**4.57** (3.95-5.24)	**5.23** (4.44-6.06)	**5.76** (4.82-6.75)
3-day	**1.55** (1.39-1.75)	**1.96** (1.75-2.21)	**2.51** (2.24-2.83)	**2.96** (2.63-3.33)	**3.58** (3.16-4.06)	**4.09** (3.58-4.64)	**4.63** (4.01-5.27)	**5.19** (4.45-5.95)	**5.99** (5.04-6.93)	**6.62** (5.50-7.75)
4-day	**1.70** (1.51-1.92)	**2.14** (1.91-2.42)	**2.76** (2.45-3.12)	**3.26** (2.89-3.69)	**3.98** (3.49-4.51)	**4.55** (3.97-5.18)	**5.17** (4.46-5.90)	**5.82** (4.96-6.67)	**6.74** (5.64-7.80)	**7.49** (6.17-8.75)
7-day	**1.98** (1.76-2.24)	**2.50** (2.22-2.83)	**3.24** (2.88-3.67)	**3.83** (3.39-4.33)	**4.66** (4.10-5.29)	**5.32** (4.65-6.05)	**6.01** (5.20-6.86)	**6.74** (5.78-7.73)	**7.75** (6.55-8.99)	**8.56** (7.13-10.0)
10-day	**2.19** (1.94-2.47)	**2.78** (2.47-3.15)	**3.62** (3.20-4.08)	**4.27** (3.77-4.82)	**5.16** (4.53-5.84)	**5.86** (5.11-6.65)	**6.59** (5.70-7.49)	**7.34** (6.29-8.38)	**8.36** (7.08-9.65)	**9.15** (7.66-10.7)
20-day	**2.69** (2.41-3.02)	**3.42** (3.06-3.84)	**4.43** (3.96-4.96)	**5.20** (4.63-5.81)	**6.22** (5.52-6.96)	**7.00** (6.17-7.85)	**7.80** (6.82-8.78)	**8.59** (7.47-9.71)	**9.65** (8.29-11.0)	**10.4** (8.88-12.0)
30-day	**3.08** (2.76-3.45)	**3.92** (3.51-4.38)	**5.06** (4.53-5.65)	**5.92** (5.28-6.60)	**7.07** (6.28-7.88)	**7.94** (7.00-8.88)	**8.82** (7.73-9.90)	**9.70** (8.43-11.0)	**10.9** (9.34-12.4)	**11.8** (10.0-13.5)
45-day	**3.62** (3.25-4.02)	**4.61** (4.13-5.11)	**5.93** (5.32-6.57)	**6.91** (6.19-7.65)	**8.17** (7.29-9.06)	**9.10** (8.09-10.1)	**10.0** (8.85-11.1)	**10.9** (9.58-12.1)	**12.0** (10.4-13.5)	**12.7** (11.1-14.4)
60-day	**4.17** (3.73-4.64)	**5.33** (4.77-5.93)	**6.86** (6.14-7.62)	**7.95** (7.10-8.82)	**9.31** (8.30-10.3)	**10.3** (9.14-11.5)	**11.2** (9.94-12.5)	**12.1** (10.7-13.5)	**13.1** (11.5-14.8)	**13.8** (12.1-15.6)

