

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

FOR OFFICE USE ONLY:

CCMC 17.07 and 17.09

FILE # TPUD - -

**TENTATIVE MAP FOR A
 PLANNED UNIT DEVELOPMENT**

APPLICANT PHONE #
 Sierra Skies RV Resort, LLC (775) 883-3040

FEE*: \$3,450.00 + noticing fee

*Due after application is deemed complete by staff

MAILING ADDRESS, CITY, STATE, ZIP
 PO Box 1781, Carson City, NV 89702

EMAIL
 rlsfoxwood@gmail.com

- SUBMITTAL PACKET – 4 Complete Packets (1 Unbound Original and 4 Copies) including:**
 - Application Form including Applicant's Acknowledgment
 - Property Owner Affidavit
 - Copy of Conceptual Planned Unit Development Letter
 - Detailed Written Project Description
 - Building Elevations
 - Proposed Street Names
 - Master Plan Policy Checklist
 - Draft CC&Rs
 - Wet Stamped Tentative Map (24" x 36")
 - Reduced Tentative Map (11" x 17")
 - Conceptual Drainage Study
 - Geotechnical Report
 - Traffic Study (if applicable)
 - Documentation of Taxes Paid to Date

PROPERTY OWNER PHONE #
 Sierra Skies RV Resort, LLC (775) 883-3040

MAILING ADDRESS, CITY, STATE, ZIP
 PO Box 1781, Carson City NV 89702

EMAIL
 rlsfoxwood@gmail.com

CD or USB DRIVE with complete application in PDF

- STATE AGENCY SUBMITTAL including:**
 - 2 Wet-stamped copies of Tentative Map (24" x 36")
 - Check made out to NDEP for \$400.00 + \$3/lot
 - Check made out to Division of Water Resources for \$180.00 + \$1/lot

APPLICANT AGENT/REPRESENTATIVE PHONE #
 Resource Concepts, Inc. (775) 883-1600

MAILING ADDRESS, CITY, STATE, ZIP
 340 N. Minnesota St., Carson City, NV 89703

EMAIL
 Rachel@rci-nv.com

Application Reviewed and Received By:

Project's Assessor Parcel Number(s)
 008-123-40

Submittal Deadline: Refer to the Planning Commission application submittal schedule.

Project's Street Address
 1400 Old Hot Springs Road

Nearest Major Cross Street(s)
 College Pkwy. and Goni Road

Note: Submittals must be of sufficient clarity and detail for all departments to adequately review the request. Additional information may be required.

Project's Master Plan Designation
 Community/Regional Community

Project's Current Zoning
 Tourist Commercial

Project Name
 Sierra Skies RV Resort

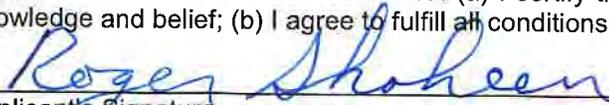
<u>Total Project Area</u>	<u>Number of Lots</u>	<u>Smallest Parcel Size</u>
38.61	233	3,300 SF 3,257 SF

Please provide a brief description of your project below including specific modifications to Carson City's land use regulations requested as a part of this application. Provide additional pages to describe your request in more detail.

Development of RV Resort with 227 separate RV Parcels and 6 common area lots. Refer to project description for detail.

NOTE: If your project is located within the Historic District or airport area, it may need to be scheduled before the Historic Resources Commission or the Airport Authority in addition to being scheduled for review by the Planning Commission. Planning staff can help you make this determination.

ACKNOWLEDGMENT OF APPLICANT: (a) I certify that the foregoing statements are true and correct to the best of my knowledge and belief; (b) I agree to fulfill all conditions established by the Board of Supervisors.


 Applicant's Signature

08/09/19
 Date

PROPERTY OWNER'S AFFIDAVIT

I, ROGER SHAHEEN, being duly deposed, do hereby affirm that I am the record owner of the
(Print Name)

subject property located at 1400 OLD HOT SPRINGS ROAD, and that I have knowledge of, and I agree to, the
(Property Address and APN)

filing of this Tentative Planned Unit Development application.

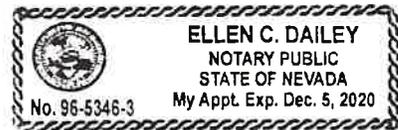
Roger Shaheen
Signature

PO Box 1781 Carson City NV 89701
Address

08/09/19
Date

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

STATE OF NEVADA)
COUNTY CARSON CITY)



On AUGUST 9th, 2019, 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.

Ellen C. Dailey
Notary Public



Carson City Planning Division

108 E. Proctor Street
 Carson City, Nevada 89701
 (775) 887-2180-Hearing Impaired:711
www.carson.org
www.carson.org/planning

June 28, 2019

Rachel Kryder
 Resource Concepts, Inc.
 340 N. Minnesota Street
 Carson City, NV 89703

SITE INFORMATION:

Location:	1400 Old Hot Springs Road
APN:	008-123-40
Master Plan Designation:	Community/Regional Commercial
Zoning:	Tourist Commercial
Parcel size:	38.61 acres
Subject:	Sierra Skies RV Park PUD

PROJECT DESCRIPTION: A commercial Planned Unit Development involving the division of the subject parcel into 227 RV space lots and common area parcels, with associated roadway system and open space.

The following is a summary of the comments you received at the Conceptual Review meeting held on June 18, 2019 regarding the subject project.

PLANNING DIVISION –

Contact Heather Ferris, Associate Planner, 775-283-7080

1. The application for a Planned Unit Development (PUD) should address all of the PUD standards identified in Chapter 17.09 of the Carson City Municipal Code.
2. The Tourist Commercial zoning district requires a minimum lot size of 6000 square feet. As a PUD is being contemplated, a smaller lot size can be utilized. With the PUD application, please be sure to call out the extent of deviation from the dimensional criteria associated with the Tourist Commercial zoning district, including deviation from the minimum lot size, and deviation from any setbacks.
3. The Conceptual Map application indicates requested deviations from CCMC 18.09.090 which requires a specific number of restrooms, including showers. Please be sure to address this request in detail outlining what would be required and what you are proposing to provide, as well as any additional supporting information/documentation that may support the argument for such a reduction.
4. The PUD application must include the use, height, size, and allocation of all structures, walls, fences, character of material, and texture of buildings and

grounds (color perspective) and elevation perspectives of structures in relation to adjacent buildings shall also be indicated.

5. The application must include an analysis of how you are meeting the requirements outlined in CCMC 18.09- *Recreational Vehicle Parks*.
6. Thirty percent of the gross area must be open space. Please be sure to include and exhibit which demonstrates how each phase will comply with this requirement.
7. Parking requirements for RV parks are not specifically listed within the City's parking standards. Division 2.2 of the Development Standards outlines the required number of parking spaces and states "off-street parking requirements for uses not herein specified shall be determined by the director." Please be sure your PUD application provides documentation from an accredited source (e.g., latest version of the ITE parking manual) supporting the number of vehicle parking spaces you are providing.
8. Please provide a copy of the DRAFT CC&R's with your application.
9. The Airport has previously expressed concerns with the potential for pools and water features on-site to attract birds which could result in possible bird strikes due to the proximity of this project site to the airport. It is recommended you reach out to the Airport in advance of submitting your Tentative Planned Unit Development application in order to discuss any concerns they may have related to the proposed pool or the project as a whole. *Note: Staff has contacted the Airport and anticipates comments in the coming week.*
10. The previously approved Growth Management application, GM-18-190, was approved on January 30, 2019 and is tied to the approved Special Use Permit. Please submit a new Growth Management application with the Tentative Planned Unit Development for consideration by the Growth Management Commission.

ENGINEERING AND UTILITIES –

Contact Stephen Pottley, Project Manager, 775-283-7079

11. Sunset and Sunrise cannot be used as street names.
12. Per CCDS 12.4 a subdivision must have at least 2 fully operational points of access. One or more access points may be gated with an automatic gate. If an entrance is gated it must meet CCFD requirements.
13. All interior streets and utilities must be privately owned and privately maintained.
14. Interior streets must meet the Special Street Section C-5.1.8.1. The sidewalks may be within the lots given access easements.
15. The ITE trip generation rate submitted for the SUP is not representative of the subject project. The proposed tentative map or any revision to the SUP will require using the Mobile Home Park trip generation rates. This will trigger the need for a

- traffic impact study. Please contact Dirk Goering at 775-283-7431 for study scoping.
16. Water, sewer, and storm drain impact memos will need to be resubmitted with the tentative map.
 17. For site improvement permitting, a wet stamped sewer analysis must be submitted that includes addressing the effect of flows on the existing City system. See section 15.3.2 of CCDS.
 18. For site improvement permitting, a wet stamped main analysis must be submitted in accordance with CCDS 15.3.1(a) to show that adequate pressure will be delivered to the meter and fire flows meet the minimum requirements of the Carson City Fire Department. This project is near a zone split, the property is currently on the 4960 zone, but changing demand patterns may necessitate moving the property to the 4880 zone. The analysis should assume that the property will be on the 4960 zone, but should also include discussion about what upgrades the property may have to make should the property be moved. The 4880 zone meets low pressure requirements, however, privately owned and maintained booster pumps may be required to ensure proper flow and pressure throughout the project. Please contact Tom Grundy, P.E. at (775) 283-7081 for fire flow test data.
 19. For site improvement permitting, a Technical Drainage Study meeting the requirements of section 14 of the Carson City Development Standards must be submitted with the permit and plans. This study must analyze the capacity, existing demand, and the new imposed demand where drainage crosses Old Hot Springs Road.
 20. The sewer main in Hot Springs Rd will need to be extended to the new entrance on Old Hot Springs Rd, and along the length of the part of the property that touches the right-of-way.
 21. For site improvement permitting, the grading and drainage plan must show how the emergency exit will connect to Holly Way, and how drainage will be handled. Existing swales and proposed detention facilities must be shown.
 22. The maintenance road needs to be on the west side of the channel, with gates on the north and south property lines, and at Mark Wy.
 23. All parking areas must either be AC pavement or concrete.
 24. A geotechnical report must be provided with the tentative map application. This site was formerly used to deposit fill, and the bearing capacities of the soils are unknown.
 25. A sampling tap is requested to be included in a common area of the project near the entrance. Our standard for sampling taps is the Kupferle Eclipse #88 or approved equal.

26. Any engineering work done on this project must be wet stamped and signed by an engineer licensed in Nevada. This will include site, grading, utility and erosion control plans as well as standard details.
27. All construction work must be to Carson City Development Standards (CCDS) and meet the requirements of the Carson City Standard Details.
28. Fresh water must be used for Dust control. Contact Rit Palmer at Public Works at 283-7382 for more information.
29. It is likely that a separate fire line will be necessary. If a commercial fire line is required, the system must be designed by an engineer. The backflow preventer assembly must be above ground in a hot box, and located as close to the property line (on the private side) as possible. Please see Chapter 445A of Nevada Administrative Code.
30. A private testing agreement will be necessary for the compaction and material testing in the street right of way. The form can be obtained through Carson City Permit Engineering.
31. The domestic water service line will need a backflow preventer as shown in Chapter 445A of the Nevada Administrative Code.
32. The irrigation service will need a reduced pressure backflow preventer if a vacuum breaker system cannot be designed to operate properly.
33. An erosion control plan meeting section 13 of CCDS will be required in the plan set.
34. New electrical service must be underground.
35. Please show gas and electric connections for this project.
36. Any work performed in the street right of way will require a traffic control plan and a time line type schedule to be submitted before the work can begin. A minimum of one week notice must be given before any work can begin in the street right of way.
37. A Construction Stormwater Permit from the Nevada Division of Environmental Protection (NDEP) will be required for the construction of phases 1 acre or greater.
38. A Dust Control Permit from NDEP will be required for any phases 5 acres or greater.

These comments are based on a very general site plan and do not indicate a complete review. All pertinent requirements of Nevada State Law, Carson City Code, and Carson City Development Standards will still apply whether mentioned in this letter or not.

FIRE DEPARTMENT –

Contact Casey Drews, Fire Inspector 775-283-7160

39. Project must comply with the currently adopted International Fire Code and

Northern Nevada Fire Code Amendments.

40. Additional fire hydrants are required. Spacing in RV area must be no more than 500 feet between hydrants.
41. All turns need to have 30 foot inside radius and 50 foot outside radius.
42. All vehicle gates leading on and off the property need to have Knox key switches.
43. Clubhouse requires fire sprinklers. Sprinklers must be electronically monitored (fire alarm).
44. Fire Department Connection for clubhouse must be within 100' of the fire hydrant.
45. Sunset and Sunrise are already street names in Carson City and will need to be changed.

PARKS AND RECREATION-

Contact Vern Krahn, Senior Park Planner, 775-283-7343

46. The property to the north (APN 008-123-35) is owned and managed by Carson City. The property is intended for public use. Future use of this property could involve noise, dust, glare, and other activities.
47. The applicant shall provide a 6' tall chain link fence along the north and east property line, adjacent to the City and Carson City Airport Authority's properties. If the fence's privacy slats receive graffiti on either side of the fence, it will be the applicant's responsibility to remove the graffiti, per CCMC. Any fence's maintenance will be the responsibility of the applicant into perpetuity.
48. The landscape plan for the project's north and east buffer areas will use plant material identified in the University of Nevada Cooperative Extension's publication; choosing the Right Plants for Northern Nevada's High Fire Hazard Areas. Final plant material selection will need to be approved by Community Development, Carson City Fire Department, and Parks, Recreation & Open Space Department. Landscape maintenance and any required plant material replacement necessary to maintain the landscape buffer will be the responsibility of the applicant into perpetuity. The City will require the plant material in the landscape buffer areas be irrigated with an automatic drip irrigation system.
49. The Parks, Recreation & Open Space Department will not be responsible for the maintenance of any landscape, open space, or buffer areas required by Community Development on the proposed project.
50. No construction activities, access routes, material storage, or contractor related parking will be allowed on the adjacent City property (APN 008-123-35).
51. The applicant at his expense will survey the project's north and east property line, install an orange construction fence or a fence approved by the City to prevent any construction related activities from occurring on the adjacent properties and

maintain the fence's integrity until project's construction is completed or until the 6' chain link fence has been permanently installed.

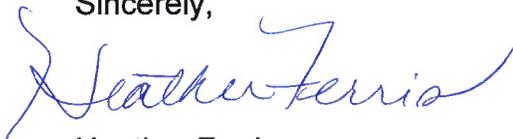
52. The applicant shall incorporate "Best Management Practices" into the project's construction documents and specifications to reduce the spread of noxious weeds. The Parks, Recreation, & Open Space Department is willing to assist the applicant with this aspect of their project.
53. Carson City is a Bee Friendly USA City. As a result, the applicant shall use approximately 50% pollinator friendly plant material for any required landscape or open space areas on the project site (refer to comment 48 above). The Parks, Recreation & Open Space Department has provided the applicant with a recommended tree and shrub species list (Refer to attached document). Also, any remaining landscape plant material selection needs to be consistent with the City's approved tree species list or other tree species, as approved by the City.

Comments presented in this letter may not include all the requirements or conditions which may be placed on the project at the time of final review by the Planning Commission and Board of Supervisors.

You may also note comments provided by various city staff at the conceptual review meeting that may not have been included in any written comments. If you have any questions, please feel free to contact me.

I look forward to continuing to work with you on your project.

Sincerely,



Heather Ferris
Associate Planner

cc: CPUD-19-087
Conceptual Review Committee



Resource Concepts Inc

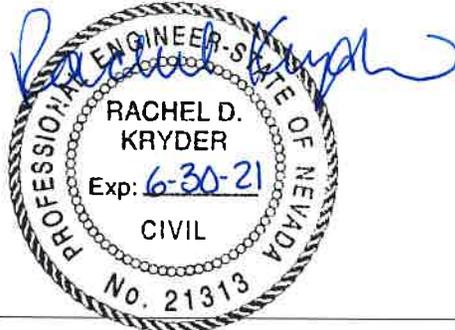
Engineering • Surveying • Water Rights
Resource & Environmental Services

www.rci-nv.com

CARSON CITY OFFICE
340 N. Minnesota St.
Carson City, NV 89703-4152
Ph: 775 / 883-1600
Fax: 775 / 883-1656

Memorandum

DATE: August 14, 2019
TO: Carson City Planning Division
FROM: Rachel Kryder, P.E.
RCI PROJECT: Sierra Skies RV (18-135.5A)
SUBJECT: Tentative PUD Project Description



8-14-19

EXISTING SITE DESCRIPTION

The subject site is an approximately 38.61-acre undeveloped property located at 1400 Old Hot Springs Road in Carson City, Nevada. The property is also known as Carson City Assessor's parcel number 008-123-40. The site is located north of Old Hot Springs Road and south of Arrowhead Drive. The property is approximately 1,320 ft (1/4 mile) west of Goni Road and the west boundary of the Carson City Airport.

General Site Characteristics

The elevation of the subject property varies, with lower areas at the southern end of the property adjacent to Old Hot Springs Road, and higher areas to the north and east side of the property. Most of the site has been built up with fill materials excavated from construction of the nearby Interstate 580. Due to the prior fill activities, no significant vegetation exists on the site, including any trees or shrubs. No existing structures are located on the site, aside from a well shed in very poor condition. An existing drainage basin is located in the southwest portion of the property and consists of the same fill material as the rest of the site. The east portion of the site is higher than the remainder of the site, and includes side slopes up to 2:1. The site generally drains from north to south, with elevations ranging from approximately 4703 ft adjacent to Old Hot Springs Road to approximately 4750 ft at the northeast corner of the property.

FEMA Flood Zone

The property is located almost entirely outside of the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area, classified as Zone X (unshaded). The most southern portion of the property, adjacent to Old Hot Springs Road is located within the Zone X (shaded), which is not a Special Flood Hazard Area, and is considered low risk for flooding. An excerpt of the Flood Insurance Rate Map (FIRM) is included in the Conceptual Drainage Study, included with this application. Based on information provided by Carson City, there is a proposed revision to FEMA flood zones in this area, including new Zone AH along the north and west boundaries of the site. The proposed development is designed to maintain and improve drainage channels to convey stormwater in the affected areas on-site.

Utilities

Existing water and sewer mains are located adjacent to the subject property within the right-of-way of Old Hot Springs Road, as shown on the Site Plan included with the Tentative PUD plans. An 8-inch gravity-flow sanitary sewer line runs within the right-of-way, which flows east to Research Way, then south to College Parkway where the sewer joins an 18-inch diameter gravity main. An 16-inch water main is located south of the property within Old Hot Springs Road, with associated existing fire hydrants and service connections to nearby properties. In preparation for development of Sierra Skies RV Resort, water and sewer lines have been installed, connecting to existing infrastructure in Old Hot Springs Road and extending to the north toward the proposed development. The new infrastructure includes 10-inch fire protection and 4-inch potable water lines with appropriate backflow protection and metering, as well as an 8-inch sewer line. A new fire hydrant has been installed on-site. In addition to the existing and recently installed fire hydrants, new fire hydrants will be installed as part of this project; preliminary hydrant placement is as shown on the plans. Hydrant flow testing was performed in September 2018 by Carson City Public Works, which indicated there are adequate flows and pressures in the portion of the system the project will connect to. All interior streets and utilities will be privately owned and maintained. Network hydraulic modeling will be completed in conjunction with utility design for the site. Water use and sewer flow calculations are provided in the Water, Sewer, and Storm Drain Impact Letter, included with this submittal.

Description of Proposed Development

The purpose of this Tentative Planned Unit Development is to allow Sierra Skies RV Resort, LLC to subdivide the RV Resort into individual legal parcels that can be sold to individual parcel owners. This ownership-model RV Resort targets high-end RV/motorcoach owners that have an interest in a less-dense RV development where they own and can improve their lot based on their preferences, within set restrictions. This proposed layout differs somewhat from that approved under MPR 18-044 and SUP 18-181. The proposed RV Resort will have 227 RV spaces (50 fewer than previously approved), configured similarly to the previous layout and with similar amenities. Most lots will be 40 ft wide and 90 ft deep, with larger lots on the upper (east) portion of the site. Each lot will have a 20 ft wide and 60 ft long paver pad with full utility hookups. The RV resort will maintain common areas and amenities owned by an association, including a sales office, gate house, clubhouse (with restroom and laundry facilities), maintenance building, pool, tennis court, pickleball court, café, a 9-hole putting golf course, and open space. Only one stand-alone restroom is proposed near the pool, as all motorcoaches of the class allowed in the development have self-contained restrooms. Buildings will be traditional wood frame construction and will be high quality with architectural interest. No manager's quarters will be constructed on-site, as management is provided by administrative, operations, and security staff. Approximate building square footages are as follows:

Sales office	1,344 SF
Clubhouse	7,029 SF
Café	1,008 SF
Bathhouse	224 SF
Gate house	142 SF
Maintenance	800 SF

Total Building Area 10,547 SF

Upon completion of the Sierra Skies RV Resort, the RV Lots will be able to be improved by the owners, including the ability to construct small accessory structures (such as built-in barbecues, gazebos, etc.). Any additional structures would be subject to Carson City Building Permits, or any other necessary permits, prior to construction.

No hazardous materials are expected to be housed on-site, outside of small individual use propane tanks for barbecues and fire pits, commercial-grade cleaning supplies, and landscape maintenance supplies. The RV Resort will be developed in two phases, with the buildings and amenities being completed in the first phase, along with 132 RV spaces. An additional 95 RV spaces will be developed as part of Phase 2. Improvement of the existing drainage channel along the west portion of the property will be completed as part of Phase 1, and retaining walls and stormwater detention basins will be included as required in both phases. Roads within the RV park will be surfaced with asphalt paving, and every RV site will include water, sewer, electric service, a paver-surface pad, and landscape buffer in the rear and side. Open space will run throughout the development.

Landscaping will be included per Carson City standards and appropriate landscaping plans will be developed as part of improvement plans. Cascading (but not standing) water features are intended for the large open space area within Phase 2.

Parking is provided at each RV space, as well as parking at the sales office and clubhouse/amenities area. ADA spaces are included at each separate common parking area. It is anticipated that after owners enter the Resort and get set up, most on-site traffic will be via bicycle or golf cart on the private roads within the Resort. Three staging lanes are provided for motorcoaches arriving at the Resort, prior to the gate house.

Garbage will be collected from each RV parcel every day by Resort staff and will be taken to a central refuse area in the northwest corner of the development (maintenance area) for collection by normal garbage trucks.

A 30 ft wide drainage easement and access road (with gates at both ends and at Mark Street) is proposed along the west boundary of the site, and will encompass the proposed improved drainage channel, to be maintained by Carson City.

Access

Access to the subject property is proposed from Old Hot Springs Road, with an emergency secondary access to the west, connecting to Holly Way. The proposed main entrance from Old Hot Springs Road has been recently constructed and is 35 feet wide (curb face to curb face). A Traffic Study is currently underway to determine peak AM & PM trips and potential effect on nearby intersections.

Carson City Engineering has requested two fully operational points of access to the development. A single access with emergency secondary access is proposed. While two fully operational points of access are

required for residential subdivisions, RV resorts require only one fully functional access point, as well as an emergency access (as approved previously for an RV Park on this property).

Zoning and Modifications

The project site is currently zoned Tourist Commercial (TC), where an RV Park is an allowed use. While the minimum lot width and area within the TC zone is greater than the proposed individual lots delineated with this proposed Planned Unit Development, CCMC Chapter 17.09 allows for variation in lot size (without limit) for non-residential PUDs. The setbacks required within the TC zone are 0 ft for all sides. No variance will be necessary with this proposed PUD.

CCMC Chapter 18.09.090 provides requirements for accessory buildings and service facilities within RV Parks, based on the number of RV spaces provided. As previously included here, all motorcoaches within the RV Park will have full restrooms, and accessory public restrooms and showers to serve the RV parcels are not proposed or desired. Sierra Skies RV Resort requests exemption from this requirement, based on the recorded restrictions that will be in place for the property, which will specify the recreational vehicles that are permitted. Restrooms to serve the clubhouse and recreation area will be provided within the clubhouse and in a separate building near the pool. All other CCMC regulations pertaining to RV parks will be met.

ORIGIN DATE: 08-13-19

REVISION _____ DATE _____

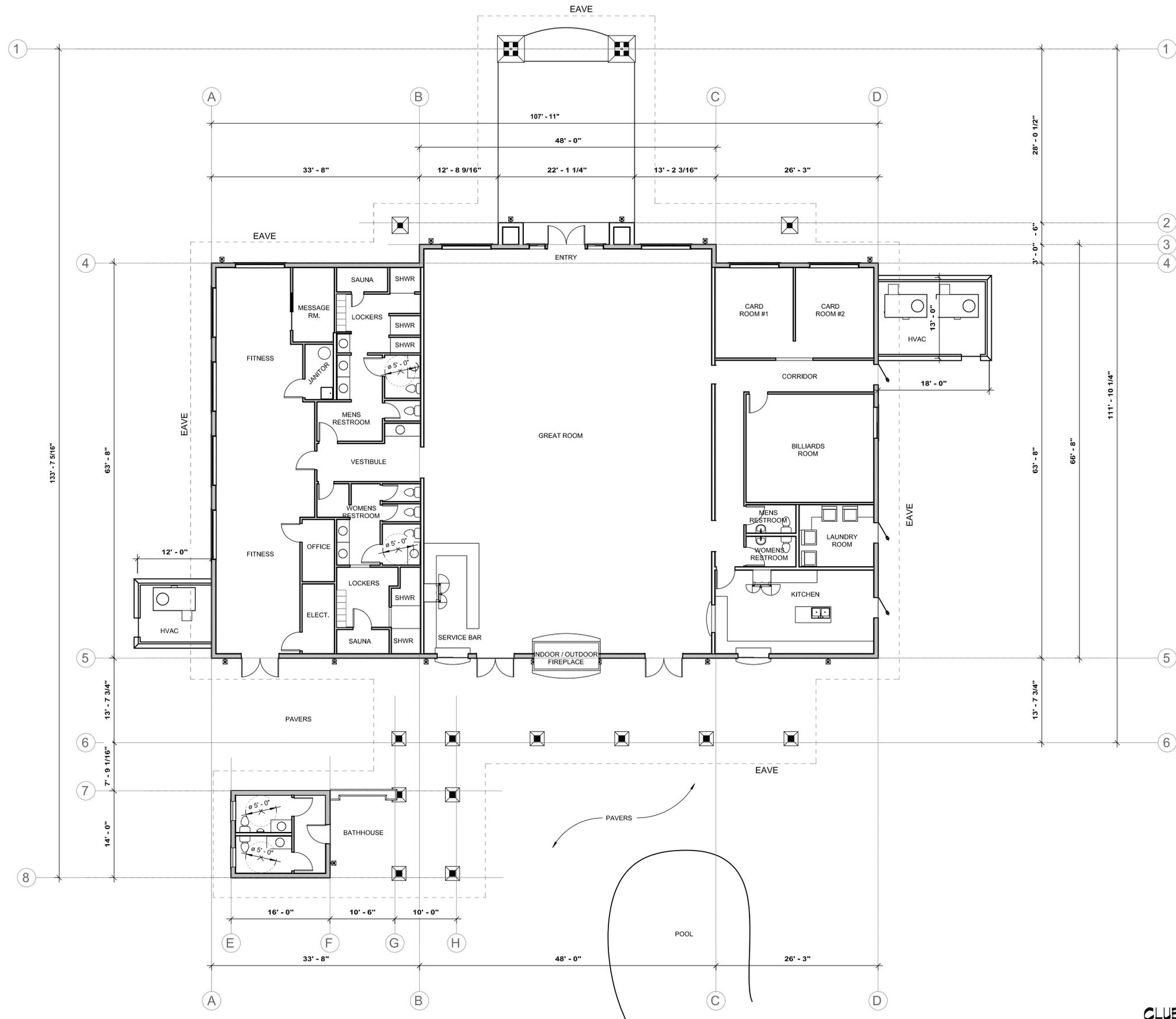
SIERRA SKIES RV RESORT
 1400 HOBO HOT SPRINGS RD.
 CARSON CITY, NV.

PROJECT

CONTRACTOR

JOB#: 19064 DRAWN BY:

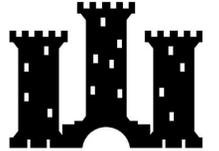
A10 SHEET
 © Three Castles Engineering LLC



CLUBHOUSE FLOOR PLAN

7,079 SQFT.

SCALE: 1/4" = 1'-0"

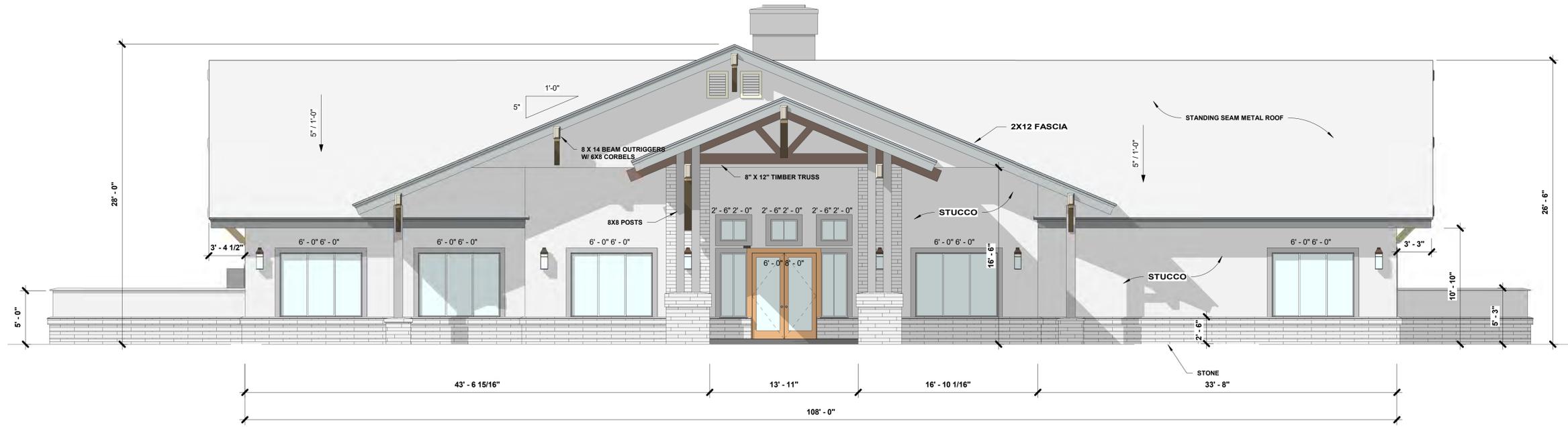


THREE CASTLES ENGINEERING, LLC
An Engineering and Consulting Company

GARY E. THURM, R. P.E., #6505

1228 Pop Circle
Gardenite, NV 89410

Phone: (775) 783-1058 Fax: (775) 783-9259
Email: threecastlesengineering@gmail.com



① North Elevation
3/16" = 1'-0"

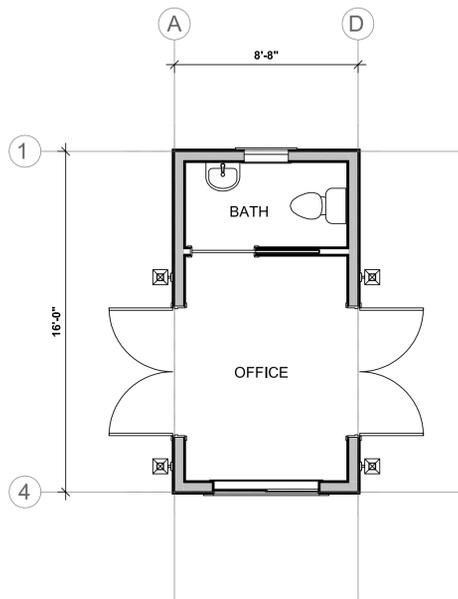
Clubhouse



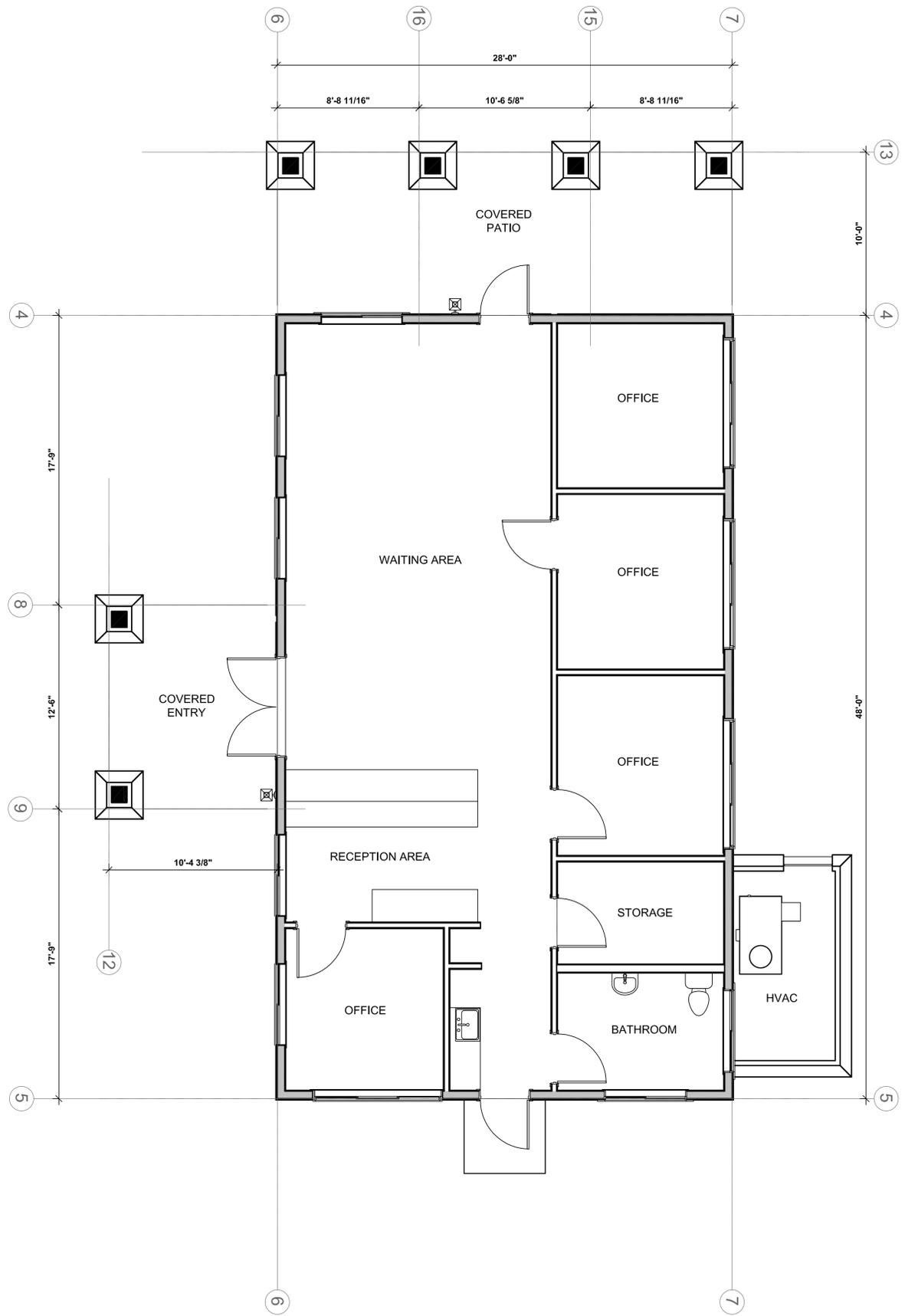
② South Elevation
3/16" = 1'-0"

SIERRA SKIES RV RESORT
1400 HOBO HOT SPRINGS RD.
CARSON CITY, NV.

Clubhouse



GATE HOUSE FLOOR PLAN
 142 SQFT. SCALE: 1/4" = 1'-0"



OFFICE / VISITORS CENTER FLOOR PLAN
 1344 SQFT. SCALE: 1/4" = 1'-0"



THREE CASTLES ENGINEERING, LLC
 An Engineering and Consulting Company
 CARY Z. THURM, JR., P.E. #16595
 1228 MID CIRCLE
 Carlsville, NV 89410
 Phone: (775) 783-1058
 e-mail: threecastlesengineering@charter.net

ORIGIN DATE: 08-13-19

REVISION DATE

SIERRA SKIES RV RESORT
 1400 HOBOT SPRINGS RD.
 CARSON CITY, NV.

PROJECT

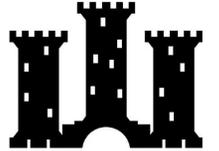
CONTRACTOR

JOB#: 19064 DRAWN BY:

A2.0
 SHEET

© Three Castles Engineering LLC

THIS DOCUMENT IS INTENDED ONLY FOR USE ON THE PROJECT SPECIFIED IN THE TITLE BLOCK. NO WARRANTIES ARE IMPLIED EXCEPT FOR THIS PROJECT AND SPECIFIC LOCATION AUTHORIZED BY THIS ENGINEER.

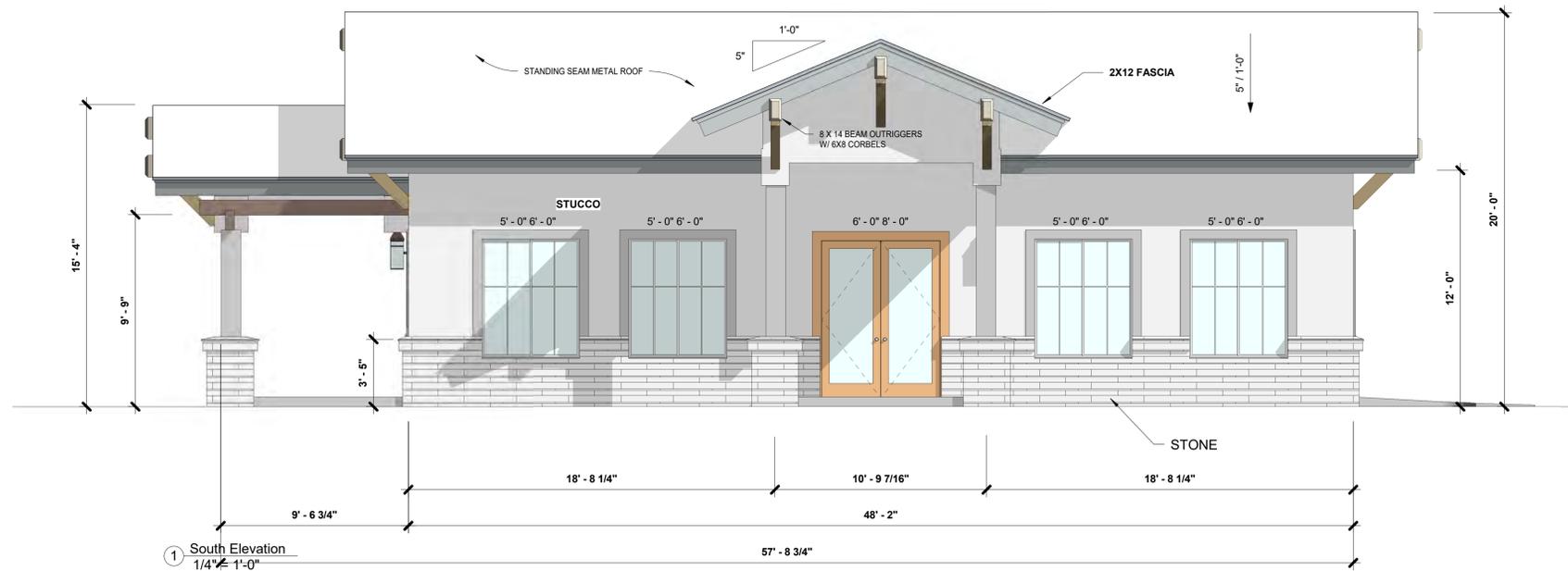


THREE CASTLES ENGINEERING, LLC
An Engineering and Consulting Company

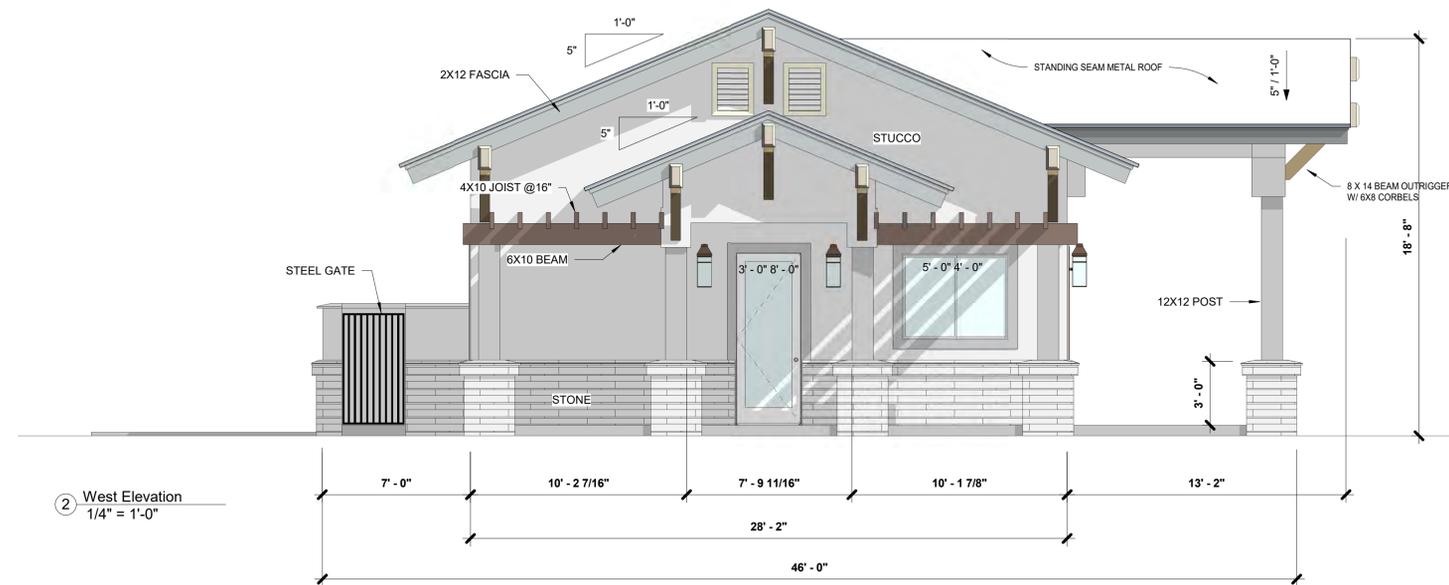
GARY E. THURM, R. P.E., #6505

1228 Pop Circle
Gardendale, NV 89410

Phone: (775) 783-1058 Fax: (775) 783-9259
Email: threecastlesengineering@gmail.com

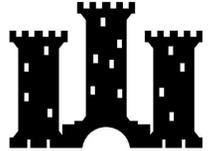


Welcome Center



SIERRA SKIES RV RESORT
1400 HOBO HOT SPRINGS RD.
CARSON CITY, NV.

Welcome
Center



THREE CASTLES ENGINEERING, LLC
An Engineering and Consulting Company

GARY E. THURM, R. P.E., #16505

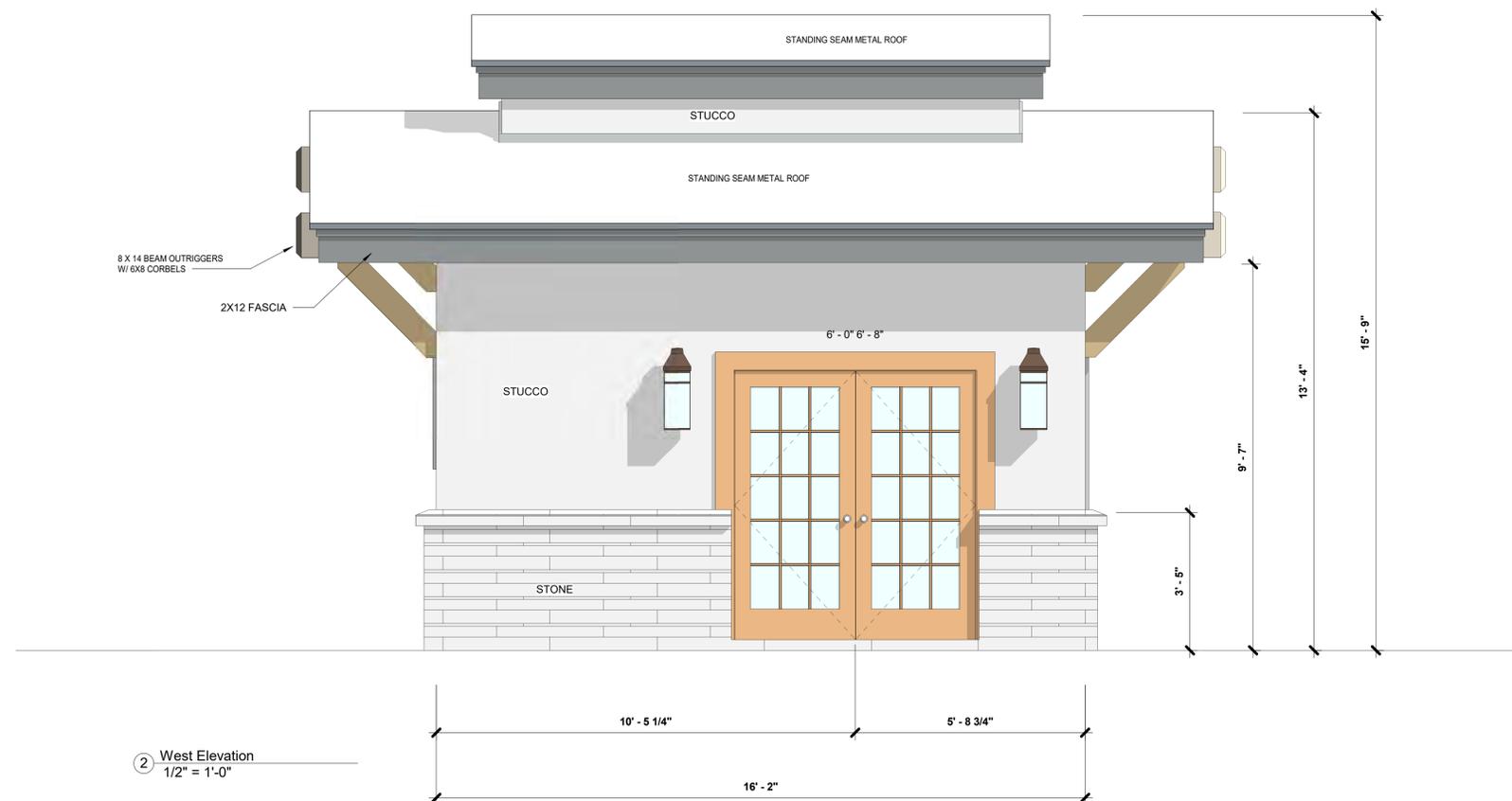
1228 Pop Circle
Gardendale, NV 89410

Phone: (775) 783-1058 Fax: (775) 783-9259
Email: threecastlesengineering@gmail.com

Gatehouse



① South Elevation
1/2" = 1'-0"

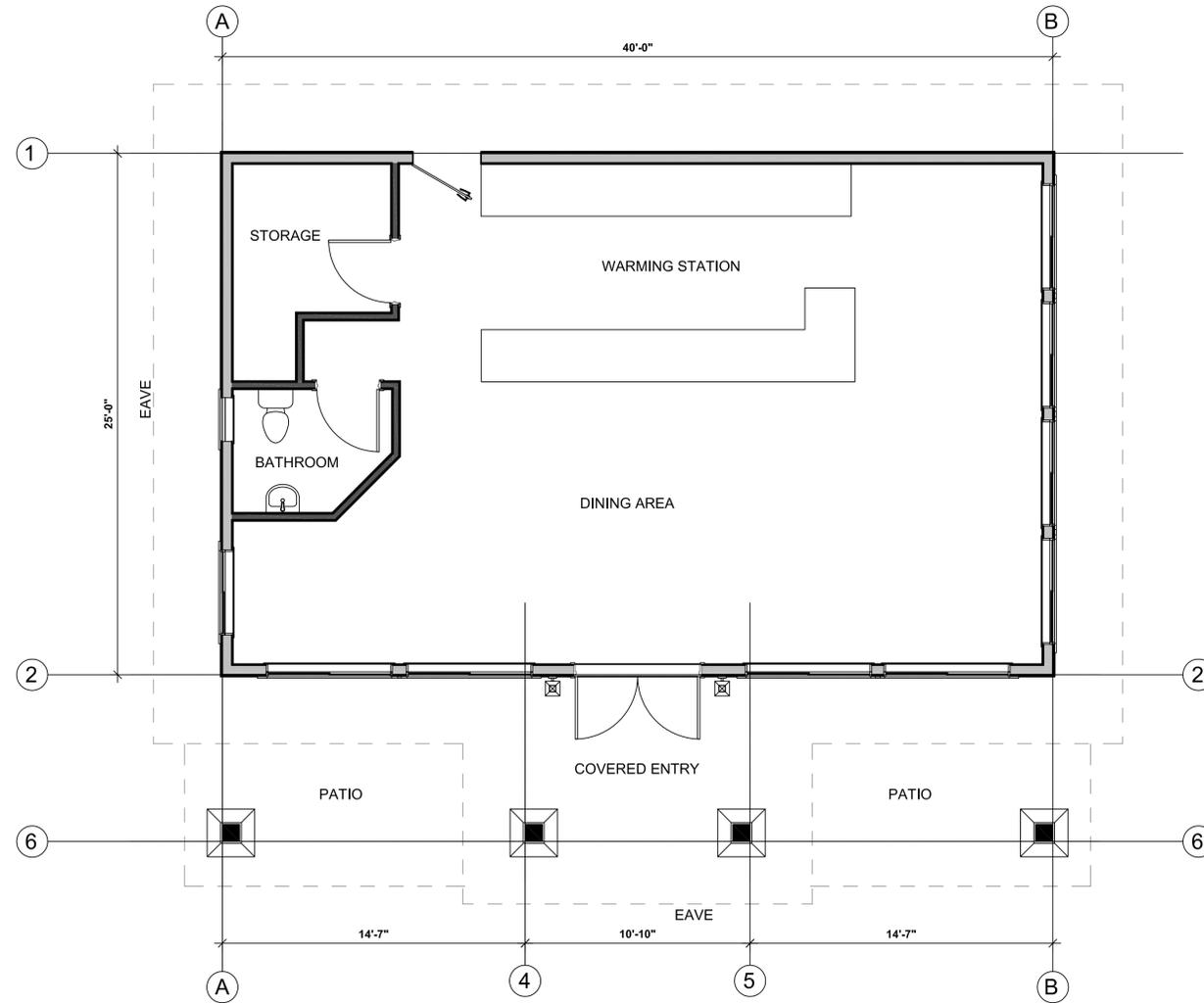


② West Elevation
1/2" = 1'-0"

SIERRA SKIES RV RESORT
1400 HOBO HOT SPRINGS RD.
CARSON CITY, NV.