[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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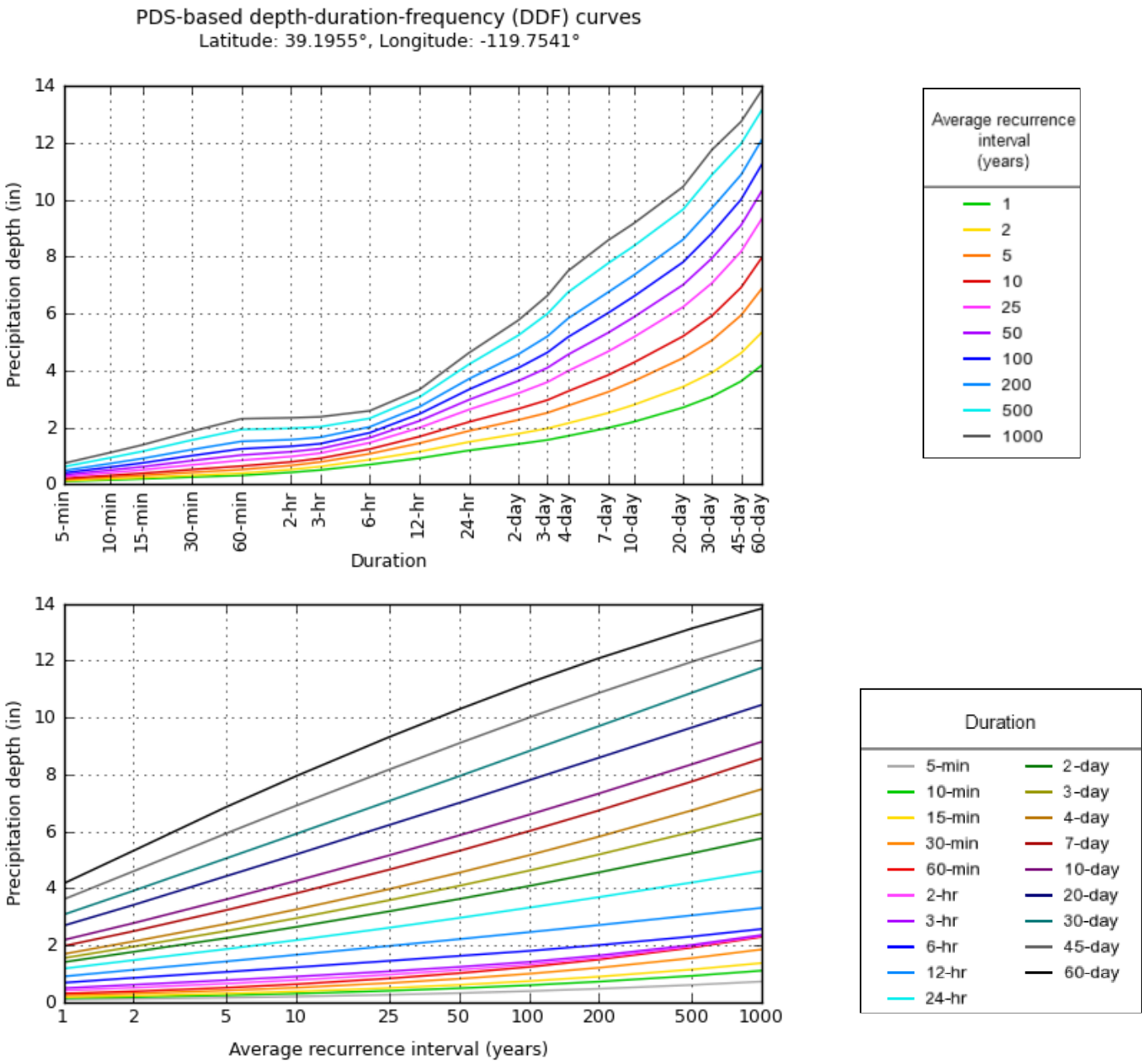
PF graphical



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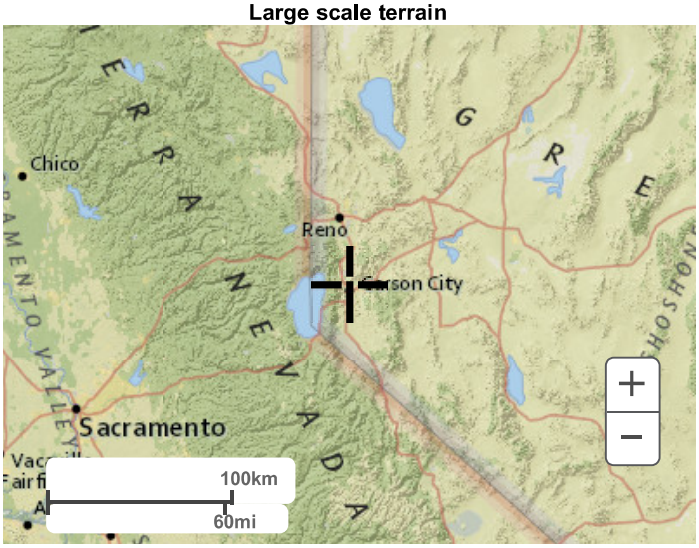
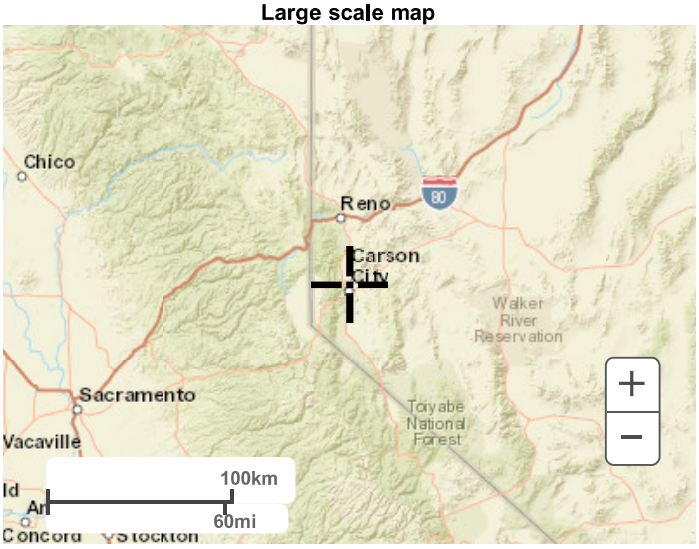
Maps & aerials