Gatehouse

SHEET



--

ORIGIN DATE: 08-13-19

REVISION DATE

SIERRA SKIES RV RESORT
 1400 HOBO HOT SPRINGS RD.
 CARSON CITY, NV.

PROJECT

--

CONTRACTOR

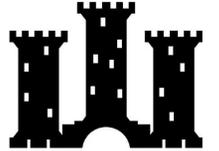
JOB#: 19064 DRAWN BY:


A3.0
SHEET
© Three Castles Engineering, LLC

CAFE FLOOR PLAN

1000 SQFT.

SCALE: 1/4" = 1'-0"

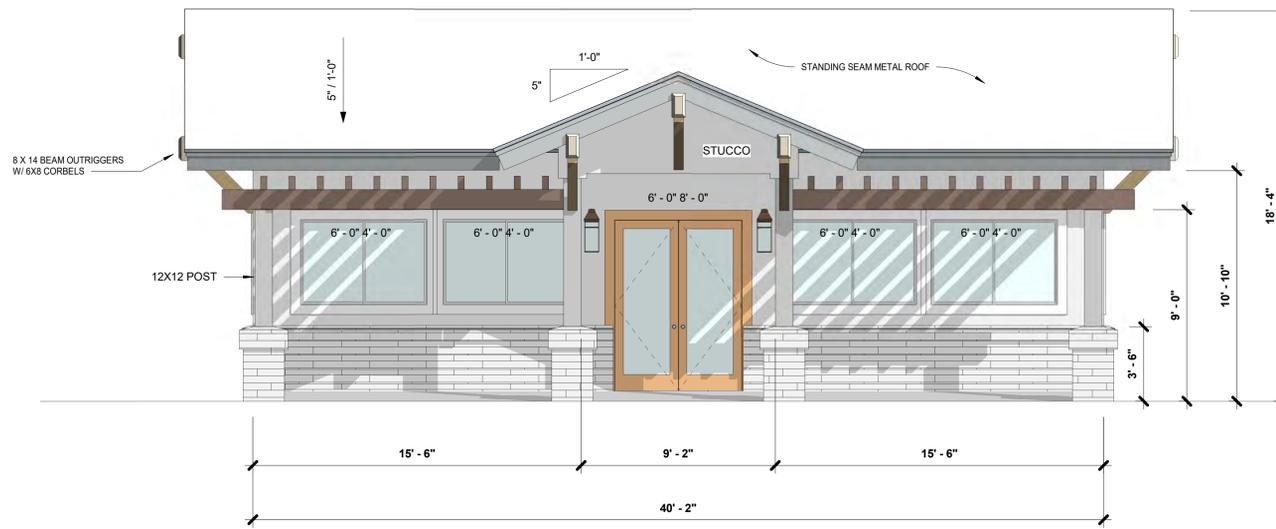


THREE CASTLES ENGINEERING, LLC
An Engineering and Consulting Company

GARY E. THURM, R. P.E., #16505

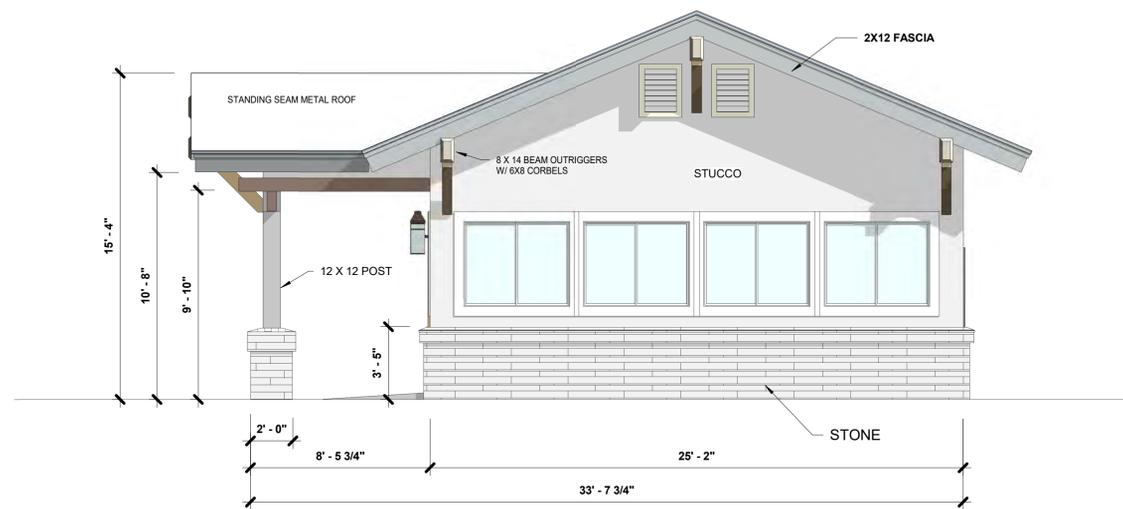
1228 Pop Circle
Gardner, NV 89410

Phone: (775) 783-1058 Fax: (775) 783-9259
Email: threecastlesengineering@gmail.com



① South Elevation
1/4" = 1'-0"

Cafe

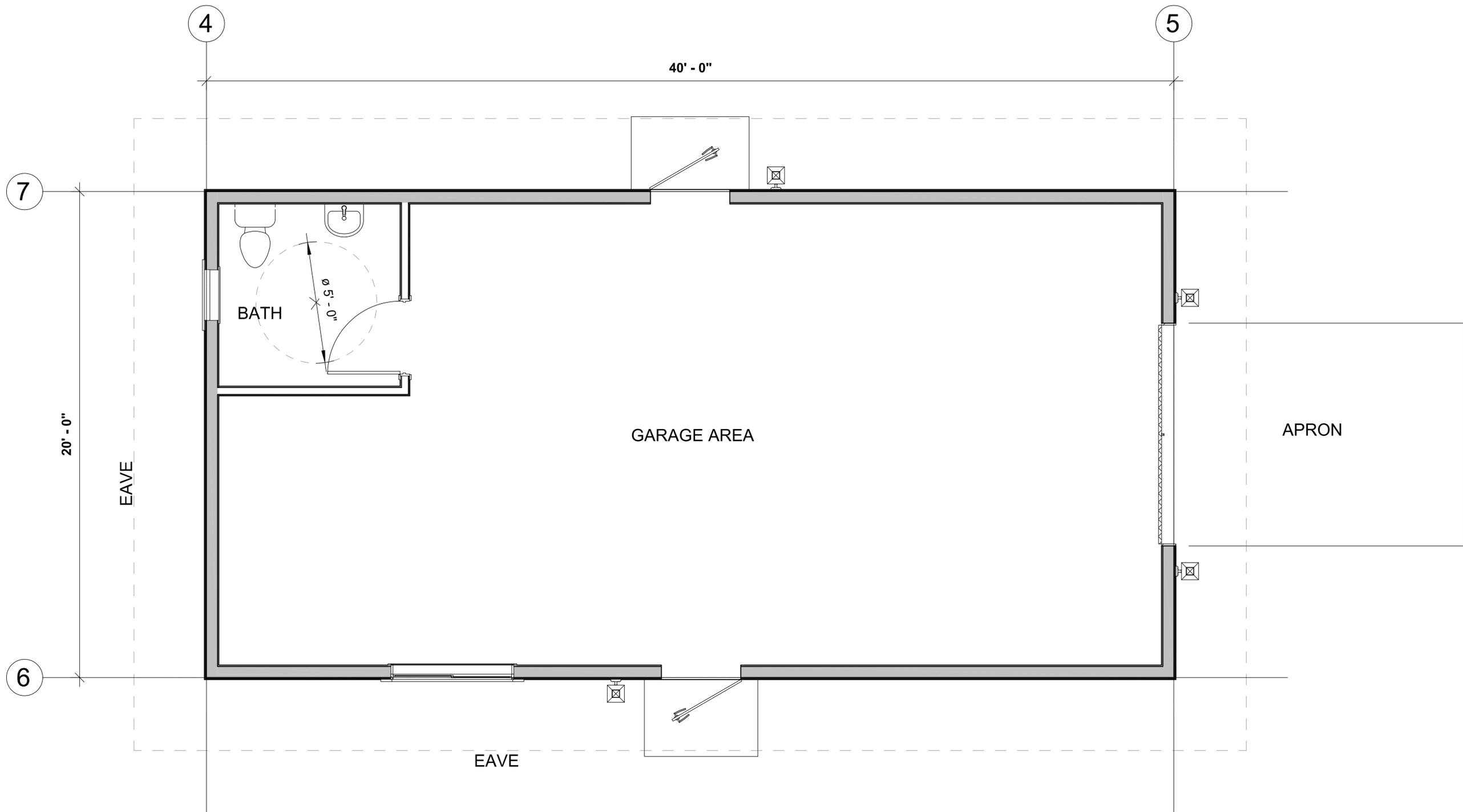


② East Elevation
1/4" = 1'-0"

SIERRA SKIES RV RESORT
1400 HOBO HOT SPRINGS RD.
CARSON CITY, NV.

Cafe

SHEET



--

ORIGIN DATE: 08-13-19

REVISION DATE

SIERRA SKIES RV RESORT
 1400 HOBOT SPRINGS RD.
 CARSON CITY, NV.

PROJECT

--

CONTRACTOR

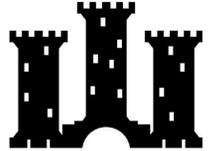
JOB#: 19064 DRAWN BY:


A40
SHEET
© Three Castles Engineering, LLC

MAINTENANCE BUILDING FLOOR PLAN

1079 SQ.FT.

SCALE: 1/2" = 1'-0"

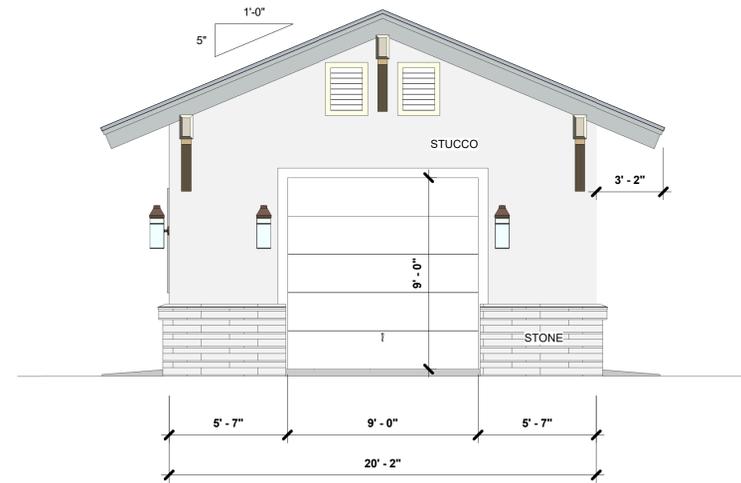


THREE CASTLES ENGINEERING, LLC
An Engineering and Consulting Company

GARY E. THURM, R. P.E., #16505

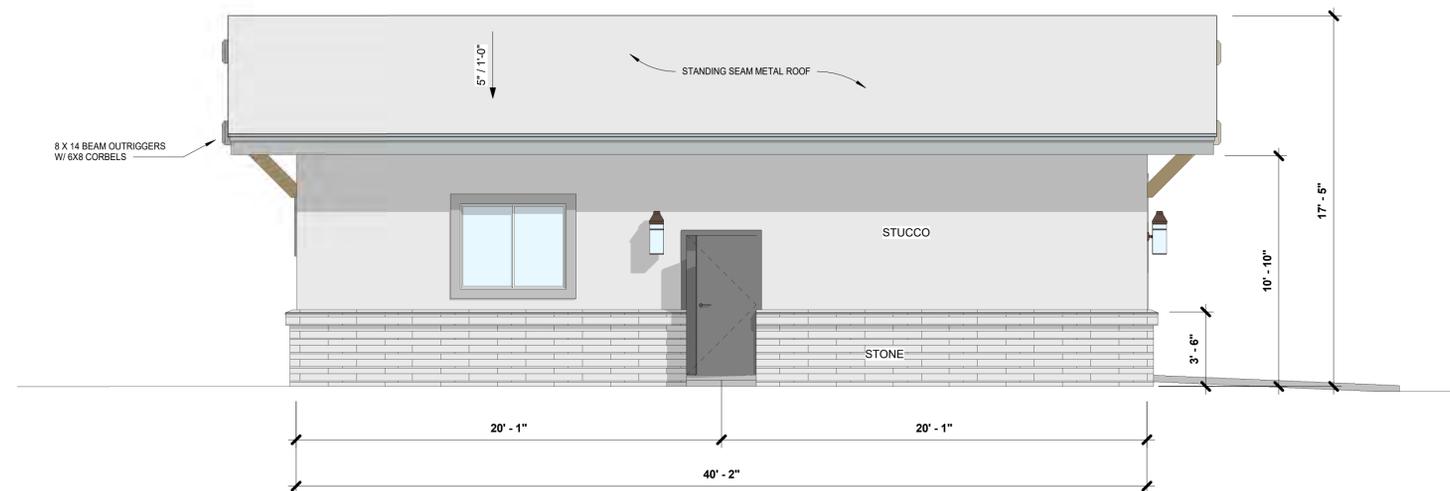
1228 Pop Circle
Gardendale, NV 89410

Phone: (775) 783-1058 Fax: (775) 783-9259
Email: threecastlesengineering@gmail.com



① East Elevation
1/4" = 1'-0"

Storage Building



② South Elevation
1/4" = 1'-0"

SIERRA SKIES RV RESORT
1400 HOBO HOT SPRINGS RD.
CARSON CITY, NV.

Storage
Bldg

SHEET



--

ORIGIN DATE: 08-13-19

REVISION DATE

SIERRA SKIES RV RESORT
 1400 HOBO HOT SPRINGS RD.
 CARSON CITY, NV.

PROJECT

--

CONTRACTOR

JOB#: 19064 DRAWN BY:

C.I.O.
 SHEET
© Three Castles Engineering, LLC

CONCEPTUAL CLUBHOUSE VIEWS



--

ORIGIN DATE: 08-13-19

REVISION DATE

SIERRA SKIES RV RESORT
 1400 HOBO HOT SPRINGS RD.
 CARSON CITY, NV.

PROJECT

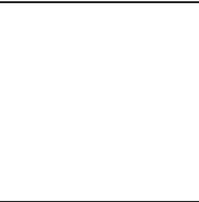
--

CONTRACTOR

JOB#: 19064 DRAWN BY:

SHEET
© Three Castles Engineering, LLC

CONCEPTUAL CLUBHOUSE VIEWS

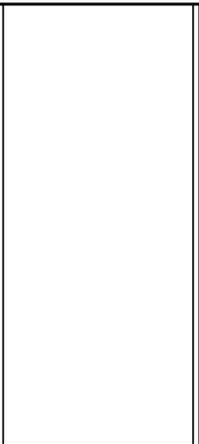


ORIGIN DATE: 08-13-19

REVISION DATE

SIERRA SKIES RV RESORT
 1400 HOBO HOT SPRINGS RD.
 CARSON CITY, NV.

PROJECT



CONTRACTOR

JOB#: 19064 DRAWN BY:


C2.0
SHEET
© Three Castles Engineering, LLC



CONCEPTUAL GATEHOUSE VIEWS




THREE CASTLES ENGINEERING, LLC
 An Engineering and Consulting Company
 CARY Z. THURM, JR., P.E. #16505
 1228 MID CIRCLE
 CARSONVILLE, NV 89410
 Phone: (775) 783-1058
 e-mail: threecastlesengineering@charter.net

--

ORIGIN DATE: 08-13-19

REVISION DATE

SIERRA SKIES RV RESORT
 1400 HOBO HOT SPRINGS RD.
 CARSON CITY, NV.

PROJECT

--

CONTRACTOR

JOB#: 19064 DRAWN BY:

C3.0
SHEET
© Three Castles Engineering, LLC

CONCEPTUAL CAFE VIEWS




THREE CASTLES ENGINEERING, LLC
 An Engineering and Consulting Company
 GARY Z. THIRM, JR., P.E. #16505
 1228 MID CIRCLE
 Carsonville, NV 89410
 Phone: (775) 783-1058
 e-mail: threecastlesengineering@charter.net

--

ORIGIN DATE: 08-13-19

REVISION	DATE

SIERRA SKIES RV RESORT
 1400 HOBO HOT SPRINGS RD.
 CARSON CITY, NV.

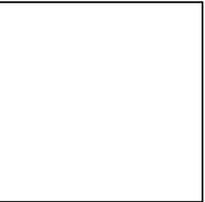
PROJECT

CONTRACTOR

JOB#: 19064 DRAWN BY:

C4.0
SHEET
© Three Castles Engineering, LLC

CONCEPTUAL WELCOME CENTER VIEWS

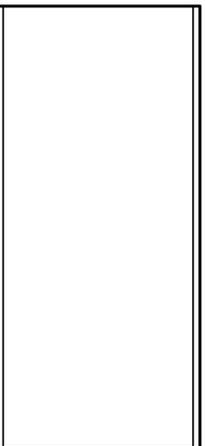


ORIGIN DATE: 08-13-19

REVISION DATE

SIERRA SKIES RV RESORT
 1400 HOBO HOT SPRINGS RD.
 CARSON CITY, NV.

PROJECT

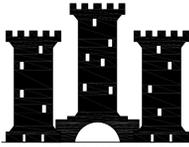


CONTRACTOR

JOB#: 19064 DRAWN BY:

C5.0
SHEET
© Three Castles Engineering, LLC

CONCEPTUAL STORAGE BUILDING VIEWS



THREE CASTLES ENGINEERING, LLC
 An Engineering and Consulting Company
 CARY Z. THREM, JR., P.E. #16595
 1228 MID CIRCLE
 Carlsville, VA 89410
 Phone: (773) 283-1078
 e-mail: threecastlesengineering@charter.net

ORIGIN DATE: 08-13-19

REVISION DATE

SIERRA SKIES RV RESORT

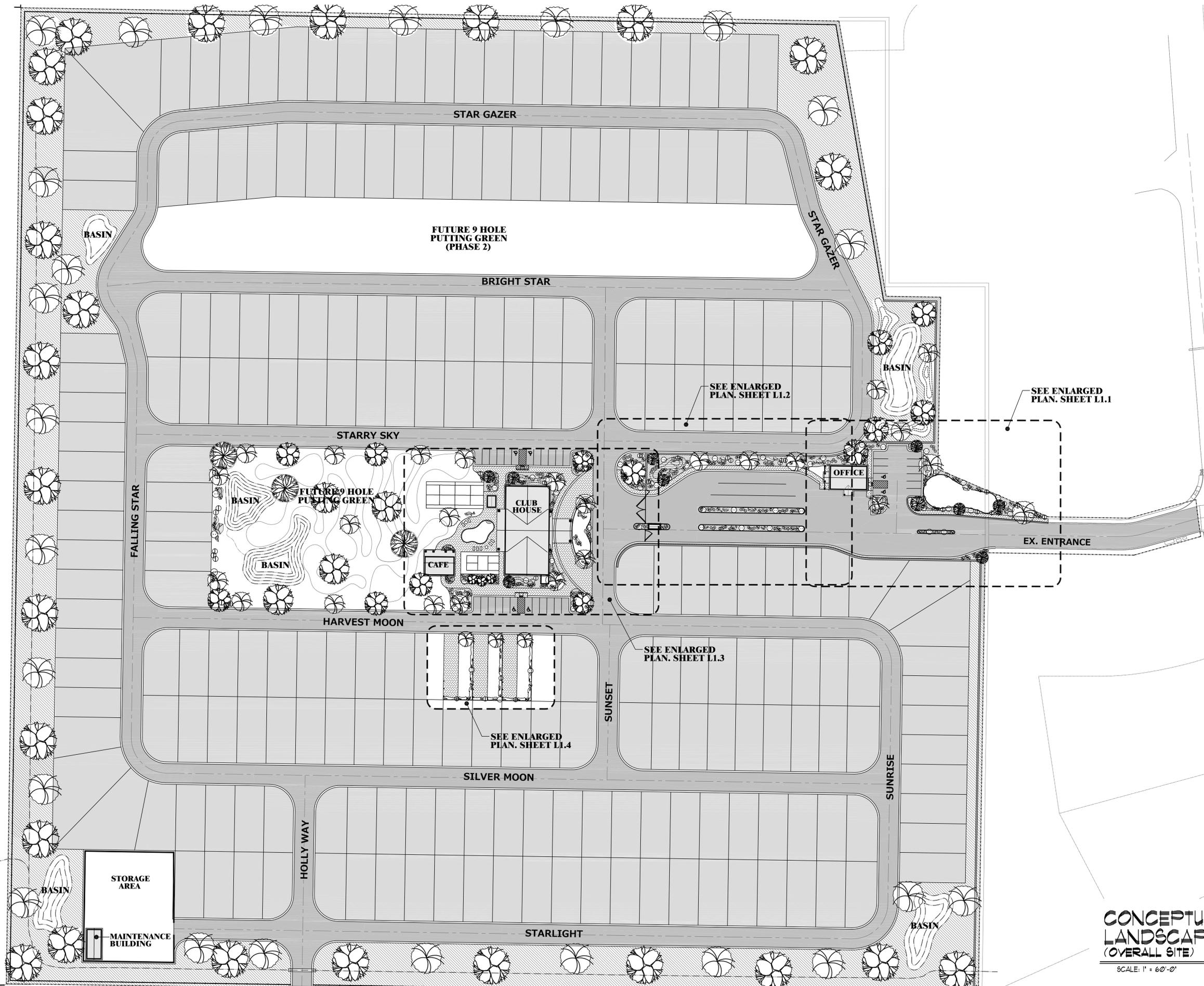
PROJECT

CONTRACTOR

JOB#: 19064 DRAWN BY:

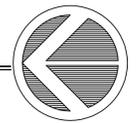
L1.0
 SHEET

© Three Castles Engineering, LLC

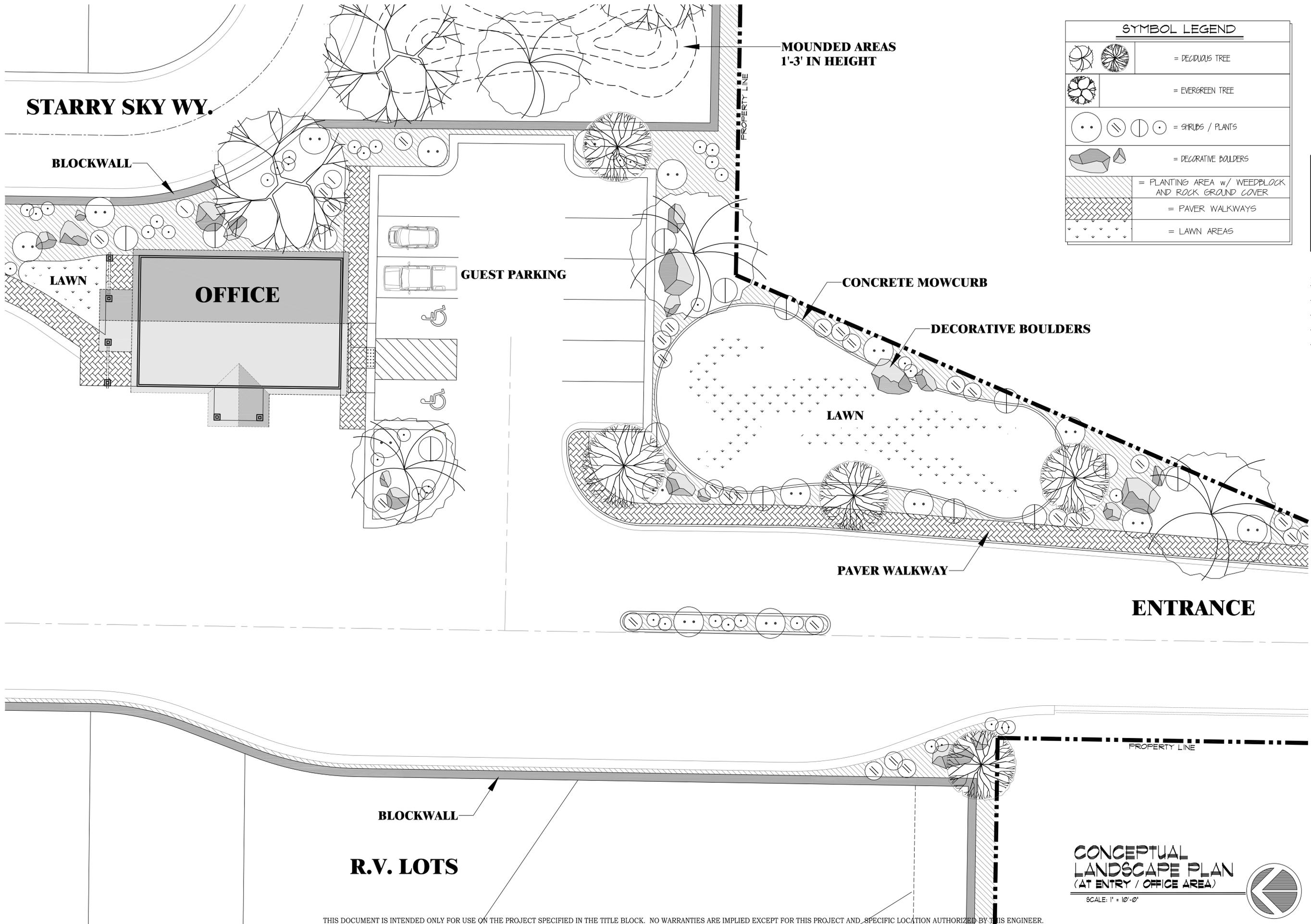


CONCEPTUAL
 LANDSCAPE PLAN
 (OVERALL SITE)

SCALE: 1" = 60'-0"



THIS DOCUMENT IS INTENDED ONLY FOR USE ON THE PROJECT SPECIFIED IN THE TITLE BLOCK. NO WARRANTIES ARE IMPLIED EXCEPT FOR THIS PROJECT AND SPECIFIC LOCATION AUTHORIZED BY THIS ENGINEER.



SYMBOL LEGEND	
	= DECIDUOUS TREE
	= EVERGREEN TREE
	= SHRUBS / PLANTS
	= DECORATIVE BOULDERS
	= PLANTING AREA w/ WEEDBLOCK AND ROCK GROUND COVER
	= PAVER WALKWAYS
	= LAWN AREAS

THREE CASTLES ENGINEERING, LLC
 An Engineering and Consulting Company
 CARY Z. THIRM, JR., P.E. #16595
 1228 MID CIRCLE
 Carderville, NY 89410
 Phone: (775) 783-1058
 e-mail: threecastlesengineering@charter.net

ORIGIN DATE: 08-13-19	
REVISION	DATE

SIERRA SKIES RV RESORT

PROJECT

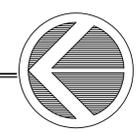
CONTRACTOR

JOB#: 19064 DRAWN BY:

SHEET

© Three Castles Engineering LLC

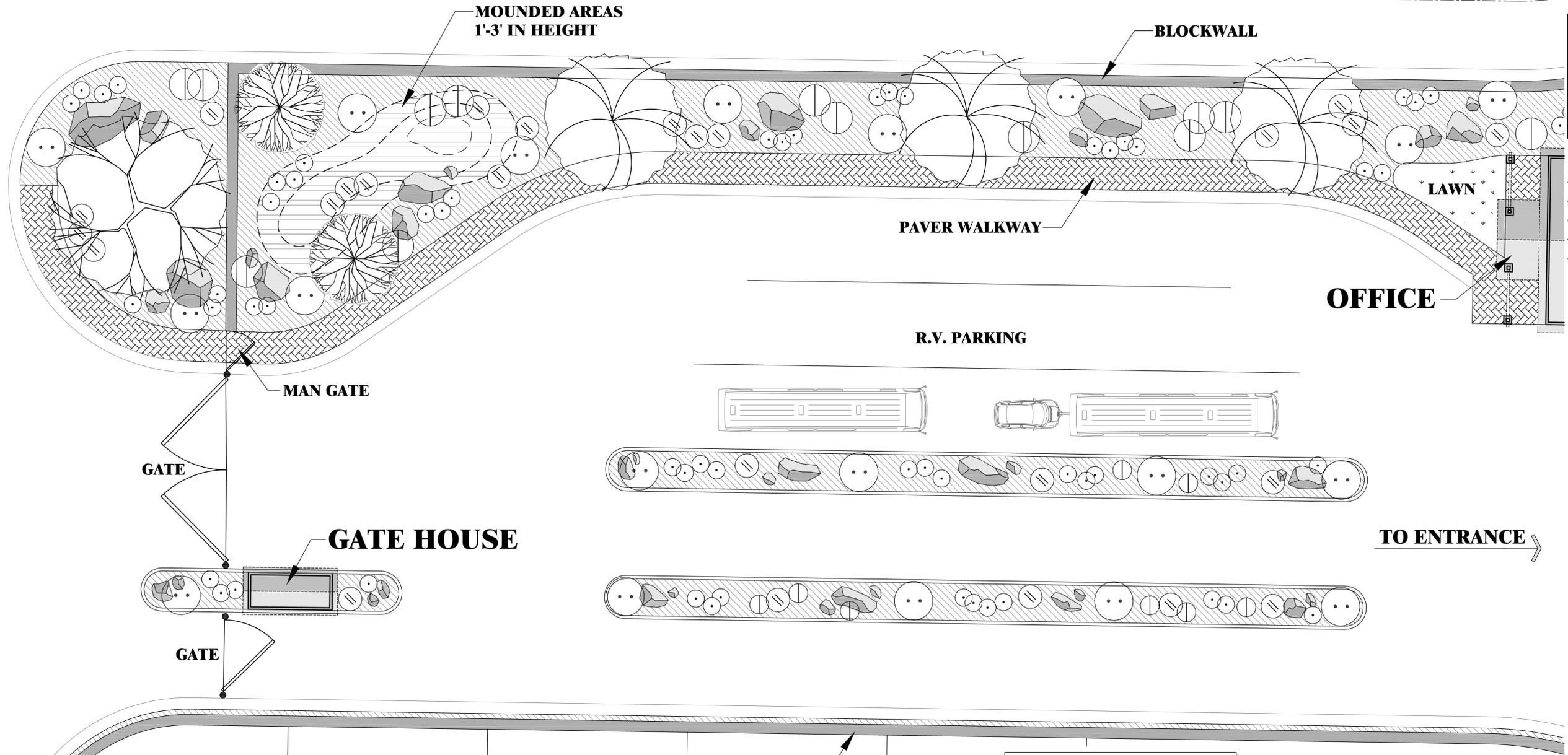
CONCEPTUAL LANDSCAPE PLAN
 (AT ENTRY / OFFICE AREA)
 SCALE: 1" = 10'-0"



THIS DOCUMENT IS INTENDED ONLY FOR USE ON THE PROJECT SPECIFIED IN THE TITLE BLOCK. NO WARRANTIES ARE IMPLIED EXCEPT FOR THIS PROJECT AND SPECIFIC LOCATION AUTHORIZED BY THIS ENGINEER.

R.V. LOTS

STARRY SKY WY.

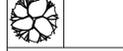
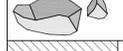
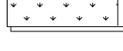


ORIGIN DATE: 08-13-19
REVISION DATE

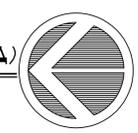
SIERRA SKIES RV RESORT
PROJECT

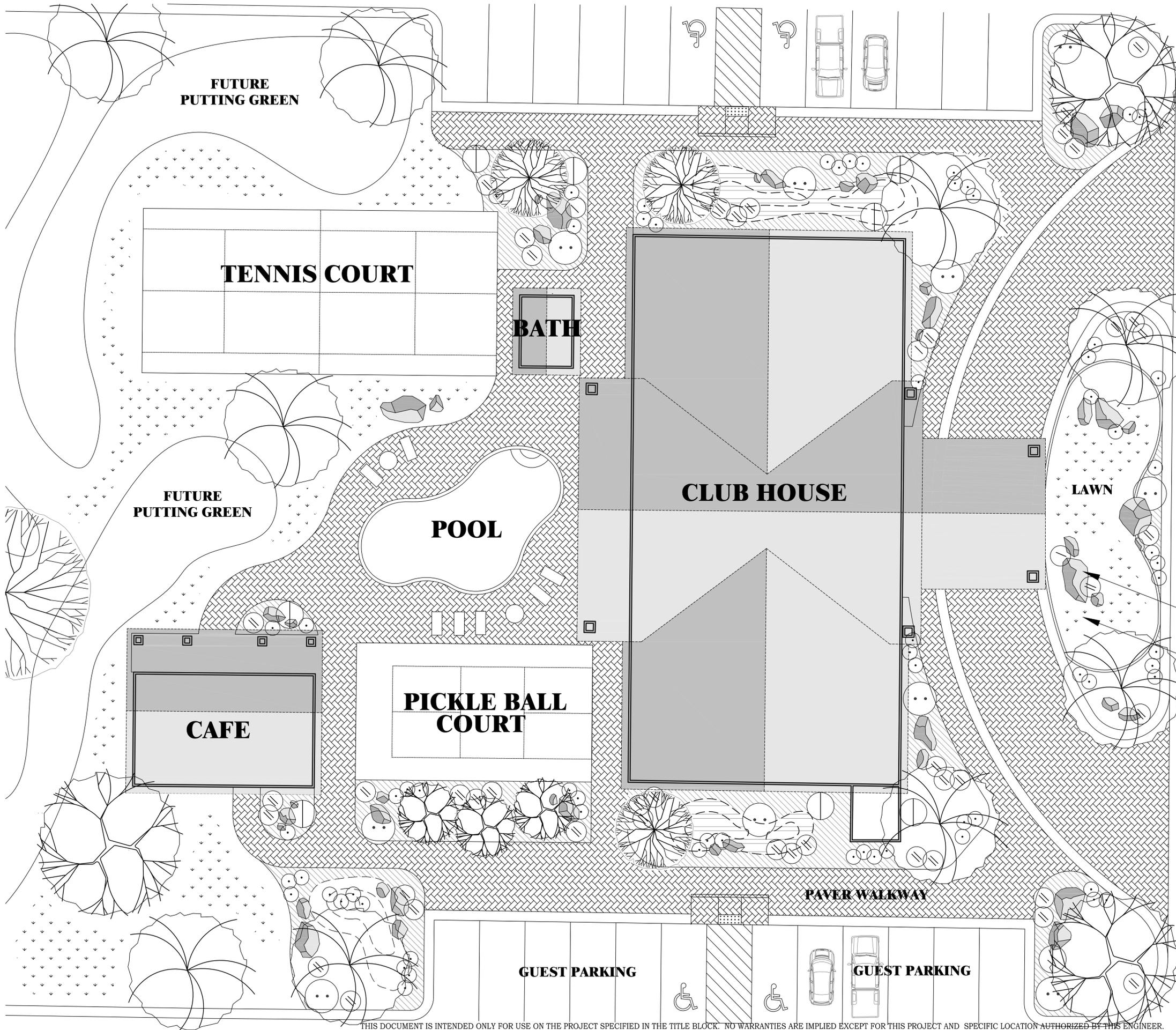
CONTRACTOR

JOB#: 19064 DRAWN BY:
L12
SHEET

SYMBOL LEGEND	
	= DECIDUOUS TREE
	= EVERGREEN TREE
	= SHRUBS / PLANTS
	= DECORATIVE BOULDERS
	= PLANTING AREA w/ WEEDBLOCK AND ROCK GROUND COVER
	= PAVER WALKWAYS
	= LAWN AREAS

CONCEPTUAL
LANDSCAPE PLAN
(AT GATE HOUSE / OFFICE AREA)
SCALE: 1" = 10'-0"





SYMBOL LEGEND	
	= DECIDUOUS TREE
	= EVERGREEN TREE
	= SHRUBS / PLANTS
	= DECORATIVE BOULDERS
	= PLANTING AREA w/ WEEDBLOCK AND ROCK GROUND COVER
	= PAVER WALKWAYS
	= LAWN AREAS

THREE CASTLES ENGINEERING, LLC
 An Engineering and Consulting Company
 CARY Z. THIRM, JR., P.E. #16505
 1228 MID CIRCLE
 Carlsville, VA 89410
 Phone: (773) 283-1078
 e-mail: threecastlesengineering@charter.net

ORIGIN DATE: 08-13-19
REVISION _____ DATE _____

SIERRA SKIES RV RESORT
 PROJECT

CONTRACTOR

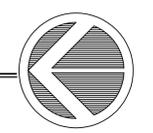
JOB#: 19064 DRAWN BY:
L13
 SHEET

SUNSET WY.

TO ENTRANCE →

DECORATIVE BOULDERS
CONCRETE MOWCURB

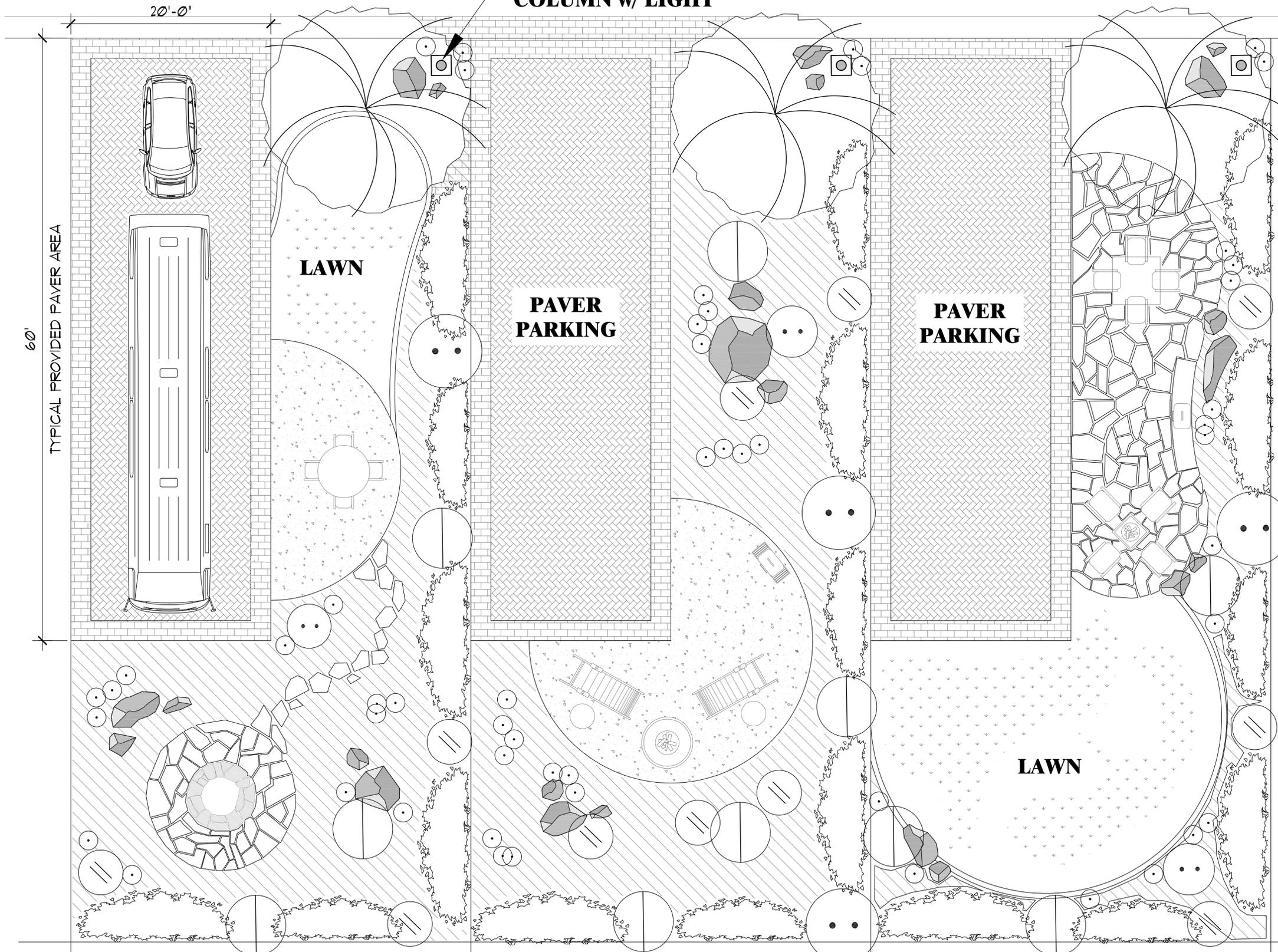
CONCEPTUAL LANDSCAPE PLAN
 (AT CLUBHOUSE / CAFE AREA)
 SCALE: 1" = 10'-0"



THIS DOCUMENT IS INTENDED ONLY FOR USE ON THE PROJECT SPECIFIED IN THE TITLE BLOCK. NO WARRANTIES ARE IMPLIED EXCEPT FOR THIS PROJECT AND SPECIFIC LOCATION AUTHORIZED BY THIS ENGINEER.

TYPICAL STREET

TYPICAL ADDRESS COLUMN w/ LIGHT



SYMBOL LEGEND	
	= DECIDUOUS TREE
	= EVERGREEN TREE
	= SHRUBS / PLANTS
	= HEDGE SHRUB
	= DECORATIVE BOULDERS
	= PLANTING AREA w/ WEEDBLOCK AND ROCK GROUND COVER
	= PAVER PARKING
	= LAWN AREAS



ADDRESS COLUMN w/ LIGHT
(EXAMPLE)



ORIGIN DATE: 08-13-19

REVISION DATE

SIERRA SKIES RV RESORT

PROJECT

CONTRACTOR

JOB#: 19064 DRAWN BY:

CONCEPTUAL
LANDSCAPE PLAN
(RV LOTS)

SCALE: 1" = 5'

L1.4

SHEET

© Three Castles Engineering, LLC



Resource Concepts Inc

Engineering • Surveying • Water Rights
Resource & Environmental Services

www.rci-nv.com

CARSON CITY OFFICE
340 N. Minnesota St.
Carson City, NV 89703-4152
Ph: 775 / 883-1600
Fax: 775 / 883-1656

Memorandum



DATE: August 14, 2019
TO: Carson City Planning Division
FROM: Rachel Kryder, P.E.
RCI PROJECT: Sierra Skies RV (18-135.7B)
SUBJECT: Tentative Planned Unit Development Master Plan Policy Checklist

MASTER PLAN POLICY CHECKLIST

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 non-residential and multi-family residential development. 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 additional residential development and will connect to existing infrastructure. No reduction in services is expected due to this proposed development.
- ✓ Use sustainable building materials and construction techniques to promote water and energy conservation (1.1e, f)?
Building designs are not final but will be designed to be water and energy efficient per current building codes. Landscaping will be designed and installed to be water efficient.

- ✓ Located in a priority infill development area (1.2a)?

The project is an infill project, but not located in a priority infill development area.

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

While the project includes internal pathways, it does not include paths to adjacent properties or within the adjacent right-of-way.

- ✓ Protect existing site features, as appropriate, including mature trees or other character-defining features (1.4c)?

There are no existing character-defining features on-site.

- ✓ At adjacent county boundaries or adjacent to public lands, coordinated with the applicable agency with regards to compatibility, access, and amenities (1.5a, b)?

The project is not adjacent to any county boundaries or public lands.

- ✓ 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 project is not located within any identified mixed-use areas.

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

The project meets adopted standards by providing over 90 feet between the west property line and RV Parcels, and a setback of 30 ft to the maintenance area from the adjacent to single-family residential use along the west side of the property. This buffer will include an improved drainage channel and landscaping.

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

There are no environmentally sensitive areas on the project site.

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

The majority of the site is outside any delineated FEMA flood zone. The southernmost portion of the site, adjacent to Old Hot Springs Road is within Zone X (shaded), which is not considered a special flood hazard area. There are no known geologic hazard areas on the site. Based on information provided by Carson City, there is a proposed revision to FEMA flood zones along the north and west boundaries of the site. The proposed development is designed to maintain drainage channels to convey stormwater in the affected areas on-site.

- ✓ 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 has access to existing water, sewer, and improved roadways. No new or improved off-site infrastructure is anticipated. No negative effects to levels of service are anticipated.

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

The site is not located 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 development:

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

On-site outdoor and recreation areas and amenities will be available for guest use, including pool, tennis, pickle ball, and putting greens. These amenities are anticipated to meet recreation needs of guests.

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

The project does not affect city-wide public open space and is not near the Carson River.

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, including broader range of retail services in targeted areas, and include the roles of technology, tourism, recreational amenities, and other economic strengths vital to 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 or long-term housing.

- ✓ Encourage the development of regional retail centers (5.2a)?

This project does not include retail sales on-site but does support existing retail centers by bringing visitors to the area.

- ✓ Encourage the reuse or redevelopment of underused retail spaces (5.2b)?
This project does help support existing businesses, but not specifically redevelopment of underused retail spaces.

- ✓ Support heritage tourism activities, particularly those associated with historic resources, cultural institutions and the State Capitol (5.4a)?
Due to the location adjacent to the Carson Hot Springs, the project may support an increase in visitors to the hot springs resort. More generally, the project will bring in visitors who will visit heritage tourism locations, as well as other tourism activities in Carson City and the region.

- ✓ Promote revitalization of the Downtown core (5.6a)?
The proposed project is not adjacent to the Downtown core, though it is expected that the increase in visitors to the community will increase visitors to the Downtown core.

- ✓ Incorporate additional housing in and around Downtown, including lofts, condominiums, duplexes, live-work units (5.6c)?
This project does not provide any permanent or long-term 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 buildings on-site will be attractive and constructed of durable materials, consistent with high-end resorts.

- ✓ Promote variety and visual interest through the incorporation of varied building styles and colors, garage orientation and other features (6.1b)?
The project will include attractive new buildings with articulation and interesting architectural features.

- ✓ Provide 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 project will include attractive new buildings with articulation and interesting architectural features. Pedestrian paths, connections, and building entrances will be clear and well-marked.

- ✓ 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 include buildings of appropriate height and project density, including screening and setbacks to ensure compatibility with surrounding development.

- ✓ 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 located within an Identified Mixed-Use Activity Center area.

- ✓ If located Downtown:
 - Integrate an appropriate mix and density of uses (8.1a, e)?
 - Include buildings at the appropriate scale for the applicable Downtown Character Area (8.1b)?
 - 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 or long-term 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 development:

- ✓ 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 an existing paved street and is close to major arterials. The site is suitable to facilitate future transit options. The nearest existing public transit bus stop is located less than ¼ mile to the east on Old Hot Springs Road.

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

The project is adjacent to an existing paved road and near major arterials. No new roadways or public roadway improvements are anticipated with the proposed development.

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

The project includes pathways throughout the site, but they do not connect to any off-site paths or trails. The proximity of an undeveloped Carson City Park property to the immediate north allows for future direct connection to a park.



Resource Concepts Inc

Engineering • Surveying • Water Rights
Resource & Environmental Services

www.rci-nv.com

CARSON CITY OFFICE
340 N. Minnesota St.
Carson City, NV 89703-4152
Ph: 775 / 883-1600
Fax: 775 / 883-1656

Memorandum

DATE: August 14, 2019
TO: Carson City Planning Division
FROM: Rachel Kryder, P.E.
RCI PROJECT: Sierra Skies RV Resort (18-135.7B)
SUBJECT: CCMC Deviation Explanations

This memo is to address any deviations from Carson City Municipal Code as part of the Sierra Skies RV Resort Tentative Planned Unit Development (PUD) submittal.

- “The Tourist Commercial zoning district requires a minimum lot size of 6,000 square feet. As a PUD is being contemplated, a smaller lot size can be utilized. With the PUD application, please be sure to call out the extent of deviation from the dimensional criteria associated with the Tourist Commercial zoning district, including deviation from the minimum lot size, and any deviation from any setbacks.”

The Sierra Skies RV Resort includes 227 individual RV space legal parcels that can be sold to individual property owners as well as 6 common area parcels that will be owned by an association and/or development company. Each lot will be allowed one recreational vehicle only. This ownership RV Resort model is significantly less dense than typically operated RV parks. Of the 227 individual lots, 222 lots are smaller than the 6,000 SF minimum lot size in the Tourist Commercial zone. The lots that deviate from the minimum area range from 3,257 SF to 5,867 SF. The Tourist Commercial zone has a minimum lot width of 60’ and no minimum required depth. The Sierra Skies RV Resort Lots vary in dimension, but are typically 40’ wide and 90’ long. Each lot area is shown on the submitted Tentative PUD map.

- “Parking requirements for RV parks are not specifically listed within the City’s parking standards. Division 2.2 of the Development Standards outlines the required number of parking spaces and states “off-street parking requirements for uses not herein specified shall be determined by the director.” Please be sure your PUD application provides documentation from an accredited source (e.g., latest version of the ITE parking manual) supporting the number of vehicle parking spaces you are providing.”

No ITE parking rate is available for RV Parks. Each RV lot provides room for one RV and two additional vehicles. This allows for an owner vehicle as well as a guest vehicle for every parcel. The draft CC&Rs for the development establish a limit of one vehicle per lot in addition to the RV/motorcoach. For

practical reasons, each RV/motorcoach is only able to tow a single vehicle. As the development is private, additional guest vehicles will be limited. In addition to the parking within each lot, there are 11 parking spaces (2 handicap) provided at the welcome/sales center and 24 parking spaces provided at the clubhouse. With parking provided within each lot for owner and guest vehicles plus additional parking provided at the communal areas, the number of parking spaces provided adequately serves the development.

- “The Conceptual Map application indicates requested deviations from CCMC 18.09.090 which requires a specific number of restrooms, including showers. Please be sure to address this request in detail outlining what would be required and what you are proposing to provide, as well as any additional supporting information/documentation that may support the argument for such a reduction.”

For an RV Resort of 227 spaces the required service facilities are:

Toilets: Men	9
Toilets: Women	12
Urinals: Men	4
Lavatories: Men	10
Lavatories: Women	10
Shower: Men	7
Shower: Women	7

Sierra Skies RV Resort will only permit recreational vehicles categorized by the Recreational Vehicle Industry Association (RVIA) and Family Motorcoach Association as Class “A.” All recreational vehicles permitted within Sierra Skies Resort must contain a full restroom, including a toilet and shower for the occupants. Central accessory buildings (clubhouse, sales office, and café) will be in the central area of the resort and will include restroom and shower facilities for occupants (provided service facility quantities below).

Toilets: Men	5
Toilets: Women	6
Toilets: Unisex	1
Urinals: Men	3
Lavatories: Men	7

Lavatories: Women	7
Lavatories: Unisex	1
Shower: Men	3
Shower: Women	3
Shower: Unisex	1

Due to all allowed recreational vehicles containing individual self-contained restroom facilities that will be the primary facilities for use by the occupants, the provided number of restroom facilities in common accessory buildings of the resort deviate from CCMC 18.09.090 but are adequate for their intended use.

- “Per CCDS 12.4 a subdivision must have at least two fully operational points of access. One or more access points must be gated with an automatic gate. If an entrance is gated it must meet CCFD requirements.”

Access to the subject property is proposed from Old Hot Springs Road, with an emergency secondary access to the west, connecting to Holly Way. The proposed main entrance from Old Hot Springs Road has been recently constructed and is 35 feet wide (curb face to curb face). While two fully operational points of access are required for residential subdivisions, RV Resort developments require only a single fully functional access plus emergency access, as previously approved for Sierra Skies RV Resort (extended stay rental-model RV Resort, SUP 18-181).

- “The ITE trip generation rate submitted for the SUP is not representative of the subject project. The proposed tentative map or any revision to the SUP will require using the Mobile Home Park trip generation rates. This will trigger the need for a traffic impact study.”

A Traffic Study is currently underway to determine peak AM & PM trips and potential effect on nearby intersections. The study will be provided to Carson City Planning Department once completed (anticipated by the end of August 2019).

**DECLARATION OF COVENANTS, CONDITIONS, AND RESTRICTIONS
FOR
SIERRA SKIES RV RESORT**

TABLE OF CONTENTS

I.	Recitals	8
	1.01. Real Property	8
	1.02. Recreation Vehicle Resort	8
	1.03. Owners Association	8
	1.04. Covenant Running with Land	8
II.	Definitions	9
	2.01. “Annexable Area”	9
	2.02. “Arbitration”	9
	2.03. “Architectural and Landscape Committee”	9
	2.04. “Articles”	9
	2.05. “Assessment”	9
	2.06. “Association”	9
	2.07. “Association Easement”	9
	2.08. “Association Property”	9
	2.09. “Benefitted Owner”	9
	2.10. “Board”	9
	2.11. “Bylaws”	9
	2.12. “Common Area”	9
	2.13. “Declarant”	9
	2.14. “Declaration”	9
	2.15. “Declarant’s Control Period”	9
	2.16. “Declarant’s Lots”	10
	2.17. “Design Guideline”	10
	2.18. “Development”	10
	2.19. “Eligible Holder”	10
	2.20. “Emergency”	10
	2.21. “FHA”	10
	2.22. “FHLMC”	10
	2.23. “FNMA”	10
	2.24. “Governing Documents”	10
	2.25. “GNMA”	10
	2.26. “Hazardous Substances	10
	2.27. “Improvements”	10
	2.28. “Lessee”	10
	2.29. “Lot”	10
	2.30. “Manager” or “Managing Agent” or Management Contractor	10
	2.31. “Member”	11
	2.32. “Mortgage”	11
	2.33. “Mortgagee”	11
	2.34. “Recreation Vehicle”	11
	2.35. “Notice”	11
	2.36. “Notice and a Hearing”	11
	2.37. “NRS”	11
	2.38. “Owner”	11
	2.39. “Permanent”	11
	2.40. “Person”	11

2.41	"Property"	11
2.42	"Rules and Regulations"	11
2.43	"Subdivision Map"	11
2.44	"VA"	12
III.	Property and Property Rights	12
3.01	<u>Description of Property</u>	12
3.02	<u>Lots</u>	12
	(a) <u>Owners Easements</u>	12
	(b) <u>Limitation on Owners' Easement Rights</u>	12
	(c) <u>Encroachment Easements</u>	12
	(d) <u>Easements for Maintenance and Repair</u>	13
	(e) <u>Association Easement</u>	13
	(f) <u>Utilities Easement</u>	13
	(g) <u>Emergency Repairs Easement</u>	13
	(h) <u>Drainage Easement</u>	14
	(i) <u>Easement for Completion of Improvements</u>	14
	(j) <u>Maintenance Obligation of Owners</u>	14
3.03	<u>Association Property</u>	14
	(a) <u>Conveyance of Association Property</u>	14
	(b) <u>Common Area Ownership</u>	14
	(c) <u>Use</u>	15
	(d) <u>Maintenance of Association Property</u>	15
	(e) <u>Improvement on Common Area</u>	16
	(f) <u>Damages</u>	16
	(g) <u>Damage and Destruction</u>	16
3.04	<u>Special Declarant's Rights</u>	17
	(a) <u>Easement for Repairs</u>	17
	(b) <u>Easement for Sales</u>	17
	(c) <u>Easement for Development</u>	18
	(d) <u>Right to Rent Lots Owned by Owners</u>	18
	(e) <u>No Amendment</u>	18
IV.	Owners' Association; Membership and Voting Rights	18
4.01	<u>Association</u>	18
	(a) <u>Organization</u>	18
	(b) <u>Successor Associations</u>	18
4.02	<u>Construction Consistent with Law</u>	18
4.03	<u>Membership Rights</u>	18
4.04	<u>Control of Association</u>	19
	(a) <u>Period of Declarant Control of Association</u>	19
	(b) <u>Termination of Period of Declarant Control</u>	19
	(c) <u>Removal of Board Members</u>	19
	(d) <u>Joint or Common Ownership</u>	19
	(e) <u>Proxy Voting</u>	20
	(f) <u>Cumulative Voting</u>	20

4.05	<u>Meetings of Members or Board</u>	20
	(a) <u>Notice</u>	20
	(b) <u>Agenda</u>	20
	(c) <u>Emergency</u>	21
	(d) <u>Quorum</u>	21
	(e) <u>Organization</u>	21
	(f) <u>Action by Members</u>	21
	(g) <u>Minutes</u>	21
4.06	<u>Duties of the Association</u>	21
	(a) <u>Members</u>	21
	(b) <u>Recreation and Open Space Areas and Common Area</u>	21
	(c) <u>Repair and Maintenance of Association Property</u>	22
	(d) <u>Repair and Maintenance of Lot Landscaping</u>	22
	(e) <u>Payment of Taxes</u>	22
	(f) <u>Payment of Utilities</u>	22
	(g) <u>Insurance</u>	22
	(h) <u>Architectural and Landscape Control Committee</u>	23
	(i) <u>Enforcement</u>	23
	(j) <u>Long-Term Financing</u>	23
	(k) <u>Audit</u>	24
	(l) <u>Books and Records</u>	24
	(m) <u>Other</u>	24
4.07	<u>Powers and Authority of the Association</u>	24
	(a) <u>Right of Entry and Enforcement</u>	24
	(b) <u>Civil Actions</u>	25
	(c) <u>Easements and Rights-of-Way</u>	25
	(d) <u>Employment of Manager</u>	25
	(e) <u>Services</u>	26
	(f) <u>Utilities</u>	26
	(g) <u>Other Property</u>	26
	(h) <u>Mergers</u>	26
	(i) <u>Delegation</u>	26
	(j) <u>Construction on Association Property</u>	26
	(k) <u>Maintenance of Entry and Exit Measures</u>	26
	(l) <u>Conveyances</u>	26
	(m) <u>Legal and Accounting Services</u>	27
	(n) <u>Association Property Services</u>	27
	(o) <u>Other Areas</u>	27
	(p) <u>Recreational Facilities</u>	27
	(q) <u>Other Services and Properties</u>	27
	(r) <u>Contracts</u>	27
	(s) <u>Ownership of Property</u>	27
	(t) <u>Assessments</u>	27
	(u) <u>Borrow Money</u>	28
4.08	<u>Non-Liability and Indemnification</u>	28
	(a) <u>Non-Liability</u>	28
	(b) <u>Indemnity for Third Party Action</u>	28
	(c) <u>Determination</u>	28
	(d) <u>Payment in Advance</u>	29

	(e)	<u>Insurance</u>	29
	(f)	<u>Other Coverage</u>	29
4.09		<u>Diseased Trees</u>	29
4.10		<u>Rules</u>	29
	(a)	<u>Rulemaking Power</u>	29
	(b)	<u>Notification of Rules</u>	30
4.11		<u>Breach of Rules or Restrictions</u>	30
4.12		<u>Fines</u>	30
4.13		<u>Liability of Members of Board</u>	30
4.14		<u>Indemnity of the Association by Owners</u>	31
4.15		<u>Bonded Obligations</u>	31
4.16		<u>Amendment</u>	31
V.		<u>Covenant For Maintenance Assessments</u>	32
5.01		<u>Creation of the Lien and Personal Obligation of Assessments</u>	32
5.02		<u>Purpose of Assessments</u>	32
5.03		<u>Assessments</u>	32
	(a)	<u>Reserve</u>	32
	(b)	<u>Increases of Annual Assessment</u>	33
	(c)	<u>Inadequacy of Annual Assessment</u>	33
	(d)	<u>Financial Statement</u>	34
5.04		<u>Special Assessments</u>	34
5.05		<u>Notice of Special Assessments; Time for Payment</u>	34
5.06		<u>Collection of Assessments</u>	34
5.07		<u>Unpaid Assessments</u>	34
5.08		<u>Mortgagee Protection</u>	35
5.09		<u>Effect of Amendments on Mortgages</u>	35
5.10		<u>Annual Assessments Paid By Declarant</u>	35
5.11		<u>Uniform Assessments</u>	35
VI.		<u>Permitted Uses and Restrictions</u>	35
6.01		<u>Improvements and Use</u>	35
6.02		<u>Animals</u>	36
6.03		<u>Commercial Activities</u>	36
6.04		<u>Rental of Lots</u>	37
6.05		<u>Utility Service</u>	37
6.06		<u>Nuisance</u>	38
6.07		<u>Outside Antennae</u>	38
6.08		<u>Signs</u>	38
6.09		<u>Equipment and Machinery</u>	38
6.10		<u>Laundry</u>	38
6.11		<u>Propane Tanks</u>	38
6.12		<u>Maintenance of Lawns, Plantings and Landscape</u>	38
6.13		<u>Outside Installations</u>	38
6.14		<u>Vehicle Parking</u>	38
6.15		<u>Resubdivision</u>	39
6.16		<u>Improvements</u>	39
6.17		<u>Taxes</u>	39

6.18	<u>Rules and Regulations</u>	39
6.19	<u>Hazardous Substances</u>	39
6.20	<u>Electric Meter Service</u>	39
6.21	<u>No Drilling or Wells</u>	39
6.22	<u>No Private Sewers or Septic Systems</u>	39
6.23	<u>No Permanent Residential Use</u>	39
6.24	<u>Declarant's Lots</u>	39
VII.	Architectural And Landscape Control Committee	40
7.01	<u>Establishment of Committee</u>	40
7.02	<u>Members of Committee</u>	40
7.03	<u>Architectural Design Guidelines</u>	40
7.04	<u>Landscape Standards</u>	41
7.05	<u>Review of Proposed Construction</u>	41
7.06	<u>Variances</u>	42
7.07	<u>Obligations with Respect to Zoning and Subdivisions</u>	42
7.08	<u>Indemnification of Architectural and Landscape Committee</u>	43
VIII.	Mortgagee Provisions	43
8.01	<u>Notices of Action</u>	43
8.02	<u>First Refusal</u>	43
8.03	<u>Unpaid Assessments</u>	44
8.04	<u>Special Provisions</u>	44
8.05	<u>Other Provisions for First Mortgages</u>	44
8.06	<u>No Priority</u>	46
8.07	<u>Notice to Association</u>	46
8.08	<u>Amendment by Board</u>	46
8.09	<u>Applicability of Article</u>	46
8.10	<u>Failure of Mortgagee to Respond</u>	46
IX.	Annexation	46
	<i>Not Applicable</i>	
X.	General Provisions	47
10.01	<u>Term</u>	47
10.02	<u>Resale of Lots</u>	47
10.03	<u>Amendment</u>	48
10.04	<u>Enforcement and Nonwaiver</u>	50
	(a) <u>Right of Enforcement</u>	50
	(b) <u>Violation as a Nuisance</u>	50
	(c) <u>Violation of Law</u>	50
	(d) <u>Remedies Cumulative</u>	50
	(e) <u>Nonwaiver</u>	50
	(f) <u>Attorneys' Fees</u>	50

10.05	<u>Merger or Consolidation</u>	50
10.06	<u>No Representation or Warranty</u>	51
10.07	<u>Notices</u>	51
10.08	<u>Construction</u>	51
	(a) <u>Restrictions Severable</u>	51
	(b) <u>Singular Includes Plural</u>	51
	(c) <u>Captions</u>	51
	(d) <u>Liberal Construction</u>	51
	(e) <u>Statutory References</u>	51
10.09	<u>State Law</u>	52
10.10	<u>Priorities, Inconsistencies</u>	52
10.11	<u>Time of Essence</u>	52
Exhibit A	Property	54
Exhibit B	Annexable Area	55

**DECLARATION
OF COVENANTS, CONDITIONS AND RESTRICTIONS FOR
SIERRA SKIES RV RESORT**

THIS DECLARATION OF COVENANTS, CONDITIONS AND RESTRICTIONS FOR SIERRA SKIES RV RESORT (this "Declaration") is made this _____ day of _____, 20____ by SIERRA SKIES RV RESORT, a Nevada Limited Liability Company, (the "Declarant")

I.

Recitals

1.01. Real Property. Declarant is the owner of certain real property located entirely in Carson City, Nevada and more particularly described in Exhibit "A" attached hereto (the "Property"). The Property shall include any additional real property that may from time to time be annexed to and become part of the Property.

1.02. Recreational Vehicle Resort. Declarant desires to develop the Property, and, if Declarant so selects, the adjacent land to the Property described in Exhibit "B" (the "Annexable Area") as a planned community under NRS 116 to be used for a recreational vehicle resort and to establish covenants, conditions and restrictions relating to the use, enjoyment, maintenance, improvement, and occupancy of the Property and the Annexable Area (if annexed), under a general plan of development pursuant to NRS 116. Two hundred and twenty-six (226) Lots (as hereinafter defined) will be developed on the Property.

1.03. Owners Association. Declarant desires to establish an association under NRS 116 to be called Sierra Skies RV Resort Owners Association, for the purpose of maintaining and administering the common areas of the Property, administering and enforcing these covenants, conditions and restrictions, and collection and disbursing funds pursuant to Assessments and charges established by this Declaration. Each Lot shall have appurtenant to it a membership in the Association.

1.04. Covenant Running with Land. This Declaration shall run with the Property and all parts and parcels thereof, including any Lots, and except as stated in this Declaration shall be binding on all parties having any right, title or interest in the Property and all parts and parcels thereof, including any Lots, and their heirs, successors, successors-in-title, and assigns, and the Association (as hereinafter defined) and all of its successors in interest, and shall inure to the benefit of each Owner (as hereinafter defined) or Member (as hereinafter defined) thereof. Each of the limitations, easements, uses, obligations, covenants, conditions and restrictions imposed hereby shall be deemed to be and construed as equitable servitudes enforceable by any of the Owners of any portion of the Property subject to this Declaration against any other Owner, Lessee (as hereinafter defined), or occupant of the Property or portion thereof similarly restricted by this Declaration.

NOW, THEREFORE, Declarant hereby declares that all of the Property (as hereinafter defined) shall be held, sold, conveyed, hypothecated, encumbered, leased, rented, used, occupied and improved subject to the following easements, restrictions, covenants and conditions, which are for the purpose of protecting the value and desirability of the Property.

II. Definitions

In addition to the terms elsewhere defined herein, the following terms shall have the following meanings whenever used in this Declaration:

- 2.01. “Annexable Area” None
- 2.02. “Arbitration” shall mean the requirement under NRS 38 for certain claims regarding the Governing Documents and the Association to be submitted to Arbitration or mediation.
- 2.03. “Architectural and Landscape Committee” shall mean the committee created by Article VII of the Declaration.
- 2.04. “Articles” shall mean the Articles of Incorporation of the Association as they may be amended from time to time.
- 2.05. “Assessment” shall mean those Assessments set forth in Article V of this Declaration.
- 2.06. “Association” shall mean and refer to Sierra Skies RV Resort Owners Association, a Nevada Limited Liability Company, its successors and assign.
- 2.07. “Association Easement” shall mean those easements affecting each Lot as defined in Section 3.02(e).
- 2.08. “Association Property” shall mean all property, real and personal, owned by the Association.
- 2.09. “Benefitted Owner” Section 3.02(f)(iii).
- 2.10. “Board” shall mean the Board of Directors of the Association.
- 2.11. “Bylaws” shall mean the Bylaws of the Association as may be amended from time to time.
- 2.12. “Common Area” shall mean all real property (including the improvements thereto) designated as common area on the Subdivision Map (as hereinafter defined), and any subsequent subdivision or parcel map of the Property, that is now or hereafter conveyed by Declarant to the Association, including, but not limited to, private streets, sewer and water lines, easements, park area and other such property. Declarant’s Lots are not included in the Common Area.
- 2.13. “Declarant” shall mean and refer to Sierra Skies RV Resort, LLC, its successors and assigns.
- 2.14. “Declaration” shall mean the easements, restrictions, covenants and conditions set forth in this instrument, as it may be amended from time to time.
- 2.15. “Declarant’s Control Period” shall mean and refer to the period of time in which the Declarant may appoint the majority of the Board of the Association as further described in Section 4.04.

2.16. “Declarant’s Lots” shall mean those Lots constituting part of the Property which shall be held and owned by the Declarant and used in the furtherance of those rights reserved to Declarant as outlined in Section 3.04 or otherwise in this Declaration, described as Common Lots “A” and “D” on the Subdivision Map. Without limitation, Declarant’s Lots shall be used for the operation of Declarant’s sales, rental, and commercial offices which shall be constructed on the Declarant’s Lots, for sales, resales, and rentals, for temporary parking of Recreational Vehicles, and for similar uses.

2.17. “Design Guidelines” shall mean the guidelines adopted by the Architectural and landscape Committee as set forth in Section 7.03.

2.18. “Development” shall mean the Recreational Vehicle resort referred to as Sierra Skies RV Resort being developed by Declarant as a planned community pursuant to NRS 116.

2.19. “Eligible Holder” shall mean persons described in Section 8.01.

2.20. “Emergency” is defined in Section 4.05(c).

2.21. “FHA” shall mean the Federal Housing Administration of the United States Department

Of Housing and Urban Development and any department of agency of the United States government which succeeds to the FHA’s function of insuring notes secured by Mortgages on residential real estate.

2.22. “FHLMC” shall mean the Federal Home Loan Mortgage Corporation created by Title II of the Emergency Home Finance Act of 1970, and any successors to such corporation.

2.23. “FNMA” shall mean the Federal National Mortgage Association, a government sponsored private corporation established pursuant to Title VIII of the Housing and Urban Development Act of 1968, and any successors to such corporation.

2.24. “Governing Documents” shall include, without limitation, this Declaration, the Articles and Bylaws for the Association, and the Rules and Regulations.

2.25. “GNMA” shall mean the Government National Mortgage Association administered by the United States Department of Housing and Urban Development, and any successors to such association.

2.26. “Hazardous Substances” is defined in Section 6.19.

2.27. “Improvement” shall include the buildings, structures, improvements, roadways, parking areas, lighting fixtures, fences, walls, hedges, plantings, planted trees and shrubs, swimming pools and all other structures and landscaping of every type and kind upon the Property or any portion or parcel thereof.

2.28. “Lessee” shall mean any Person (as hereinafter defined) who rents or leases any Lot. Nothing in the definition shall imply a right or any Owner to lease its Lot, except in accordance with the Agreement. Moreover, nothing in this definition shall imply that Declarant will engage in long-term leases.

2.29. “Lot” shall mean and refer to each of the lots shown on the Subdivision Map (including the Declarant’s Lots) with the exception of the Common Area(s)

2.30. “Manager” or “Managing Agent” or “Management Contractor” shall mean a party contractually engaged by the Association or Declarant and charged with the management of the Property and Common Area(s) and the performance of other duties of the Association.

2.31. “Member” shall mean and refer to any Person that is a member of the Association under the provisions of the Governing Documents.

2.32. “Mortgage” shall mean any mortgage or deed of trust that encumbers any Lot.

2.32. “Mortgagee” shall mean any beneficiary of a Mortgage.

2.34. “Recreational Vehicle” shall mean and refer to those vehicles that have been categorized by the Recreational Vehicle Industry Association (“RVIA”), and the Family Motorcoach Association (“FMCA”), as Class “A” motorcoaches and/or factory customized bus conversions, that: (a) are mobile, in accordance with the code of standards of the RVIA and FMCA; (b) are self-propelled, and completely self-contained; (c) are structured so that the driver’s seat is accessible from the living area in a walking position, but not necessarily in an upright position; (d) contain a minimum interior height of 6 feet in the living areas; (e) have a minimum length of 34 feet, a maximum length of 45 feet and a maximum width of 102 inches plus slide-outs; (f) have a fixed roof, as opposed to the “pop-up” variety. Any Class “A” Motorcoach that contains “slide-out” room additions is an acceptable Motorcoach Vehicle under this definition. Also, any Class “A” Motorcoach this has an entertainment center, bar, barbecue, television, sink, ice maker, or cabinet that is an integral part of the Motorcoach, and is built into the storage bays of the sub-basement, and which may or may not slide out on cantilevered rails is permissible under this definition of acceptable Recreational Vehicles. In addition to motorhomes and fifth-wheels, trailers with minimum length of 34 feet are permitted.

2.35. “Notice” is defined in Section 10.07.

2.36. “Notice and a Hearing” shall mean a notice of time and an opportunity for a hearing as provided for in the Governing Documents. All vehicles must be in well-maintained and moveable condition.

2.37. “NRS” shall mean the Nevada Revised Statutes.

2.38. “Owner” shall mean and refer to the record owner, whether one or more persons or entities, of a fee simple title to any Lot which is a part of the Property, but excluding those having such interest merely as security for the performance of an obligation, such as a Mortgage.

2.39. “Permanent” is defined in Section 6.01.

2.40. “Person” shall include a natural person, partnership, corporation, trust or other legal entity.

2.41. “Property” shall mean and refer to that certain real property located entirely in Carson City, Nevada, and more particularly described in Exhibit “A” attached hereto.

2.42. “Rules and Regulations” shall mean the rules and regulations adopted by the Board pursuant to Section 4.10.

2.43. “Subdivision Map” shall mean the recorded map or plat of the Property on file in Book ___ of Plats, Page ___, and recorded on _____ as Instrument No. _____ in Book ___ Official Records, Carson City, Nevada, and shall also include any plat map on record with the Carson City, Nevada Recorder’s office pertaining to any land, if any, annexed to the Development.

2.44 “VA” shall mean the Department of Veterans Affairs of the United States of America and any department or agency of the United States government which succeeds to VA’s function of issuing guarantees of notes secured by Mortgages on residential real estate.

III.

Property and Property Rights

3.01 Description of Property. The Property shall consist of the Lots (including Declarant’s Lots) and the Common Area as depicted in the Subdivision Map.

3.02 Lots.

(a) Owners Easements. Every Owner shall have for himself, his family, his tenants and guests, a nonexclusive easement of use, enjoyment, ingress and egress in and to the Common Area. Each such nonexclusive easement shall be appurtenant to the respective Lots, and shall pass with title to the Lots.

(b) Limitation on Owners’ Easement Rights.

The nonexclusive easements described above shall be subject to the provisions of this Declaration including, but not limited to, the following:

(i) The right of the Association to reasonably limit the number of guests of Owners using the Common Area;

(ii) The right of the Association to establish and enforce reasonable Rules and Regulations pertaining to the use of the Common Area;

(iii) The right of the Association, in accordance with the Articles, Bylaws, and this Declaration, to borrow money for the purpose of improving or repairing the Common Area and to hypothecate any or all of the real or personal property owned by the Association as security for such borrowed money;

(iv) The right of the Association to suspend the right of any Owner to use all or any portion of the Common Area or other related facility because of the Owner’s failure to pay any Assessment or to comply with the terms of this Declaration, the Rules and Regulations, or other Governing Documents;

(v) The right of the Association, acting through the Board, to grant easements, licenses, or rights-of-way, in, on or over the Common Area for purposes not inconsistent with the intended use of the Property; and

(vi) The right of the Association, acting through the Board, to reasonably restrict access to maintenance and landscape areas and similar areas of the Development.

(c) Encroachment Easements.

(i) Each Lot, as the dominant tenement, shall have and is granted an easement over all adjoining Lots and Common Area, as the servient tenement, for the purpose of accommodating and maintaining any encroachment which occurs due to engineering errors, errors in original construction, settlement, or shifting of structures, or any other cause as long as the encroachment remains.

(ii) The Common Area, as the dominant tenement, shall have an easement over adjoining Lots, as the servient tenements, for the purpose of accommodating and maintaining any encroachment due to engineering errors, errors in original construction, settlement or shifting structures, or any other causes.

(iii) In no event shall a valid easement exist pursuant to this Section 3.02(c) in favor of an Owner or the Association if the encroachment occurred due to the willful misconduct of the Owner or Association, respectively.

(iv) In the event an Lot or structure on the Common Area is partially or totally destroyed, and then repaired and rebuilt, minor encroachments over adjoining Lots and the Common Area shall be permitted and there shall be valid easements for the maintenance of the encroachments as long as they shall exist.

(d) Easements for Maintenance and Repair. Declarant hereby reserves for the benefit of the Board, the Association, and all agents, officers, and employees of the Association, non-exclusive easements for ingress, egress, and access on, over, and across the Common Area for performing its duties and exercising its powers in accordance with this Declaration.

(e) Association Easement. There are hereby reserved to the Association such easements as are necessary to perform the duties and obligations of the Association. There is also hereby reserved to the Association a five (5) foot easement inside the perimeter boundary of each Lot, a ten (10) foot easement inside the boundary of each Lot contiguous to a paved roadway, and a ten (10) foot easement inside the back boundary of each Lot for maintenance uses, utility lines, and other matters incident to the operation of the Property (the "Association Easement"). For purposes of this Section 3.02(e), the term "back boundary" shall mean the boundary opposite the front driveway entrance to the Lot, and, for any irregular shaped Lots, such as corner Lots, "back boundary" shall mean any boundary or boundaries of the Lot touching any back boundary on a contiguous Lot. No Improvements or other objects shall be constructed or placed on the Association Easement without the consent of the Board.

(f) Utilities Easement.

(i) Declarant expressly reserves the right to grant additional easements and rights of way over the Property to utility companies and public agencies, as necessary, for the purpose of constructing, operating, or maintaining utilities, including, but not limited to, electrical, cable television, telephone, public sewers, storm drains and pipes, water systems, sprinkler systems, heating and gas lines or pipes, and any similar public or quasi-public improvements or facilities. Such right of Declarant shall terminate upon the close of escrow for the sale of all Lots in the Development.

(ii) No such easement shall be granted if it would permanently interfere with the use, occupancy, or enjoyment by any Owner of his Lot or the Common Area(s).

(iii) If it becomes necessary to gain access to any of the utilities described in Section 3.02(f)(i) through a Lot owned by an Owner other than the Owner(s) of the Lot(s) served by such utilities, the Owner(s) of the Lot(s) served by such utilities (the "Benefitted Owner") shall have the right, and is(are) thereby granted an easement therefor, to enter upon such other Lot or to have utility companies enter upon such other Lot, to repair, replace, or maintain said utilities. In the event that any damage is proximately caused by such entry, the Benefitted Owner(s) shall pay the cost of repairing the damage if the utility company fails to do so.

(g) Emergency Repairs Easement. In addition to all other easements reserved or granted herein, there is hereby reserved to the Association an easement across each Lot as is necessary

to permit a reasonable right of entry onto each Lot for the purpose of performing emergency repairs or to do other work reasonable necessary for the proper maintenance of the Development.

(h) Drainage Easement. There is hereby reserved over the Common Area and over each Lot reciprocal easements for drainage according to the drainage patterns created or required by the grading plans for the Development approved by Carson City, Nevada, as well as the actual, natural, and existing patterns for drainage. Each Owner covenants that if it becomes necessary to alter the pattern of water drainage over his Lot for the protection of his Lot, such Owner shall do so in a manner that will not harm or increase the burden on any adjacent Lots or Common Area.

(I) Easement for Completion of Improvements. Declarant expressly reserves for its benefit a nonexclusive easement for ingress, egress, access over and across the Property, or any portion or parcel thereof, to complete any Improvement, or to complete any Lot(s), which Declarant deems desirable to implement Declarant's development plan for the Property.

(j) Maintenance Obligation of Owners. It shall be the duty of each Owner at its sole cost and expense, subject to the Association's obligations pursuant to Section 4.06 and the provisions of this Declaration requiring approval of the Architectural and Landscape Committee, to maintain, repair, replace, restore (including any maintenance, repairs, replacement or restoration required as a result of any damage or destruction of the Property by casualty or otherwise) all Motorcoach Vehicles, Improvements and landscaping located on its Lot and the Lot itself in a neat, sanitary and attractive condition and in accordance with the Rules and Regulations of the Association and this Declaration. If any Owner shall permit any Recreational Vehicle, Improvements or the Lot to fall into disrepair or to become unsafe, unsightly, or unattractive, or otherwise in violation of this Declaration, the Association shall have the right to seek any remedies at law or in equity it may have. In addition, the Board shall have the right, but not the duty, if such unacceptable maintenance is not corrected within thirty (30) days of written Notice from the Association (or such longer period if reasonably necessary under the circumstances provided the Owner is diligently pursuing such maintenance) to enter upon such Owner's Lot and make such repairs and perform such maintenance and charge the costs thereof to Owner. Such costs shall be enforced, including penalties, fees, and costs, as an Assessment against the Lot pursuant to Article V.

3.03. Association Property

(a) Conveyance of Association Property. The Declarant hereby covenants for itself, its successors and assigns, that prior to the conveyance of the first Lot in the Property to an Owner (not the Declarant), that it will convey title to the Association Property to the Association free and clear of all encumbrances and liens, except utility easement, covenants, conditions, and reservations then of record. Similar conveyances shall be made to the Association prior to the time of the conveyance to an Owner (not the Declarant) of the first Lot in each subsequent phase of the Development.

(b) Common Area Ownership. The Common Area shall be owned by the Association in fee simple, for the enjoyment and convenience of the Owners and shall contain the roadways, walkways, recreational areas, parking areas, maintenance building area, storage and trash areas, utility easements and all other areas not constituting the Lots. Each Lot and its Owner shall have a non-exclusive easement over all of the Common Area, and such easement is hereby granted, transferred and conveyed to all Owners by the Declarant for the benefit of the Lots, the Owners of the Lots, and each of them, and for their respective families, guests and invitees for all of the foregoing purposes.

(c) Use. Each Member of the Association who resided in the Property, and the members of their family, their guests and invitees and each Lessee of a Lot shall be entitled to use the Association Property, subject to:

(i) The right of the Association to charge reasonable dues, use fees and other fee for those facilities or amenities for which fees are normally charged or assessed;

(ii) The right of the Association to suspend the use of any Association Property by any Member or Lessee and their respective families, guests and invitees for any period during which any Assessment against a Lot remains past due and unpaid; and, after Notice and a Hearing by the Board, the right of the Association to invoke any remedy set forth in this Declaration, including without limitation, Section 4.07 and 5.07;

(iii) The right of the Association to require that security deposits be made and deposited with the Association to secure all sums, and to guarantee performance of all duties, due and owing or to become due and owing to the Association;

(iv) Such covenants, conditions, and restrictions as may have been imposed by the Association or prior owners on Association Property, including, but not limited to, that certain declaration of covenants, conditions, and restrictions recorded on _____, 20__ in Book _____ as Document No. _____ of Official Records for Carson City, Nevada;

(v) Such rules and regulations for the use of the Association Property as may be imposed by the Association from time to time; and

(vi) The right of Declarant to use the Association Property and Common Areas for sales, resales, leasing, development and related activities pertaining to Sierra Skies RV Resort.

(d) Maintenance of Association Property. The Association shall be responsible for all of the costs and maintenance of Association Property. The Association may, at any time, and without any approval of the Owners being required:

(i) reconstruct, repair, replace, or refinish any Improvement, structure, fixture, or facility located on the Common Area or any portion thereof;

(ii) construct, reconstruct, repair, replace, or refinish any road improvement or surface upon any portion of the Common Area used as a road, street, walk, or parking area;

(iii) replace injured and diseased shrubs or other vegetation on the Common Area, and plant trees, shrubs and ground cover to the extent that the Board deems necessary;

(iv) place and maintain upon any such are such signs, markers and lights as the Board may deem appropriate for the proper identification, use, and regulation thereof;

(v) remove all papers, debris, and refuse from the Common Area and wash or sweep paved areas as required, and clean and revamp lighting fixtures as needed;

(vi) repaint striping, markers, directional signs, and similar devices as necessary;

(vii) pay all real estate and personal property taxes and Assessments on the Common Area;

(viii) pay all electrical, water, gas, sewer, trash collection, telephone, cable television and other utility charges or fees for services furnished to the Common Area or to the Lots, except where such services are provided to the Lots and are billed to the Owners individually;

(ix) pay for and keep in force at the Association's expense public liability, casualty, and fire insurance with companies acceptable to the Board in amounts and with limits of liability desired by the Board, such insurance to name the Association as named insured;

(x) impose and collect regular and special assessments, maintenance fees, and other fees and enforce the right to collect the same as permitted by NRS 116;

(xi) to the fullest extent permitted by NRS 116, to borrow money, enter into contracts, including installment contracts and long term leases, as required by the Association for purposes of financing capital expenditures and improvements as required by the Association, and to encumber the Association Property as security for the same;

(xii) do all such other and further acts that the Board deems necessary or advisable to preserve and protect the Common Area and the beauty thereof, in accordance with the general purposes for use and enjoyment of the Property described in this Declaration;

(xiii) the Board shall be the sole judge as to the appropriate maintenance of all portions of the Common Area; and

(xiv) nothing herein shall be construed so as to preclude the Association from delegating its powers set forth above to a Manager, including a professional management company.

(e) Improvement on Common Area. Any other provision of this Declaration to the contrary notwithstanding, until Declarant has sold ninety percent (90%) of the Lots, no land within the Common Area may be improved by any Improvement, used or occupied except in such manner as shall have been approved by Declarant in its sole and absolute discretion. Declarant may delegate its right to grant such approvals to the Board. No approval shall be granted that would be in contravention of the zoning or other local regulation then in effect in the area in question.

(f) Damages.

(i) Each Owner shall indemnify and hold the Association harmless without limitation on any claims arising from the negligence or willful misconduct of that Owner, his family members, relatives, guests, or invitees, for damages sustained on the Common Area(s), including any costs incurred in defending against such claims.

(ii) An Owner may carry personal liability and property damage insurance with respect to his or her Lot as he or she may desire. However, any such policy shall include a waiver of subrogation clause acceptable to the Board and to any Mortgagee of the Owner's Lot.

(g) Damage and Destruction. In the case of destruction of or damage to Association Property by fire or other casualty:

(i) Liberty to Reconstruct. If the cost to repair or replace the Association Property, over and above all insurance proceeds, is less than \$20,000, the Board may, without the consent of the Members, determine to repair or replace the damaged property with property substantially the same as that destroyed or damaged.

(ii) Decision to Reconstruct. If the cost to repair or replace the Association Property, over and above all insurance proceeds, is equal to or greater than \$20,000 and the Board determines to rebuild any Association Property destroyed or damaged in the form substantially the same as that destroyed or damaged, it shall prepare plans and obtain bids following the notice proceeding for a special Assessment as set forth in Article V hereof. The Board shall submit the plans and bids to the Members for approval, which approval shall require the affirmative vote of over fifty percent (50%) of the Members entitled to vote. The Board will modify the plans until the required vote is obtained or the restoration becomes subject to subsection 3.03(g)(i) or (iii) hereof. If approved, the Board shall cause the repairs or replacements to be done and assess the Members for the costs as a special Assessment.

(iii) Decision Not to Reconstruct. If the Board determines not to rebuild any Association Property so destroyed or damaged or to build facilities substantially different from those that were destroyed or damaged, it shall submit its decision to the Members for their approval or disapproval, which approval shall require the consent of eighty percent (80%) of the Members entitled to vote. If the Members elect to approve the decision, the Board shall act accordingly; but if the Members do not approve the decision, the Board shall proceed to repair or rebuild the damaged or destroyed facility pursuant to subsection 3.03(g)(i) or (ii) hereof.

(iv) Damage During Declarant Control Period. Should any Association Property become destroyed or damaged before Declarant has sold all of the Lots, the Association shall rebuild or repair such Association Property in a manner consistent with its original condition as constructed by Declarant.

(v) Damage or Destruction by Owner. In the event any portion of the Common Area is damaged or destroyed through the negligence or wilful misconduct of an Owner, or an Owner's guests, tenants, licensees, or agents, the Board may repair said damaged area. In the event the Board determines to repair said damage, the amount necessary for such repairs shall be paid by the Owner, upon demand, to the Board. If said amounts are not immediately paid, they shall be deemed to be Assessments, and the Board may enforce collection of same in the same manner as provided in Article V hereof for collection and enforcement of Assessments.

3.04 Special Declarant's Rights. Declarant and its agents shall have the following rights and privileges, for a period of ninety-nine (99) years, unless a shorter period is noted below:

(a) Easement for Repairs. A nonexclusive easement over the Association Property for the purpose of making repairs to the Association Property and the Lots if access thereto is not reasonably available, until such time that all phases of the Property are fully developed;

(b) Easement for Sales. A nonexclusive easement over the Association Property (which easement shall extend to the sales agents, customers, prospective customers, guests, and representatives of Declarant) for sales, display, access, ingress, egress, exhibits, and other purposes deemed useful by Declarant and its agents in advertising and promoting the sales of the Lots;

(c) Easement for Development. A nonexclusive easement over the Association Property (in favor of Declarant and its agents, contractors, and licensees) for access, ingress, and egress over, in, upon, under, and across the Property, including the right to store materials thereon and make such other use as shall be reasonable, necessary, or incidental to Declarant's development of the Property, until such time as all phases of the Property are fully developed;

(d) Right to Rent Lots Owned by Owners. Declarant shall have for a period of ninety-nine (99) years from the date of this Declaration, the exclusive right, in the absence of use by the Owner or his registered and approved guest, to rent Lots which are a part of the Development at scheduled rates promulgated from time to time by Declarant, as described in greater detail in Section 6.04.

(e) No Amendment. The provisions of this Section 3.04 may not be amended in any manner without the prior written consent of Declarant.

IV.

Owners' Association; Membership and Voting Rights

4.01 Association.

(a) Organization. The Association is a non-profit Nevada corporation created for the purposes, charged with the duties, and invested with the powers prescribed by law or set forth in the Governing Documents. Neither the Articles nor Bylaws shall for any reason be amended or otherwise changed or interpreted so as to be inconsistent with this Declaration. In the event of any conflict between the language of this Declaration and the Articles, Bylaws, or any other Governing Documents, the provisions of this Declaration shall control.

(b) Successor Associations. In the event that the Association, as a corporate entity, is dissolved, a non-profit unincorporated association shall forthwith and without further action or notice be automatically deemed to be formed and shall succeed to all the rights and duties of the Association hereunder. The affairs of said unincorporated association shall be governed by the laws of the State of Nevada and, to the extent not inconsistent therewith, by the Governing Documents of the Association as if they were created for the purpose of governing the affairs of an unincorporated association. In the event the unincorporated association is formed pursuant to this subsection, the appropriate officers of the Association or of the successor association shall take all reasonable efforts to restore or reincorporate the Association as a non-profit Nevada corporation.

4.02 Construction Consistent with Law. This Declaration and all subsequent actions by the Association shall be construed whenever possible so as to be consistent with all applicable laws, federal, state and local.

4.03 Membership Rights. All Owners, including Declarant, shall be Members of the Association. Each Owner shall automatically be a Member of the Association without the necessity of any further action on its part, and membership in the Association shall be appurtenant to and shall run with the property interest ownership of which qualifies the Owner thereof to membership in the Association. Membership in the Association may not be severed from or in any way transferred, pledged, mortgaged or alienated except together with the title to the property interest, ownership of which qualifies the Owner thereof to membership, and then only to the transferee of title to said property interest. Any

attempt to make a prohibited severance, transfer, pledge, mortgage or alienation shall be void. Subject to any restriction on voting contained in this Declaration, and subject to the Articles, each Member or group of Members shall be entitled to one (1) vote for each Lot owned by that Member or group of Members.

4.04 Control of Association.

(a) Period of Declarant Control of Association. Notwithstanding any other provision of this Declaration or of the By-Laws of the Association and subject to Section 4.04(b), there shall be a period of Declarant control of the Association during which the Declarant or persons designated by the Declarant, may, subject to Section 4.04(b), appoint and remove all or some of the officers and directors of the Association. The period of Declarant control terminates no later than the earlier of:

(i) Sixty (60) days after the conveyance by Declarant of seventy-five percent (75%) of the Lots that may be created within the Property to Owners other than the Declarant;

(ii) Five (5) years after the date Declarant has ceased to offer Lots for sale in the ordinary course of its business; or

(iii) Five (5) years after any right to annex new Lots was last exercised by Declarant.

Provided, however, that Declarant may, but is not obligated to, voluntarily surrender the right to appoint and remove officers and Board members as provided herein before the termination period set forth above, provided that the Declarant may require that specified actions of the Association or the Board require Declarant approval prior to becoming effective. Such surrender of rights shall only be by a recorded instrument.

(b) Termination of Period of Declarant Control. Not later than sixty (60) days after conveyance of twenty-five percent (25%) of the Lots that may be created within the Property to Owners other than Declarant, at least one (1) member of the Board and not less than twenty-five percent (25%) of the members of the Board must be elected by Owners other than Declarant. Not later than sixty (60) days after conveyance by Declarant of fifty percent (50%) of the Lots that may be created within the Property to Owners other than Declarant, not less than thirty-three and one-third percent (33 1/3%) of the members of the Board must be elected by Owners other than the Declarant. Upon expiration of the Declarant Control Period set forth in Section 4.04(a), one hundred percent (100%) of the Board shall be elected by Lot Owners other than Declarant.