Small scale terrain

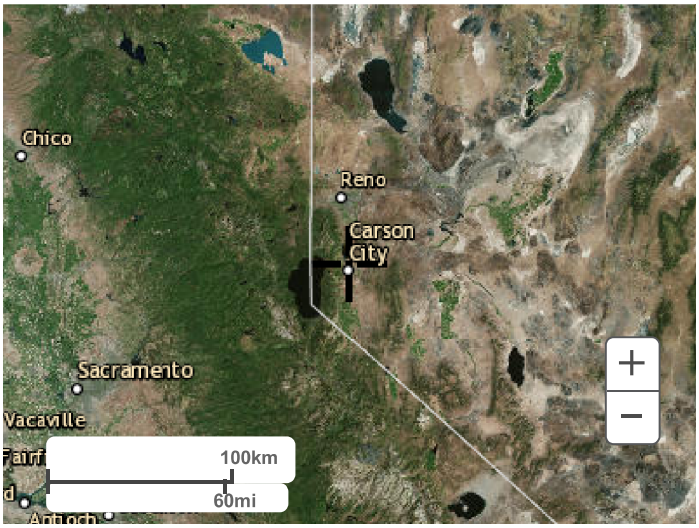
Large scale terrain



Large scale map



Large scale aerial



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National Weather Service
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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Carson City Area, Nevada

October 12, 2016

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

MAP LEGEND

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

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
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: Carson City Area, Nevada
Survey Area Data: Version 9, Aug 28, 2015

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

Date(s) aerial images were photographed: Jun 26, 2013—Jul 28, 2013

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.

Map Unit Legend

Carson City Area, Nevada (NV629)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
4	Bishop loam, saline	0.8	2.0%
35	Indiano variant gravelly fine sandy loam, 4 to 15 percent slopes	16.1	42.8%
58	Surprise coarse sandy loam, 2 to 4 percent slopes	19.1	50.8%
74	Vamp fine sandy loam, slightly saline-alkali	1.7	4.4%
Totals for Area of Interest		**37.7**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic

classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Carson City Area, Nevada

4—Bishop loam, saline

Map Unit Setting

National map unit symbol: 2nnnd
Elevation: 4,500 to 4,700 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 49 to 50 degrees F
Frost-free period: 100 to 110 days
Farmland classification: Not prime farmland

Map Unit Composition

Bishop and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bishop

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 28 inches: loam
H2 - 28 to 60 inches: stratified sandy loam to clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 18 to 24 inches
Frequency of flooding: Occasional
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 13.0
Available water storage in profile: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): 4w
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C/D
Ecological site: WET MEADOW 10-14 P.Z. (R026XY003NV)
Hydric soil rating: No

Minor Components

Voltaire

Percent of map unit: 5 percent

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: WET SODIC BOTTOM (R026XY002NV)
Hydric soil rating: Yes

35—Indiano variant gravelly fine sandy loam, 4 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2nnpd
Elevation: 4,600 to 5,000 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 100 to 110 days
Farmland classification: Not prime farmland

Map Unit Composition

Indiano variant and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Indiano Variant

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Colluvium and/or residuum

Typical profile

H1 - 0 to 11 inches: gravelly fine sandy loam
H2 - 11 to 29 inches: gravelly clay loam
R - 29 to 39 inches: bedrock

Properties and qualities

Slope: 4 to 15 percent
Depth to restrictive feature: 24 to 39 inches to lithic bedrock
Natural drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: C
Ecological site: STONY SLOPE 8-10 P.Z. (R026XY022NV)
Hydric soil rating: No

58—Surprise coarse sandy loam, 2 to 4 percent slopes

Map Unit Setting

National map unit symbol: 2nnq4
Elevation: 4,500 to 4,700 feet
Mean annual precipitation: 10 to 16 inches
Mean annual air temperature: 50 to 52 degrees F
Frost-free period: 100 to 110 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Surprise and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Surprise

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 18 inches: coarse sandy loam
H2 - 18 to 37 inches: stratified gravelly sandy loam to gravelly loam
H3 - 37 to 60 inches: stratified very gravelly sandy loam to gravelly sandy loam

Properties and qualities

Slope: 2 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Available water storage in profile: Moderate (about 6.1 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 6s
Hydrologic Soil Group: A
Ecological site: LOAMY 10-12 P.Z. (R026XY010NV)
Hydric soil rating: No

74—Vamp fine sandy loam, slightly saline-alkali

Map Unit Setting

National map unit symbol: 2nnqn
Elevation: 4,500 to 4,700 feet
Mean annual precipitation: 8 to 10 inches
Mean annual air temperature: 49 to 51 degrees F
Frost-free period: 100 to 110 days
Farmland classification: Not prime farmland

Map Unit Composition

Vamp and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Vamp

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Alluvium derived from mixed

Typical profile

H1 - 0 to 3 inches: fine sandy loam
H2 - 3 to 36 inches: stratified fine sandy loam to silt loam
H3 - 36 to 42 inches: cemented material
H4 - 42 to 60 inches: stratified loamy sand to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 39 inches to duripan
Natural drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 36 to 60 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum in profile: 5 percent
Salinity, maximum in profile: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 30.0
Available water storage in profile: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): 3w
Land capability classification (nonirrigated): 6w
Hydrologic Soil Group: C
Ecological site: SALINE BOTTOM (R026XY004NV)
Hydric soil rating: No

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Appendix I

24x36 Site Plan

GENERAL SITE INFORMATION:

APN: 008-123-40
AREA: 38.61 AC
PROPERTY ADDRESS: 1400 OLD HOT SPRINGS ROAD
ZONING: TOURIST COMMERCIAL
SETBACKS: 20' MINIMUM
PROPOSED OCCUPANCY: RV RESORT

EXISTING BUILDING AREA: 0 SF
PROPOSED TOTAL BUILDING AREA: 18,500 SF
MAX BUILDING HEIGHT: 2 STORIES OR 26 FT

PROPOSED TOTAL PAVED AREA: 614,066 SF
PROPOSED TOTAL IMPERVIOUS AREA (NOT INCLUDING BUILDING AREA): 928,022 SF

EXISTING LANDSCAPE AREA: NONE

LANDSCAPE REQUIRED:
20% OF THE IMPERVIOUS SURFACE, NOT INCLUDING THE BUILDINGS:
928,022 X 0.20: 185,605 SF
TREES REQUIRED AT 1 PER 400 SF: 465
SHRUBS REQUIRED AT 6 PER TREE: 2,790

LANDSCAPE PROVIDED & ESTIMATED WATER USAGE:
DRIP IRRIGATION (MIN. 465 TREES, 2,790 SHRUBS): 1,630,800 GAL/YEAR (32 WEEKS, 2X/WEEK) OR 4,468 GAL/DAY*
LAWN IRRIGATION (75,000 SF): 2,992,300 GAL/YEAR OR 8,198 GAL/DAY*
TOTAL IRRIGATION DEMAND: 4,623,100 GAL/YEAR OR 12,666 GAL/DAY*
*AVERAGED OVER 365 DAYS

PROVIDED PARKING SPACES: SEE PARKING TABLE

PROVIDED RV SPACES:

BACK IN	158
PULL THROUGH	57
TOTAL	215

TRAFFIC IMPACTS:
SEE TRIP GENERATION TABLE

UTILITIES:
EXISTING 8" SEWER AND 16" WATER IN OLD HOT SPRINGS ROAD. PROPOSED 8" SEWER WILL TIE INTO EXISTING SS MANHOLE. PROPOSED 8" WATER WILL TEE INTO EXISTING 16" WATER MAIN.