(c) Removal of Board Members. Notwithstanding any provision of the Declaration or Bylaws to the contrary, after the expiration of the Declarant control period set forth in Section 4.04(a), owners other than Declarant, by a sixty-seven percent (67%) vote of all persons present and entitled to vote at any meeting of the Members at which a quorum is present, may remove any member of the Board with or without cause.

(d) Joint or Common Ownership. If any property interest, ownership of which entitles the Owner thereof to vote, is held jointly or in common by more than one (1) Person, the vote or votes to which such property interest is entitled shall also be held jointly or in common in the same manner. However, the vote or votes for such property interest shall be cast, if at all, as a unit, and neither fractional votes nor split votes shall be allowed. In the event that such joint or common Owners are unable to

agree among themselves as to how their vote or votes shall be cast as a unit, they shall lose the right to cast their vote or votes on the matter in question. In the event more than one vote is cast for any given Lot, the votes shall not be counted and shall be void. Any joint or common Owner shall be entitled to cast the vote or votes belonging to the joint or common Owners unless another joint or common Owner shall have delivered to the Secretary of the Association prior to the time for casting such vote, a written statement to the effect that the Owner wishing to cast the vote or votes has not been authorized to do so by the other joint or common Owner or Owners. Regardless of the number of the number of Owners of a Lot, there shall be only one vote per Lot.

(e) Proxy Voting. Except as otherwise provided in this Section, any Owner, including Declarant, may give a revocable written proxy executed by the Owner thereof, to any Person authorized to accept a proxy hereunder authorizing that Person to cast the Owner's votes on any matter. An Owner may give a proxy only to a member of his immediate family, another Owner in the Development, or any other Person permitted by NRS 116. If a Lot is owned by more than one Person, each Owner of the Lot may vote or register protest to the casting of votes by the other Owners of the Lot through a proxy. A vote may not be cast pursuant to a proxy for the election of a member of the Board. Such written proxy shall be void if: (i) it is not date; (ii) it purports to be revocable without notice; (iii) it does not designate the votes that must be cast on behalf of the Owner who executed it; or (iv) the holder of the proxy does not disclose at the beginning of the meeting for which the proxy is executed, the number of proxies pursuant to which he will be casting votes and the voting instructions received for each proxy. Each proxy shall terminate immediately after the conclusion of the meeting for which it was executed. An Owner may revoke a proxy only by actual notice of revocation to the Person presiding over a meeting of the Association.

(f) Cumulative Voting. Voting shall not be cumulative.

4.05 Meetings of Members or Board. The Association shall not hold an annual meeting of the Members. The annual meeting of the Members shall be held on the third Saturday of November or one (1) year after the date of the last annual meeting. If the Members have not held a meeting for one (1) year, a meeting of the Members must be held on the following March 1. The Board shall also hold at least one (1) regular meeting each one hundred eighty days. Special meetings of the Association, the Board, or Members having ten percent (10%) or more of the total votes.

(a) Notice. Not less than then (10) days (twenty-one (21) days in the event of a meeting at which an Assessment for a capital improvement or commencement of a civil action is to be considered or action is to be taken on such an Assessment), nor more than sixty (60) days in advance of each meeting of the Members or Board, the Secretary of the Association shall cause notice of the meeting to be hand-delivered or sent prepaid by United States mail to the mailing address of each Lot or to any other mailing address designated in writing by the Lot Owner. The notice of the meeting must state the time and place of the meeting and include a copy of the agenda for the meeting. The notice must also include notification of the right of an Owner; (i) to have a copy of the minutes or a summary of the minutes of the meeting distributed to the Owner upon request and, if required by the Board, upon payment to the Association of the cost of making the distribution; and (ii) to speak to the Association.

(b) Agenda. The agenda for each meeting of the Owners or Board must consist of: (i) a clear and complete statement of the topics scheduled to be considered during the meeting, including, without limitation, any proposed amendment to the Declaration or Bylaws, any fees or Assessments to be imposed

Assessments to be imposed or increased by the Association, any budgetary changes, and any proposal to remove an officer or member of the Board; (ii) a list describing the items on which action may be taken and clearly denoting that action may be taken on those items; and (iii) a period devoted to comments by Owners and discussion of those comments. In an Emergency (as hereinafter defined), the Board may take action on an item which is not listed on the agenda. The notice, agenda, and Owner comment requirements of Section 4.05(a) and Section 4.05(b) apply to both regular and special meetings of the Members.

(c) Emergency. As used in this Section 4.05, "Emergency" means any occurrence or combination of occurrences that: (i) could not have been reasonably foreseen; (ii) affects the health, welfare, and safety of the Owners; (iii) requires the immediate attention of, and possible action by, the Board; and (iv) makes it impracticable to comply with the notice provisions of this Section.

(d) Quorum. The presence at any meeting, in person or by proxy, of Members entitled to vote at least fifty-one percent (51%) of the total votes outstanding shall constitute a quorum. If any meeting cannot be held because a quorum is not present, the Members present, either in person or by proxy, may adjourn the meeting to a time not less than forty-eight (48) hours nor more than thirty (30) days from the time set for the original meeting until a quorum shall be present thereat.

(e) Organization. The Chairman of the Board, or in his or her absence the Vice-Chairman, shall call meetings of Members to order and act as chairman of such meetings. In the absence of both of said officers, any Member entitled to vote thereat or any proxy of any such Member may call the meeting to order, and a chairman of the meeting shall be elected. The Secretary of the Association, or in his or her absence the Assistant Secretary, shall act as secretary of the meeting. In the absence of both the Secretary and the Assistant Secretary, a secretary shall be selected in the same manner as that provided above for selecting a chairman of the meeting. Under no circumstances, however, shall the Board or Members take any action unless there is a quorum of the Board members (at least half of the voting power of the Board) present in person. No Board member may grant a proxy to any other Person for the purpose of maintaining a quorum or taking any action required by the Board.

(f) Action by Members. Except as provided otherwise in this Declaration or the Bylaws, any action (including any approvals required under this Declaration) may be taken at any legally convened meeting of the Members at which a quorum is present upon the affirmative vote of the Members having a majority (or such greater percentage as may be required elsewhere in this Declaration for approval of the Members of any matter) of the total votes present at such meeting in person or by proxy. Only votes cast in person, by secret ballot, or by proxy may be counted.

(g) Minutes. Not more than thirty (30) days after any meeting of the Members or Board, the Secretary shall cause the minutes or a summary of the minutes of the meeting to be made available to the Members. A copy of the minutes or a summary of the minutes must be provided to any Member who pays the Association the cost of providing the copy.

4.06 Duties of the Association. Subject to and in accordance with this Declaration, the Association shall have and perform each of the following duties for the benefit of the Members of the Association.

(a) Members. The Association shall accept all Owners as Members.

(b) Recreation and Open Space Areas and Common Area. The Association shall

accept, own, operate and maintain all Common Area which may be conveyed, leased, licensed or otherwise enjoyed by it from the Declarant, together with all Improvements of whatever kind and for whatever purpose which may be located in said Common Area; and to accept, own, operate and maintain all other property easements, or rights of use whether real or personal, for which it, its members or the Property receives any benefits whether aesthetic or tangible; provided, however, that the Association's responsibility for maintenance and repair shall not extend to damage caused by a wilful or negligent act by an Owner, family member, guest, or invitee, and that the Association shall be entitled to recover the costs of such repair and maintenance from the responsible party.

(c) Repair and Maintenance of Association Property. The Association shall maintain in good repair and condition all Common Area, and other Association Property enjoyed by, owned by, licensed to or leased to the Association.

(d) Repair and Maintenance of Lot Landscaping. The Association shall maintain and repair the original landscaping planted on each Lot by Declarant, and subsequent replacements thereto planted by Declarant or the Association.

(e) Payment of Taxes. The Association shall pay all real and personal property taxes and other taxes and assessments levied upon or with respect to any Association Property, to the extent that such taxes and assessments are not levied directly upon the Members. The Association shall have all rights granted by law to contest the legality and the amount of such taxes and assessments.

(f) Payment of Utilities. The Association shall pay all utility bills and charges relating to utilities supplied to each Lot, except for utilities that are billed directly by the provider to each individual Lot Owner. Utilities which shall be the sole responsibility of the Owner of each individual Lot include, but shall not be limited to: (i) telephone bills and charges for installation, repair, and service, including, but not limited to, charges for toll calls; and (ii) electricity bills, charges, and related taxes or fees for each Lot.

(g) Insurance. The Association shall obtain and maintain in effect policies of insurance adequate, in the opinion of the Board, in kind and amount, but in no event less than that required by law, including without limitation the requirements of NRS 116.3113 and, as applicable, the requirements of FNMA, GNMA, and FHLMC. Without limiting the generality of the preceding sentence, such policies of insurance shall include:

(i) Fire and extended coverage insurance on all Improvements owned by or leased to the Association, the amount of such insurance to be not less than ninety percent (90%) of the aggregate full insurable value, meaning actual replacement cost exclusive of the costs of excavations, foundations and footings. Such insurance shall insure the Association and the Mortgagees, as their interests may appear. As to each such policy which will not be thereby voided or impaired, the Association hereby waives and releases all claims against the Board and Declarant, and the officers, agents and employees of each, with respect to any loss covered by such insurance, whether or not caused by the negligence of or breach of any agreement by said persons, but only to the extent that insurance proceeds are received in compensation for such loss. If the foregoing exculpatory clause is held to be invalid, then the liability of the insurance company shall be primary, and the liability of the Board, Declarant and the officers, agents and employees of the Board and of Declarant shall be secondary;

(ii) Liability insurance, with limits in amounts reasonably determined by

the Board (up to a maximum of Two Million Dollars (\$2,000,000) per occurrence) insuring against liability for each bodily injury or property damage arising from activities of the Association or with respect to property under its jurisdiction.

(iii) Worker's compensation insurance to the extent necessary to comply with all applicable laws;

(iv) A fidelity bond in an amount determined by the Board, naming the members of the Board and such other persons as may be designated by the Board as principals and the Association as obligee;

(v) The Association shall continuously maintain in effect such casualty, flood, and liability insurance and fidelity bond coverage meeting the insurance and fidelity bond requirements established by FNMA, GNMA, and FHLMC, so long as any of them is a Mortgagee or Owner of a Lot within the Development, except to the extent such coverage is not available or has been waived in writing by FNMA, GNMA, or FHLMC, as applicable; and

(vi) Such other insurance, including indemnity and other bonds, as the Board shall deem necessary or expedient to carrying out the Association's functions;

The Association shall be deemed trustee of the interests of all Members in all insurance proceeds, and shall, subject to the requirements of law, including NRS 116.31133 and 116.31135 and any successor statutes, have full power to receive and to deal with such proceeds. If available, each of the policies of insurance maintained by the Association shall contain a provision that said policy shall not be cancelled, terminated, materially modified or allowed to expire by its own terms, without ten (10) days' prior written notice to the Board and Declarant, and to each Owner and Mortgagee, insurer, and guarantor of a first Mortgage who has filed a written request with the carrier for such insurance for such note and every other Person in interest who requests such notice of the insurer. In addition, fidelity bonds shall provide that they may not be canceled or substantially modified without ten (10) days' prior written notice to the Board and Declarant and to each FNMA servicer who has filed a written request with the carrier for such notice.

(h) Architectural and Landscape Control Committee. The Board shall appoint and remove members of the Architectural and Landscape Control Committee as provided in Article VII, and insure that at all reasonable times there is available a duly constituted and appointed Architectural and Landscape Control Committee.

(i) Enforcement. The Association shall enforce, on its own behalf and on behalf of all Owners, all of the covenants, conditions and restrictions set forth in this Declaration, under an irrevocable agency (hereby granted) coupled with an interest, as beneficiary of said covenants, conditions and restrictions, and as assignee of Declarant; and to perform all other acts, whether or not anywhere expressly authorized herein, as may be reasonably necessary to enforce any of the provisions of this Declaration and the Rules and Regulations.

(j) Long-Term Financing. The Association may, subject to compliance with NRS 116.3112, execute mortgages and deeds of trust, both construction and permanent, for the construction of facilities, including Improvements, on property owned by or leased to the Association. Such financing may be effected through conventional mortgages or deeds of trust, the issuance and sale of development or other bonds, or in any other form or manner as may be deemed appropriate by the Association.

The mortgage, deed of trust or other security interest given to secure repayment of such debt may consist of a first lien or a second or other junior lien, as shall be deemed appropriate by the Association, on the Improvement or other facility to be constructed, together with such underlying and surrounding lands as the Association deems appropriate. The debt secured by such mortgage, deed of trust or other security instrument may be retired from revenues generated by dues, use fees, assessment of the Members of the Association, or otherwise, or any combination thereof, as may be deemed appropriate by the Association, but subject to the limitations imposed by this Declaration and NRS Chapter 116.

(k) Audit. Within one hundred and twenty (120) days of the end of the Association's fiscal year, the Association shall provide an annual audit by an independent certified public accountant of the accounts of the Association and make a copy of such audit available to each Member during normal business hours at the principal office of the Association. Upon written request, the Association shall provide to any Eligible Holder, insurer, or guarantor of any Mortgage a copy of the annual audit. Any Member may at any time and at such Member's own expense cause an audit or inspection to be made of the books and records of the Association by a certified public accountant provided that such audit or inspection is made during normal business hours, upon reasonable prior notice, and without unnecessary interference with the operations of the Association. The Association shall maintain copies of the then current Declaration, Articles, Bylaws, and Rules and Regulations, as amended, at the principal office of the Association, and the same shall be available during normal business hours for inspection by Declarant, any Owner, prospective purchasers of Lots, insurers, and any guarantors of a Mortgage.

(l) Books and Records. The Board shall, upon the request of a Member, make available for review at the business office of the Association or other suitable location during the regular working hours of the Association, the books, records and other papers of the Association, including, without limitation: (i) the financial statements of the Association; (ii) the budgets of the Association; and (iii) the study of the reserves of the Association required to be conducted pursuant to Section 5.03. The Board shall provide a copy of any of the records to a Member within fourteen (14) days after receiving a written request therefor. The Board may charge a fee to cover the actual costs of preparing a copy, not to exceed twenty-five cents (\$.25) per page. The provisions of this Section 4.06(l) do not apply to the personnel records of the employees of the Association and the records of the Association relating to another Owner.

(m) Other. The Association shall carry out all duties of the Association set forth in the Rules and Regulations, the Articles, or the Bylaws.

4.07 Powers and Authority of the Association. The Association shall have all of the powers of a non-stock non-profit cooperative corporation organized under the laws of the State of Nevada in operating for the benefit of its members, subject only to such limitations upon the exercise of such powers as are expressly set forth in the Articles, Bylaws and this Declaration. It shall have the power to do any and all lawful things which may be authorized, required or permitted to be done under and by virtue of this Declaration, and to do and perform any and all acts which may be necessary or proper for or incidental to the exercise of any of the express powers of the Association for the peace, health, comfort, safety or general welfare of the Owners. Without limiting the generality of the foregoing, the Association and the Board shall have the following power and authority, without obligation, to exercise such power and authority:

(a) Right of Entry and Enforcement. The Board and its agents and representatives shall have the power and right to enter upon any Lot and the Improvements thereon without liability to any Owner, for the purpose of enforcing any of the provisions of this Declaration, the Rules and

Regulations, the Articles, or Bylaws or for the purpose of maintaining and repairing the Improvements located on said Lot as provided in this Declaration or, if for any reason whatsoever, the Owner thereof fails to maintain and/or repair any portion of a Lot as required by this Declaration or for the purpose of remedying any emergency involving potential damage to life, health, or property. Nothing contained herein, however, shall be interpreted as creating in the Board a duty to or an acceptance of the duty to remedy any such situation, it being the sole and primary obligation of the Owners. The Association shall also have the power and authority from time to time in its own name, on its own behalf, or on behalf of any Owner or Owners who consent thereto, to commence and maintain actions and suits to restrain and enjoin any breach or threatened breach of this Declaration and to enforce, by mandatory injunction or otherwise, all of the provisions of this Declaration. The costs of any such action or suit, including reasonable attorneys' fees, shall be an expense of the Owner violating this Declaration, and shall be paid to the prevailing party as part of its judgment.

(b) Civil Actions. Except as otherwise provided in this Section 4.07(b), the Association may commence a civil action only upon a vote or written agreement of the Members holding at least a majority of the voting power of the Association. The Association shall provide written notice to each Owner of a meeting at which commencement of a civil action is to be considered at least twenty-one (21) days before the meeting. The provisions of this subsection do not apply to a civil action that is commenced: (i) to enforce the payment of an Assessment; (ii) to enforce the provisions of the Declaration, Bylaws, or Rules and Regulations; (iii) to proceed with a counterclaim; or (iv) to protect the health, safety and welfare of the Members. If a civil action is commenced pursuant to this Section 4.07(b) without the required vote or agreement, the action must be ratified within ninety (90) days after the commencement of the action by a vote or written agreement of the Members holding at least a majority of the voting power of the Association. If the Association, after making a good faith effort, cannot obtain the required vote or agreement to commence or ratify such a civil action, the Association may thereafter seek to dismiss the action without prejudice for that reason only if a vote or written agreement of the Members holding at least a Majority of the voting power of the Association was obtained at the time the approval to commence or ratify the action was sought. At least ten (10) days before an Association commences or seeks to ratify the commencement of a civil action, the Association shall provide a written statement to all Members that includes a reasonable estimate of the costs of the civil action, including reasonable attorney's fees, an explanation of the potential benefits of the civil action and the potential adverse consequences if the Association does not commence the action or if the outcome of the action is not favorable to the Association, and all disclosures that are required to be made upon the sale of property within the Development. No Person other than an Owner may request the dismissal of a civil action commenced by the Association on the ground that the Association failed to comply with any provision of this subsection.

(c) Easements and Rights-of-Way. The Board shall have the power to grant and convey to any third party easements, licenses for use, and rights-of-way, in, on, over or under any Common Area conveyed or otherwise transferred to the Association or under its jurisdiction, subject to the conditions contained in NRS 116.3112.

(d) Employment of Manager. The Board shall have the power to employ, by written agreement, the services of a Manager or Management Contractor, subject to the direction and control of the Board, to manage and carry out the affairs of the Association and, to the extent consistent with the laws of the State of Nevada and upon such conditions as are otherwise deemed advisable by the Board, to delegate to the Manager or Management Contractor any of the powers of the Board or of the officers of the Association. In no event shall any management agreement be for a term greater than one (1) year except with the approval of a majority of the Members of the Association, and any

such agreement shall provide for termination without penalty on a minimum of thirty (30) days written notice. Any Manager so appointed must hold either a permit to engage in property management pursuant to NRS chapter 645 or a certificate issued by the Nevada Real Estate Commission, unless qualified for an exemption under NRS 116.31139.

(e) Services. Subject to NRS 116.3105, the Board shall have the power to provide for and engage the services of employees, independent contractors, or others, for the maintenance, protection and preservation of Association Property, including the Common Area, such as grounds keepers, painters, plumbers and such other maintenance personnel as the nature and character of the Common Area may require, and including any such necessary personnel as the nature and character of any recreational facilities within the Common Area may require, provided, however, that no contract for such services shall be for a duration of more than one (1) year, except with the approval of a majority of the Members, and any such agreement shall provide for termination without penalty on a minimum of ninety (90) days notice. The restrictions contained in this Section 4.07(e) shall not in any manner restrict, limit, or modify the Association's ability to enter into any purchase, lease, lease-purchase, installment, or other contract or agreement for the purchase or lease of equipment relating to the Development.

(f) Utilities. The Board shall have the power to contract, use and pay for utility services to the Association Property.

(g) Other Property. The Board shall have the power to acquire and hold, as trustee for the benefit of its Members, tangible and intangible personal property and to dispose of the same by sale or otherwise.

(h) Mergers. The Association shall have the power, to the extent permitted by NRS 116.2121, to participate in mergers and consolidations with other non-profit corporations organized for the same purposes as the Association.

(i) Delegation. The Board may delegate any of its powers to any such committees, officers or employees as it deems necessary and proper.

(j) Construction on Association Property. Subject to and in accordance with other restrictions contained in this Declaration, the Board shall have the power to construct new Improvements or additions to Association Property, or demolish existing Association Property or Improvements.

(k) Maintenance of Entry and Exit Measures. The Board shall have the power to implement measures regulating entrance and exit at all points of entry and exit within the Development, which may or may not be manned.

(l) Conveyances. Subject to and upon the affirmative vote of seventy-five percent (75%) of the Owners, the Board shall have the power to convey to any person real property and interests therein, including fee title, leasehold estates, easements, rights of way, mortgages and deeds of trust, out of, in, on, over or under any Association Property for the purpose of constructing, erecting operating, maintaining or repairing thereon, therein or thereunder:

- (i) Parks, parkways, or other recreational facilities;
- (ii) Roads, streets, ways, driveways, trails, and paths;

- (iii) Lines, cables, wires, conduits, pipelines or other devices for utility purposes;
- (iv) Sewers, water systems, storm water drainage systems, sprinkler systems, and pipelines; and
- (v) Any similar public, quasi-public, private improvements or facilities.

Nothing herein contained, however, shall be construed to permit use or occupancy of any land, Improvement or other facility in a way which would violate applicable zoning or use and occupancy restrictions imposed thereon by other provisions of this Declaration, by Carson City or other applicable public agency, or by any covenants, conditions, and restrictions of record.

(m) Legal and Accounting Services. The Board shall have the power to retain and pay for legal and accounting services necessary or proper in the operation of the Association, the operation and management of the Association Property, the enforcement of this Declaration or the Rules and Regulations, or in the performance of any other duty, right, power or authority of the Association.

(n) Association Property Services. The Board shall have the power to construct for and pay for water, sewer, garbage removal, electricity, telephone, gas, snow removal, landscaping, gardening, and all other utilities, services and maintenance for the Association Property.

(o) Other Areas. The Board shall have the power to maintain and repair easements, roads, roadways, rights of way, parks, parkways, median strips, sidewalks, paths, trails, ponds, lakes, entry details, entry houses or other Common areas of the Property whether owned by or leased to the Association, and to contribute toward the cost of operation and maintenance of private roads and any other Improvements or other facilities owned by or leased to the Association.

(p) Recreational Facilities. The Board shall have the power to operate and maintain any and all types of facilities owned by or leased to the Association for both active and passive recreation within the Common Areas.

(q) Other Services and Properties. The Board shall have the power to obtain and pay for any other property and services, and to pay any other taxes or Assessments which the Association or the Board is required to secure or to pay for pursuant to applicable law, the terms of these Declarations, or the Articles or Bylaws of the Association.

(r) Contracts. The Board shall have the power to enter into contracts with Declarant, and other Persons on such terms and provisions as the Board shall determine, to operate and maintain the Common Area and Improvements therein, or to provide any service or perform any function on behalf of Declarant or other Person.

(s) Ownership of Property. The Board shall have the power to acquire and own all manner of real and personal property, whether by grant, lease, gift or otherwise; provided, however, that the acquisition and annexation of real property under this Declaration (excepting the Annexable Area) shall require the affirmative vote of seventy five percent (75%) of the Owners.

(t) Assessments. The Board shall have the power to levy and collect ordinary and special assessments and enforce the collection of the same.

(u) Borrow Money. The Board shall have the power to borrow money on behalf of the Association and, in compliance with NRS 116.3112, to grant a security interest in Association Property as security therefor.

4.08 Non-Liability and Indemnification.

(a) Non-Liability. Except as otherwise required by law, no right, power, or responsibility conferred on the Board by the Governing Documents shall be construed as a duty, obligation, or responsibility charged upon the Board, any member of the Board, or any other officer, employee, or agent of the Association. No such Person shall be liable to any party (other than the Association or a party claiming in the name of the Association) for injuries or damage resulting from such Person's acts or omissions within what that Person reasonably believed to be the scope of his Association duties (the "Official Acts"), except to the extent that such injuries or damage result from such Person's willful or malicious misconduct. No such Person shall be liable to the Association (or to any party claiming in the name of the Association) for injuries or damage resulting from such Person's Official Acts, except to the extent that such injuries or damage result from such Person's negligence or malicious misconduct.

(b) Indemnity for Third Party Action. The Association shall indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative, or investigative (other than an action by or in the right of the Association) by reason of the fact that he or she is or was a director, officer, employee, servant or agent of the Association, against expenses (including attorneys' fees), judgments, fines, and amounts paid in settlement actually and reasonably incurred by him or her in connection with such action, suit or proceeding unless and until it is proved that he or she acted with willful or wanton misfeasance or with gross negligence and provided he or she acted in good faith and in a manner he or she reasonably believed to be in or not opposed to the best interests of the Association, and, with respect to any criminal action or proceeding, had no reasonable cause to believe his or her conduct was unlawful. The termination of any action, suit or proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent, shall not of itself create a presumption that the person did not act in good faith or in a manner which he or she reasonably believed to be in or not opposed to the best interests of the Association, or, with respect to any criminal action or proceeding, had reasonable cause to believe that his or her conduct was unlawful.

The Association and Board members are not liable to the victims of crimes which may occur in the Property. Punitive damages may not be recovered against the Association but may be recovered only from persons whose intentional activities are proved to have resulted in damages.

(c) Determination. Any indemnification which the Association has elected to provide under this Section 4.08 (unless ordered by a court) shall be made by the Association only as authorized in the specific case upon a determination that indemnification of the officer, director, employee, servant or agent is proper in the circumstances because he or she has met the applicable standard of conduct set forth in Section 4.08(b). Such determination shall be made: (i) by the Board by a majority vote of a quorum of directors who were not parties to such action, suit or proceeding; or (ii) if such a quorum is not obtainable, or even if obtainable, if a quorum of disinterested directors so directs, by independent legal counsel in a written opinion; provided, however, that if a director, officer, employee, servant or agent of the Association has been successful on the merits or otherwise in defense of any action, suit or proceeding referred to in Section 4.08(b), or in defense of any claim, issue or matter therein, then, to the extent that the Association has elected to provide indemnification, he or she shall automatically

be indemnified against expenses (including attorneys' fees) actually and reasonably incurred by him or her in connection therewith without the necessity of any such determination that he or she has met the applicable standard of conduct set forth in paragraph 4.08(b).

(d) Payment in Advance. Expenses incurred in defending a civil or criminal action, suit or proceeding may, upon action by the Board in accordance with Section 4.08(b), be paid by the Association in advance of the final disposition of such action, suit or proceeding upon receipt of an undertaking by or on behalf of the director, officer, employee, servant or agent to repay such amount unless it shall ultimately be determined that he or she is entitled to be indemnified by the Association as authorized in this Section 4.08.

(e) Insurance. The Board shall purchase and maintain insurance on behalf of any person who is or was a director, officer, employee, servant, or agent of the Association, against any liability asserted against him or her or incurred by him or her in any such capacity, or arising out of his or her status as such, whether or not the Association would have the power to indemnify him or her against such liability hereunder or otherwise.

(f) Other Coverage. The indemnification provided by this Section 4.08 shall not be deemed exclusive of any other rights to which anyone seeking indemnification may be entitled under this Declaration, agreement, vote of the Members, vote of disinterested directors, Nevada law, or otherwise, both as to action in his or her official capacity and as to action in another capacity while holding such office, and may continue as to a person who has ceased to be a director, officer, employee, servant or agent and may inure to the benefit of the heirs and personal representatives of such a person.

4.09 Diseased Trees. The Association may enter upon any part of the Property at any time to inspect for, prevent and control diseased trees and other plant life and insect infestation of trees and other plant life. If any diseased or insect infested trees or other plant life are found, the Association may spray, remove diseased trees and other plant life, and take such other remedial measures as it deems expedient. The cost thereof applicable to privately owned property may be levied by the Association as a specific assessment against such property.

4.10 Rules and Regulations.

(a) Rulemaking Power. The Board may, from time to time and subject to the provisions of this Declaration, propose, enact and amend rules and regulations to be known as the "Rules and Regulations" which relate to the management, operation and control of the Association or the Common Area. The Rules and Regulations shall become effective and binding on all Owners only after adoption by the Board. Such rules may concern, but need not be limited to: matters pertaining to use of the Common Area; signs; collection and disposal of refuse; minimum standards of maintenance of property; parking and traffic restrictions; limitations on maintenance of landscaping or other improvements on any property; limitations on furniture, fixtures, equipment and other objects maintained on Lots in view of other Owners; limitations on the number and types of animals that may be allowed on the Property; and any other subject or matter within the jurisdiction of the Association as provided in this Declaration. The Rules and Regulations may restrict and govern the use of Common Area by any Members, by the family of such Member or Lessee or by any invitee or licensee of such Person. Declarant retains the right to establish rules relating to the use of any portion of the Common Area owned by it until annexation and conveyance to the Association and the Association may incorporate such rules in its Rules and Regulations; the right of an Owner or the Board to enforce the Rules and Regulations is limited to those Owners that are subject to this Declaration.

(b) Notification of Rules. A copy of the Rules and Regulations, as they may be from time to time adopted, amended or repealed, shall be mailed or otherwise delivered to each Member and may be recorded. The recordation of the Rules and Regulations shall have the same force and effect as if they were set forth in and were a part of this Declaration. No Rules may be adopted which materially impair the rights, preferences, or privileges of any Owner as specifically set forth herein.

4.11 Breach of Rules or Restrictions. In the event of a breach of any of the Rules and Regulations or of any of the Restrictions contained in this Declaration by an Owner, its family, guests, employees, invitees, or licensees, the Board, for and on behalf of itself and all other Owners, shall enforce the obligations of each Owner to obey the Rules and Regulations or the restrictions of this Declaration in any manner provided by law or in equity, including, but not limited to, appropriate hiring of legal counsel, the pursuing of legal action, or suspension of the Owner's right to use the facilities of the Common Area or suspension of the Owner's voting rights; provided, however, that such suspension may not be for a period in excess of thirty (30) days, after Notice and a Hearing, for an infraction of the Rules and Regulations. In addition to the other remedies herein set forth, including without limitation, assessing the cost of repair of any damage resulting from an infraction of the Rules and Regulations, the Board, by majority vote, may levy a fine against such Owner, after Notice and a Hearing. Prior to imposing any penalty provided herein for breach of any Rules and Regulations or any of the restrictions contained in this Declaration, the Board shall provide the Owner with Notice and a Hearing, which Notice must specify the nature of the infraction. In the event that the Board determines that an infraction has occurred and that a penalty shall be imposed, after a reasonable opportunity for a hearing has been provided, the determination of the Board shall be final. In the event legal counsel is retained or legal action is instituted by the Board pursuant to this paragraph, any settlement prior to judgment or any judgment rendered in any such action shall include costs of collection, court costs, and reasonable attorneys' fees.

4.12 Fines. Every fine must be commensurate with the severity of the violation. Additionally, if the violation does not threaten the health and welfare of the Development, the fine must not exceed one hundred dollars (\$100) for each violation or a total amount of five hundred dollars (\$500), whichever is less, or such other amount as authorized under NRS 116 (as amended) and as approved by the Board from time to time. The Rules and Regulations may be enforced by the Assessment of a fine only if: (a) the Person alleged to have violated the Rules and Regulations has received Notice of the alleged violation that informs him of his opportunity to request a hearing on the alleged violation, and; (b) at least thirty (30) days before the alleged violation, said Person was given written Notice of the rule or regulation (or any amendment to the Rule or Regulation) that the Person allegedly violated. If a fine is imposed pursuant to this Section 4.12 and the violation is not cured within fourteen (14) days or such longer cure period as the Board establishes, the violation shall be deemed a continuing violation and the Board may thereafter impose an additional fine for the violation for each seven (7) day period or portion thereof that the violation is not cured. Any additional fine may be imposed without Notice and a Hearing. The Secretary of the Association shall prepare and cause to be hand-delivered or sent prepaid by United States mail to the mailing address of each Lot or to any other mailing address designated in writing by the Lot Owner, a schedule of the fines that may be imposed for particular violations of the Declaration, Rules and Regulations, and other governing documents of the Association. The Association may not foreclose a lien for the Assessment of a fine for a violation of the Declaration, Bylaws, or Rules and Regulations, unless the violation is of a type that threatens the health, safety, or welfare of the residents of the Development.

4.13 Liability of Members of Board. No member of the Board shall be personally liable to any of the other Board member, to the Members or to any other Person, including Declarant, for

any error or omission of the Association, its representatives and employees, or the Architectural and Landscape Control Committee, provided that such Board member has, upon the basis of such information as may be possessed by him, acted in good faith.

4.14 Indemnity of the Association by Owners. Each Owner, together with such Person's family members, relatives, guests, invitees, or licensees, shall indemnify and hold the Association harmless without limitation on any claims arising from the negligence or willful misconduct of such Owner, or such Person's family members, relatives, guests, invitees, or licensees, for damages sustained on or involving the Association Property, including any costs incurred in defending such claims.

4.15 Bonded Obligations. Notwithstanding anything contained in this Agreement to the contrary, if and to the extent that the Association is an obligee or beneficiary of any financial obligation undertaken by the Declarant (a "Bond") to secure performance by the Declarant in the construction of any Improvements as shown on the Subdivision Map or other plans for the Development, the following provisions shall apply:

(a) The Board shall, in accordance with the provisions of this Declaration, vote to determine whether to take action to enforce its rights pursuant to the Bond, if any improvements the completion of which are secured by the Bond, are not completed (as shown by the filing of a Notice of Completion) within sixty (60) days after the deadline for such completion as specified by the Bond; provided, that in the event the Association has granted unto Declarant an extension of time in which to complete such Improvements, this determination shall be made thirty (30) days after the expiration of the date of such extension of time;

(b) In the event that the Board determines not to enforce its obligations pursuant to the Bond, or in the event the Board fails to timely consider the matter, in the thirty (30) day period following such decision or such failure to act by the board, the Members may call a special meeting pursuant to the provisions of this Declaration to determine this issue. Such meeting shall be held not less than thirty-five (35) nor more than forty-five (45) days after receipt by the Board of a petition seeking such meeting signed by Members representing at least five percent (5%) of the voting power of the Association. At such meeting, a vote of the Members shall be taken on the matter. The vote of a majority of the voting power of the Association shall be deemed the decision of the Association and the Board shall thereafter implement this decision by initiating and taking appropriate action in the name of the Association relevant to the Bond.

(c) Once the Developer has completed all improvements (as shown by the filing of Notice of Completion) either within a timely manner as specified on the Bond, or without a timely challenge as would otherwise be allowed pursuant to this Section 4.15, the Association and its Members shall be conclusively deemed to have waived their rights pursuant to this Section 4.15.

4.16 Amendment. Notwithstanding anything to the contrary contained in this Declaration, the provisions of Section 4.01, 4.03, 4.04, 4.08, 4.14, and 4.15 shall not be amended without the vote or written consent of seventy-five percent (75%) of all of the Owners, unless the affirmative vote of a higher percentage of the Owners is required to take action pursuant to a Section, whereupon such higher percentage shall be required to amend such Section.

V.

Covenant For Maintenance Assessments

5.01 Creation of the Lien and Personal Obligation of Assessments. The Owner of any Lot, by acceptance of a deed therefor, covenants and agrees to pay to the Association annual Assessments, special Assessments, and other assessments authorized pursuant to this Declaration or NRS 116 that may be enacted by the Board, such Assessments to be established and collected as hereinafter provided. The annual Assessment, special Assessment, interest, costs and reasonable attorneys' fees, shall be a charge on the Lot and shall be a continuing lien upon the Lot against which each such Assessment is made. Each Assessment, together with interest, costs and reasonable attorneys' fees, shall also be the personal obligation of the person who was the Owner of such property at the time when the Assessment became due. The personal obligation for delinquent Assessments shall not be extinguished upon the sale or the conveyance of a Lot and any purchaser of a Lot shall not be liable for any unpaid Assessments or fee greater than the amounts set forth in the statement of unpaid Assessments required by Section 5.07.

5.02 Purpose of Assessments. The assessments levied by the Association shall be used exclusively to promote the recreation, health, safety and welfare of the Owners in the Development and for the improvement and maintenance of the Common Area and for all operating expenses of the Association.

5.03 Assessments. The Board shall fix the annual Assessment at an amount sufficient to cover the estimated budget of the Association prior to the beginning of each fiscal year. The Board may increase the annual Assessment by up to twenty percent (20%) of the previous year's annual Assessment without the consent of the Owners; provided, however, that any increase in the annual Assessment of more than twenty percent (20%) of the previous year's annual assessment may be approved without the consent of the Owners to the extent that the increase, or a portion of the increase, is the result of the annexation or development of the Annexable Area or any other real property that does not constitute the Property, although such increase shall reasonably reflect the increase in Association costs resulting from annexation or development. The Board shall, not less than thirty (30) days or more than sixty (60) days before the beginning of each fiscal year of the Association, prepare and distribute to each Owner a copy of the budget for the daily operation of the Association. The budget must include, without limitation, the estimated revenue and expenditures of the Association for the coming year and any contributions to be made to the reserve funds established by subsection 5.03(a) hereof. In lieu of distributing copies of the budget, the Board may distribute summaries of the budget, accompanied by a written notice that the budget is available for review at the business office of the Association or other suitable location and that copies of the budget will be provided upon request

(a) Reserve. The annual Assessment of the Association shall, in addition to being sufficient to cover anticipated expenses, include adequate reserves for the repair, replacement, and restoration of the major components of the Common Area. The reserve funds may be used only for those purposes and not for daily maintenance. Money in the reserve accounts may not be withdrawn without the signatures of at least two (2) members of the Board or the signatures of at least one (1) member of the Board and one (1) officer of the Association who is not a member of the Board.

The Board shall, not less than thirty (30) days or more than sixty (60) days before the beginning of the fiscal year of the Association prepare and distribute to each Owner a copy of the reserve budget. In lieu of distributing copies of the reserve budget, the Board may distribute summaries

of the budget, accompanied by a written notice that the budget is available for review at the business office of the Association or other suitable location and that copies of the budget will be provided upon request.

The reserve budget must include, without limitation: (i) the current estimated replacement cost, estimated remaining life, and estimated useful life of each major component of the Common Area; (ii) as of the end of the fiscal year for which the budget is prepared, the current estimate of the amount of cash reserves that are necessary, and the current amount of accumulated cash reserves that are set aside, to repair, replace, or restore the major components of the Common Area; (iii) a general statement describing the procedures used for said estimation and accumulation of cash reserves, including, without limitation, the qualifications of the Person responsible for the preparation of the reserve studies required under this subsection; and (iv) a statement as to whether the Board has determined or anticipates that the levy of one or more Special Assessments will be required to repair, replace, or restore any major component of the Common Area or to provide adequate reserves for that purpose.

The Board shall cause to be conducted at least once every five (5) years, a study of the reserves required to be maintained by this subsection, review the results of that study at least annually to determine if those reserves are sufficient, and make any adjustments it deems necessary to maintain the required reserves. The study must be conducted by a person qualified by training and experience to conduct such a study, including a member of the Board, an Owner, or the manager of the Association who is so qualified. The study must include, without limitation: (v) a summary of an inspection of the major components of the Common Area that the Association is obligated to repair, replace, or restore; (vi) an identification of the major components of the Common Area that the Association is obligated to repair, replace, or restore which have a remaining useful life of less than thirty (30) years; (vii) an estimate of the remaining useful life of each major component so identified; (viii) an estimate of the cost of repair, replacement, or restoration of each major component so identified; and (ix) an estimate of the total annual Assessments that may be required to cover the cost of repair, replacement, or restoration of the major components so identified after subtracting the reserves of the Association as of the date of the study.

(b) Increases of Annual Assessment. Except as stated in this Section 5.03, the annual Assessment may not be increased by more than twenty percent (20%) of the annual Assessment for the previous year without a vote or written consent of fifty-one percent (51%) of the Members; provided, however, that following the termination of the Declarant Control Period described in Section 4.04(a), any such increase shall have the vote or written consent of: (i) fifty-one percent (51%) of the Members; and (ii) fifty-one percent (51%) of the Members other than Declarant. In the event that the annual Assessment is increased by more than twenty percent (20%) of the previous year's annual Assessment, the Board shall, within thirty (30) days after the adoption of any proposed budget, provide a summary of the budget to all Owners and shall set a date for a meeting of Owners to consider and ratify the budget not less than fourteen (14) nor more than thirty (30) days after the mailing of the summary. Unless a majority of all Owners reject the budget, the budget is ratified. If the budget is rejected, the budget last ratified shall continue to be the budget for the Association; notwithstanding the foregoing, any increase in the annual Assessment of more than twenty percent (20%) of the previous year's annual assessment may be approved without the consent of the Owners to the extent that the increase, or a portion of the increase, is the result of the annexation or development of the Annexable Area or any other real property that does not constitute the Property, although such increase shall reasonably reflect the increase in Association costs resulting from annexation or development.

(c) Inadequacy of Annual Assessment. In the Board's sole discretion, should the

annual Assessment be inadequate for any reason, including, without limitation, nonpayment of any Member's annual Assessment, or the occurrence of extraordinary expenses not reasonably foreseeable at the time the Board prepared proforma budgets, to provide for the Association's costs and expenses, the Board may at any time and from time to time levy further Assessments in the same manner as described in Section 5.03(b).

(d) Financial Statement. A financial statement for the Association shall be prepared each fiscal year, which shall include a balance sheet and profit and loss statement showing the profit and loss of the Association and the funds held in reserve by the Association.

5.04 Special Assessments. In addition to the annual assessments authorized above, the Board may levy special Assessments for the purpose of construction, reconstruction, repair or replacement of a capital Improvement upon the Common Area, including fixtures and personal property related thereto or for any other reason deemed necessary by the Board. Any special assessment pertaining to capital improvements upon the Common Area must be approved by a majority of the Members. The Association shall provide written notice to Owners of any meeting at which an Assessment for capital Improvements is to be considered at least twenty-one (21) calendar days before the meeting.

5.05 Notice of Special Assessments; Time for Payment. The Association may, in its discretion, give written Notice of Special Assessments to each Owner, which Notice shall specify the purpose and amount of the special Assessment and the date or dates of payment of the same. No payment shall be due fewer than fifteen (15) days after the written Notice has been given. Failure of the Association to give Notice of the special Assessment shall not affect the liability of the Owner of any Lot, but the date when payment shall become due in such a case shall be deferred to a date fifteen (15) days after the notice shall have been given.

5.06 Collection of Assessments. Regular Assessments shall commence on the first day of the first full month following the close of the first sale of a Lot by the Declarant to an Owner other than the Declarant. Both regular and special Assessments must be fixed at a uniform rate for all Lots and shall be billed and collected on a monthly basis or as determined by the Board of Directors.

5.07 Unpaid Assessments. The amount of any delinquent Assessment, whether regular or special, assessed against any Lot and a late payment charge of ten percent (10%) of the delinquent Assessment, plus interest on such Assessment and charge at a rate not to exceed eighteen percent (18%) per annum simple interest, and the costs of collecting the same, including reasonable attorneys' fees, shall be a lien upon such Lot. Such lien shall, except as provided in Section 5.08, survive and not be affected by the conveyance of a Lot to a third-party purchaser. Such lien shall be created in accordance with NRS 106.3116 and shall be foreclosed in the manner provided for in NRS 116.31162 through 116.31168, inclusive, as the same may be now or hereafter in effect. A certificate executed and acknowledged by any two (2) members of the Board stating the indebtedness secured by such lien shall be conclusive upon the Association as to the amount of such indebtedness as of the date of the certificate, in favor of all Persons who rely thereon in good faith, and such certificate shall be furnished to any Owner upon request at a reasonable fee, not to exceed Ten Dollars (\$10.00). In addition to foreclosure of the Assessment lien, the Association may, but is not obligated to, bring an action to recover judgment against the Member personally obligated to pay the delinquent regular or special Assessment after having provided to that Member thirty (30) days' written notice of the delinquency. The Board may suspend the voting rights and right to use of any of the recreational facilities of the Common Area of any Owner during any period any Assessment due from such Owner is unpaid. In the event an Assessment is past due more than fifteen (15) days, the Board may declare immediately

due and payable the total amount assessed against the Owner and the Lot for that fiscal year. The Association may not foreclose a lien for the Assessment of a fine for a violation of the Declaration, Bylaws, or Rules and Regulations, unless the violation is of a type that threatens the health, safety, and welfare of the residents of the Development.

5.08 Mortgagee Protection. Notwithstanding any other provision of this Declaration, no lien created under this Article V or under any other Article of this Declaration, nor any lien arising by reason of any breach of this Declaration, nor the enforcement of any provision of this Declaration shall defeat or render invalid the rights of the beneficiary under any recorded Mortgage or first and senior priority now or hereafter upon a Lot, made in good faith and for value, perfected before the date on which the Assessment sought to be enforced became delinquent. However, after the foreclosure of any such first Mortgage, such Lot shall remain subject to this Declaration and shall be liable for all regular Assessments and all special Assessments levied subsequent to the institution of an action to foreclose on any such first Mortgage.

5.09 Effect of Amendments on Mortgages. Notwithstanding anything in this Declaration to the contrary, no amendment of Section 5.08 of this Declaration shall affect the rights of any beneficiary whose Mortgage has the first and senior priority as provided in Section 5.08 and who does not join in the execution thereof, provided that its Mortgage is recorded in the real property records of Carson City, Nevada, prior to the recordation of such amendment; provided, however, that after foreclosure or conveyance in lieu of foreclosure the property that was subject to such Mortgage shall be subject to such amendment.

5.10 Annual Assessments Paid by Declarant. Beginning at such time that Assessments shall be assessed against any Lot, Declarant shall pay all Assessments of all Lots owned by the Declarant.

5.11 Uniform Assessments. Each Lot owned by Declarant or an Owner shall be assessed the same as any other individual Lot, except as otherwise provided in this Declaration.

VI.

Permitted Uses and Restrictions

In addition to all of the covenants contained herein, the use of the Property and each Lot therein is subject to the following:

6.01 Improvements and Use. Except as expressly provided herein, the Lots shall be used exclusively for the parking and use of Recreational Vehicles. The construction or maintenance of permanent residential structures on the individual Lots is prohibited. Permanent residential occupancy is hereby prohibited. "Permanent" as used herein shall mean continuous occupancy of a Recreational Vehicle on a Lot by a person that extends more than one hundred and eighty (180) consecutive days or such shorter period as may be proscribed by any laws or ordinances restricting permanent occupancy on the Property. Lot Owners, their guests, successors and assigns, are prohibited from erecting or placing on any Lot any permanent or semi-permanent structure or any vehicle that is designed as permanent

living quarters, which prohibited structures include, without limitation, the following:

(a) Permanent screened rooms, carports, awnings, fences, satellite dishes, sporting equipment, lights, animal shelters, gates, clotheslines, or any type of permanent extended overhang;

(b) Mobile homes and park models other than permitted coach _____.

(c) Any structure that cannot be readily transported by the Recreational Vehicle of the Owner of the Lot.

(d) Any structure placed on the Lot on blocks, or other supports which are permanent or semi-permanent in nature or any structure with removed hitches;

(e) Any structure or plumbing or electrical facilities (other than plumbing and electrical facilities installed by Declarant or the Association) not intended to be temporary or readily movable;

(f) Any structure designated, intended or used as permanent living quarters or a primary residence.

The provisions of this Section 6.01 do not prevent the erection of tables, benches, and grills; however, no personal property except as provided in the immediately preceding clause shall be permitted to remain where it can be seen by other Owners or visitors to the area, except when the Lot is actually in use. This requirement shall not apply to any permissible vehicle or trailer which may be allowed to remain on a Lot even though not in use for a maximum period of six (6) months from the date last used for occupancy. Notwithstanding anything contained to the contrary in this Section 6.01 or otherwise in this Declaration, Declarant may use any Lots owned by Declarant, including without limitation, the Declarant's Lots, to maintain reasonable construction, sales, leasing operations, and marketing of the Development and related uses, and no Owner or Lessee shall be entitled to use its Lot in any manner that unreasonably interferes with such rights of Declarant.