DOMESTIC WATER USAGE:
ESTIMATE 150 GAL/DAY/SPACE: 32,000 GAL/DAY AT 100% OCCUPANCY
ACCESSORY USES (CLUB HOUSE/SWMMING POOL/CASINO/RESTAURANT/MANAGER RESIDENCE/ETC): ESTIMATED 15,000 GAL/DAY

SEWER GENERATION:
ESTIMATED 50,000 GAL/DAY

SIGNS:
MONUMENT SIGN AT ENTRANCE ON HOT SPRINGS ROAD

POSSIBLE SALE OF PROPANE ON PROPERTY.

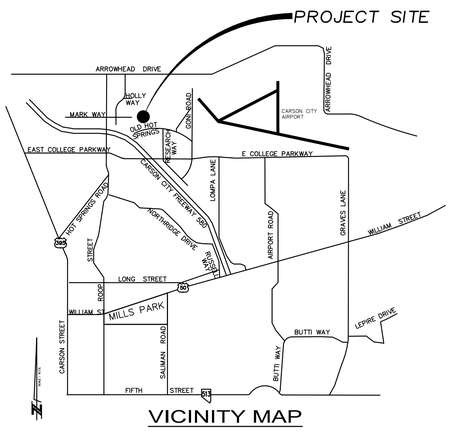
NO NATURAL SLOPES OVER 15%.
NO EXISTING TREES ON PROPERTY.
NO FAULT LINES EXIST WITHIN PROPERTY LIMITS.

DRAINAGE:
EXISTING GROUND GENERALLY SLOPES FROM THE NORTH EAST CORNER OF THE PROPERTY TO THE SOUTH WEST CORNER OF THE PROPERTY. NO EXISTING DRAINAGE EXISTS. PROPERTY IS DISTURBED BUT UNDEVELOPED.
PROPOSE ABOVE GROUND STORM WATER DETENTION BASIN IN SOUTH WEST CORNER.