6.02 Animals. No animals of any kind shall be raised, bred or kept on any Lot, except that a reasonable number of dogs, cats or other household pets may be kept, provided that they are not kept, bred or maintained for any commercial purpose, nor in violation of any applicable local ordinance or any other provision of this Declaration. A "reasonable number" shall mean two (2) or fewer pets per Lot. If an animal is not confined within the Motorcoach Vehicle, the animal must be leashed and under direct control of the Owner or Lessee. It shall be the absolute duty and responsibility of each Owner or Lessee to clean up any solid animal waste after such animals have used any portion of the Property or any public property in the vicinity of the Property. No pet shall be permitted to be kept within any portion of the Property if it makes excessive noise or is otherwise determined by the Board to be a nuisance. If a pet is determined to be a nuisance, the Board may give notice to the Owner or Lessee to resolve the offending problem within seventy-two (72) hours, and if the owner or tenant does not resolve the problem during that period of time, order the removal of such pet(s).

6.03 Commercial Activities. The Lots are to be used for recreational purposes only, and no part of the Development and no Lot shall be used in any way for any business, professional, commercial, manufacturing, mercantile, storing, vending, industrial, or other non-recreational purpose. Notwithstanding the foregoing, Declarant may use Declarant's Lots and the Association Property to

maintain reasonable construction, sales, resale, commercial, and rental operations. This provision may not be amended or deleted without the approval of all of the Members and of Declarant.

6.04 Rental of Lots. No restrictions are placed on an Owner's right to sell his Lot. However, the Declarant shall have for a period of ninety-nine (99) years from the date of this Declaration, the exclusive right, in the absence of use by the Owner or his registered and approved guest, to rent Lots which are a part of the Development at scheduled rates promulgated from time to time by Declarant. The Declarant shall retain for its services forth percent (40%) of the gross amount of rental collected on any Lot with the remaining sixty percent (60%) reserved for the benefit of the Owner. As partial consideration for the aforementioned rental rights, Declarant shall undertake an advertising program to promote the rental of Lots, both those Lots owned by Declarant and those Lots owned by other Owners. A person cannot qualify as a guest of the Owner if he pays any charge or fee to the Owner, directly or indirectly, for the privilege of occupying the Lot. Any such charge or fee constitutes prohibited rental, regardless of whether it shall be designated a "contribution", a "voluntary gift", "reimbursement for lot expenses", or words of similar import, and is in violation of this paragraph. The exclusive right of Declarant to rent Lots that are a part of the Development shall be binding on each Owner, his agents, representatives, successors, assigns, servants and employees and any persons working in concert with him, directly or indirectly, and such exclusive right is a covenant running with the land for each Lot for the term of ninety-nine (99) years. The Association and the Owners recognize and hereby specifically agree to the rights granted to Declarant hereby, and that such exclusive rights are essential to the integrity of the overall rental program administered by Declarant, both at the Development and at other similar products developed by Declarant or by Sierra Skies RV Resort, LLC. The Association and Owners are cognizant of the need for consistent administration and uniform promotion and maintenance of the Declarant's image as a leader in the recreational vehicle industry, and therefore recognize and acknowledge that the rights of Declarant as set forth in this Section 6.04 go to the essence of Declarant's agreement with the Association pursuant to this Declaration. The Association and Owners further acknowledge that the primary intention of the Development and this Declaration is to create and maintain a luxury Recreational Vehicle resort in which there are no permanent or semi-permanent structures and in which the Lots, in the absence of use by the Owner or his designated and approved guest, are to be made available for rental by Declarant as set forth above. The Association, Owners, and Developer specifically acknowledge the intent of the Development and Declaration to include the creation and maintenance of a luxury resort for the camping public, pursuant to the terms of this Declaration. Accordingly, the Association hereby acknowledges and agrees to assume and carry out its affirmative duty, both while Declarant shall have control of the Association and after the control of the Association has been delegated to the Owners, to maintain the integrity of the Development, including enforcement of Declarant's rental rights pursuant to this Section 6.04 and including the prohibition against the placing on any Lot and structure or vehicle intended as permanent living quarters. This Section 6.04 may not be amended without the approval of the Declarant.

6.05 Utility Service. Except for temporary hook-ups between Recreational Vehicles and permanent utility outlets, no lines, wires or other devices for the communication or transmission of electric current or power, including telephone, television, and radio signals, shall be erected, placed or maintained anywhere in or upon any Lot unless the same shall be contained in conduits or cables installed and maintained underground or concealed in, under, or on buildings or other structures approved in writing by the Board. All temporary utility outlets shall be installed and maintained in accordance with applicable provisions of the Rules and Regulations. No provision hereof shall be deemed to forbid the erection of the temporary power or telephone installations incident to the construction of approved buildings or structures.

6.06 Nuisance. No noxious, illegal or offensive activity shall be carried out on or upon any Lot or any part of the Property, nor shall anything be done thereon which is or may become an annoyance or nuisance, public or private, to the neighborhood, or which shall in any way interfere with the quiet enjoyment of each of the Owners of their respective Lots, or which shall in any way increase the rate of insurance for the Association or for the Owners of Lots and Recreational Vehicles. Each Owner shall comply with all local, state and federal regulations that may govern the use and occupancy of Recreational Vehicles, including, but not limited to the provisions or NRS 461A.

6.07 Outside Antennae. There shall be no outside television or radio antennae, satellite dish, poles or flag poles constructed or maintained on any Lot or the Common Area for any purpose without the prior written approval of the Board.

6.08 Signs. No signs, including, without limitation, "for sale" or "for rent" signs, shall be displayed on or from any Lot, Recreational Vehicle (whether inside or outside the Recreational Vehicle), equipment, or real or personal property of any sort located on any Lot. No signs shall be displayed on the Common Area except signs approved by the Board, nothing in this Section 6.08 shall be deemed to prevent or limit Declarant's ability to erect signs for purposes of advertisement or identification as it deems necessary.

6.09 Equipment and Machinery. No power equipment, hobby shops, Recreational Vehicle or car maintenance (other than emergency maintenance) shall be permitted on the Property except with prior written approval of the Board. No equipment, machinery, junk, debris, building materials, or similar matter shall be placed, stored or kept in or on any Lot, parking area or street within or adjoining the Property.

6.10 Laundry. Outside clotheslines or other outside facilities for drying or airing clothes shall not be erected, placed or maintained on any Lot. No washing machine or dryer shall be kept on any Lot, except within a Recreational Vehicle.

6.11 Propane Tanks. Only propane tanks used in connection with barbecue grills and Recreational Vehicles, which are standard equipment, shall be permitted on any Lot, provided such tanks are in compliance with all applicable codes and laws.

6.12 Maintenance of Lawns, Plantings and Landscape. All Lots, landscaping, driveways, and exteriors must be kept neat, sanitary, tidy, and attractive at all times. No landscape trimmings shall be placed for removal on or near any road within the Property or in a place upon the Lot where they are visible from any other Lot or the Common Area. All landscape trimmings shall be placed in trash dumpsters provided on the Common Area. In the event any Owner supplements or enhances the landscaping of any Lot, the Owner shall be required to maintain the Lot in the such enhanced or supplemented state.

6.13 Outside Installations. No outside installations of any type, including, but not limited to, radio antennas, clotheslines, fences, and flagpoles shall be constructed or maintained on any Lot unless with the prior written consent of the Board. Reasonable outside installations which are constructed as part of the authorized Recreational Vehicles shall be permitted. It shall be within the Board's sole discretion to determine whether any such outside installation is unreasonable.

6.14 Vehicle Parking. Only one (1) Recreational Vehicle and one (1) other vehicle (automobile, truck, motorcycle, etc.) shall be parked or maintained on any Lot. No Recreational Vehicle, truck, automobile, or any other type of motor vehicle, may be washed, cleaned or polished anywhere on the

Property except on an Owner's Lot.

6.15 Resubdivision. Except as provided elsewhere in this Declaration, No Lot shall be resubdivided nor shall less than an entire Lot be sold.

6.16 Improvements. All Lot Improvements, including the species of plant material and placement of plants, shall be done in a timely manner subject to the control and approval of the Architectural and Landscape Committee as set forth in Article VII of this Declaration.

6.17 Taxes. Each Owner shall pay when due, before delinquency, all taxes, Assessments, levies, fees and all other public charges and utility fees and charges of every kind and nature imposed upon or assessed against its Lot.

6.18 Rules and Regulations. The Board is hereby expressly authorized to establish all rules and regulations as it shall deem necessary for the purpose of implementing, enforcing and administering the purposes of this Declaration.

6.19 Hazardous Substances. No activity will be permitted on any Lot or the Common Area that, in the sole opinion of the Board, will create or emit offensive, hazardous or excessive quantities of dust, dirt, ash, smoke, noise, fumes, odors or vibrations, or create risk of fire, explosion or other hazards or is not in harmony and consistent with the Property. Activities prohibited hereunder, include, but are not limited to activities which result in the disposal of Hazardous Substances in any form upon the Property. For the purposes of this Declaration the term "Hazardous Substance" shall mean any product, substance, chemical, material or waste whose presence, nature, quantity or intensity of existence, use, manufacture, disposal transportation spill, release or effect, either by itself or in connection with other materials expected to be found upon any Lot, is either: (a) potentially injurious to the public health, safety or welfare, the environment or the Property; (b) regulated or monitored by any governmental authority; or (c) a basis for liability of Declarant or any Owner to any governmental agency or third party under any applicable state or common law property.

6.20 Electric Meter Service. Electrical service to each individual Lot will be metered and billed by the electrical utility company to each Owner.

6.21 No Drilling or Wells. No derrick, windmill, pump or other structure designed for use in boring, mining, or quarrying for oil, natural gas, or precious minerals shall be erected, maintained, or permitted upon any portion of the Property. No private water well or other independent water supplies or facilities, windmill, pump, or other structure for furnishing water shall be constructed or maintained on any portion of the Property except as originally constructed on the Property.

6.22 No Private Sewers or Septic Systems. No private sewer system, septic tank, leach field, or other system of solid waste disposal, excluding the sewer system installed by or on behalf of Declarant for the Development, shall be constructed, built, or used.

6.23 No Permanent Residential Use. No Lot shall be continuously occupied as a full time or permanent residence.

6.24 Declarant's Lots. Notwithstanding any other provision of this Declaration, Declarant shall have the right to own, occupy, and use Declarant's Lots (Common Lots A and D) to conduct

sales, resales, leasing, rentals, construction management, project management, accounting, recreational, and/or marketing activities for the Project. Notwithstanding any other provision of this Declaration, Declarant's Lots shall be subject only to the following referenced provisions of the Declaration:

- (a) Article I;
- (b) Article II;
- (c) Sections 3.01, 3.02(a), 3.02(j), 3.03, and 3.04 of Article III;
- (d) Article IV;
- (e) Sections 6.02, 6.04, 6.06, 6.12, 6.16, 6.17, 6.18, 6.19, 6.20, 6.21, 6.22, 6.23, and 6.24 of Article VI; and
- (f) Article IX; and
- (g) Article X.

Declarant shall be responsible for maintaining Declarant's Lot.

VII.

Architectural and Landscape Control Committee

7.01 Establishment of Committee. There shall be an architectural and landscape control committee (the "Architectural and Landscape Committee"), and, except as to construction of Improvements by Declarant, no Improvement shall be made on any Owner's Lot until plans and specifications showing the nature, kind, shape, colors materials and location of the same have been submitted to and approved in writing by the Architectural and Landscape Committee.

7.02 Members of Committee. The Architectural and Landscape Committee shall consist of three (3) Members, all of whom shall first be appointed by Declarant. Each Member of the Architectural and Landscape Committee shall hold office until such time as he has resigned or has been removed or his successor has been appointed, as provided herein. Members of the Architectural and Landscape Committee may be removed at any time without cause. Until ninety-five percent (95%) of all Lots have been sold, Declarant shall have the sole power to appoint and remove the members of the Architectural and Landscape Committee. Thereafter, the Board shall have the power to appoint and remove all members of the Architectural and Landscape Committee. Members of the Architectural and Landscape Committee need not be Members of the Association.

7.03 Architectural Design Guidelines. The Architectural and Landscape Committee shall from time to time, develop and present to the Board for approval, rules and regulations to be known as "Design Guidelines" interpreting and implementing the provisions of this Declaration and setting forth fees to be charged and procedures and design and construction criteria to be followed in submitting proposals to the Architectural and Landscape Committee. A copy of the Design Guideline as they may from time to time be adopted, amended or repealed, shall be maintained at the office of the Association and shall be available for inspection and copying by and Member at any reasonable time during the business hours of the Association. The following minimum standards and restrictions shall apply to any and all Improvements made on the Property:

- (a) all Improvements shall be constructed in full compliance with all applicable

zoning laws, building codes and other laws, ordinances and regulations applicable to the construction, use and occupancy of Improvements; and

(b) all Improvements shall be constructed in accordance with the Design Guidelines.

7.04 Landscape Standards. The Architectural and Landscape Committee shall, as part of the Design Guidelines, establish guidelines for plant and landscaping material that shall reflect desert landscaping to the extent practicable. Such guidelines may restrict the species and placement of any tree, plant, bush, ground cover or other growing thing planted or placed on the Property. The Architectural and Landscape Committee shall adopt a list of approved plant species that may be altered or augmented from time to time.

7.05 Review of Proposed Construction.

(a) No exterior addition, change, or modification to any Lot shall be commenced, and no construction, alteration, removal, relocation, demolition, repainting, addition, modification, decoration, redecoration, or reconstruction of any Improvement on any Lot shall be commenced until the plans and specifications therefor, showing the nature, kind, shape, height, width, color, materials, and location of the same, shall have been submitted to the Architectural and Landscape Committee and approved in writing by the Architectural and Landscape Committee.

(b) The Owner submitting the plans (an "Applicant") shall obtain a written, dated receipt for the plans and specification from an authorized agent of the Architectural and Landscape Committee.

(c) The Architectural and Landscape Committee shall approve plans and specifications submitted for its approval only if it deems that the construction, alterations, or additions contemplated thereby will not be detrimental to the appearance of the surrounding area and the Property as a whole, that the appearance of any structures affected thereby will be in harmony with the surrounding structures, that the upkeep and maintenance thereof will not become a burden on the Association, and that such improvements are consistent with the Design Guidelines, the Rules and Regulations, this Declaration and the Governing Documents.

(d) The Architectural and Landscape Committee may condition its approval of proposals or plans and specifications upon any of the following:

(i) Upon the Applicant's furnishing the Association with security acceptable to the Association against any mechanic's lien or other encumbrance which may be recorded against the Property or any portion thereof as a result of any work;

(ii) Upon such changes to the plans and specifications as the Architectural and Landscape Committee may deem appropriate;

(iii) Upon the Applicant's agreement to install, at its sole cost, water, gas, electrical, or other utility meters to measure any increased consumption; and

(iv) Upon the Applicant's agreement to complete the proposed work within a stated period of time.

(e) The Architectural and Landscape Committee may issue rules or guidelines setting forth procedures for the submission of plans for approval, which shall not be inconsistent with this Declaration or the Rules and Regulations.

(f) The Architectural and Landscape Committee may require the plans and specifications to be accompanied by a reasonable inspection fee. The Architectural and Landscape Committee may employ the consulting services of architects or engineers in reviewing the plans and specifications, and, if so, the Owner shall reimburse the Architectural and Landscape Committee for the reasonable compensation paid to such consulting architects or engineers so long as the Architectural and Landscape Committee informs the Owner that such consulting services may be used at the time that the plans and specifications are submitted by the Owner.

(g) The Architectural and Landscape Committee may require such detail in plans and specifications submitted for its review as it deems necessary or proper, including, without limitation, floor plans, site plans, drainage plans, elevation drawings, and descriptions or samples of exterior material and colors.

(h) Decisions of the Architectural and Landscape Committee and the reasons for the decisions shall be transmitted by the Architectural and Landscape Committee to the Applicant at the address set forth in the application for approval within 45 days after receipt by the Committee of all materials required by the Architectural and Landscape Committee. Any application submitted pursuant to this Section 7.05(h) shall be deemed approved unless written disapproval or a request for additional information or materials shall have been transmitted by the Architectural and Landscape Committee to the Applicant within 45 days after the date of receipt by the Architectural and Landscape Committee of all materials required hereunder.

(i) The Applicant shall meet any review or permit requirements of Clark County or of any other applicable governmental body prior to making any alterations or improvements permitted hereunder.

(j) Declarant, and any person to whom Declarant may assign all or a portion of its exemption hereunder, need not seek or obtain Architectural and Landscape Committee approval of any Improvements constructed on the Property by Declarant or such person, as the case may be.

7.06 Variances. The Architectural and Landscape Committee may authorize variances from compliance with any of the architectural provisions of this Declaration or any supplemental declaration or the Design Guidelines, including restrictions upon height, bulk, size, shape, land area, placement of structures, set-backs, building envelopes, colors, materials, or similar restrictions, when circumstances such as topography, natural obstructions, hardship, or aesthetic or environmental considerations may, in its sole and absolute discretion, warrant. Such variances must be consistent with any and all applicable laws. Such variances must be evidenced in writing and must be signed by at least a majority of all of the members of the Architectural and Landscape Committee. If such a variance is granted, provided that the Owner complies with approved design plans that are the subject of a variance, no violation of the covenants, conditions or restrictions contained in this Declaration shall be deemed to have occurred with respect to the matter of which the variance was granted. The granting of such a variance shall not operate to waive any provisions of this Declaration or the Design Guidelines for any purpose except as to the particular property and particular provision and in the particular instance covered by the variance.

7.07 Obligations with Respect to Zoning and Subdivisions. The Architectural and Landscape

Committee shall require all Persons to comply fully with the zoning and master plan designations and any special use permits and with all applicable federal, state and local laws, regulations and ordinances, insofar as the same are applicable and as the same may hereafter be amended from time to time.

7.08 Indemnification of Architectural and Landscape Committee. The members of the Architectural and Landscape Committee shall be deemed as the appointed agents of the Board and the Architectural and Landscape Committee is hereby authorized to carry out and adhere to the provisions of this Article VII. The Owners hereby collectively agree that the members of the Architectural and Landscape Committee shall be indemnified and held harmless for any liability, damages or other obligation (including reasonable attorneys' fees) resulting from the reasonable and prudent exercise of their duties as members of the Architectural and Landscape Committee as specified in this Article VII.

VIII.

Mortgagee Provisions

The following provisions are for the benefit of holders, insurers and guarantors of first Mortgages on Lots. The provisions of this Article apply to both this Declaration and to the Bylaws notwithstanding any other provisions contained therein.

8.01 Notices of Action. An institutional holder, insurer or guarantor of a first Mortgage who provides a written request to the Association (such request to state the name and address of such requestor and the street address of the Lot to which its interest relates, thereby becoming an "Eligible Holder") will be entitled to timely written notice of:

(a) any condemnation loss or any casualty loss which affects a material portion of the Property or which affects any Lot on which there is a first Mortgage held, insured, or guaranteed by such Eligible Holder;

(b) any delinquency in the payment of Assessments or charges owed by a Lot subject to the Mortgage of such Eligible Holder, where such delinquency has continued for a period of sixty (60) days, or any other violation of this Declaration or Bylaws relating to such Lot or the Owner which is not cured within sixty (60) days. Notwithstanding this provision, any holder of a first Mortgage is entitled to written notice upon request from the Association of any default in the performance by an Owner of a Lot of any obligation under this Declaration or Bylaws that is not cured within sixty (60) days;

(c) any lapse, cancellation, or material modification of any insurance policy maintained by the Association; or

(d) any proposed action which would require the consent of a specified percentage of Eligible Holders.

8.02 First Refusal. Each Owner, including each first Mortgagee of a Mortgage encumbering any Lot who obtains title to such Lot pursuant to the remedies provided in such Mortgage or by foreclosure of the Mortgage or by deed or assignment in lieu of foreclosure, shall be exempt from any "right of first refusal" created or purported to be created by the Governing Documents.

8.03 Unpaid Assessments. Each first Mortgagee of a Mortgage encumbering any Lot which obtains title to such Lot, pursuant to the remedies provided in such Mortgage or by foreclosure of such Mortgage, shall take title to such Lot free and clear of any claims for unpaid assessments or charges against such Lot which accrued prior to the time such Mortgagee acquires title to such Lot.

8.04 Special Provisions. Unless at least eighty percent (80%) of the Eligible Holders and voting Members representing at least eighty percent (80%) of the total Association consent, the Association shall not:

- (a) by act or omission seek to abandon or terminate the Property;
- (b) change the method of determining the obligations, assessments, dues or other charges which may be levied against any Owner; however, nothing herein shall limit the Board's authority to levy assessments as set forth in this Declaration;
- (c) partition or subdivide any Lot;
- (d) by act or omission, seek to abandon, partition, subdivide, encumber, sell or transfer the Common Area. (The granting of easements for public utilities or for other purposes consistent with the intended use of the Common Area shall not be deemed a transfer within the meaning of this Section 8.04(d));
- (e) by act or omission change, waive or abandon any scheme of regulations, or enforcement thereof, pertaining to the appearance or the maintenance of the Lots or the Common Area;
- (f) fail to maintain or cause to be maintained fire and extended coverage insurance on insurable Common Area as provided in this Declaration;
- (g) use hazard insurance proceeds for losses to any Association Property for other than the repair, replacement or reconstruction of such Association Property, subject to the provisions of Section 3.03(g); or
- (h) change the pro rata interest or obligations of any Lot in order to levy assessments or charges, allocate distributions of hazard insurance proceeds or condemnation awards or determine the pro rata share of ownership of each Lot in the Common Areas.

First Mortgagees may, jointly or singly pay taxes or other charges which are in default and which may or have become a charge against the Common Area and may pay overdue premiums of property insurance policies, or secure new property insurance coverage upon the lapse of an Association policy, and first Mortgagees making such payments shall be entitled to immediate reimbursement from the Association.

8.05 Other Provisions for First Mortgages. To the extent possible under Nevada law:

- (a) Any restoration or repair of the Property or any portion or parcel thereof after a partial condemnation or damage due to an insurable hazard shall be performed substantially in accordance with this Declaration and the original plans and specifications unless the approval is obtained of the Eligible Holders of first Mortgages on Lots to which at least sixty-seven percent (67%) of the

votes of Lots subject to Mortgages held by such Eligible Holders are allocated.

(b) Any election to terminate the Association after substantial destruction or a substantial taking in condemnation shall require the approval of the Eligible Holders of first Mortgages on Lots to which at least sixty-seven percent (67%) of the votes of Lots subject to Mortgages held by such Eligible Holders are allocated.

(c) Any election to terminate the Association shall require the approval of the Eligible Holders on Lots to which at least sixty-seven percent (67%) of the votes of the Lots subject to the mortgages held by such Eligible Holder are allocated.

(d) All beneficiaries, insurers and guarantors of first Mortgages, upon written request to the Association, shall have the right to:

(i) examine current copies of the Association's books, records and financial statements and the Restrictions during normal business hours;

(ii) require the Association to submit an annual audited financial statement without expense to the entity requesting the statement;

(iii) receive written notice of all meetings of Owners; and

(iv) designate in writing a representative who shall be authorized to attend all meetings of Owners.

(e) All Mortgagees, insurers and guarantors of first Mortgages, upon written request, shall be given thirty (30) days' written notice prior to the effective date of: (i) any proposed material amendment to the Governing Documents; (ii) any termination of an agreement for professional management of the Property following any decision of the Owners to assume self-management of the Development; and (iii) any proposed termination of the Property as a common-interest community.

(f) The reserve fund described in Article V of this Declaration must be funded by regular scheduled monthly, quarterly, semiannual or annual payments rather than by large special assessments.

(g) The Board shall secure and cause to be maintained in force at all times a fidelity bond for any Person handling funds of the Association, including, but not limited to, employees of any Manager or Management Contractor.

(h) The Board may enter into such contracts or agreements on behalf of the Association as are required in order to satisfy the guidelines of VA, FHA, FHLMC, FNMA or GNMA or any similar entity, so as to allow for the purchase, guaranty or insurance, as the case may be, by such entities of first Mortgages encumbering Lots. Each Owner hereby agrees that it will benefit the Association and the Membership of the Association, as a class of potential Mortgage borrowers and potential sellers of their Lots, if such agencies approve the Property as a qualifying subdivision under their respective policies, rules and regulations, as adopted from time to time. Each Owner hereby authorizes his Mortgagees to furnish information to the Board concerning the status of any Mortgage encumbering a Lot.

(I) When professional management has been previously required by a Mortgagee, insurer, or guarantor of a first Mortgage, any decision to establish self-management by the Association shall require the approval of sixty-seven percent (67%) of the voting power of the Association and the Mortgagees of sixty-seven percent (67%) of the first Mortgages of Lots in the Project.

8.06 No Priority. No provision of this Declaration or the Bylaws gives or should be construed as giving any Owner or another party priority over any rights of the first Mortgagee of any Lot in the case of distribution to such Owner of insurance proceeds or condemnation awards for losses to or a taking of the Common Area.

8.07 Notice to Association. Upon request, each Owner shall be obligated to furnish to the Association the name and address of the holder or any Mortgage encumbering such Owner's Lot.

8.08 Amendment by Board. Should the FNMA or the FHLMC subsequently delete any of its respective requirements which necessitate any provisions of the Article VIII or make any such requirements less stringent, the Board, without the approval of the Owners, may record an amendment to this Article to reflect such changes.

8.09 Applicability of Article. Nothing contained in this Article VIII shall be construed to reduce the percentage vote that must otherwise be obtained under this Declaration, Bylaws or Nevada law for any of the acts set out in this Article.

8.10 Failure of Mortgagee to Respond. Any Mortgagee who receives a written request from the Board to respond to or consent to any action shall be deemed to have approved such action if the Association does not receive a written response from the Mortgagee within thirty (30) days of the date of the Association's request, provided such request is delivered to the Mortgagee by certified or registered mail, return receipt requested.

IX.

Annexation

Not Applicable

X.

General Provisions

10.01 Term. This Declaration including all of the covenants, conditions and restrictions, hereof, shall run until the date ninety-nine (99) years hereafter unless amended as herein provided. After the date ninety-nine (99) years hereafter, this Declaration, including all such covenants, conditions and restrictions, shall be automatically extended for successive periods of ten (10) years each, unless amended or extinguished by a written instrument executed by at least sixty-seven percent (67%) of the Owners and recorded in the Official Records of the County Recorder of Carson City, Nevada.

10.02 Resale of Lots. The seller of any Lot shall furnish to the purchaser before execution of any contract for the sale of the Lot, or otherwise before conveyance:

(a) A copy of this Declaration and the Articles, Bylaws, and Rules and Regulations of the Association;

(b) A statement setting forth the amount of the annual Assessments for common expenses and any unpaid Assessment of any kind currently due from the selling Owner; and

(c) A copy of the current operating budget of the Association.

The selling Owner shall also at such time, notify the Association of the sale and provide the

Association with the name and address of the new owner, a copy of the deed conveying title, and the date of sale. Nothing in this Section 10.02 shall be construed to require any approval by the Association of the sale of any Lot.

10.03 Amendment.

(a) Notice of the subject matter of a proposed amendment to this Declaration in reasonably detailed form shall be included in the notice of any meeting of the Association at which a proposed amendment is to be considered. The resolution shall be adopted by the vote, in person or by proxy, or by written consent of Members representing not less than seventy-five percent (75%) of the voting power of the Association, provided that the specified percentage of the voting power of the Association necessary to amend a specified Section or provision of this Declaration shall not be less than the percentage of affirmative votes prescribed for action to be taken under that Section or provision. In the event VA or FHA is a first Mortgagee or insurer of a first Mortgagee, a draft of the proposed amendment shall be submitted to VA and FHA for approval prior to its approval by the Membership of the Association. The Member approval described above shall not be required for amendments that may be executed by Declarant under NRS 116.2109 and 116.2110, by the Association under NRS 116.1107 and 116.2108(3), or by certain Owners under NRS 116.2108(2) and 116.2118, all of which may be amended from time to time.

(b) In addition to the required notice and consent of VA, FHA, Members and Declarant provided above, the Mortgagees of sixty-seven percent (67%) of the first Mortgages on all the Lots in the Project who have requested the Association to notify them of proposed action requiring the consent of a specified percentage of first Mortgagees must approve any amendment to this Declaration which is of a material nature, including the following:

(i) Any amendment which affects or purports to affect the validity or priority of Mortgages or the rights or protection granted to Mortgagees, insurers or guarantors of first Mortgages as provided herein;

(ii) Any amendment which would necessitate a Mortgagee after it has acquired a Lot through foreclosure, to pay more than its proportionate share of any unpaid assessment or assessments accruing after such foreclosure;

(iii) Any amendment which would or could result in a Mortgage being canceled by forfeiture, or in a Lot not being separately assessed for tax purposes;

(iv) Any amendment relating to the insurance provisions or to the application of insurance proceeds as stated in this Declaration, or to the disposition of any money received in any taking under condemnation proceedings;

(v) Any amendment which would or could result in partition or subdivision of a Lot in any manner inconsistent with the provisions of this Declaration;

(vi) Any amendment which would subject any Owner to a right of first refusal or other such restriction, if such Lot is proposed to be sold, transferred, or otherwise conveyed; or

(vii) Any amendment concerning:

- (A) Voting rights
- (B) Rights to use the Common Elements;
- (C) Reserves and responsibility for maintenance, repair and replacement of the Common Elements;
- (D) Owners' interests in the Common Elements;
- (E) Establishment of self-management by the Association where professional management has been required by any Beneficiary, insurer or guarantor of a first Mortgage; or
- (F) Assessments, assessment liens, or the subordination of such liens.

(c) Termination of this Declaration shall require approval by Members representing at least eighty percent (80%) of the Association's voting power. No such termination shall be effective unless it is also approved in advance by Declarant and either by sixty-seven percent (67%) of the Mortgagees of the first Mortgages on all of the Lots in the Development (if said termination is proposed by reason of the substantial destruction or condemnation of the Project) or by sixty-seven percent (67%) of such Mortgagees (if said termination is for reasons other than such substantial destruction or condemnation).

(d) Each Mortgagee of a first Mortgage on a Lot in the Project which receives proper written notice of a proposed amendment or termination of this Declaration by certified or registered mail with a return receipt requested shall be deemed to have approved the amendment or termination if the Mortgagee fails to submit a response to the notice within thirty (30) days after the Mortgagee receives the notice.

(e) A copy of each amendment shall be certified by at least two (2) officers of the Association, and the amendment shall be effective when a certificate of amendment is recorded with the Clark County, Nevada Recorder's office. The certificate, signed and sworn to by two (2) officers of the Association that the requisite number of Owners and Mortgagees have either voted for or consented in writing to any amendment adopted as provided above, when recorded, shall be conclusive evidence of that fact. The Association shall maintain in its files the record of all such votes or written consents for a period of at least four (4) years. The certificate reflecting any termination or amendment which requires the written consent of any of the Beneficiaries of first Mortgages shall include a certification that the requisite approval of such first Mortgagees has been obtained.

(f) Notwithstanding any other provisions of this Section 10.03, at any time prior to the first close of escrow for the sale of a Lot, Declarant may unilaterally amend or terminate this Declaration by recording a written instrument which effects the amendment or termination and is signed and acknowledged by Declarant.

(g) Notwithstanding any other provisions of this Section 10.03, for so long as Declarant owns any portion of the Property, Declarant may unilaterally amend this Declaration by recording a written instrument signed by Declarant in order to conform this Declaration to the requirements of Clark County, VA, FHA, FNMA, GNMA, FHLMC, any other applicable governmental authority

then in effect, if any.

(h) In addition to any other restriction contained in this Declaration pertaining to the amendment of any section hereof, no amendment of the following Sections or Articles of this Declaration shall be effective without the prior consent of Declarant: Article I, Sections 2.01, 2.11, 2.12, 2.13, 2.14, 2.15, 2.33, 2.40, and 2.42 of Article II, Sections 3.03 and 3.04 of Article III, Sections 4.04 and 4.06 of Article IV, and Article VI.

10.04 Enforcement and Nonwaiver.

(a) Right of Enforcement. Subject to NRS Chapter 38 and except as otherwise provided herein, any Owner (at its own expense), Declarant and the Board shall have the right to enforce, by any proceeding at law or in equity, all of the restrictions, conditions, covenants, reservations, liens and charges now or hereafter imposed by the provisions of this Declaration against any parcel or portion of the Property or Lot and the Owners thereof. Such right of enforcement shall include both damages for and injunctive relief against the breach of any such provision. The right of any Owner to so enforce such provisions shall be equally applicable without regard to whether the land (or other interest) of the Owner seeking such enforcement or the land (or other interest) whereon or with respect to which a violation of such provision is alleged is initially set forth on Exhibit "A" or is hereafter subjected to this Declaration pursuant to Article X.

(b) Violation as a Nuisance. Every act or omission whereby any provision of this Declaration is violated in whole or in part is hereby declared to be a nuisance and may be enjoined or abated by any Owner (at its own expense) by Declarant, or by the Board, whether or not the relief sought is for negative or affirmative action. However, only Declarant, the Board and the duly authorized agents of either of them may enforce by self-help any of the provisions of this Declaration, and then only if such self-help is preceded by reasonable notice to the Owner in question.

(c) Violation of Law. Any violation of any federal, state or local law, ordinance or regulation pertaining to the ownership, occupancy or use of any property within the Property is hereby declared to be a violation of this Declaration and subject to all of the enforcement procedures set forth herein.

(d) Remedies Cumulative. Each remedy provided by this Declaration is cumulative and not exclusive.

(e) Nonwaiver. The failure to enforce any provision of this Declaration at any time shall not constitute a waiver of the right thereafter to enforce any such provision or any other provision herein.

(f) Attorneys' Fees. In the event the Declarant or Board engages legal counsel or takes any legal action including, but not limited to arbitration proceedings pursuant to NRS Chapter 38 to enforce the provisions of this Declaration, it shall be entitled to its costs, including reasonable attorneys' fees, incurred in connection therewith.

10.05 Merger or Consolidation. Upon a merger or consolidation of the Association with another association, the Association's properties, rights and obligations may, by operation of law, be transferred to another surviving or consolidated association or, alternatively, the properties, rights and obligations of another association may, by operation of law, be added to the properties, rights

and obligations of the Association as a surviving corporation pursuant to a merger. The surviving or consolidated association may administer and enforce the covenants, conditions and restrictions established by this Declaration governing the Property, together with the covenants and restrictions established upon any such other property, as one (1) plan. Any such merger or consolidation shall be accomplished pursuant to NRS 116.2121 and shall also require the prior written approval of VA.

10.06 No Representation or Warranty. No representations or warranties of any kind, express or implied, other than the standard warranty required by VA and FHA, have been given or made by Declarant or its agents or employees in connection with the Property or any portion thereof, or any Improvement thereon, its physical condition, zoning, compliance with applicable laws, fitness for intended use, or in connection with the subdivision, sale, operation, maintenance, cost of maintenance, taxes or regulation thereof as a common-interest community, except as specifically and expressly set forth in this Declaration and except as may be filed by Declarant from time to time with any governmental authority. The period for commencing any action against Declarant for breach of any obligations or warranties arising under NRS 116.4113 or 116.4114 shall be, and hereby is limited to, two (2) years after the cause of action accrues.

10.07 Notices. Any notice or communication to be given under the terms of this Declaration (a "Notice") shall be in writing and shall be personally delivered or sent by facsimile, overnight delivery or registered or certified mail, return receipt requested. Notice shall be effective: (a) if personally delivered, when delivered; (b) if by facsimile, on the day of transmission thereof on a proper facsimile machine with confirmed answer back; (c) if by overnight delivery, the day after delivery thereof to a reputable overnight courier service; and (d) if mailed, at midnight on the third (3rd) business day after deposit in the mail, postage prepaid. Notices shall be addressed to the Person at the address given by such Person to the Association for the purpose of service of notices, or to the residence of such Person if no address has been given to the Association. Such address may be changed from time to time by notice in writing given by such Person to the Association.

10.08 Construction.

(a) Restrictions Severable. Each of the provisions of this Declaration shall be deemed independent and severable, and the invalidity or partial invalidity of any of any provision or portion thereof shall not affect the validity or enforceability of any other provision.

(b) Singular Includes Plural. Unless the context requires a contrary construction, the singular shall include the plural and the plural the singular; and the masculine, feminine or neuter shall each include the masculine, feminine and neuter.

(c) Captions. All captions and titles used in this Declaration are intended solely for convenience of reference and shall not enlarge, limit or otherwise affect that which is set forth in any of the paragraphs, Sections or Articles hereof

(d) Liberal Construction. It is the intention of Declarant that this Declaration be liberally construed to promote the purpose of a well planned community, reserving to the Declarant the rights necessary to develop the Property and to insure the integrity of the interrelated land uses.

(e) Statutory References. Any reference to a statute, by chapter, section, or otherwise shall include, without limitation, any successor or replacement of such statute.

10.09 State Law. The provisions of this Declaration shall be governed and interpreted according to the laws of the State of Nevada.

10.10 Priorities, Inconsistencies. If there are conflicts or inconsistencies between this Declaration and either the Articles of Bylaws of the Association, the terms and provisions of this Declaration shall prevail.

10.11 Time of Essence. Time is of the essence of any time period stated herein.

This Declaration is dated the ____ day of _____, 20__.

Liability

SIERRA SKIES RV RESORT, a Nevada Limited
Company.

By: _____

Name: _____

Title: _____

STATE OF NEVADA)
)
COUNTY OF CARSON CITY) ss:

On the _____ day of _____, 20____, before me, a Notary Public in and for the State of Nevada, County of Carson City, personally appeared _____, known to me to be the President of Sierra Skies RV Resort, LLC., and who acknowledged to me that he executed the within instrument.

WITNESS my hand and official seal.

NOTARY PUBLIC

Exhibit A
Property



CARSON CITY OFFICE
 340 N. Minnesota St.
 Carson City, NV 89703-4152
 Ph: 775 / 883-1600
 Fax: 775 / 883-1656

Resource Concepts Inc

Engineering • Surveying • Water Rights
 Resource & Environmental Services

www.rci-nv.com

Memorandum

DATE: August 15, 2019
TO: Carson City Planning Division
FROM: Rachel Kryder, P.E.
RCI PROJECT: Sierra Skies RV Resort (18-135.7B)
SUBJECT: CCMC 18.09.050 – Recreational Vehicle Park Requirements

- 1) All recreational vehicle parks must be developed in accordance with the existing codes, requirements and standards of development services, environmental health and fire departments.

The Sierra Skies RV Resort is being developed in accordance with the existing codes, requirements and standards of Carson City Community Development, Nevada Department of Environmental Protection, Health Department, and Fire Departments.

- 2) The standards of development for any locations, width, course, and servicing of public and private streets and highways, alleys, ways for public service facilities, curbs, gutters, street lighting, parks or playgrounds, storm water drainage, water supply and distribution, sanitary sewers and sewage collection for recreational vehicle parks must be in accordance with those standards adopted by Carson City.

All development on the Sierra Skies RV Resort site will be developed in accordance with the standards adopted by Carson City and their Conceptual Planned Unit Development comment letter.

- 3) Recreational vehicle parks must be located on a well-drained site, properly graded in accordance with city standards.

The entire 38.61-acre parcel, once developed, will be properly drained into one of many on site drainage basins (to be sized as part of Improvement Plans and development of the Technical Drainage Study), via surface flow and underground storm drain piping.

- 4) Recreational vehicle parks must not be developed within the floodway of an A flood zone as indicated on Flood Insurance Rate Map (FIRM).

The property is located almost entirely outside of the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area, classified as Zone X (unshaded). The most southern portion of the property, adjacent to Old Hot Springs Road is located within the Zone X (shaded), which is not a Special Flood Hazard Area, and is considered low risk for flooding. An excerpt of the Flood Insurance Rate Map (FIRM) is included in the Conceptual Drainage Study.

- 5) One (1) vehicle or one (1) recreational vehicle shall be permitted per recreational vehicle park space unless designated as a multiple recreational vehicle park space.

All spaces are considered single recreational vehicle park spaces, therefore only one recreational vehicle plus one passenger vehicle will be permitted per RV lot.

- 6) Accessory uses within recreational vehicle parks that are permitted are as follows:
- a) Recreational Vehicle Park Recreation Buildings and Recreational Vehicle Park Commercial Buildings. Commercial buildings shall be limited to the following uses:
 - 1) Grocery store;
 - 2) Laundry room;
 - 3) Other uses not listed in this chapter which, in the opinion of the planning commission, are in keeping with the purpose of the recreational vehicle park facilities.
 - b) Management offices, one (1) single family dwelling or one (1) mobile home used for living quarters by the operators or manager of the park

Accessory buildings to the Sierra Skies RV Resort Development include a 1,344 SF sales office, a 7,029 SF clubhouse, a 1,008 SF café, a 224 SF bathhouse facility, a 142 SF gatehouse, and an 800 SF maintenance building. All buildings are proposed to properly serve the upscale development and meet Carson City development and design standards. All amenities will be for the use of owners and guests of Sierra Skies RV Resort. It is requested that each RV parcel owner have the ability to improve their lots after purchase, including the construction of small accessory structures, such as built-in barbecues, gazebos, etc., which will be subject to building permits prior to construction.

- 7) Property development standards are
- a) Maximum building height: Two (2) stories but no greater than twenty-six feet (26').
All buildings proposed for the site are one story tall and no taller than 26'.
 - b) Minimum net area per recreational vehicle space: One thousand (1,000) square feet.
The minimum proposed lot size is over 3,200 square feet.
 - c) Multiple recreational vehicle spaces shall be allowed to have a maximum of three (3) vehicles or three (3) recreational vehicles with a net minimum area of one thousand five hundred (1,500) square feet for the placement of each vehicle. Each vehicle space will be counted toward the maximum number of spaces per acre.
All RV lots are considered single recreational vehicle park spaces.
 - d) Minimum setback of any building or recreational vehicle park space from any public street right-of-way line or exterior boundary line: twenty feet (20').

All buildings and recreational vehicle parking spaces are setback at least 20' from any public street right-of-way line or exterior boundary line.

- e) Recreational vehicle park spaces may be clustered, but total density shall not be greater than thirty (30) recreational vehicle park sites per acre for the entire project

The entire project site is 38.61-acres. With 227 recreational vehicle spaces proposed, the density will be fewer than 6 spaces per acre.

- 8) Placement required for recreation vehicles on individual recreational vehicle space are:

- a) Minimum setback from an access street shall be ten feet (10').

All recreational vehicles shall remain at least 10' away from all access streets.

- b) Minimum distance between recreational vehicles, front, side or rear, shall be fifteen feet (15').

The separation between recreational vehicles shall be at least 15' on all sides.

- c) Minimum distance between recreational vehicle and any building shall be twenty feet (20').

No recreational vehicle spaces shall be located within 20' of any proposed common amenity buildings. It is requested that property owners be allowed to construct small accessory structures on their own parcels and for their exclusive use as part of later property improvements.

- d) Expandable sections of recreational vehicles shall be considered a part of the recreational vehicle proper.

Expandable sections of recreational vehicles have been considered in size and layout of all RV lots and setbacks. All setback requirements are met including expandable sections as part of the recreational vehicle proper.

- 9) General requirements for recreational vehicle park areas are:

- a) Soil and Groundcover Requirements for Vehicle Parking Space. Each recreational vehicle space shall have a hard-surfaced parking pad with a minimum dimension of forty feet (40') by twelve feet (12'). A multiple recreational vehicle space shall have a hard-surfaced parking pad of the same minimum dimensions forty feet (40') by twelve feet (12') for each space.

Each recreational vehicle space within Sierra Skies RV Resort will have a 60' x 20' parking pad surfaced with pavers.

- b) Exposed ground surfaces in all other parts of a recreational vehicle park shall be covered with stone screening or other approved organic material or protected with a vegetative growth that is capable of preventing soil erosion and eliminating dust.

All ground surfaces disturbed during construction shall be planted with living landscape materials or mulch, or permanent impervious surfaces in accordance with Carson City standards with the exception of individual lot areas to be improved by individual owners after purchase.

10) Recreational Vehicles Park Site Development Standards. Single recreational vehicle park spaces shall have the following standards:

- a) Grade not to exceed five percent (5%) per individual recreational vehicle park site.

All grades on recreational vehicle parking spaces will not exceed 5%.

- b) One (1) water spigot for common use for every recreational vehicle space.

All recreational vehicle parking places will include full utility hookups, to include water spigots.

11) Open Space Areas. All recreational vehicle parks shall have at least one (1) recreational open space area accessible from all recreational vehicle spaces: the cumulative size of the recreation area shall not be less than ten percent (10%) of the gross recreational vehicle park area.

The Sierra Skies RV Resort will include at least 30% of open spaces for both phases of the project. A large portion of the open space will be accessible from all recreational vehicle spaces, as shown in the Open Space Exhibit included with this Tentative Map submittal package. Each individual lot also includes private open space.

12) Requirements for the recreational vehicle park roadway systems are:

- a) Access to recreational vehicle parks must be designed to minimize congestion and traffic hazards on adjacent streets. All traffic ingress and egress from recreational vehicle parks shall be through controlled entrance or exits.

Access to the subject property is proposed from Old Hot Springs Road, with an emergency secondary access to the west, connecting to Holly Way. The proposed main entrance from Old Hot Springs Road has been recently constructed and is 35 feet wide (curb face to curb face).

- b) Driveways and roads from the controlled entrance/exit points to the office/residence area of the site and all parking areas for the office/residence use must be asphalt paved in accordance with Carson City parking lot standards unless the public roadway accessing the site is dirt or gravel, in which case these driveways may be hard surfaced. The driveways or roads within the recreational vehicle park shall have the following width: twenty-six feet (26') in width if a two-way street: and twenty feet (20') in width if a one-way street.

All driveways, roads, and parking areas within the project property will be surfaced with asphalt and/or concrete in accordance with Carson City parking lot standards. All proposed two-way access roads will be at least 26' wide and will be paved.

- c) All recreational vehicle park spaces shall be served by safe and convenient roadways extending from the access points of the site to each vehicle space.
- 1) Alignment and Grade. All internal recreational vehicle park site access roadways shall be properly adapted to the topography of the site.
All internal roadways will be graded to minimize steep sections and will be adapted to the topography of the site.
 - 2) Surfacing. All internal recreational vehicle park site access roadways and individual vehicle parking spaces must be hard surfaced and well drained.
All internal roadways will be surfaced with AC paving. The roadways will be crowned and designed with slopes to ensure proper drainage.
 - 3) Turnarounds. Roadways in excess of five hundred feet (500') shall be prohibited and all cul-de-sac roadways shall include a sufficient turnaround area, minimum of ninety feet (90') in diameter.
No dead-end or cul-de-sac roads are included on site, other than a short section leading to the maintenance yard (with ample maneuvering space).
 - 4) Maneuvering Space.
 - a. Each recreational vehicle park space shall provide one (1) parking space and sufficient maneuvering space so that the parking, loading or maneuvering of vehicles incidental to parking shall not necessitate the use of any public street, sidewalk or right-of-way, or any private grounds not a part of the recreational vehicle park site.
All recreational vehicle space necessary for parking and maneuvering shall be provided adequately onsite without the use of public facilities.
 - b. All roads and road structures shall be graded and surfaced and of sufficient design to support the weight of twenty (20) ton vehicles.
All roadways throughout the site shall be graded and surfaced to support the weight of 20-ton vehicles.
 - c. Dead-end road shall have a turnaround at the closed end of at least ninety-foot (90') diameter measured at the outside of the traveled way.
No dead end roads are proposed as a part of the Sierra Skies RV Resort development.



August 15, 2019

Heather Ferris, Associate Planner
Carson City Community Development
Planning Division
108 E. Proctor Street
Carson City, Nevada 89701

Re: Water, Sewer, and Storm Drain Impact Letter for Sierra Skies RV Resort

Ms. Ferris:

Resource Concepts, Inc. (RCI) has drafted this Water, Sewer, and Storm Drain Impact Letter in support of the Tentative Planned Unit Development (PUD) application for Sierra Skies RV Resort. This proposed project is located on 38.61 acres at 1400 Old Hot Springs Road in Carson City and consists of an RV Resort with up to 227 RV spaces and various amenities, including a sales office, gate house, clubhouse (with restroom and laundry facilities), maintenance building, pool, tennis court, pickleball court, café, a 9-hole putting golf course, and open space. The purpose of this Tentative PUD is to allow Sierra Skies RV Resort, LLC to subdivide the RV Resort into individual legal parcels that can be sold to individual parcel owners. This ownership-model RV Resort targets high-end RV/motorcoach owners that have an interest in a less-dense RV development where they own and can improve their lot based on their preferences, within set restrictions. The proposed water and sewer improvements and demand, and the associated effect on Carson City infrastructure, are described below.

Water Demand

Projected water demand for the RV Resort consists of domestic and irrigation use for the RV spaces, landscaping, and all other domestic use on the site, including restrooms, showers, clubhouse, sales office, gatehouse, café, and pool (collectively referred to hereafter as “Amenity Use”). Full hookups are planned for each RV space. Projected water demands are summarized in the table below. The total average day demand (ADD) is estimated to be 33,793 gallons per day (gpd).

Use Category	Average Day Demand (gpd)
RV Spaces (227 total)	17,025
Amenity Use	3,418
Landscape Irrigation	13,350
Total	33,793

To approximate the average day demand per RV space we referenced the Wellington Station Resort well pumping data¹ which is 71 gpd per RV space, and the Las Vegas Valley Water District² usage number of 67 gpd per space. The average day demand for RV spaces is conservatively calculated as 75 gpd per space. Note that this estimate is conservative in that it does not make an occupancy assumption less than 100%. Landscaping irrigation includes all water used for outdoor plant watering, including trees, shrubs, and turf areas. The total annual irrigation demand of 4,865,000 gallons over an average of 32 irrigation weeks per year has been averaged over 365 days for the average day demand.

The RV Resort will connect to recently constructed water infrastructure located within the subject property and connected to the infrastructure within Old Hot Springs Road. The existing water main within Old Hot Springs Road is a 16-inch diameter pipe. Fire hydrant flow testing was performed adjacent to the subject property in September 2018, which indicated flow and pressures sufficient to serve the domestic and fire flow requirements of the development. Appropriate design and modeling will be completed during the design phase of the project, but the existing infrastructure size and pressures appear to be sufficient to serve the project without significant adverse effects to the City's water system.

Water infrastructure was recently installed to serve the subject property, including a 10-inch water line with backflow protection for fire protection, as well as a 4-inch water line for domestic use with reduced pressure backflow assembly and meter per Carson City standards. An additional irrigation line, backflow assembly, and meter will be installed as part of the proposed development. 8-inch water lines will run throughout the project property to provide fire protection via adequately spaced fire hydrants (no greater than 500 ft spacing) and fire sprinklers in the clubhouse.

Fire Flow

The fire flow required is governed by the demand of the largest proposed building, which is the clubhouse at approximately 7,000 SF. For Type V-B construction, the required fire flow for this square footage is 2,250 gpm for 2 hours, according to the International Fire Code (IFC). As required by the Nevada State Fire Marshal, an electronically monitored fire sprinkler system will be installed in the club house. The IFC allows for a 50% reduction in the required fire flow with an approved automatic sprinkler system. The minimum required fire flow is 1,500 gpm, so in this case the minimum flow requirement is 1,500 gpm.

Hydrant flow testing and preliminary network hydraulic modeling indicates sufficient flow and pressure to serve fire flow required throughout the project.

Sewer Flows

Full hookups including sewer connections are proposed for each RV space. Resort amenities will also contribute to sewer flows, including sales office, clubhouse, gatehouse, café, pool, showers, and restrooms.

¹ Median well pumping data for Wellington Station, LLC for the years 2013-2017 (see attached).

² Verbal communication with Steve at the Las Vegas Valley Water District estimates usage as 2,000 gallons per month or 67 gallons per day,

Use Category	Average Sewage Flow (gpd)
RV Spaces (227 total)	15,890
Amenity Flow	1,900
Total	17,790

Sewer use per RV space is 70 gpd, based on the per space water use of 75 gpd. Flow rates for other uses, including the sales office, clubhouse, gatehouse, café, pool, showers, and restrooms, are based on NDEP design guidelines.

On-site sewer collection infrastructure will include 8-inch diameter gravity sewer lines, which will connect to existing 8-inch PVC sewer within Old Hot Springs Road. Based on information from Carson City Public Works, the existing gravity sewer within Old Hot Springs Road has available capacity and connects to an 18-inch PVC sewer at College Parkway, which also has available capacity.

Storm Drainage

The existing site consists of mostly disturbed fill soil, and some unpaved areas of disturbed soils with minimal vegetative growth. Existing topography in the area is generally gently sloping, with a raised area on the eastern portion of the site, and with an overall on-site slope of approximately 2.8% from the northeastern corner to southwestern corner. There is an existing unimproved drainage ditch along the west margin of the property conveying off-site runoff from the north to the south. Once developed, the ditch will be improved and will discharge in the same approximate location and no greater flow rates that prior to development for the 5-year storm event.

Adjacent developments include residential developments to the west of the parcel, Carson Hot Springs to the south, and undeveloped property to the north and east. Overall drainage in the area is conveyed to the south and east both by surface and subsurface infrastructure, as well as natural drainage channels. Four off-site drainage channels of varying size convey flows from north to south to the north boundary of the site, where flows are intercepted by a shallow unimproved drainage channel that runs east to west along the north side of the property, then runs south along the west side of the property, and through to the property to the immediate south. While there is an existing semi-developed basin on-site, the off-site runoff is not routed into this basin. No changes to off-site drainage channels are proposed, and on-site proposed flow paths are much the same as pre-development flow paths.

Based on the FLO-2D modeling performed as part of the Goni Restudy and Remapping, flow downstream of the existing drainage channel on the west side of the property splits, with a portion flowing south along the existing access roadway to Old Hot Springs Road, and a portion flows west toward Interstate 580. Flows south of the property and from the existing access road flow south to Old Hot Springs Road and continues east to existing culverts, eventually reaching the wetland area south of Research Way and east of Interstate 580.

On-site runoff will be routed primarily aboveground within curb and gutters to multiple on-site aboveground detention basins. The basins will be positioned and sized to detain the increase in runoff for

Heather Ferris, Associate Planner
Water, Sewer, Storm Drain Impact
August 15, 2019
Page 4

the 5-year storm event. Overflow routing will be provided for the 100-year storm flows. Specific routing and basin volumes will be determined as part of the civil design for the site.

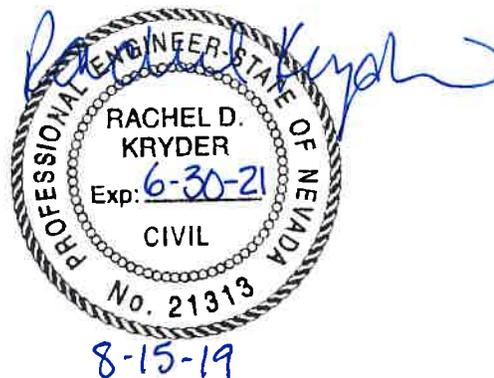
Peak flows and volumes for the existing 38.61-acre parcel, as well as the proposed planned unit development, were analyzed within the Conceptual Drainage Study that accompanies this Tentative PUD application. Based on the on-site detention of runoff in excess of the existing 5-year storm event, there will not be an increase in peak flows to the storm drain system in the area. Because the existing drainage channel conveying off-site runoff through the property will be improved, sedimentation affecting the storm drain system in the area will not be increased from the current condition.

Based on the projected water demand, required fire flow, sewer flows, proposed drainage facility improvements, as well as the City's existing water, sewer, and storm drain systems, no significant adverse impacts are expected from the proposed development.

Sincerely,

Rachel Kryder, P.E.
Project Engineer

RK/jm
Attachment (H1)



SITE NAME	PERMITS	MOU	OWNER OF RECORD	DUTY USED 2013	DUTY USED 2014	DUTY USED 2015	DUTY USED 2016	DUTY USED 2017
107 N10 E23 01ADCA1	16477	IRR	DNB INVESTMENT GROUP, LLC	254.04	300.30	510.05	532.59	0.00
107 N10 E23 01CBAB1	74589	REC	LYON COUNTY	63.62	57.85	54.00	52.60	56.54
107 N10 E23 01BCBA1	51546	QM	LYON COUNTY	1.91	0.00	0.00	0.01	4.48
107 N10 E23 02ACCB1	19734, 70927	IRR	F.M. FULSTONE INC.	1,997.66	2,346.29	1,688.97	1,191.03	0.00
107 N10 E23 02BCBD1	55254	COM	BERGSTROM, CYNTHIA K.	0.38	0.41	1.21	2.70	3.86
107 N10 E23 02BDDC1	82386	COM	SMITH VALLEY HISTORICAL SOCIETY		0.00	0.00	0.00	0.00
107 N10 E23 02CABD1	60037, 62128, 76039	COM	WELLINGTON STATION, LLC	8.59	15.92	12.51	13.74	11.29
107 N10 E23 02DADA1	59173	COM	HOYE PLAZA LLC	0.22	0.22	0.22	0.04	0.00
107 N10 E23 02DBBC1	64393	COM	SMITH, DANIEL G.	0.11	0.14	0.11	0.17	0.19
107 N10 E23 02DBC1	63781	COM	IRVING MAXON CHASE LIVING TRUST	0.71	0.71	0.71	0.03	0.02
107 N10 E23 02DBC2	64394	COM	THE RENEGADE CORP.	1.58	1.58	1.58	1.58	1.58
107 N10 E23 02DCBA1	75884	COM	GARMSLAND LIMITED LLC	1.09	1.09	0.21	0.24	0.21
107 N10 E23 02DDBA1	75955	IRR	NAT AND KAREN LOMMORI	0.00	0.00	0.00	0.00	0.00
107 N10 E23 02DDBC1	68963	COM	JACKAROO, LLC	0.00	0.04	0.00	0.00	0.00
107 N10 E23 02DDCB1	83741	COM	SMITH VALLEY HALL INC			2.00	6.77	10.28
107 N10 E23 02DDDD1	64015	COM	WALKER RIVER CONSTRUCTION	1.31	1.31	0.00	0.66	0.66
107 N10 E23 11AA 1	V09342	COM	ITHURBURU, JOHN & CARLSON, BILL	40.36	40.36	40.36	40.36	40.36
107 N10 E23 11AAAD1	65172	CON	TRANSPORTATION DEPARTMENT-NEVADA	0.19	0.19	0.20	0.16	0.25
107 N10 E23 11AABA1	61721	COM	OXSEN, PETER & NANCY	0.00	0.00	0.18	0.04	0.04
107 N10 E23 12BCAC1	84619	IRR	TRAN, THOMAS AND LAURILL					2.53
107 N10 E24 03BBAB1	54655	IRR	CEFALU, JOHN N.	151.60	138.61	26.09	26.36	62.63
107 N10 E24 03BBD1	16440	IRR	F.I.M. CORP.	423.01	442.93	270.37	251.32	102.89
107 N10 E24 04AADD1	65468	IRR	RENNER LASHELE M.	20.00	22.26	16.84	17.74	21.21
107 N10 E24 04ABCA1	58875, 71384	IRR	SIX-N RANCH, INC.	873.78	954.36	828.42	614.99	2.16
107 N10 E24 04CDDC1	13494	IRR	F.I.M. CORP.	0.00	0.00	0.00	0.00	0.00
107 N10 E24 05ACDD1	66253, 66254, 66255	IRR	JOHN AND LURA WEAVER FAMILY TRUST	600.23	544.14	287.21	74.40	0.00
107 N10 E24 05CBAD1	12278	IRR	F. M. FULSTONE INC	144.50	144.50	0.00	144.50	72.25
107 N10 E24 07CDBA1	25506	IRR	GROSVENOR, ELAINE L.	620.08	346.09	325.91	345.73	0.00
107 N10 E24 07DCCB1	53907	IRR	HULSTROM, GENE E. & DONNA	2.21	2.18	1.65	1.97	1.92
107 N10 E24 07DDBB1	18680	IRR	DREYER, ROLAND AND JOAN	815.50	13.09	5.67	2.04	0.00
107 N10 E24 08CBCA1	26730, 33232	IRR	F.I.M. CORP.	1,630.04	1426.40	1067.85	719.44	355.71
107 N10 E24 08CCBA1	71673	IRR	ROSACHI FAMILY TRUST	0.00	0.00	0.00	0.00	0.00
107 N10 E24 09BACD1	82479	IRR	F.I.M. CORP.				0.00	0.00
107 N10 E24 09BACD2	18879	IRR	F.I.M. CORP.	481.65	933.87	547.51	429.11	71.90
107 N10 E24 09CBC1	14987	IRR	F.I.M. CORP.	1,172.00	1,172.00	764.68	205.56	32.79
107 N10 E24 09CDCC1	25374, 69528, 71714	IRR	S.V. DEVELOPMENT, LTD. & F. M. FULSTONE INC.	0.00	0.00	0.00	0.00	0.00
107 N10 E24 16ACCC1	22904	IRD	NORTH VALLEY HOLDINGS, LLC	0.00	414.64	0.00	0.00	0.01
107 N10 E24 17CBDB1	62992	QM	SOUTH LYON COUNTY HOSPITAL DISTRICT	0.11	0.13	0.52	0.81	0.39
107 N10 E24 17CCAA1	26883, 77431, 77433	IRR	PREPPY VISION LLC	565.18	678.71	398.21	447.14	211.99
107 N10 E24 18ACCB1	71558	IRR	SAVIDGE, DALE A. & MAUREEN P.	6.06	3.37	0.00	0.00	0.00
107 N10 E24 18BACD1	28293, 41361	IRR	F.I.M. CORP.	495.16	39.54	436.53	641.20	462.87
107 N10 E24 18DACB1	61987	IRR	ROYCE W. ANDERSON, TRUSTEE	20.00	8.64	13.30	17.71	18.77
107 N10 E24 20ABAA1	18435, 77430, 77432, 85399, 86612, 86613	IRR	PREPPY VISION LLC	937.22	681.27	440.14	288.95	82.04
107 N10 E24 20ABDC1	57236, 57237	IRR	DANA STUART-MOORE TRUST DATED APRIL 2, 2010	42.68	42.03	34.17	18.16	22.86
107 N10 E24 20BDD1	20014	IRR	AIAZZI, GARY R AND CYNTHIA J	191.87	433.63	371.79	378.51	8.54
107 N10 E24 20DCDC1	27704	IND	L. S. DAY, INC	13.03	7.76	16.73	22.14	50.10
107 N10 E24 21BABA1	23627	IRR	F.I.M. CORP.	294.53	374.20	185.58	303.02	340.00
107 N10 E24 21DDAD1	79967, 84239, 84407, 84408	IRR	TODD JAMES OBANION; ROSSE, DEBRA DEAN; SEWARD, JOHN AND JOYCE	5.38	62.03	8.00	12.52	4.67
107 N10 E24 22CBBB1	86288	WLD	U.S. FOREST SERVICE	0.00	0.00	0.00	0.00	0.00
107 N10 E24 29ABBA1	83742	COM	GERALD GREGORY ENSEN AND MONICA STAGEN JENSEN REVOCABLE LIVING TRUST				2.00	1.90
107 N11 E23 01DCDB1	71361	IRR	HALLEY, DAN	2.42	2.10	1.98	4.77	2.82

TENTATIVE MAP

SIERRA SKIES RV RESORT LLC

A PLANNED UNIT DEVELOPMENT

1400 OLD HOT SPRINGS ROAD
CARSON CITY, NEVADA 89706

APN 008-123-40

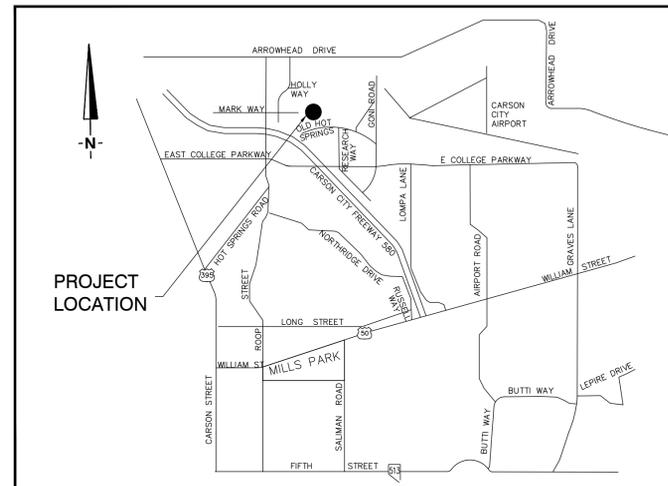
ABBREVIATIONS

(SOME ABBREVIATIONS LISTED BELOW MAY NOT BE INCLUDED IN THIS PLAN SET)

A.B.	AGGREGATE BASE	MIN	MINIMUM
AC	ASPHALT CEMENT CONCRETE	NDOT	NEVADA DEPARTMENT OF TRANSPORTATION
AP	ANGLE POINT	NTS	NOT TO SCALE
APPROX	APPROXIMATE	PCC	PORTLAND CEMENT CONCRETE
BC	BEGIN CURVE	PE	POLYETHYLENE
BLDG	BUILDING	PP	POWER POLE
BM	BENCH MARK	PUE	PUBLIC UTILITY EASEMENT
BW	BACK OF SIDEWALK	PVC	POLYVINYL CHLORIDE
CB	CATCH BASIN	R	RADIUS
C&G	CURB AND GUTTER	RCP	REINFORCED CONCRETE PIPE
CL	CENTER LINE	SD	STORM DRAIN
CMP	CORRUGATED METAL PIPE	SS	SANITARY SEWER
CY	CUBIC YARD	SSCO	SANITARY SEWER CLEANOUT
DI	DRAIN INLET	SSMH	SANITARY SEWER MANHOLE
DIA	DIAMETER	STA	STATION
E	ELECTRIC	TBC	TOP BACK OF CURB
EA	EACH	TYP	TYPICAL
EOP	EDGE OF AC PAVEMENT	W	WATER
EC	END CURVE	WM	WATER METER
EL	ELEVATION	%	PERCENT
EX.	EXISTING		
FF	FINISH FLOOR ELEVATION		
FG	FINISH GRADE		
FH	FIRE HYDRANT		
FL	FLOW LINE		
G	GAS		
GB	GRADE BREAK		
GV	GATE VALVE		
IE	INVERT ELEVATION		
LF	LINEAR FOOT		
MAX	MAXIMUM		

LEGEND

	EX. PROPERTY LINE		PROPOSED PRIVATE WATER
	CENTER LINE OF ROADWAY		PROPOSED GAS
	EX. WATER LINE		PROPOSED PRIVATE SANITARY SEWER
	EX. SANITARY SEWER		PROPOSED FIRE HYDRANT
	EX. GAS		PROPOSED SANITARY SEWER MANHOLE
	EX. FIRE HYDRANT		PROPOSED CURB & GUTTER
	EX. POWER POLE		PROPOSED FLOWLINE
	EX. SANITARY SEWER MANHOLE		PROPOSED PCC CONCRETE
	EX. EDGE OF PAVEMENT		
	EX. CONTOUR		



LOCATED WITHIN SECTION 5, T.15N., R.20E., M.D.M.
VICINITY MAP
NOT TO SCALE

SHEET INDEX

SHEET 1	TITLE SHEET
SHEET 2	EXISTING SITE PLAN & EROSION CONTROL PLAN
SHEET 3	PROPOSED SITE PLAN
SHEET 4	PROPOSED UTILITY PLAN
SHEET 5	DETAIL SHEET

OWNER

SIERRA SKIES RV RESORT LLC
CONTACT: R L SHAHEEN COMPANY
P.O. BOX 1781
CARSON CITY, NEVADA 89702
(775) 883-3040

ENGINEER

RESOURCE CONCEPTS, INC.
CONTACT: RACHEL D. KRYDER, P.E.
340 NORTH MINNESOTA STREET
CARSON CITY, NEVADA 89703
(775) 883-1600

BASIS OF BEARING

THE BASIS OF BEARINGS FOR THIS SURVEY IS N 03°47'09"W BETWEEN CARSON CITY CONTROL POINTS CC053 AND CC056 AS SHOWN ON THE RECORD OF SURVEY FILED FOR RECORD JUNE 30, 2016, AS FILE NO. 465858 AT PAGE 2865 OF OFFICIAL RECORDS OF CARSON CITY, NEVADA

BASIS OF ELEVATION

THE BASIS OF ELEVATION FOR THIS MAP IS THE CARSON CITY CONTROL POINT CC053, A 2" BRASS DISC SET IN CONCRETE, HAVING AN ELEVATION OF 4714.97'

PROJECT DATA

ASSESSOR'S PARCEL NUMBER:	008-123-40
TOTAL SITE AREA:	38.610 ACRES (1,681,852 S.F.)
PROPOSED PHASE 1 RV LOTS:	132 LOTS
PROPOSED PHASE 1 COMMON LOTS:	4 LOTS
PROPOSED PHASE 2 RV LOTS:	95 LOTS
PROPOSED PHASE 2 COMMON LOTS:	2 LOTS
TOTAL RV LOTS:	227 LOTS
TOTAL COMMON LOTS:	6 LOTS
TOTAL ACRES (COMMON LOTS/OPEN SPACE):	9.59 ACRES
PARKING SPACES (WITHIN LOTS):	454 SPACES (2 PER LOT)
PARKING SPACES (AMENITIES):	35 SPACES
MASTER PLAN DESIGNATION:	COMMUNITY/REGIONAL COMMUNITY
CURRENT ZONING:	TC - TOURIST COMMERCIAL
FEMA FLOOD HAZARD ZONE:	ZONE X (UNSHADED), ZONE X (SHADED) - SOUTHERN PORTION AS SHOWN ON SHEET 2
WATER SERVICE:	PUBLIC (CARSON CITY)
SEWER SERVICE:	PUBLIC (CARSON CITY)

Engineering • Surveying • Water Rights
Resources • Environmental Services
www.rci-nv.com
Carson City
340 N. Minnesota St.
Carson City, NV 89703-4152
775-883-1600

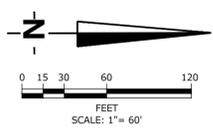
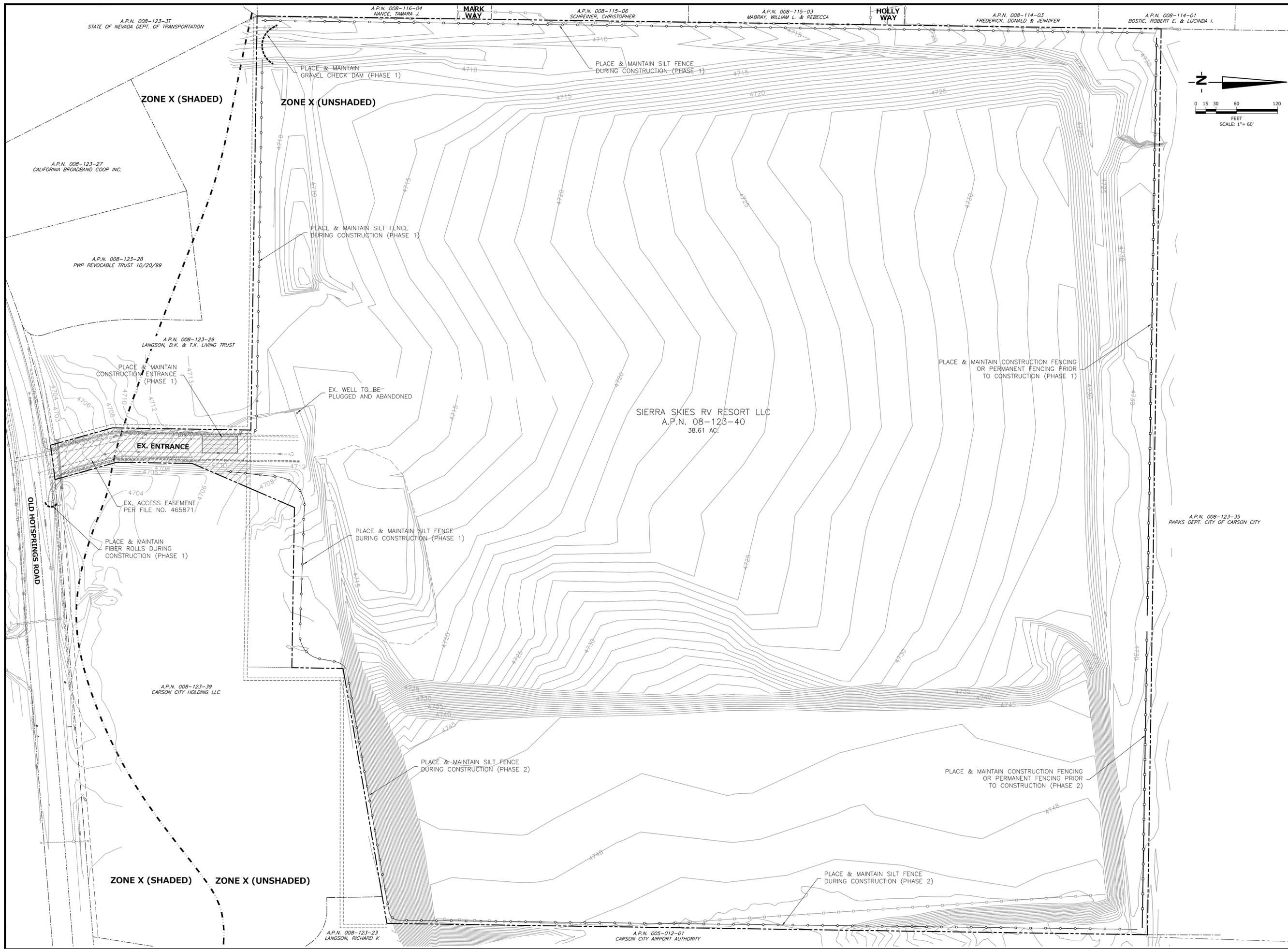


DATE	REVISION

TENTATIVE MAP
Sierra Skies RV Resort LLC
A Planned Unit Development
Title Sheet



JOB NO.:	18-135.7B
DATE:	8-15-19
DESIGNED:	RDK
DRAWN:	MLM
CHECKED:	RDK



RCI
Resource Concepts Inc.

Engineering • Surveying • Water Rights
Resources • Environmental Services
www.rci-nv.com

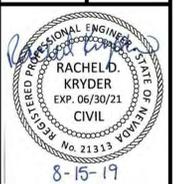
Carson City
340 N. Minnesota St.
Carson City, NV 89703-4152
775-868-1600

Lake Tahoe
276 Kingsbury Grade, Ste. 206
Stateline, NV 89449
775-588-7500

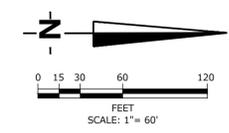
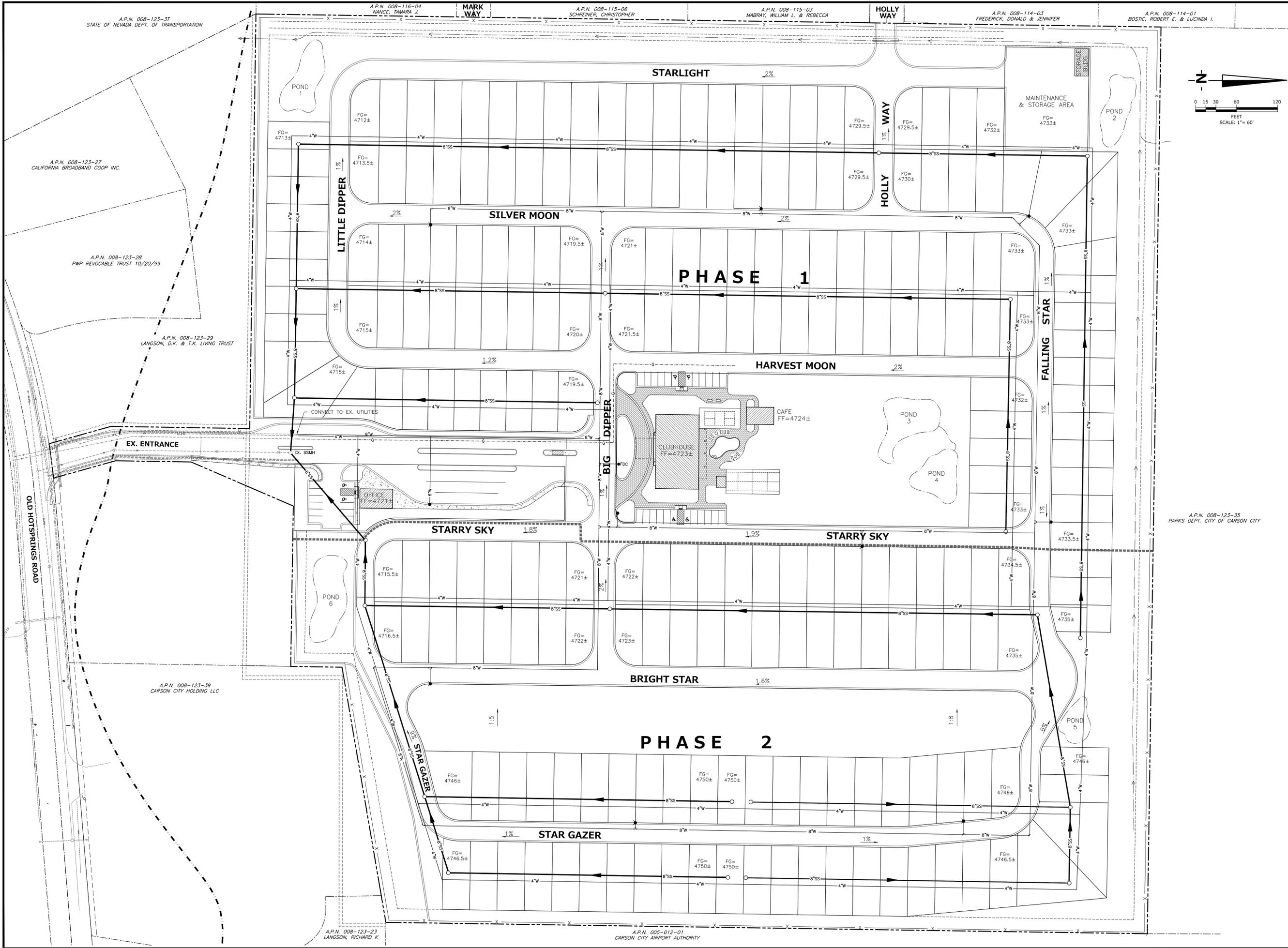
REVISION	DATE

TENTATIVE MAP
Sierra Skies RV Resort LLC
A Planned Unit Development

Existing Site Plan & Erosion Control Plan



JOB NO.:	18-135.7B
DATE:	8-15-19
DESIGNED:	RDK
DRAWN:	MLM
CHECKED:	RDK



RCI
Resource Concepts Inc.

Engineering • Surveying • Water Rights
Resources • Environmental Services
www.rci-nv.com

Carson City
340 N. Minnesota St.
Carson City, NV 89703-4152
775-868-1600

Lake Tahoe
276 Kingsbury Grade, Ste. 206
Stateline, NV 89449
775-588-7500

DATE	REVISION

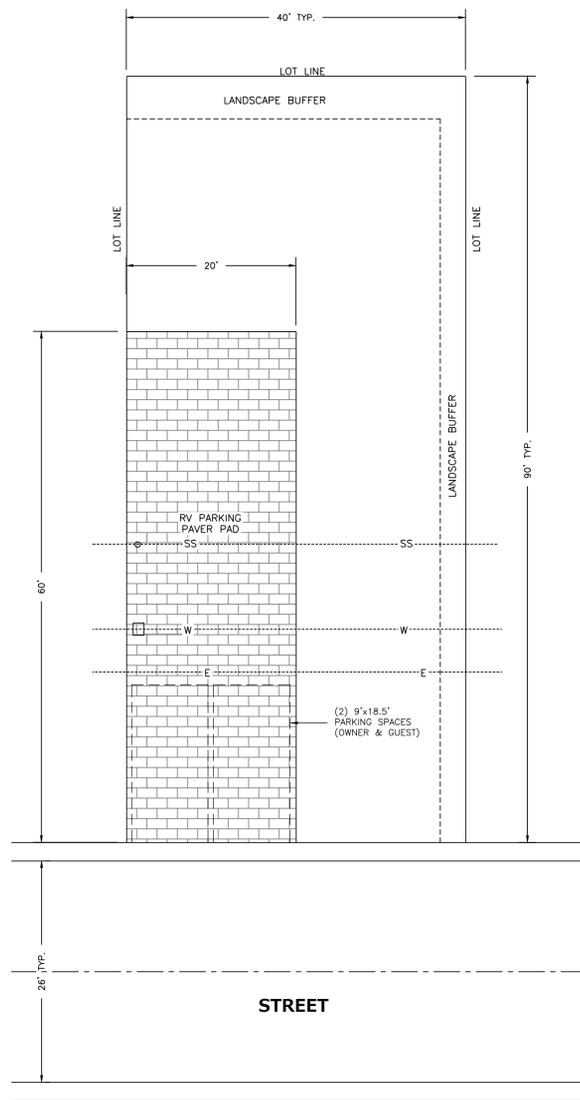
TENTATIVE MAP
Sierra Skies RV Resort LLC
A Planned Unit Development

Proposed Utility Plan

8-15-19

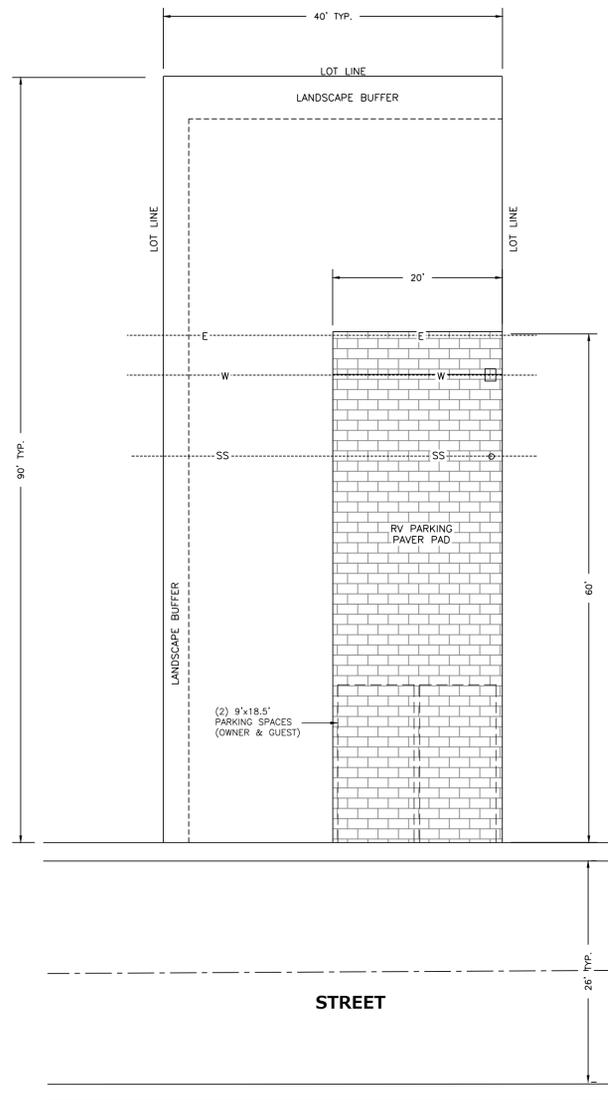
JOB NO.:	18-135.7B
DATE:	8-15-19
DESIGNED:	RDK
DRAWN:	MLM
CHECKED:	RDK

Sheet 4 of 5



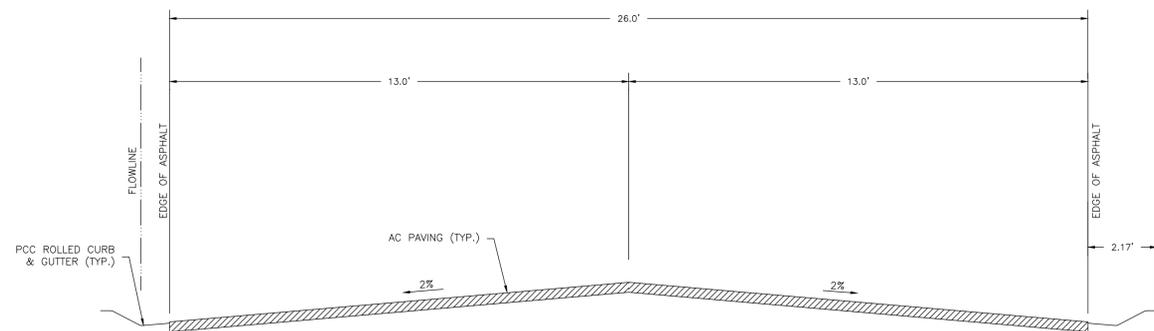
TYPICAL FRONT-IN RV SPACE

SCALE: 1"=10'



TYPICAL BACK-IN RV SPACE

SCALE: 1"=10'



TYPICAL ON-SITE ROAD SECTION

NO SCALE



Engineering • Surveying • Water Rights
Resources • Environmental Services
www.rci-nv.com
Carson City
340 N. Minnesota St.
Carson City, NV 89703-4152
775-868-1800
Lake Tahoe
276 Kingsbury Grade, Ste. 206
Stateline, NV 89449
775-588-7500

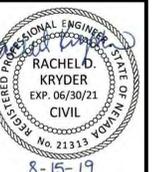
DATE

REVISION

TENTATIVE MAP

Sierra Skies RV Resort LLC
A Planned Unit Development

Detail Sheet



8-15-19

JOB NO.: 18-135.7B

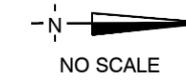
DATE: 8-15-19

DESIGNED: RDK

DRAWN: MLM

CHECKED: RDK

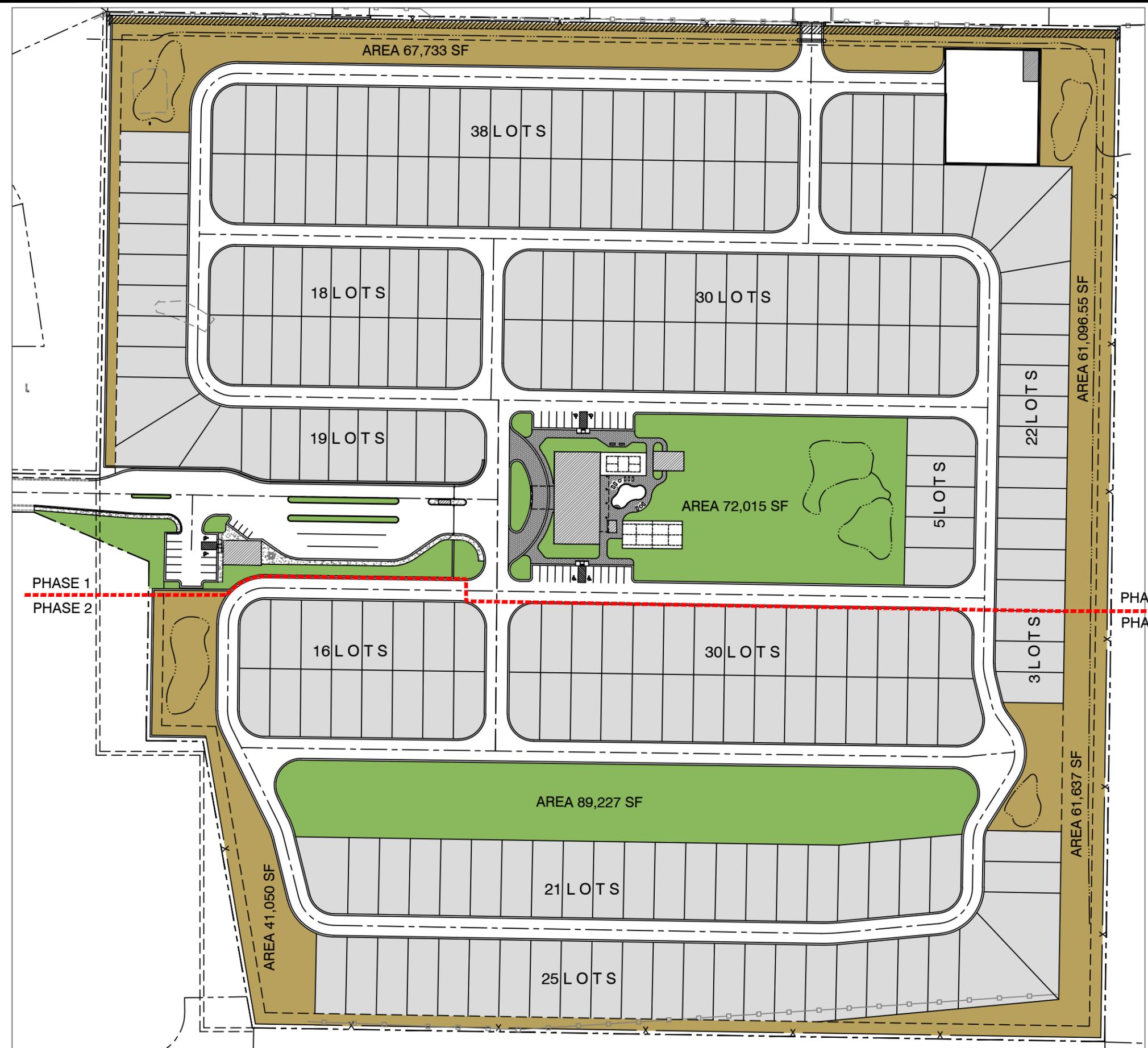
Sheet 5 of 5



SIERRA SKIES RV RESORT OPEN SPACE EXHIBIT

PHASE 1	
PHASE AREA	1,002,029 SF
PHASE OPEN SPACE	225,574 SF
LOT OPEN SPACE	147,616 SF
OPEN SPACE PERCENTAGE	37%
*ASSUMES 30% OPEN SPACE PER RV LOT	

PHASE 2	
PHASE AREA	673,579 SF
PHASE OPEN SPACE	191,636 SF
LOT OPEN SPACE	110,653 SF
OPEN SPACE PERCENTAGE	45%
*ASSUMES 30% OPEN SPACE PER RV LOT	



Date Prepared: June 3, 2019

Date Revised: August 14, 2019

Conceptual Drainage Study

SIERRA SKIES RV RESORT, LLC

APN 008-123-40

1400 Old Hot Springs Road

Carson City, Nevada

Prepared for:

Roger Shaheen

Sierra Skies RV Resort, LLC

P.O. Box 1781

Carson City, Nevada 89702

Prepared by:

Resource Concepts, Inc.

340 N. Minnesota Street

Carson City, Nevada 89703

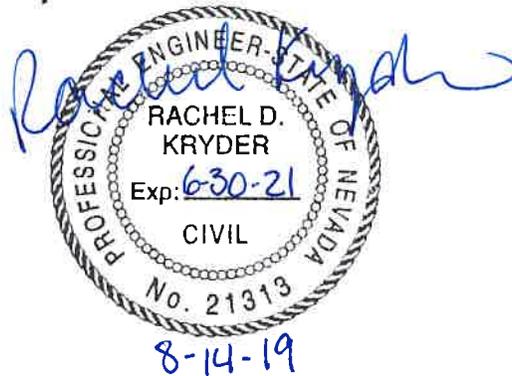


Date Prepared: June 3, 2019
Date Revised: August 14, 2019

Conceptual Drainage Study

SIERRA SKIES RV RESORT, LLC

APN 008-123-40
1400 Old Hot Springs Road
Carson City, Nevada



Prepared for:

Roger Shaheen
Sierra Skies RV Resort, LLC
P.O. Box 1781
Carson City, Nevada 89702

Prepared by:

Resource Concepts, Inc.
340 N. Minnesota Street
Carson City, Nevada 89703-4152
(775) 883-1600 Phone
(775) 883-1656 Fax

TABLE OF CONTENTS

	<u>PAGE</u>
INTRODUCTION	1
Introduction.....	1
Description of Project.....	1
Existing Site Conditions	1
EXISTING AND PROPOSED HYDROLOGY.....	4
Drainage Basin Boundaries.....	4
On-Site & Downstream Drainage Description.....	4
Floodplain & Irrigation Information	5
Previous Drainage Studies	5
PROPOSED DRAINAGE FACILITIES.....	6
Proposed Flow Routing.....	6
Storm Drainage Analysis.....	6
CONCLUSIONS	7
Compliance with CCMC & Carson City Development Standards	7
Compliance with FEMA requirements.....	7
Impact of Proposed Development on Off-Site Property & Facilities.....	7
Mitigation of Impacts & Implementation Schedule	7
LIST OF FIGURES	
Figure 1. Location Map.....	3
LIST OF TABLES	
Table 1. 5-year and 100-year storm event peak flows.....	6
Table 2. 5-year and 100-year storm event peak volumes.....	6
APPENDICES	
Appendix A: Calculations	
<i>Rational Method Peak Flow and Storage Calculations</i>	
Appendix B: Exhibits	
<i>Soil Resource Report and Map</i>	
<i>FEMA FIRMette</i>	
<i>Draft Flood Changes</i>	
<i>Goni Restudy and Remapping (map)</i>	
<i>Precipitation Frequency Data</i>	
<i>Existing Drainage Map</i>	
<i>Proposed Drainage Map</i>	

INTRODUCTION

Introduction

This conceptual drainage study is prepared for submittal to Carson City Community Development, on behalf of Roger Shaheen and Sierra Skies RV Resort, LLC. The purpose of this study is to support the Tentative Planned Unit Development Map submittal, provide information pertaining to the site drainage and determine the existing peak flows, as well as off-site releases and their impacts to downstream systems. This study considers the 2-, 5-, 25- and 100-year storm events based on times of concentration. Supporting documentation and calculations are provided within this report.

The approach taken in this study is in accordance with Division 14 of the Carson City Development Standards of the Municipal Code.

Description of Project

The proposed development on the subject property will be approximately 227 RV parcels with associated roadways, landscaping, clubhouse, pool, tennis court, pickle ball court, stormwater detention basins, office, gatehouse, loading and unloading areas, one 9-hole putting green area, a maintenance and storage area, and associated parking features. Land disturbing activity will include excavation and compaction of the subgrade, placement of aggregate base, footings and foundation, asphalt surface, paver surfaces, and concrete sidewalks. On-site areas of steep slopes have the potential for erosion. This will be mitigated through re-grading to reduce slopes and placement of rip-rap and vegetative stabilization.

This Conceptual Drainage Study accompanies the Tentative Planned Unit Development for Sierra Skies RV Resort. The proposed development includes 227 RV parcels intended to be separate legal parcels for individual ownership, as well as common areas and amenities. Lots range in size from 38' wide by 90' deep to 40' wide by 100' deep, with some larger irregularly shaped corner lots. A 20' by 60' paver pad and landscape buffers between lots will be constructed as part of the improvements of the resort, with each individual lot owner responsible for the improvement and landscaping of the remainder of the lot. It is assumed for the purpose of this Study that each lot will include a maximum impervious area of 70%, including the pad. Common areas of the project will include paved roadways, patio areas, amenities such as putting greens, a clubhouse, tennis court, and a pool, and landscaping areas as shown on the Tentative PUD. Landscaped areas will include turf in some areas, with trees and shrubs providing the majority of the landscape coverage.