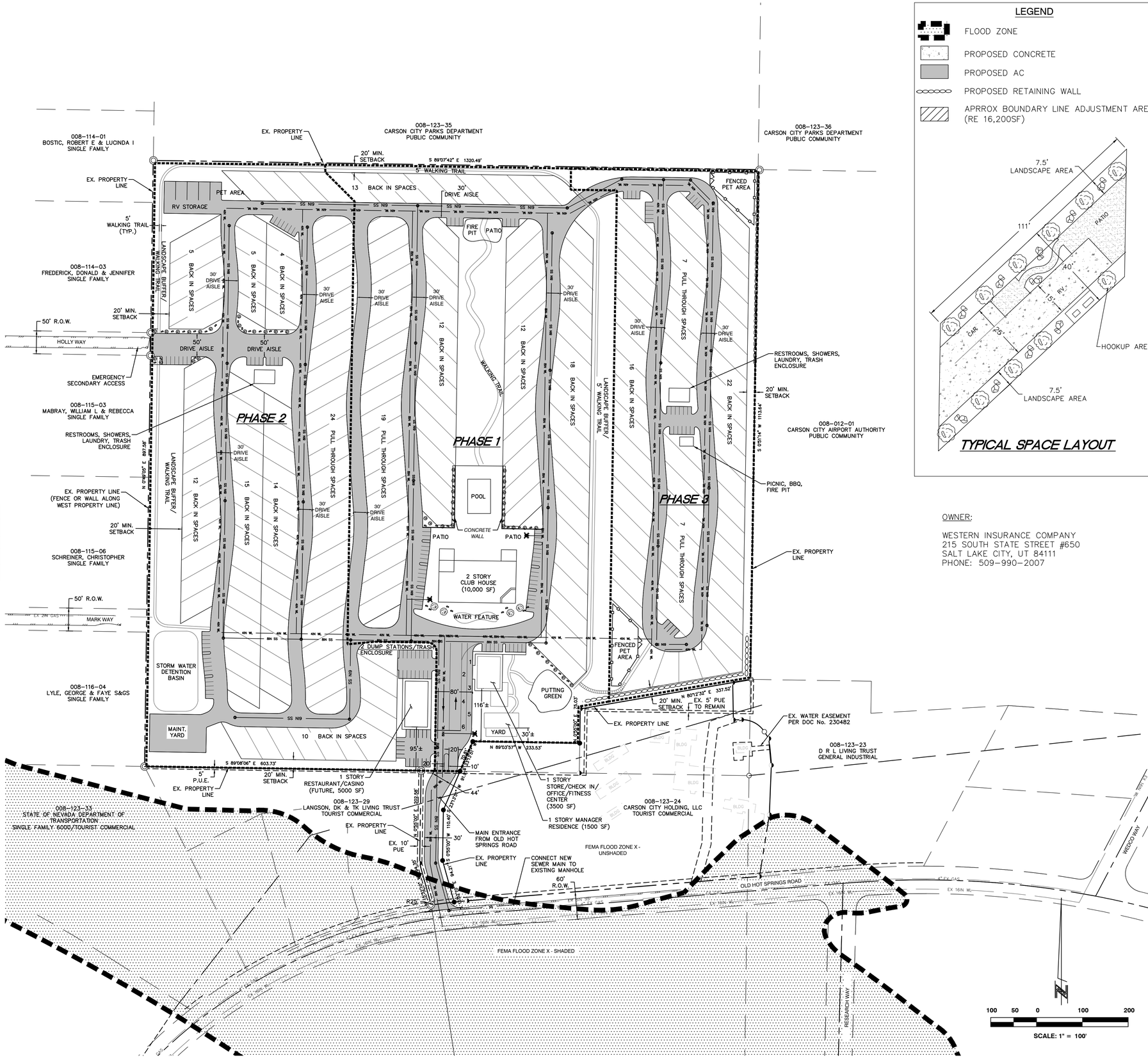
TRIP GENERATIONS						
LAND USE	QUANTITY	ADT	AM PEAK HOUR		PM PEAK HOUR	
			IN	OUT	IN	OUT
CAMPGROUND/ RECREATIONAL	215	726.7	19.4	34.4	54.7	33.5
SOURCE: INSTITUTE OF TRANSPORTATION ENGINEERS, TRIP GENERATION MANUAL, 9TH EDITION						

PARKING RATIO TABLE		
	SPACES REQUIRED	SPACES PROVIDED
RV RESORT	1 PER SPACE=215	215
MANAGERS RESIDENCE	2 SPACES PER DWELLING=2	2
CLUB HOUSE	1 PER 275SF=36	36
RESTAURANT/ CASINO	1 PER 150SF=33	33
CHECK IN/STORE/ FITNESS CENTER	1 PER 150 SF=23	14
OTHER PARKING	–	74
TOTAL	309*	374

* DOES NOT CONSIDER EMPLOYEE PARKING



VICINITY MAP



LEGEND

- FLOOD ZONE
- PROPOSED CONCRETE
- PROPOSED AC
- PROPOSED RETAINING WALL
- APRROX BOUNDARY LINE ADJUSTMENT AREA (RE 16,200SF)

TYPICAL SPACE LAYOUT

OWNER:

WESTERN INSURANCE COMPANY
215 SOUTH STATE STREET #650
SALT LAKE CITY, UT 84111
PHONE: 509-990-2007

LUMOS & ASSOCIATES
800 E. COLLEGE PARKWAY
CARSON CITY, NEVADA 89706
TEL (775) 883-7077
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WWW.LUMOSINC.COM

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ROGER SHAHEEN

SIERRA SKIES RV RESORT
1400 OLD HOT SPRINGS ROAD
SPECIAL USE PERMIT

CARSON CITY NEVADA

REV	DATE	DESCRIPTION	BY

1

DATE: OCTOBER 2016
DRAWN BY: KLN
DESIGNED BY: KLN
CHECKED BY: MDB
JOB NO.: 8917.000

L:\APro\8917.000 – 1100 Mark Way\DWG\Civil 3D\8917000 BASE.dwg,SUP SITE PLAN, 10/19/2016 01:35 pm Kdavison