Existing Site Conditions

The project site is bordered on two sides by existing development. Residential developments bound the property to the west, Carson Hot Springs, vacant commercially zoned property, and Old Hot Springs Road border the property to the south. Property to the north and east remains undeveloped.

The project property in this study encompasses approximately 38.61 acres, with the entire site included in the analyzed drainage area, as defined in the Drainage Map located in Appendix B of this report. The existing site consists of mostly disturbed fill soil, and some unpaved areas of disturbed soils with minimal vegetative growth. Existing topography in the area is generally gently sloping, with a raised area on the eastern portion of the site, and with an overall on-site slope of approximately 2.8% from the northeastern

corner to southwestern corner. There are steep slopes along the boundaries of the property which are up to 2:1 along portions of the southern and northeastern boundary, areas internally, and slopes up to 5:1 along the western boundary. The property is located almost entirely outside any special flood hazard area and is designated as Zone X (unshaded). The south end of the access road at Old Hot Springs Road is within Zone X (shaded). Based on information provided by Carson City, there is a proposed revision to FEMA flood zones in this area, including new Zone AH along the north and west boundaries of the site. The proposed development is designed to maintain and improve drainage channels to convey stormwater in the affected areas on-site.

The Natural Resource Conservation Service Soil Survey of Carson City classifies the on-site soils in this area as Bishop loam (saline), Indiano variant gravely fine sandy loam (4 to 15 percent slopes), Surpass coarse sandy loam (2 to 4 percent slopes MLRA 26), and Vamp fine sandy loam (slightly saline-alkali). The Soil Resource Report for the site is included in Appendix B, and identifies the soils at the site as Hydrologic Soil Groups A, C, and C/D. However, almost the entire site is covered by imported fill of various depths, reportedly from construction of the nearby Interstate 580. Undocumented clayey fill soil on the site consists of from approximately one to 20 feet thick, based on test pits and aerial images. The average depth is approximately 11.5 feet on the west and nearly 20 feet on the east.

There are no existing irrigation systems on or adjacent to the site. There is an existing unimproved drainage ditch along the west margin of the property conveying off-site runoff from the north to the south. Once developed, the ditch will be improved and will discharge in the same approximate location and no greater flow rates than prior to development for the 5-year storm event.

Adjacent developments include residential developments to the west of the parcel, Carson Hot Springs to the south, and undeveloped property to the north and east. Overall drainage in the area is conveyed to the south and east both by surface and subsurface infrastructure, as well as natural drainage channels.

Figure 1. Location Map



Map depicting location of proposed development
Not to Scale

EXISTING AND PROPOSED HYDROLOGY

Drainage Basin Boundaries

Existing Off-Site Drainage Description

The project site is bordered by existing development and undeveloped areas. Existing flows from the north drain to the subject parcel. Four drainage channels of varying size convey flows from north to south to the north boundary of the site, where flows are intercepted by a shallow unimproved drainage channel that runs east to west along the north side of the property, then runs south along the west side of the property, and through to the property to the immediate south. While there is an existing semi-developed basin on-site, the off-site runoff is not routed into this basin. A drainage map depicting the existing site drainage is included in Appendix B. Topography in the area is gently sloping, with a raised area on the eastern portion of the site, and with an on-site slope of approximately 2.8% from the northeastern corner to southwestern corner. Land use in the surrounding area is semi-developed, with residential development to the west and Carson Hot Springs to the South. There are undeveloped areas to the north, south and east of the property, along Old Hot Springs Road, Arrowhead Drive, and Goni Road. Soil type on-site is not identical to surrounding area soil types due to the site being covered with fill material. Due to the semi-developed nature of the surrounding area, the erosion potential is low. Based on field investigation, there are two existing CMP culverts to the north of the site that convey runoff from north to south under Arrowhead Drive and into drainage channels that convey flow to the subject site. An 18" CMP culvert is located approximately along the extension of the west boundary of the subject property, and has an estimated slope of approximately 1%, which accommodates a maximum discharge capacity of 6.12 CFS. A 15" CMP culvert, located approximately halfway between the extensions of the east and west property lines, has an estimated slope of approximately 1%, which accommodates a maximum discharge capacity of 3.76 CFS. Based on information provided by Carson City for the Goni Restudy and Remapping (2017), the peak flow for the 100-year storm within the existing drainage channel along the west boundary of the site (from off-site flows) is 91 cfs. This peak flow assumes flow exceeding the capacity of the culverts and overtopping Arrowhead Drive from the north. The proposed development does not change any flow paths for off-site drainage adjacent to the parcel. No changes to off-site drainage channels are proposed, and on-site proposed flow paths are much the same as pre-development flow paths. At the request of Carson City, a public drainage easement will be provided to encompass an improved drainage channel and access road along the west side of the project.

On-Site & Downstream Drainage Description

Historic and current on-site drainage occurs mostly as sheet flow from north to south, and slightly west toward Old Hot Springs Road. Existing drainage channels on-site include channels along the north and west sides of the property, which will be improved as part of the proposed development. The existing site is undeveloped with disturbed soil and some vegetation present. An existing semi-developed drainage basin is located in the southwest portion of the property, but no developed drainage channels flow to the basin. A map depicting the current drainage of the site is provided in Appendix B.

Based on the FLO-2D modeling performed as part of the Goni Restudy and Remapping, flow downstream of the existing drainage channel on the west side of the property splits, with a portion flowing south along the existing access roadway to Old Hot Springs Road, and a portion flows west toward Interstate 580. Flows south of the property and from the existing access road flow south to Old Hot Springs Road and

continue east to existing culverts, eventually reaching the wetland area south of Research Way and east of Interstate 580.

Floodplain & Irrigation Information

The project is not located in or adjacent to any FEMA-designated special flood hazard area. It is located within Flood Zone X (unshaded), per the Flood Insurance Rate Map (FIRM) for Carson City, panel 3200010084 F, dated February 19, 2014 (see Appendix A). The site slopes from a maximum elevation of 4749 ft at the northeast corner, to an elevation of 4713 ft at the southwest corner. Based on information provided by Carson City, there is a proposed revision to FEMA flood zones in this area, including new Zone AH along the north and west boundaries of the site. The proposed development is designed to avoid construction within these areas and maintain and improve drainage channels to convey stormwater in the affected areas on-site.

There is no existing or proposed irrigation on the subject parcel.

Previous Drainage Studies

A Conceptual Drainage Study was prepared by others in 2016 as part of a prior Special Use Permit application. A Preliminary Technical Drainage Study was prepared by Resource Concepts, Inc. on December 20, 2018 as part of a prior Special Use Permit application. This area is included in the Goni Restudy and Remapping, prepared by Michael Baker International for Carson City in 2017.

PROPOSED DRAINAGE FACILITIES

Proposed Flow Routing

On-site runoff will be routed primarily above ground within curb and gutters to multiple on-site above-ground detention basins. The basins will be positioned and sized to detain the increase in runoff for the 5-year storm event. Overflow routing will be provided for the 100-year storm flows. Specific routing and basin volumes will be determined as part of the civil design for the site.

Storm Drainage Analysis

Peak flows and volumes for the existing 38.61-acre parcel, as well as the proposed planned unit development, were analyzed using the Rational Method computational procedure. Run-off coefficients were based on weighted averages, considering undeveloped and developed surfaces. Run-off coefficient values ranged from 0.35 for existing native undeveloped areas to 0.95 for impervious areas and were selected from Applied Hydrology (Ven T. Chow, McGraw Hill International Editions. 1988). Because each parcel owner will be responsible for improvements on each lot, it is assumed that each lot has a maximum impervious cover of 70%, with the remainder as landscaping. The 2-, 5-, 25-, and 100-year storm events were analyzed utilizing the times of concentration. Times of concentration were based on soil conditions, topography and NOAA recorded precipitation in the project area. A complete set of calculations, mapping and supporting materials are included in the appendices of this study. Peak flows and volumes for the 5-year and 100-year events are presented in Table 1 and 2, below.

Table 1. 5-year and 100-year storm event peak flows.

Property Status	Peak Flow (CFS) 5-Yr Event	Peak Flow (CFS) 100-Yr Event
Existing Condition: 38.61-Acre Parcel	16.62	40.27
Proposed Future Condition	40.85	98.69
Difference	24.23	58.42

Table 2. 5-year and 100-year storm event peak volumes.

Property Status	Peak Volume (CF) 5-Yr Event	Peak Volume (CF) 100-Yr Event
Existing Condition: 38.61-Acre Parcel	16,241.6	39,349.5
Proposed Future Condition	18,117.3	43,773.3
Difference	1,875.7	4,423.8

CONCLUSIONS

Compliance with CCMC & Carson City Development Standards

The project is in compliance with state and local drainage laws, meeting the requirements of Division 14 of the Carson City Development Standards and the Municipal Code.

Compliance with FEMA requirements

The project is not located in or adjacent to any FEMA-designated special flood hazard area. It is located within Flood Zone X (unshaded), per the Flood Insurance Rate Map (FIRM) for Carson City, panel 3200010111 F, dated February 19, 2014. Based on information provided by Carson City, there is a proposed revision to FEMA flood zones in this area, including new Zone AH along the north and west boundaries of the site. The proposed development is designed to maintain and improve drainage channels to convey stormwater in the affected areas on-site.

Existing off-site runoff will be conveyed similarly to the pre-development conditions, and no modifications to the floodplain or special design considerations are planned or anticipated as a part of this project.

Impact of Proposed Development on Off-Site Property & Facilities

This study supports the development of the Sierra Skies RV Resort in two phases. Area peak flow rates and volumes are increased due to proposed development, but excess flows and volumes are detained in detention basins on-site. Since all additional flows and volumes are detained on-site and floodplain modifications are not planned, there is no impact to offsite facilities or properties.

Mitigation of Impacts & Implementation Schedule

On-site erosion and sediment control during construction shall be accomplished by employing temporary erosion control measures. In addition, the contractor will be required to comply with all local, state, and federal codes related to stormwater run-off. Construction will be completed in two phases. The schedule of construction will be determined by the owner and coordinated with Carson City. Anticipated items to be submitted by the contractor include, but may not be limited to, a proposed site plan that includes a temporary erosion control plan. Temporary erosion control shall consist of fiber rolls, silt fences, and other approved means of sediment control in accordance with Division 14 of the Carson City Development Standards of the Municipal Code. Interim detention during construction is anticipated only as necessary. Additional erosion and sediment control precautions will consist of routine maintenance of the detention basins. The maintenance will be on an as-needed basis with an interval to be determined by the frequency of storm events. Source control on the site to minimize any accumulation of sediment tracked onto the site will extend the maintenance intervals of the on-site structures.

APPENDICES

Appendix A: Calculations

Rational Method Peak Flow and Storage Calculations

Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135

Time of Concentration: Peak Flow Analysis

CHANNEL 1

Find: Pre- & Post-Development Peak flows & Storage volumes for the following storm events

- a. 2-Year
- b. 5-Year
- c. 25-Year
- f. 100-Year

Given: Total Property Area = 3.84 acres
Impervious Area = 0.00 acres
Remaining Area = 3.84 acres

Assumptions: Run-off coefficients are as follows:

- C = 0.35 for existing unpaved conditions
- C = 0.95 for impervious surfaces (asphalt & concrete)

Equations: General equations are as follows:

Rational Method:

$$Q = C * I * A$$

where

- Q = Peak Flow (cfs)
- C = Run-Off Coefficient (unitless)
- I = Rainfall Intensity (in/hr)
- A = Drainage Area (acres)

Intensities are obtained from the Time of Concentration, in conjunction with the National Weather Service, NOAA Atlas 14.

**Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135**

Time of Concentration: Peak Flow Analysis

Equations (Cont):

Time of Concentration (Tc): Sheet Flow Only

$$T_c = [0.007 * (n * L)^{0.8}] / [P^{0.5} * S^{0.4} C] \quad (\text{ref. NRCS Kinematic Eq.})$$

where

n = Manning's Roughness Coefficient (unitless)

L = Flow Length (ft)

P = 2-Yr, 24-Hr Precipitation (in)

S = Slope of Hydraulic Grade Line (ft/ft)

Time of Concentration (Tc): Shallow Concentrated or Open Channel Flow

$$T_c = L / v \quad (\text{ref. NRCS TR-55})$$

where

L = Flow Length (ft)

v = Velocity (fps)

where

v = $16.1345 * (S)^{0.5}$ For Unpaved Areas

v = $20.3282 * (S)^{0.5}$ For Paved Areas

Solution:

Pre-Development Conditions

$$T_c = [0.007 * (n * L)^{0.8}] / [P^{0.5} * S^{0.4} C]$$

$$= [0.007 * (.025 * 91)^{0.8}] / [1.47^{0.5} * .044^{0.4} C]$$

0.04 hr (Sheet Flow)

139.94 seconds

$$T_c = \text{Length (ft)} / \text{Velocity (fps)}$$

$$v = 16.1345 * (0.02)^{0.5}$$

2.28 fps (Unpaved)

$$L = 299 \text{ ft}$$

$$T_c = 131.04 \text{ seconds}$$

$$T_c (\text{total}) = 270.98 \text{ seconds}$$

$$= 4.52 \text{ minutes} \quad (\text{use 10-min for undeveloped})$$

$$= \underline{\underline{0.08 \text{ hours}}}$$

Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135

Time of Concentration: Peak Flow Analysis

Solution (Cont): For Tc = 10.0 minutes. Intensities are as follows:

Event	2-Yr	5-Yr	25-Yr	100-Yr
Intensity	1.12	1.49	2.44	3.60

<i>Rational Method - Pre Development</i>					
Storm Event	Run-Off Coefficient E'E	Rainfall Intensity E _c E	Drainage Area 'A'	Peak Flow E2E	Req'd Volume 'Vol' (ft ³)
2	0.35	1.12	3.84	1.51	407.9
	0.35	1.49	3.84	2.00	542.7
25	0.35	2.44	3.84	3.28	888.6
100	0.35	3.60	3.84	4.84	1,311.1

<i>Culvert Flowing into Channel 1</i>	
Material	CMP
Diameter	1
Slope	J
Max Flow	6.12 CFS

<i>Channel 1 + 18" Culvert</i>					
Storm Event	Run-Off Coefficient E'E	Rainfall Intensity E _c E	Drainage Area 'A'	Peak Flow E2E	Req'd Volume 'Vol' (ft ³)
2	0.35	1.12	3.84	7.63	2,066.3
	0.35	1.49	3.84	8.12	2,201.1
25	0.35	2.44	3.84	9.40	2,547.0
100	0.35	3.60	3.84	10.96	2,969.5

Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135

Time of Concentration: Peak Flow Analysis

CHANNEL 2

Find: Pre- & Post-Development Peak flows & Storage volumes for the following storm events

- a. 2-Year
- b. 5-Year
- c. 25-Year
- f. 100-Year

Given: Total Property Area = 5.06 acres
Impervious Area = 0.00 acres
Remaining Area = 5.06 acres

Assumptions: Run-off coefficients are as follows:

- C = 0.35 for existing unpaved conditions
- C = 0.95 for impervious surfaces (asphalt & concrete)

Equations: General equations are as follows:

Rational Method:

$$Q = C * I * A$$

where

- Q = Peak Flow (cfs)
- C = Run-Off Coefficient (unitless)
- I = Rainfall Intensity (in/hr)
- A = Drainage Area (acres)

Intensities are obtained from the Time of Concentration, in conjunction with the National Weather Service, NOAA Atlas 14.

Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135

Time of Concentration: Peak Flow Analysis
Equations (Cont):

Time of Concentration (Tc): Sheet Flow Only

$$T_c = \frac{[0.007 * (n * L)^{0.8}]}{[P^{0.5} * S^{0.4}C]} \quad (\text{ref. NRCS Kinematic Eq.})$$

where

- n = Manning's Roughness Coefficient (unitless)
- L = Flow Length (ft)
- P = 2-Yr, 24-Hr Precipitation (in)
- S = Slope of Hydraulic Grade Line (ft/ft)

Time of Concentration (Tc): Shallow Concentrated or Open Channel Flow

$$T_c = L / v \quad (\text{ref. NRCS TR-55})$$

where

- L = Flow Length (ft)
- v = Velocity (fps)

where

- v = $16.1345 * (S)^{0.5}$ For Unpaved Areas
- v = $20.3282 * (S)^{0.5}$ For Paved Areas

Solution:

Pre-Development Conditions

$$T_c = \frac{[0.007 * (n * L)^{0.8}]}{[P^{0.5} * S^{0.4}C]}$$

$$\frac{[0.007 * (.025 * 69)^{0.8}]}{[1.47^{0.5} * .049^4 C]}$$

0.03 hr (Sheet Flow)

107.42 seconds

$$T_c = \frac{\text{Length (ft)}}{\text{Velocity (fps)}}$$

$$v = \frac{16.1345 * (0.034)^{0.5}}{2.98 \text{ fps}} \quad (\text{Unpaved})$$

$$L = 297 \text{ ft}$$

$$T_c = 99.83 \text{ seconds}$$

$$T_c (\text{total}) = \begin{array}{l} 207.25 \text{ seconds} \\ 3.45 \text{ minutes} \\ 0.06 \text{ hours} \end{array} \quad (\text{use 10-min for undeveloped})$$

**Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135**

Time of Concentration: Peak Flow Analysis

Solution (Cont): For Tc = 10.0 minutes. Intensities are as follows:

Event	2-Yr	5-Yr	25-Yr	100-Yr
Intensity	1.12	1.49	2.44	3.60

<i>Rational Method - Pre Development</i>					
Storm Event	Run-Off Coefficient E/E	Rainfall Intensity E _c E	Drainage Area 'A'	Peak Flow E2E	Req'd Volume 'Vol' (ft ³)
2	0.35	1.12	5.06	1.98	411.1
	0.35	1.49	5.06	2.64	546.9
25	0.35	2.44	5.06	4.32	895.6
100	0.35	3.60	5.06	6.38	1,321.4

<i>Culvert Flowing into Channel 2</i>	
Material	CMP
Diameter	I
Slope	J
Max Flow	3.76 CMP

<i>Channel 2 + 15" Culvert</i>					
Storm Event	Run-Off Coefficient E/E	Rainfall Intensity E _c E	Drainage Area 'A'	Peak Flow E2E	Req'd Volume 'Vol' (ft ³)
2	0.35	1.12	3.84	5.74	1,190.4
	0.35	1.49	3.84	6.40	1,326.2
25	0.35	2.44	3.84	8.08	1,674.9
100	0.35	3.60	3.84	10.14	2,100.6

Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135

Time of Concentration: Peak Flow Analysis

CHANNEL 3

Find: Pre- & Post-Development Peak flows & Storage volumes for the following storm events

- a. 2-Year
- b. 5-Year
- c. 25-Year
- f. 100-Year

Given: Total Property Area = 2.16 acres
Impervious Area = 0.00 acres
Remaining Area = 2.16 acres

Assumptions: Run-off coefficients are as follows:
C = 0.35 for existing unpaved conditions
C = 0.95 for impervious surfaces (asphalt & concrete)

Equations: General equations are as follows:

Rational Method:

$$Q = C * I * A$$

where

- Q = Peak Flow (cfs)
- C = Run-Off Coefficient (unitless)
- I = Rainfall Intensity (in/hr)
- A = Drainage Area (acres)

Intensities are obtained from the Time of Concentration, in conjunction with the National Weather Service, NOAA Atlas 14.

**Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135**

**Time of Concentration: Peak Flow Analysis
Equations (Cont):**

Time of Concentration (Tc): Sheet Flow Only

$$T_c = \frac{[0.007 * (n * L)^{0.8}]}{[P^{0.5} * S^{0.4} C]} \quad (\text{ref. NRCS Kinematic Eq.})$$

where

- n = Manning's Roughness Coefficient (unitless)
- L = Flow Length (ft)
- P = 2-Yr, 24-Hr Precipitation (in)
- S = Slope of Hydraulic Grade Line (ft/ft)

Time of Concentration (Tc): Shallow Concentrated or Open Channel Flow

$$T_c = L / v \quad (\text{ref. NRCS TR-55})$$

where

- L = Flow Length (ft)
- v = Velocity (fps)

where

- v = 16.1345 * (S)^{0.5} For Unpaved Areas
- v = 20.3282 * (S)^{0.5} For Paved Areas

Solution:

Pre-Development Conditions

$$T_c = \frac{[0.007 * (n * L)^{0.8}]}{[P^{0.5} * S^{0.4} C]}$$

$$\frac{[0.007 * (.025 * 83)^{0.8}]}{[1.47^{0.5} * .05^4 C]}$$

0.03 hr (Sheet Flow)

123.53 seconds

$$T_c = \text{Length (ft)} / \text{Velocity (fps)}$$

$$v = \frac{16.1345 * (0.029)^{0.5}}{2.75} \quad \text{fps} \quad (\text{Unpaved})$$

$$L = 278 \quad \text{ft}$$

$$T_c = 101.18 \quad \text{seconds}$$

$$T_c (\text{total}) = \begin{array}{ll} 224.71 & \text{seconds} \\ 3.75 & \text{minutes} \\ 0.06 & \text{hours} \end{array} \quad (\text{use 10-min for undeveloped})$$

**Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135**

Time of Concentration: Peak Flow Analysis

Solution (Cont): For Tc = 10.0 minutes. Intensities are as follows:

Event	2-Yr	5-Yr	25-Yr	100-Yr
Intensity	1.12	1.49	2.44	3.60

<i>Rational Method - Pre Development</i>					
Storm Event	Run-Off Coefficient E/E	Rainfall Intensity E _c E	Drainage Area 'A'	Peak Flow E2E	Req'd Volume 'Vol' (ft ³)
2	0.35	1.12	2.16	0.85	190.3
	0.35	1.49	2.16	1.13	253.1
25	0.35	2.44	2.16	1.84	414.5
100	0.35	3.60	2.16	2.72	611.6

Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135

Time of Concentration: Peak Flow Analysis

CHANNEL 4

Find: Pre- & Post-Development Peak flows & Storage volumes for the following storm events

- a. 2-Year
- b. 5-Year
- c. 25-Year
- f. 100-Year

Given: Total Property Area = 1.48 acres
Impervious Area = 0.00 acres
Remaining Area = 1.48 acres

Assumptions: Run-off coefficients are as follows:
C = 0.35 for existing unpaved conditions
C = 0.95 for impervious surfaces (asphalt & concrete)

Equations: General equations are as follows:

Rational Method:

$$Q = C * I * A$$

where

- Q = Peak Flow (cfs)
- C = Run-Off Coefficient (unitless)
- I = Rainfall Intensity (in/hr)
- A = Drainage Area (acres)

Intensities are obtained from the Time of Concentration, in conjunction with the National Weather Service, NOAA Atlas 14.

**Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135**

**Time of Concentration: Peak Flow Analysis
Equations (Cont):**

Time of Concentration (Tc): Sheet Flow Only

$$T_c = \frac{[0.007 * (n * L)^{0.8}]}{[P^{0.5} * S^{0.4} C]} \quad (\text{ref. NRCS Kinematic Eq.})$$

where

n = Manning's Roughness Coefficient (unitless)

L = Flow Length (ft)

P = 2-Yr, 24-Hr Precipitation (in)

S = Slope of Hydraulic Grade Line (ft/ft)

Time of Concentration (Tc): Shallow Concentrated or Open Channel Flow

$$T_c = L / v \quad (\text{ref. NRCS TR-55})$$

where

L = Flow Length (ft)

v = Velocity (fps)

where

$$v = 16.1345 * (S)^{0.5} \quad \text{For Unpaved Areas}$$

$$v = 20.3282 * (S)^{0.5} \quad \text{For Paved Areas}$$

Solution:

Pre-Development Conditions

$$T_c = \frac{[0.007 * (n * L)^{0.8}]}{[P^{0.5} * S^{0.4} C]}$$

$$\frac{[0.007 * (.025 * 77)^{0.8}]}{[1.47^{0.5} * .065^4 C]}$$

0.03 hr (Sheet Flow)

104.74 seconds

$$T_c = \text{Length (ft)} / \text{Velocity (fps)}$$

$$v = \frac{16.1345 * (0.044)^{0.5}}{3.38 \text{ fps}} \quad (\text{Unpaved})$$

$$L = 272 \text{ ft}$$

$$T_c = 80.37 \text{ seconds}$$

$$T_c (\text{total}) = \begin{array}{ll} 185.11 & \text{seconds} \\ 3.09 & \text{minutes} \\ 0.05 & \text{hours} \end{array} \quad (\text{use 10-min for undeveloped})$$

**Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - Off Site Drainage
Project No. 18-135**

Time of Concentration: Peak Flow Analysis

Solution (Cont): For Tc = 10.0 minutes. Intensities are as follows:

Event	2-Yr	5-Yr	25-Yr	100-Yr
Intensity	1.12	1.49	2.44	3.60

<i>Rational Method - Pre Development</i>					
Storm Event	Run-Off Coefficient E/E	Rainfall Intensity E _i E	Drainage Area 'A'	Peak Flow E2E	Req'd Volume 'Vol' (ft ³)
2	0.35	1.12	1.48	0.58	107.4
	0.35	1.49	1.48	0.77	142.9
25	0.35	2.44	1.48	1.26	234.0
100	0.35	3.60	1.48	1.86	345.2

Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - On Site Pre Development
Project No. 18-135

Time of Concentration: Peak Flow Analysis

Find: Pre- & Post-Development Peak flows & Storage volumes for the following storm events

- a. 2-Year
- b. 5-Year
- c. 25-Year
- f. 100-Year

Given: Total Property Area = 38.61 acres
Impervious Area = 0.00 acres
Remaining Area = 38.61 acres

Assumptions: Run-off coefficients are as follows:

- C = 0.35 for existing unpaved conditions
- C = 0.95 for impervious surfaces (asphalt & concrete)

Equations: General equations are as follows:

Rational Method:

$$Q = C * I * A$$

where

- Q = Peak Flow (cfs)
- C = Run-Off Coefficient (unitless)
- I = Rainfall Intensity (in/hr)
- A = Drainage Area (acres)

Intensities are obtained from the Time of Concentration, in conjunction with the National Weather Service, NOAA Atlas 14.

SS - Peak Flow & Vol. Calculations
Drainage Study - On Site Pre Development
Project No. 18-135

Time of Concentration: Peak Flow Analysis

Equations (Cont):

Time of Concentration (Tc): Sheet Flow Only

$$T_c = [0.007 * (n * L)^{0.8}] / [P^{0.5} * S^{0.4}] \quad (\text{ref. NRCS Kinematic Eq.})$$

where

n = Manning's Roughness Coefficient (unitless)

L = Flow Length (ft)

P = 2-Yr, 24-Hr Precipitation (in)

S = Slope of Hydraulic Grade Line (ft/ft)

Time of Concentration (Tc): Shallow Concentrated or Open Channel Flow

$$T_c = L / v \quad (\text{ref. NRCS TR-55})$$

where

L = Flow Length (ft)

v = Velocity (fps)

where

v = 16.1345 * (S)^{0.5} For Unpaved Areas

v = 20.3282 * (S)^{0.5} For Paved Areas

Solution:

Pre-Development Conditions

$$T_c = [0.007 * (n * L)^{0.8}] / [P^{0.5} * S^{0.4}]$$

$$= [0.007 * (.025 * 175)^{0.8}] / [1.47^{0.5} * .005^{0.4}]$$

0.16 hr (Sheet Flow)

563.56 seconds

$$T_c = \text{Length (ft)} / \text{Velocity (fps)}$$

$$v = 16.1345 * (0.021)^{0.5}$$

2.34 fps (Unpaved)

$$L = 967 \text{ ft}$$

$$T_c = 413.58 \text{ seconds}$$

$$T_c (\text{total}) = 977.14 \text{ seconds}$$

$$16.29 \text{ minutes}$$

$$\underline{\underline{0.27 \text{ hours}}}$$

SS - Peak Flow & Vol. Calculations
Drainage Study - On Site Pre Development
Project No. 18-135

Time of Concentration: Peak Flow Analysis

Solution (Cont): For Tc = 15.0 minutes. Intensities are as follows:

Event	2-Yr	5-Yr	25-Yr	100-Yr
Intensity	0.92	1.23	2.01	2.98

<i>Rational Method - Pre Development</i>					
Storm Event	Run-Off Coefficient 'C'	Rainfall Intensity 'I'	Drainage Area 'A'	Peak Flow 'Q'	Req'd Volume 'Vol' (ft ³)
2	0.35	0.92	38.61	12.49	12,201.0
5	0.35	1.23	38.61	16.62	16,241.6
25	0.35	2.01	38.61	27.16	26,541.1
100	0.35	2.98	38.61	40.27	39,349.5

Sierra Skies RV Park (SS)
Peak Flow & Vol. Calculations
Drainage Study - On Site Post Development
Project No. 18-135

Time of Concentration: Peak Flow Analysis

Find: Pre- & Post-Development Peak flows & Storage volumes for the following storm events

- a. 2-Year
- b. 5-Year
- c. 25-Year
- f. 100-Year

Given: Total Property Area = 38.61 acres
Impervious Area = 23.13 acres
Remaining Area = 15.48 acres

Assumptior Run-off coefficients are as follows:

C = 0.35 for existing unpaved conditions
C = 0.95 for impervious surfaces (asphalt & concrete)

Equations: General equations are as follows:

Rational Method:

$$Q = C * I * A$$

where

Q = Peak Flow (cfs)
C = Run-Off Coefficient (unitless)
I = Rainfall Intensity (in/hr)
A = Drainage Area (acres)

Intensities are obtained from the Time of Concentration, in conjunction with the National Weather Service, NOAA Atlas 14.

SS - Peak Flow & Vol. Calculations
Drainage Study - On Site Post Development
Project No. 18-135

Time of Concentration: Peak Flow Analysis
Equations (Cont):

Time of Concentration (Tc): Sheet Flow Only

$$T_c = \frac{[0.007 * (n * L)^{0.8}]}{[P^{0.5} * S^{0.4}]} \quad (\text{ref. NRCS Kinematic Eq.})$$

where

- n = Manning's Roughness Coefficient (unitless)
- L = Flow Length (ft)
- P = 2-Yr, 24-Hr Precipitation (in)
- S = Slope of Hydraulic Grade Line (ft/ft)

Time of Concentration (Tc): Shallow Concentrated or Open Channel Flow

$$T_c = L / v \quad (\text{ref. NRCS TR-55})$$

where

- L = Flow Length (ft)
- v = Velocity (fps)

where

- v = $16.1345 * (S)^{0.5}$ For Unpaved Areas
- v = $20.3282 * (S)^{0.5}$ For Paved Areas

Solution: *Post-Development Conditions*

$$T_c = \frac{[0.007 * (n * L)^{0.8}]}{[P^{0.5} * S^{0.4}]}$$

$$\frac{[0.007 * (.025 * 95)^{0.8}]}{[1.47^{0.5} * .02^{0.4}]}$$

0.06 hr (Sheet Flow)

198.55 seconds

$$T_c = \text{Length (ft)} / \text{Velocity (fps)}$$

$$v = \frac{20.3282 * (0.015)^{0.5}}{2.49 \text{ fps}} \quad (\text{Paved})$$

$$L = 610 \text{ ft}$$

$$T_c = 245.01 \text{ seconds}$$

$$T_c (\text{total}) = 443.56 \text{ seconds}$$

$$7.39 \text{ minutes}$$

$$\underline{\underline{0.12 \text{ hours}}}$$

SS - Peak Flow & Vol. Calculations
Drainage Study - On Site Post Development
Project No. 18-135

Time of Concentration: Peak Flow Analysis

Solution (C For Tc = 10.0 minutes. Intensities are as follows:

Event	2-Yr	5-Yr	25-Yr	100-Yr
Intensity	1.12	1.49	2.44	3.60

<i>Rational Method - Post Development</i>					
Storm Event	Run-Off Coefficient 'C'	Rainfall Intensity 'I'	Drainage Area 'A'	Peak Flow 'Q'	Req'd Volume 'Vol' (ft ³)
2	0.71	1.12	38.61	30.70	13,618.4
5	0.71	1.49	38.61	40.85	18,117.3
25	0.71	2.44	38.61	66.89	29,668.6
100	0.71	3.60	38.61	98.69	43,773.3

Appendix B: Exhibits

Soil Resource Report and Map

FEMA FIRMette

Draft Flood Changes

Goni Restudy and Remapping (map)

Precipitation Frequency Data

Existing Drainage Map

Proposed Drainage Map



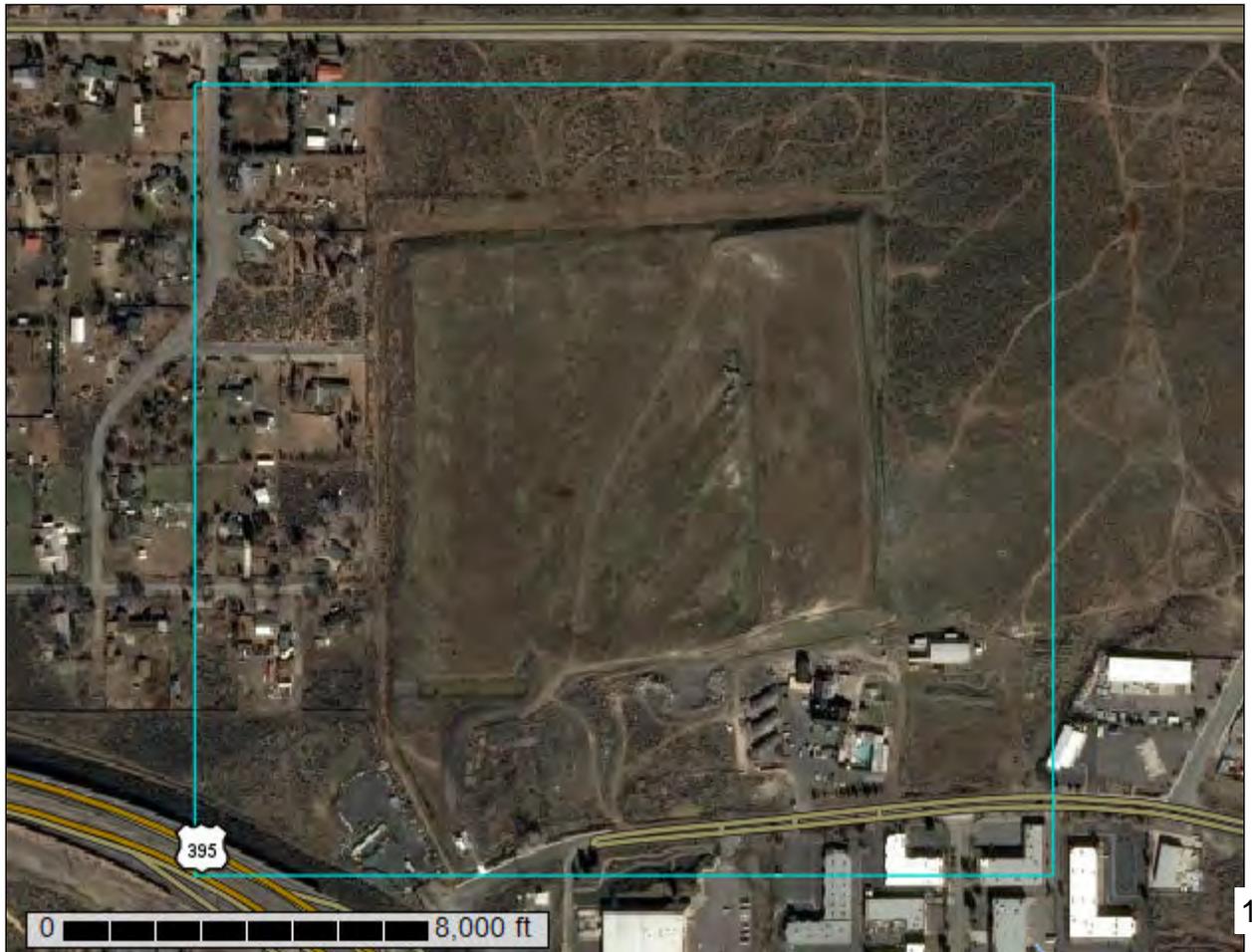
United States
Department of
Agriculture

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**



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 (<https://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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

Preface	2
How Soil Surveys Are Made	5
Soil Map	8
Soil Map.....	9
Legend.....	10
Map Unit Legend.....	11
Map Unit Descriptions.....	11
Carson City Area, Nevada.....	13
4—Bishop loam, saline.....	13
25—Haybourne sandy loam, 0 to 2 percent slopes.....	14
35—Indiano variant gravelly fine sandy loam, 4 to 15 percent slopes.....	15
58—Surpass coarse sandy loam, 2 to 4 percent slopes MLRA 26.....	16
74—Vamp fine sandy loam, slightly saline-alkali.....	18
References	20

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

Custom Soil Resource Report

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 Scale: 1:5,230 if printed on A landscape (11" x 8.5") sheet.

0 50 100 200 300 Meters

0 250 500 1000 1500 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84



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:
 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 11, Oct 6, 2017

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

Date(s) aerial images were photographed: Data not available.

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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
4	Bishop loam, saline	20.1	19.6%
25	Haybourne sandy loam, 0 to 2 percent slopes	0.1	0.1%
35	Indiano variant gravelly fine sandy loam, 4 to 15 percent slopes	37.2	36.2%
58	Surpass coarse sandy loam, 2 to 4 percent slopes MLRA 26	35.1	34.1%
74	Vamp fine sandy loam, slightly saline-alkali	10.3	10.0%
Totals for Area of Interest		102.8	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.

Custom Soil Resource Report

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

25—Haybourne sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2nnp2
Elevation: 4,600 to 4,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 100 to 110 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

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

Description of Haybourne

Setting

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

Typical profile

H1 - 0 to 6 inches: sandy loam
H2 - 6 to 25 inches: sandy loam
H3 - 25 to 60 inches: stratified gravelly coarse sand to fine sandy loam

Properties and qualities

Slope: 0 to 2 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
Calcium carbonate, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 6c

Custom Soil Resource Report

Hydrologic Soil Group: A
Ecological site: SANDY 8-10 P.Z. (R026XY020NV)
Hydric soil rating: No

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—Surpass coarse sandy loam, 2 to 4 percent slopes MLRA 26

Map Unit Setting

National map unit symbol: 2w4dx
Elevation: 4,590 to 5,250 feet
Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 48 to 52 degrees F
Frost-free period: 90 to 120 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Surpass and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Surpass

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

A - 0 to 14 inches: coarse sandy loam
Bw - 14 to 26 inches: gravelly sandy loam
C - 26 to 66 inches: gravelly loamy sand

Properties and qualities

Slope: 2 to 4 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: 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
Calcium carbonate, maximum in profile: 1 percent
Salinity, maximum in profile: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water storage in profile: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: LOAMY 10-12 P.Z. (R026XY010NV)
Hydric soil rating: No

Minor Components

Holbrook

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: LOAMY 8-10 P.Z. (R026XY016NV)
Hydric soil rating: No

Koontz

Percent of map unit: 4 percent
Landform: Hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: SHALLOW LOAM 10-12 P.Z. (R026XY015NV)
Hydric soil rating: No

Greenbrae

Percent of map unit: 3 percent
Landform: Fan remnants
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: LOAMY 8-10 P.Z. (R026XY016NV)
Hydric soil rating: No

Mottsville

Percent of map unit: 2 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: GRANITIC FAN 10-12 P.Z. (R026XY008NV)
Hydric soil rating: No

Incy

Percent of map unit: 1 percent
Landform: Dunes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: SANDY 8-10 P.Z. (R026XY020NV)
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

Custom Soil Resource Report

References

- American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.
- American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.
- Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.
- Federal Register. July 13, 1994. Changes in hydric soils of the United States.
- Federal Register. September 18, 2002. Hydric soils of the United States.
- Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.
- National Research Council. 1995. Wetlands: Characteristics and boundaries.
- Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262
- Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577
- Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580
- Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.
- United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.
- United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374
- United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084>

Custom Soil Resource Report

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

National Flood Hazard Layer FIRMette



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) <i>Zone A, V, A99</i>
		With BFE or Depth <i>Zone AE, AO, AH, VE, AR</i>
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile <i>Zone X</i>
		Future Conditions 1% Annual Chance Flood Hazard <i>Zone X</i>
		Area with Reduced Flood Risk due to Levee. See Notes. <i>Zone X</i>
		Area with Flood Risk due to Levee <i>Zone D</i>
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard <i>Zone X</i>
		Effective LOMRs
GENERAL STRUCTURES		Area of Undetermined Flood Hazard <i>Zone D</i>
		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **8/21/2018 at 6:51:00 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

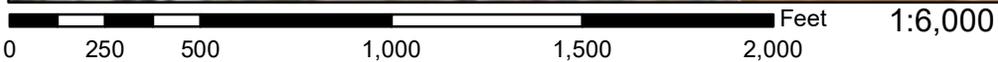
39°11'55.81"N



119°45'34.70"W

119°44'57.24"W

USGS The National Map: Orthoimagery. Data refreshed October 2017.



39°11'27.93"N





Coordinate System: NAD 1983 StatePlane Nevada West FIPS 2703 Feet
 Projection: Transverse Mercator
 Datum: North American 1983
 False Easting: 2,624,666.6667
 False Northing: 13,123,333.3333
 Central Meridian: -118.5833
 Scale Factor: 0.9999
 Latitude Of Origin: 34.7500
 Units: Foot US

Legend

- FLO-2D Boundary
- FlowPaths
- Flow Locations

100-year, 24-hour Max Flow Depth, ft

	< 0.50
	0.51 - 1.00
	1.01 - 2.00
	2.01 - 4.00
	4.01 - 6.00
	6.01 - 8.00
	8.01 - 10.00
	10.01 - 15.00
	15.01 - 23.99

MBI JOB NO.:
159376

8/10/2017

1 inch = 1,200 feet

Page 1 of 2

Flow Depths and Discharge
100-year, 24-hour
Goni Canyon Creek
Carson City, NV



Michael Baker International
 2929 North Central Ave. Suite 218
 Phoenix, AZ 85012
 Phone: 602-279-1234
 Fax: 602-279-1411



NOAA Atlas 14, Volume 1, Version 5
Location name: Carson City, Nevada, USA*
Latitude: 39.1947°, Longitude: -119.74°
Elevation: 4707.02 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 (0.106-0.145)	0.163 (0.140-0.194)	0.203 (0.172-0.240)	0.267 (0.220-0.316)	0.325 (0.259-0.387)	0.394 (0.305-0.475)	0.478 (0.354-0.586)	0.610 (0.426-0.764)	0.730 (0.485-0.931)
10-min	0.150 (0.129-0.177)	0.186 (0.162-0.221)	0.249 (0.213-0.295)	0.308 (0.262-0.365)	0.406 (0.335-0.481)	0.495 (0.395-0.590)	0.600 (0.463-0.723)	0.727 (0.538-0.891)	0.928 (0.648-1.16)	1.11 (0.739-1.42)
15-min	0.186 (0.160-0.220)	0.231 (0.201-0.274)	0.308 (0.265-0.366)	0.383 (0.325-0.452)	0.502 (0.414-0.596)	0.613 (0.489-0.731)	0.744 (0.574-0.897)	0.901 (0.668-1.11)	1.15 (0.804-1.44)	1.38 (0.916-1.76)
30-min	0.250 (0.215-0.295)	0.311 (0.269-0.369)	0.415 (0.356-0.493)	0.515 (0.438-0.609)	0.677 (0.558-0.802)	0.826 (0.659-0.985)	1.00 (0.773-1.21)	1.21 (0.899-1.49)	1.55 (1.08-1.94)	1.85 (1.23-2.37)
60-min	0.309 (0.266-0.366)	0.385 (0.334-0.456)	0.514 (0.441-0.610)	0.637 (0.541-0.753)	0.838 (0.691-0.993)	1.02 (0.816-1.22)	1.24 (0.957-1.50)	1.50 (1.11-1.84)	1.92 (1.34-2.40)	2.29 (1.53-2.93)
2-hr	0.415 (0.369-0.475)	0.515 (0.457-0.590)	0.656 (0.579-0.750)	0.781 (0.681-0.893)	0.970 (0.824-1.11)	1.14 (0.945-1.32)	1.33 (1.07-1.56)	1.56 (1.22-1.86)	1.96 (1.46-2.43)	2.33 (1.68-2.96)
3-hr	0.496 (0.444-0.559)	0.619 (0.556-0.699)	0.776 (0.692-0.875)	0.905 (0.800-1.02)	1.09 (0.945-1.23)	1.24 (1.06-1.42)	1.42 (1.19-1.64)	1.64 (1.35-1.93)	2.01 (1.60-2.45)	2.36 (1.83-2.99)
6-hr	0.688 (0.617-0.769)	0.858 (0.771-0.964)	1.07 (0.953-1.19)	1.23 (1.09-1.38)	1.45 (1.27-1.64)	1.63 (1.41-1.84)	1.80 (1.53-2.07)	2.01 (1.67-2.33)	2.31 (1.87-2.72)	2.57 (2.04-3.08)
12-hr	0.907 (0.808-1.02)	1.14 (1.01-1.28)	1.43 (1.27-1.61)	1.67 (1.47-1.87)	1.98 (1.72-2.24)	2.21 (1.91-2.53)	2.46 (2.09-2.83)	2.71 (2.25-3.16)	3.05 (2.47-3.62)	3.31 (2.63-4.00)
24-hr	1.18 (1.07-1.30)	1.47 (1.34-1.63)	1.86 (1.69-2.06)	2.17 (1.97-2.40)	2.60 (2.34-2.88)	2.95 (2.63-3.26)	3.31 (2.92-3.68)	3.68 (3.22-4.11)	4.18 (3.61-4.71)	4.58 (3.90-5.21)
2-day	1.40 (1.26-1.58)	1.76 (1.58-1.98)	2.24 (2.01-2.52)	2.63 (2.35-2.95)	3.17 (2.81-3.57)	3.60 (3.17-4.07)	4.05 (3.54-4.61)	4.53 (3.91-5.19)	5.19 (4.40-6.00)	5.71 (4.78-6.69)
3-day	1.54 (1.38-1.74)	1.94 (1.73-2.19)	2.48 (2.22-2.80)	2.93 (2.60-3.30)	3.55 (3.13-4.01)	4.05 (3.55-4.59)	4.58 (3.97-5.21)	5.14 (4.41-5.88)	5.92 (4.99-6.85)	6.55 (5.44-7.66)
4-day	1.68 (1.50-1.90)	2.12 (1.89-2.40)	2.73 (2.42-3.09)	3.23 (2.86-3.65)	3.93 (3.46-4.45)	4.50 (3.92-5.11)	5.10 (4.41-5.82)	5.75 (4.90-6.58)	6.65 (5.57-7.69)	7.39 (6.09-8.63)
7-day	1.96 (1.74-2.21)	2.47 (2.20-2.80)	3.20 (2.85-3.62)	3.79 (3.36-4.28)	4.60 (4.05-5.22)	5.25 (4.59-5.97)	5.94 (5.14-6.77)	6.65 (5.71-7.62)	7.65 (6.46-8.86)	8.44 (7.03-9.87)
10-day	2.17 (1.92-2.44)	2.75 (2.44-3.11)	3.57 (3.17-4.03)	4.22 (3.73-4.76)	5.10 (4.47-5.76)	5.78 (5.05-6.56)	6.50 (5.63-7.39)	7.23 (6.21-8.26)	8.24 (6.98-9.51)	9.02 (7.55-10.5)
20-day	2.66 (2.38-2.98)	3.38 (3.02-3.79)	4.37 (3.91-4.89)	5.13 (4.57-5.73)	6.14 (5.44-6.86)	6.90 (6.08-7.73)	7.69 (6.72-8.65)	8.46 (7.35-9.56)	9.50 (8.16-10.8)	10.3 (8.74-11.8)
30-day	3.04 (2.72-3.40)	3.86 (3.46-4.32)	4.98 (4.46-5.56)	5.83 (5.20-6.50)	6.96 (6.18-7.76)	7.81 (6.89-8.73)	8.67 (7.60-9.74)	9.54 (8.29-10.8)	10.7 (9.17-12.2)	11.5 (9.83-13.2)
45-day	3.56 (3.20-3.96)	4.54 (4.07-5.03)	5.84 (5.24-6.47)	6.80 (6.09-7.52)	8.04 (7.17-8.90)	8.94 (7.95-9.93)	9.83 (8.70-10.9)	10.7 (9.41-11.9)	11.7 (10.3-13.2)	12.5 (10.8-14.1)
60-day	4.11 (3.68-4.58)	5.25 (4.70-5.84)	6.75 (6.04-7.50)	7.82 (6.99-8.67)	9.16 (8.17-10.2)	10.1 (8.99-11.3)	11.0 (9.77-12.3)	11.9 (10.5-13.3)	12.9 (11.3-14.5)	13.6 (11.9-15.3)

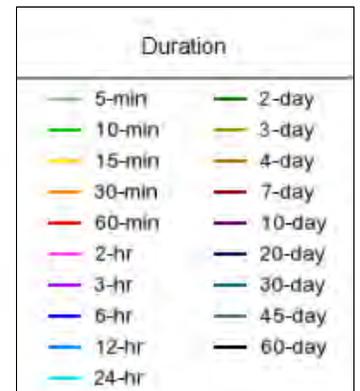
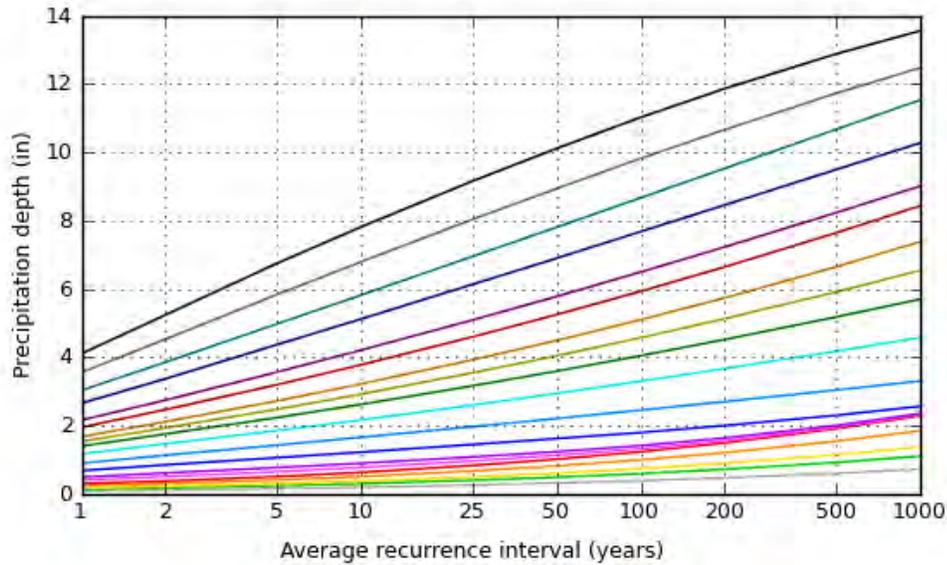
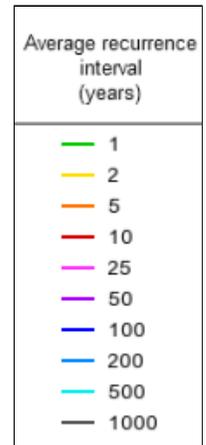
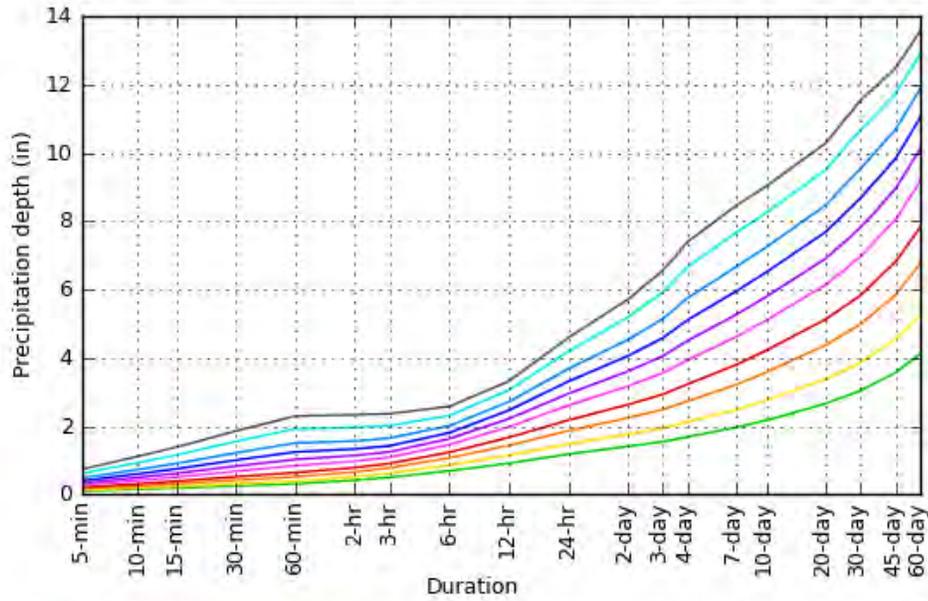
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average 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.

[Back to Top](#)

PF graphical

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

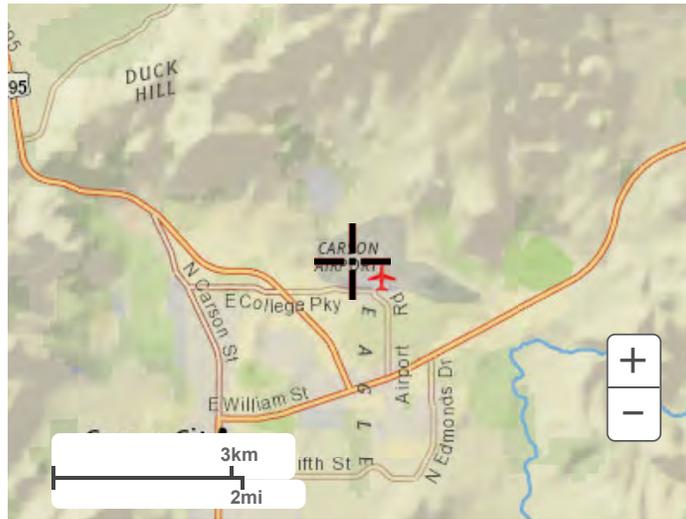
Latitude: 39.1947°, Longitude: -119.7400°



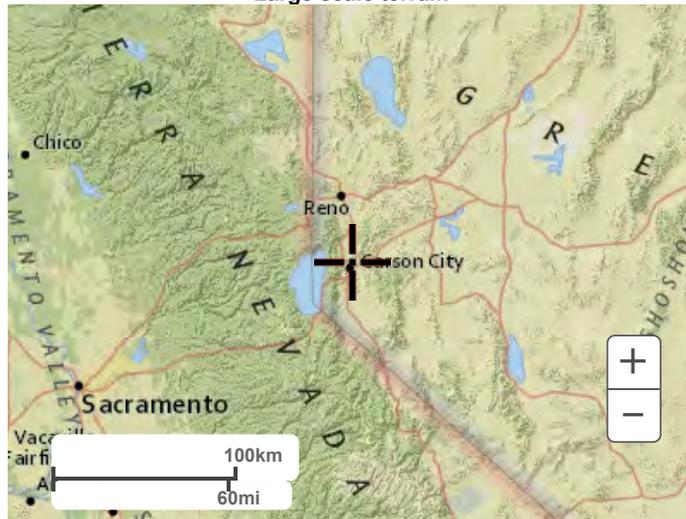
[Back to Top](#)

Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



[Back to Top](#)

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

[Disclaimer](#)



NOAA Atlas 14, Volume 1, Version 5
Location name: Carson City, Nevada, USA*
Latitude: 39.1947°, Longitude: -119.74°
Elevation: 4707.02 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 Tryppaluk, 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 (0.774-1.39)	1.46 (1.27-1.74)	1.96 (1.68-2.33)	2.44 (2.06-2.88)	3.20 (2.64-3.79)	3.90 (3.11-4.64)	4.73 (3.66-5.70)	5.74 (4.25-7.03)	7.32 (5.11-9.17)	8.76 (5.82-11.2)
10-min	0.900 (0.774-1.06)	1.12 (0.972-1.33)	1.49 (1.28-1.77)	1.85 (1.57-2.19)	2.44 (2.01-2.89)	2.97 (2.37-3.54)	3.60 (2.78-4.34)	4.36 (3.23-5.35)	5.57 (3.89-6.98)	6.66 (4.43-8.50)
15-min	0.744 (0.640-0.880)	0.924 (0.804-1.10)	1.23 (1.06-1.46)	1.53 (1.30-1.81)	2.01 (1.66-2.38)	2.45 (1.96-2.92)	2.98 (2.30-3.59)	3.60 (2.67-4.42)	4.60 (3.22-5.77)	5.51 (3.66-7.03)
30-min	0.500 (0.430-0.590)	0.622 (0.538-0.738)	0.830 (0.712-0.986)	1.03 (0.876-1.22)	1.35 (1.12-1.60)	1.65 (1.32-1.97)	2.00 (1.55-2.42)	2.43 (1.80-2.98)	3.10 (2.16-3.88)	3.71 (2.47-4.73)
60-min	0.309 (0.266-0.366)	0.385 (0.334-0.456)	0.514 (0.441-0.610)	0.637 (0.541-0.753)	0.838 (0.691-0.993)	1.02 (0.816-1.22)	1.24 (0.957-1.50)	1.50 (1.11-1.84)	1.92 (1.34-2.40)	2.29 (1.53-2.93)
2-hr	0.208 (0.184-0.238)	0.258 (0.228-0.295)	0.328 (0.290-0.375)	0.390 (0.340-0.446)	0.485 (0.412-0.556)	0.569 (0.472-0.660)	0.664 (0.537-0.780)	0.780 (0.610-0.928)	0.980 (0.732-1.21)	1.16 (0.840-1.48)
3-hr	0.165 (0.148-0.186)	0.206 (0.185-0.233)	0.258 (0.230-0.291)	0.301 (0.266-0.339)	0.362 (0.315-0.410)	0.414 (0.354-0.473)	0.473 (0.395-0.545)	0.547 (0.448-0.642)	0.669 (0.531-0.816)	0.786 (0.608-0.995)
6-hr	0.115 (0.103-0.128)	0.143 (0.129-0.161)	0.178 (0.159-0.199)	0.205 (0.183-0.230)	0.242 (0.213-0.273)	0.272 (0.235-0.308)	0.301 (0.256-0.345)	0.335 (0.279-0.389)	0.385 (0.312-0.454)	0.429 (0.341-0.515)
12-hr	0.075 (0.067-0.085)	0.095 (0.084-0.106)	0.119 (0.106-0.134)	0.138 (0.122-0.155)	0.164 (0.143-0.186)	0.184 (0.158-0.210)	0.204 (0.173-0.235)	0.225 (0.187-0.262)	0.253 (0.205-0.301)	0.275 (0.218-0.332)
24-hr	0.049 (0.044-0.054)	0.061 (0.056-0.068)	0.077 (0.070-0.086)	0.090 (0.082-0.100)	0.108 (0.098-0.120)	0.123 (0.110-0.136)	0.138 (0.122-0.153)	0.153 (0.134-0.171)	0.174 (0.150-0.196)	0.191 (0.163-0.217)
2-day	0.029 (0.026-0.033)	0.037 (0.033-0.041)	0.047 (0.042-0.052)	0.055 (0.049-0.061)	0.066 (0.059-0.074)	0.075 (0.066-0.085)	0.084 (0.074-0.096)	0.094 (0.082-0.108)	0.108 (0.092-0.125)	0.119 (0.100-0.139)
3-day	0.021 (0.019-0.024)	0.027 (0.024-0.030)	0.034 (0.031-0.039)	0.041 (0.036-0.046)	0.049 (0.044-0.056)	0.056 (0.049-0.064)	0.064 (0.055-0.072)	0.071 (0.061-0.082)	0.082 (0.069-0.095)	0.091 (0.075-0.106)
4-day	0.018 (0.016-0.020)	0.022 (0.020-0.025)	0.028 (0.025-0.032)	0.034 (0.030-0.038)	0.041 (0.036-0.046)	0.047 (0.041-0.053)	0.053 (0.046-0.061)	0.060 (0.051-0.069)	0.069 (0.058-0.080)	0.077 (0.063-0.090)
7-day	0.012 (0.010-0.013)	0.015 (0.013-0.017)	0.019 (0.017-0.022)	0.023 (0.020-0.025)	0.027 (0.024-0.031)	0.031 (0.027-0.036)	0.035 (0.031-0.040)	0.040 (0.034-0.045)	0.046 (0.038-0.053)	0.050 (0.042-0.059)
10-day	0.009 (0.008-0.010)	0.011 (0.010-0.013)	0.015 (0.013-0.017)	0.018 (0.016-0.020)	0.021 (0.019-0.024)	0.024 (0.021-0.027)	0.027 (0.023-0.031)	0.030 (0.026-0.034)	0.034 (0.029-0.040)	0.038 (0.031-0.044)
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 (0.011-0.014)	0.014 (0.013-0.016)	0.016 (0.014-0.018)	0.018 (0.015-0.020)	0.020 (0.017-0.023)	0.021 (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 (0.014-0.018)
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)	0.007 (0.007-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.009-0.011)	0.011 (0.009-0.012)	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)	0.005 (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)	0.009 (0.008-0.011)

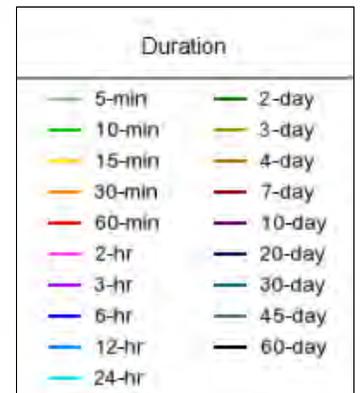
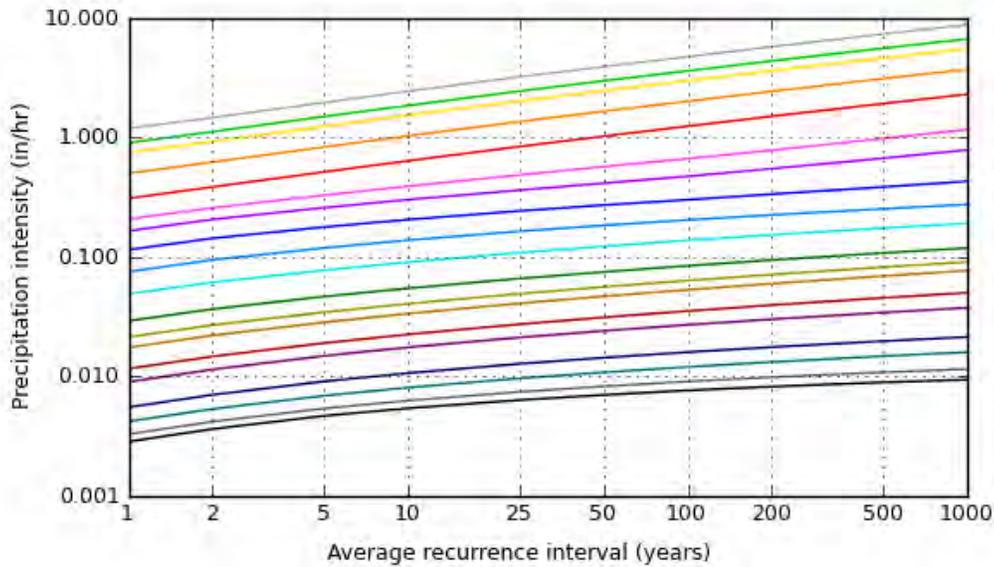
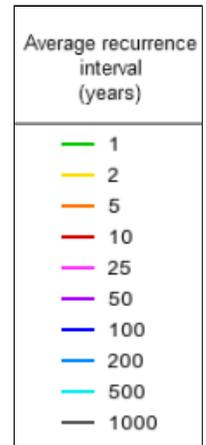
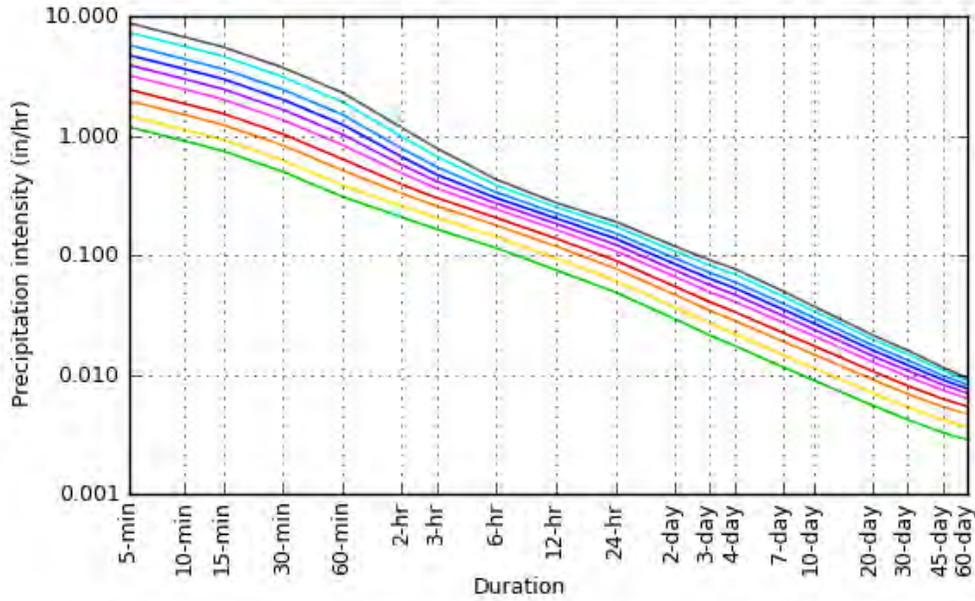
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and 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.

[Back to Top](#)

PF graphical

PDS-based intensity-duration-frequency (IDF) curves

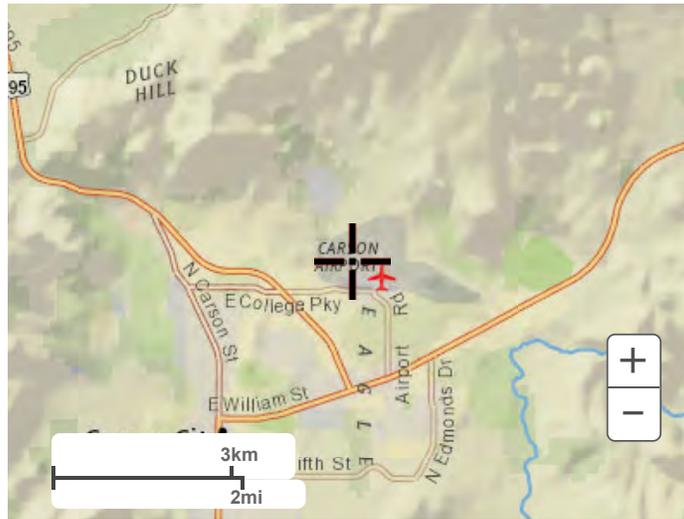
Latitude: 39.1947°, Longitude: -119.7400°



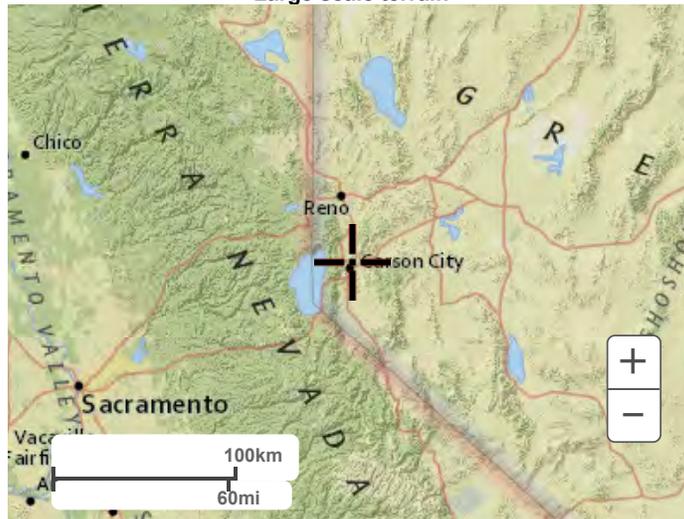
[Back to Top](#)

Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



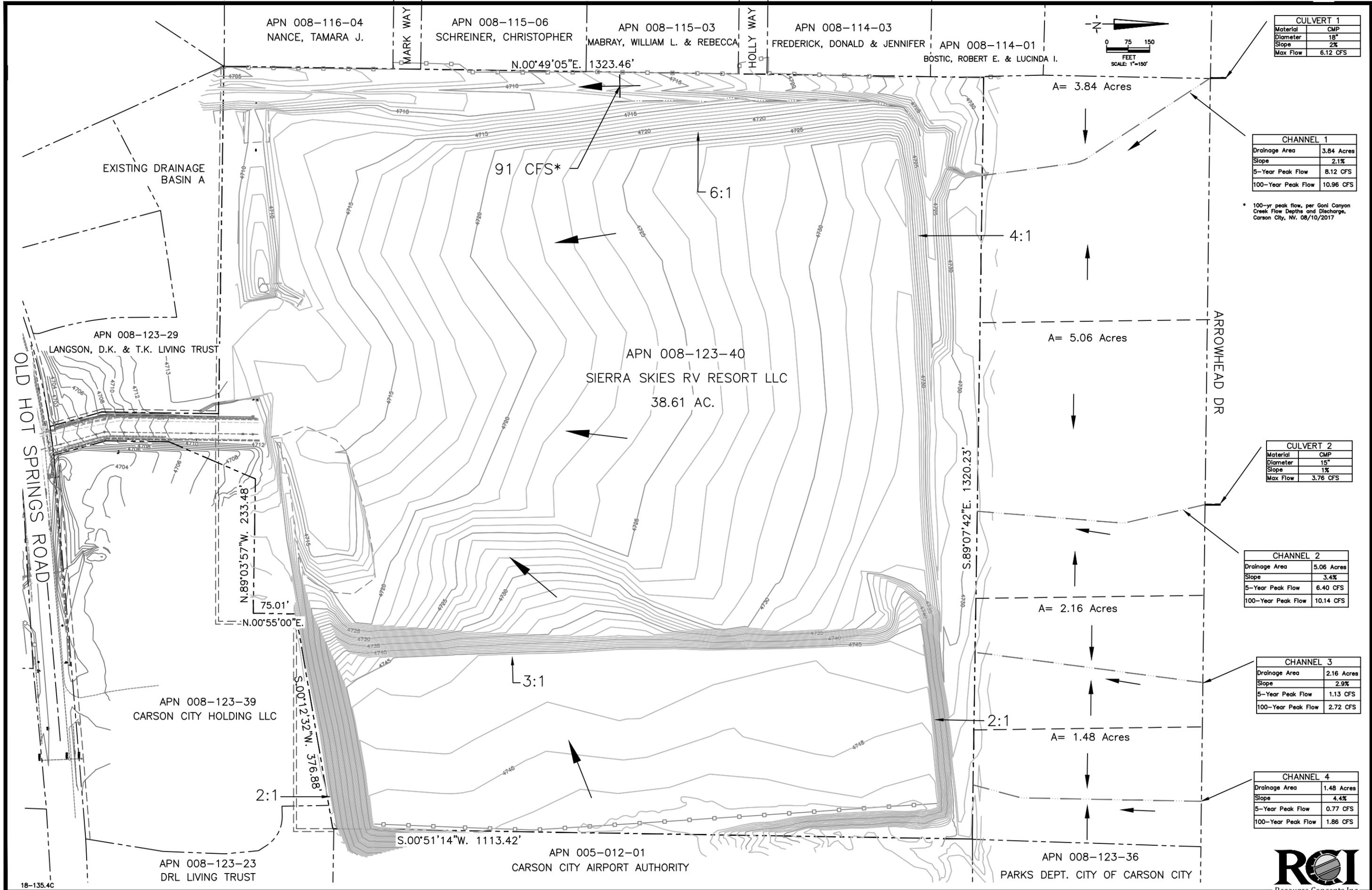
Large scale aerial



[Back to Top](#)

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

[Disclaimer](#)



CULVERT 1	
Material	CMP
Diameter	18"
Slope	2%
Max Flow	6.12 CFS

CHANNEL 1	
Drainage Area	3.84 Acres
Slope	2.1%
5-Year Peak Flow	8.12 CFS
100-Year Peak Flow	10.96 CFS

* 100-yr peak flow, per Goni Canyon Creek Flow Depths and Discharge, Carson City, NV, 08/10/2017

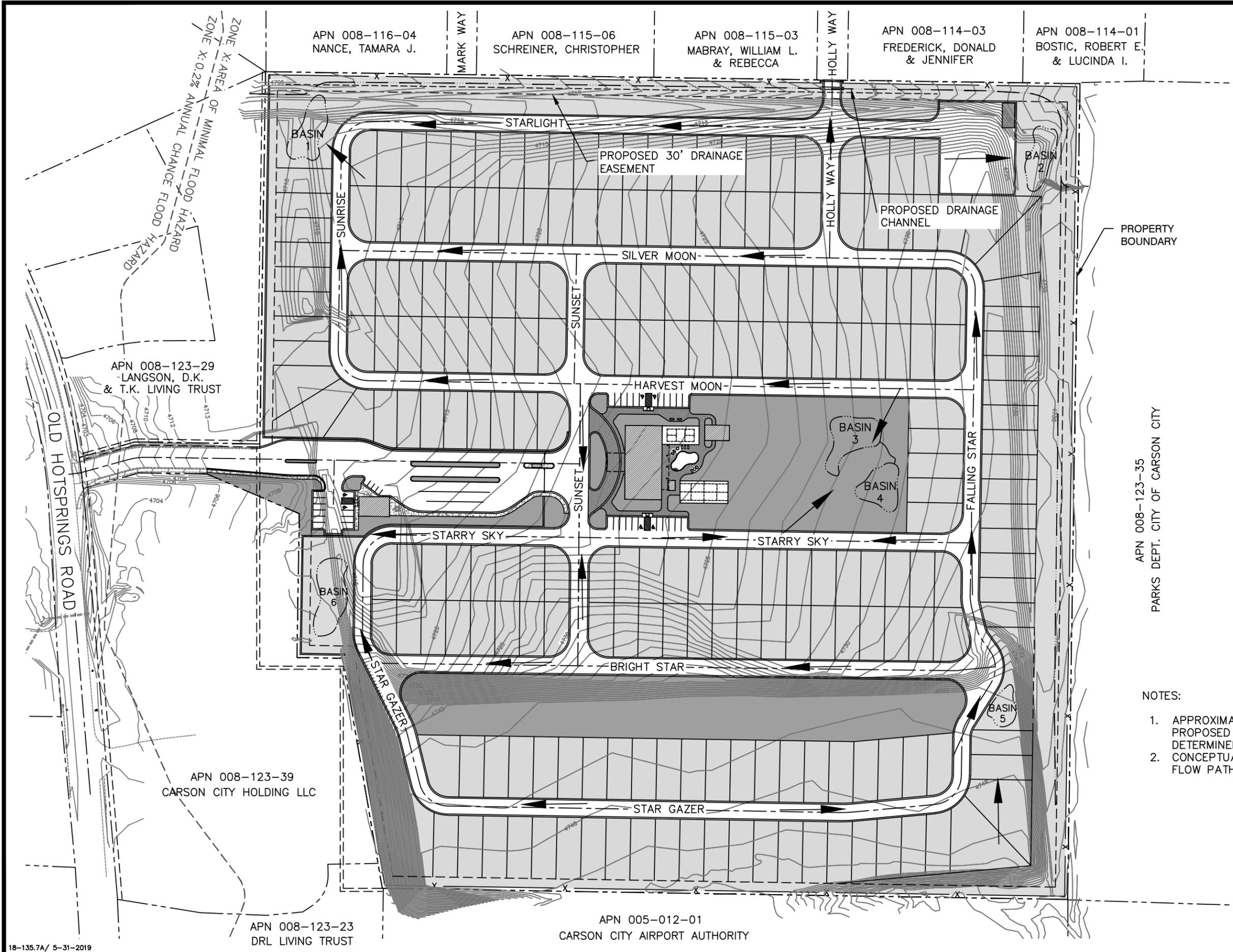
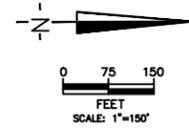
CULVERT 2	
Material	CMP
Diameter	15"
Slope	1%
Max Flow	3.76 CFS

CHANNEL 2	
Drainage Area	5.06 Acres
Slope	3.4%
5-Year Peak Flow	6.40 CFS
100-Year Peak Flow	10.14 CFS

CHANNEL 3	
Drainage Area	2.16 Acres
Slope	2.9%
5-Year Peak Flow	1.13 CFS
100-Year Peak Flow	2.72 CFS

CHANNEL 4	
Drainage Area	1.48 Acres
Slope	4.4%
5-Year Peak Flow	0.77 CFS
100-Year Peak Flow	1.86 CFS





APN 008-116-04
NANCE, TAMARA J.

APN 008-115-06
SCHREINER, CHRISTOPHER

APN 008-115-03
MABRAY, WILLIAM L.
& REBECCA

APN 008-114-03
FREDERICK, DONALD
& JENNIFER

APN 008-114-01
BOSTIC, ROBERT E.
& LUCINDA I.

APN 008-123-29
LANGSON, D.K.
& T.K. LIVING TRUST

APN 008-123-39
CARSON CITY HOLDING LLC

APN 008-123-23
DRL LIVING TRUST

APN 005-012-01
CARSON CITY AIRPORT AUTHORITY

PROPERTY
BOUNDARY

APN 008-123-35
PARKS DEPT. CITY OF CARSON CITY

NOTES:

1. APPROXIMATE FLOW PATHS ARE SHOWN. PROPOSED TOPOGRAPHY WILL BE DETERMINED DURING DESIGN.
2. CONCEPTUAL TIME OF CONCENTRATION FLOW PATHS SHOWN.

**GEOTECHNICAL INVESTIGATION REPORT
SIERRA SKIES RV RESORT
APN 08-922-28
CARSON CITY, NEVADA**

DECEMBER 2018

Prepared for:

**Mr. Roger Shaheen
Foxwood Almanor LLC
PO Box 1781
Carson City NV 89702**

Prepared By:

**Resource Concepts, Inc.
340 N. Minnesota Street
Carson City, Nevada 89703**





December 19, 2018

Mr. Roger Shaheen
Foxwood Almanor LLC
PO Box 1781
Carson City NV 89702

**SUBJECT: *Sierra Skies RV Resort, APN 008-123-40,
1400 Old Hot Springs Road
Carson City, Nevada
Geotechnical Investigation Report***

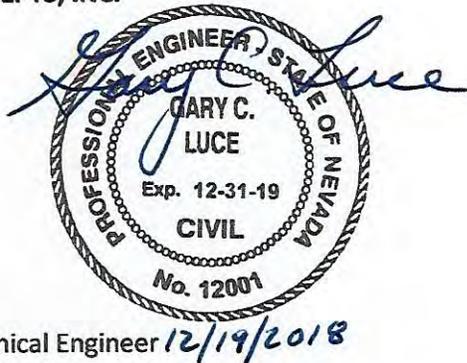
Dear Mr. Shaheen:

In accordance with your request, we are submitting our Geotechnical Investigation Report for the Sierra Skies RV Resort Project in Carson City, Nevada. Our work is intended for the sole and exclusive use of Foxwood Almanor, LLC, their agents or designated representatives. In our opinion, there are no significant geotechnical constraints, which would preclude the proposed construction of the project, provided the recommendations of this report are incorporated by design into the final plans and specifications.

The most significant geotechnical considerations that affect the project are the presence of a large volume of undocumented fill on the site. The primary impact of the undocumented fill to construction of the project is the need to over excavate the offensive material in structural building areas. This mitigation effort will have significant cost impacts to the project.

We appreciate the opportunity to work with you on this project. Should you have questions concerning the contents of this report, or if we may be of further service, please contact the undersigned at your convenience.

Sincerely,
RESOURCE CONCEPTS, INC.



Gary Luce, PE
Senior Geotechnical Engineer 12/19/2018



Jim Koch
Geotechnical Engineering Intern

TABLE OF CONTENTS

1.0	INTRODUCTION	1
2.0	SCOPE OF SERVICES	1
3.0	PROJECT DESCRIPTION	2
3.1	PROJECT OVERVIEW	2
4.0	GEOLOGY	3
4.1	REGIONAL GEOLOGY	3
4.2	SITE GEOLOGY	3
5.0	SOIL AND GROUNDWATER CONDITIONS	4
5.1	GENERAL	4
5.2	SOIL CONDITIONS	4
5.3	GROUNDWATER	4
5.4	FIELD AND LABORATORY TEST RESULTS	4
6.0	GEOLOGIC HAZARDS	5
6.1	FAULTING	5
6.2	LIQUEFACTION	5
6.3	LANDSLIDES AND SLOPE STABILITY	6
6.4	EXPANSIVE SOIL	6
6.5	FLOOD AND DEBRIS FLOW HAZARDS	6
7.0	CONCLUSIONS AND RECOMMENDATIONS	6
7.1	GENERAL	6
7.2	SEISMIC DESIGN CRITERIA	6
7.3	SOIL HANDLING, EXCAVATION AND GRADING	7
7.4	BUILDING PAD AND PARKING LOT PREPARATION AND FILL PLACEMENT	8
7.5	TREATMENT OF CUT-FILL TRANSITIONS	9
7.6	FOUNDATION DESIGN CRITERIA	9
7.7	GRADING – UNDERGROUND UTILITIES	9
7.8	GRADING – PAVEMENT, FLATWORK AND PAVER AREAS	10
7.9	SLABS-ON-GRADE AND PAVER SURFACES	10
7.10	PAVEMENTS	11
7.11	SITE DRAINAGE	12
8.0	FURTHER GEOTECHNICAL SERVICES	13
8.1	PLAN AND SPECIFICATION REVIEW	13
8.2	TESTING AND OBSERVATION SERVICES	13
9.0	LIMITATIONS AND UNIFORMITY OF CONDITIONS	13
10.0	REFERENCES	14

FIGURES

- Figure 1 Vicinity Map
- Figure 2 Site Plan
- Figure 3 Geologic Map
- Figure 4 Fault Map
- Figure 5 Flood Zone Map

TABLE OF CONTENTS (Continued)

APPENDICES

Appendix A Field Investigation

Appendix B Laboratory Testing

Exhibits

Exhibit 1 Preliminary Subsurface Investigation Report for Shaheen RV Park, 1100 Mark Way, Carson City, Nevada, October 2016, Lumos and Associates, Inc.

2018-12-19-Rpt REV 1-Shaheen-18-135.6-Sierra Skies RV Park Geotech-GL of L12-11

1.0 INTRODUCTION

This report presents the findings and conclusions of our geotechnical investigation for the proposed Sierra Skies RV Resort, APN 08-123-40, located in Carson City, Nevada as shown on the project Vicinity Map, Figure 1. This project will consist of 275 recreational vehicle (RV) spaces, driveways, numerous buildings, trash enclosures, and associated landscaping. The proposed building locations, site improvements, and our exploration locations are shown on the Site Plan, Figure 2.

2.0 SCOPE OF SERVICES

Our scope of services for our geotechnical investigation for the subject project included:

- Reviewed the previous Preliminary Subsurface Investigation for the project by Lumos and Associates, Inc. dated 2016.
- Performed a site reconnaissance and marked the proposed exploratory test pit locations in the field with white paint for subsequent underground utility location purposes.
- Observed the excavation of five exploratory test pits (TP-1 through TP-5) at the site. The test pits were excavated with a rubber-tire backhoe equipped with a 24-inch bucket to depths ranging from approximately six to nine feet below the existing ground surface (bgs).
- Logged the test pits in general accordance with the Unified Soil Classification System (USCS).
- Obtained bulk samples from the test pits. Submitted selected soil samples for geotechnical laboratory testing.

Logs of the exploratory test pits and other details of the field investigation are included in Appendix A. Details of the laboratory-testing program including test results are included in Appendix B.

To aid in preparing this report, we visited the site and reviewed the following documents:

- *Carson City Quadrangle Geologic Map, Carson City, Nevada*, Nevada Bureau of Mines and Geology, 1977.
- *Carson City Quadrangle Earthquake Hazard Map, Carson City, Nevada*, Nevada Bureau of Mines and Geology, 1979, Scale 1:24,000.
- *New Empire Quadrangle Geologic Map, Carson City, Nevada*, Nevada Bureau of Mines and Geology, 1977.
- *New Empire Quadrangle Earthquake Hazard Map, Carson City, Nevada*, Nevada Bureau of Mines and Geology, 1979, Scale 1:24,000.
- *Preliminary Subsurface Investigation Report for Shaheen RV Park, 1100 Mark Way, Carson City, Nevada*, Lumos and Associates, Inc., October 2016.
- *Soil Survey of Carson City Area, Nevada*, Natural Resources Conservation Service Website (<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>).
- U.S. Geological Survey and Nevada Bureau of Mines and Mineral Resources, 2008, Quaternary fault and fold database for the United States, accessed January 2017 from USGS web site: <http://earthquake.usgs.gov/regional/qfaults/>.

3.0 PROJECT DESCRIPTION

3.1 Project Overview

The subject site is an approximately 38.61-acre undeveloped property located at 1400 Old Hot Springs Road in Carson City, Nevada. The property is also known as Carson City Assessor's parcel number (APN) 008-123-40. The site is located north of Old Hot Springs Road and south of Arrowhead Drive. The property is approximately 1,320 ft (1/4 mile) west of Goni Road and the west boundary of the Carson Airport.

Sierra Skies RV Park, LLC intends to develop the property as a 30-day maximum stay RV park with up to 275 RV spaces. The RV park will include a number of amenities including a clubhouse, pool, and spa, general store, restaurant, golf putting green, restrooms, showers, laundry facilities, pet area, walking trails, barbecue areas, and open space. Buildings will be traditional wood frame construction. Approximate building square footages are as follows:

Clubhouse	6,650 SF
General Store	1,300 SF
Restaurant	Unknown SF
Office	1,850 SF
Caretaker's Residence	2,000 SF
Fitness Center	800 SF
Restrooms and Laundry	1,600 SF
Restrooms and Showers	1,060 SF (2 at 530 SF each)
Total Building Area to Date	15,260 SF

Though some area is set aside for a future restaurant, the size has not been determined at the time of this report. Limited on-site RV storage is planned. Propane sales may be included on-site. The RV Park will be developed in three phases, with the clubhouse, pool, laundry facilities, and general store being completed in the first phase, along with 94 RV spaces. An additional 111 RV spaces and buildings as appropriate will be developed as part of Phase 2, and Phase 3. This will consist of development of the 70 RV spaces on the eastern portion of the site and will likely include installation of a retaining wall and/or slope stabilization between the lower elevation of the Phase 1 area and the higher elevation of the Phase 3 area. All roads within the RV Park will be surfaced with asphalt paving, and every RV site will include water, sewer, and electric service. Walking paths and open space will run throughout the development.

Original topography of the site consisted of a gentle slope to the southeast (1%-2%). The elevation of the subject property varies considerably, with lower areas at the southern end of the property, adjacent to Old Hot Springs Road, and higher areas to the north and east side of the property. Most of the site has been built up with fill materials excavated for the construction of the nearby Interstate 580. No documentation for the fill placement on the site was provided to RCI. According to Lumos and Associates, there was some testing performed on the previously placed fill materials but at a rate of from "5% to 10%" of normal practice and therefore is considered "undocumented" or "uncontrolled fill. The east portion of the site has been constructed of fill that is higher than the remainder of the site. Fill slopes up to 2:1 transition to the lower portions of the site.

The site generally drains from north to south, with elevations ranging from approximately 4700 ft. adjacent to Old Hot Springs Road to approximately 4750 ft. at the northeast corner of the property. An existing drainage basin is located in the southwest portion of the property and is constructed of the same fill material as the rest of the site.

Due to the prior fill activities, no significant vegetation exists on the site. No existing structures are located on the site, aside from a single well shed.

The purpose of our investigation was to characterize subsurface conditions within the project area as they relate to the proposed construction. Based on our investigation and analysis we provide recommendations for building pad construction, seismic design parameters, underground utility installation, flexible pavement sections, concrete placement, and erosion control.

The scope of construction anticipated to be performed for this project consists of (but may not be limited to) the following:

- Removal of all or a portion of the undocumented fill from roadways and building footprint areas.
- Grading of driveway and RV and automobile parking areas.
- Construction of covered trash enclosures.
- Constructing new pavement asphalt concrete over aggregate base sections for the new drives and parking lot sections.
- Installation of concrete curb, gutter, and sidewalk.
- Construction of building structures.

The recommendations presented herein are based on the analyses of the data obtained from other firm's geotechnical investigations and our exploratory samples, laboratory tests, engineering analyses, and our local experience with similar soil and geologic conditions.

4.0 GEOLOGY

4.1 Regional Geology

The geology of the site is referenced from Carson City Geologic Map, Trexler, 1977, and the New Empire Geologic Map by Bingler 1977, Figure 3. The Eagle Valley area in Carson City is a large fault bounded valley typical of the western edge of the Basin and Range geomorphic province. The Basin and Range topography is the result of an extension of the crust over approximately the past 10 million years.

The geologic map shows that prior to development the area in the vicinity of the site was predominantly underlain by Quaternary alluvial plain deposits of Eagle Valley and by Mesozoic meta-volcanic rocks. The alluvial deposits are described by Trexler (1977) as yellowish brown to gray, unstratified to poorly bedded, poorly to moderately sorted fine silty sand, sandy silt, granular clayey coarse sand, and minor sandy gravel. The alluvial plain deposits are on the order of 2,000 feet deep in the Eagle Valley basin based on geophysical data. The meta-volcanic rocks near the project site are described as Triassic age fine grained, gneiss and schist derived from rhyolitic and andesite flows and volcanic breccia.

4.2 Site Geology

Based on our experience with the project area, portions of the development will rest on deep alluvial soils while the easterly portion of the project is underlain by Mesozoic intrusive meta-volcanic rocks. Fill materials have been previously placed on the site which we consider "uncontrolled fill" due to the lack of documentation. The fill materials are largely composed of clayey sands and clay with some gravel, cobbles, and boulders. Based on Google Earth historic photography, the undocumented fill was placed on the site from approximately 2004 to 2007. The project site sits just a few hundred feet west of meta-volcanic bedrock outcrop areas.

5.0 SOIL AND GROUNDWATER CONDITIONS

5.1 General

The following soil descriptions include the USCS symbol where applicable. Appendix A contains the test pit logs for reference to the vertical extents of the materials encountered at each location. Figure 2, the Site Plan shows the locations of our test pit explorations.

5.2 Soil Conditions

According to data from the Soil Survey of Carson City Area accessed on November 13, 2018, (<http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.) the surface soils (prior to development) are mapped as four soil units. The Soil Map is presented as Figure 4, for reference to the following discussion. The four soil unit names, Unified Soils Classification System (USCS) rating, and map numbers are as follows: Bishop loam, lean clay, CL, Soil Map Unit 4; Indiano variant, gravelly sandy loam (SM), Soil Map Unit 35; Surpass coarse sandy loam, SC-SM, Soil Map Unit 58; and the Vamp fine sandy loam, ML, Soil Map Unit 74.

Two soil units, Surpass coarse sandy loam (No. 58) and Indiano variant, gravelly sandy loam (No. 35) covered approximately 90 percent of the site prior to the importation of fill. These soils are classified as Silty Sand and Clayey Sand (SM, SC-SM). The southwest corner of the site is mapped as Vamp fine sandy loam (No. 74) which is classified as silt (ML). The access road from Hot Springs Road is mapped as Bishop loam (No. 4) which is classified as a lean clay (CL) soil.

Undocumented clayey fill soil on the site consists of from approximately one to 20 feet thick based on our test pits and air photos. The average depth of fill is approximately eight feet on the west and nearly 20 feet on the east.

5.3 Groundwater

Groundwater depths within the area of the site have been mapped on the Carson City Quadrangle by Katzer, 1980. Mapping shows the groundwater surface to be from approximately 30 to 50 feet below the existing surface however, hot springs are located within a few tens of feet of the southeast corner of the site.

Groundwater was not encountered in any of our test pits nor in the Lumos and Associates test pits to the total depth explored.

Variations in rainfall, snowmelt, temperature, and other factors can cause fluctuations in the level of groundwater. Groundwater flow in the project site area is generally to the southeast toward Goni Creek and the Carson River.

5.4 Field and Laboratory Test Results

Laboratory tests are in general conformance with accepted test methods of the American Society for Testing and Materials (ASTM). Appendix B presents moisture content, unit weight, grain-size distribution, and Atterberg limit results. Moisture content, dry density, and fines content (percent passing #200 sieve) are also shown on the test pits logs.

The types and numbers of the tests performed are summarized in Table 5.4:

**Table 5.4
Summary of Laboratory Tests**

Test	Procedure	Number of Tests
Moisture Content	ASTM D 2216	15
Grain Size Analysis	ASTM D 422	15
Atterberg Limits	ASTM D 4318	5

6.0 GEOLOGIC HAZARDS

6.1 Faulting

Carson City is located near active faults, which are capable of producing significant ground motions due to seismic events. Figure 5, the Fault Map for the site vicinity shows the distribution of active faults in the area based on the U.S. Geological Survey, 2008 Quaternary fault and fold database for the United States. Faults considered active for the type of development planned are located near the project site. The USGS shows that the nearest faults to the site are located approximately one-quarter mile south of the site.

Site-specific fault studies performed by Nevada Bureau of Mines and Geology and local geotechnical consultants indicate that segments of the Carson City fault have experienced Holocene displacements and thus are therefore active for residential and commercial type developments. Where faults are located near structures, the standard of practice in Northern Nevada is to offset the structures at least 50 feet each side of the fault. No faults are known to directly cross the site as shown on Figure 4.

For design purposes, the Carson City fault should be considered the controlling structure located just over one-half mile northwest of the site. The Carson City fault is considered by the Nevada Bureau of Mines and Geology to be capable of a Richter Magnitude earthquake of approximately 7.1. This value is equivalent to Modified Mercalli Intensities of X (ten) or greater. The seismic risk at the site is not significantly greater than that of the surrounding developments and the Carson City area in general.

6.2 Liquefaction

Strong vibratory motions such as those generated by earthquakes may cause liquefaction of granular soils. Soils that are highly susceptible to liquefaction are loose, granular and saturated. Liquefaction of soils may cause surface distress, loss of bearing capacity, and settlement of structures. Liquefaction is generally accepted to be restricted to within 50 feet of the surface due to confining pressures. The subject property does not exhibit subsurface geologic conditions that indicate susceptibility to liquefaction.

Lateral spreading is a ground-failure phenomenon that can also occur in association with liquefaction, whereby lateral displacements occur at the ground surface. Conditions required for lateral spreading include gently sloping terrain, and in particular, where a "free-face" (such as a creek bank) is nearby. Based on our review of the site topography and depth to the liquefiable layers, the potential for lateral spreading to occur is low.

6.3 Landslides and Slope Stability

Topographically, the site is relatively flat. No landslides features are present at the site or on adjacent properties that may affect the site, and we do not consider the potential for land sliding to be a hazard to this project.

6.4 Expansive Soil

No highly expansive soils were identified on the site during our investigation. Clayey sand (SC) and lean Clay (CL) with a low to moderate expansive potential were encountered at varied depths during our test pit exploration. Mitigations for expansive soils are provided in our recommendations.

6.5 Flood and Debris Flow Hazards

Review of the FIRM map 3200010084F issued on February 19, 2014, indicates that the site is not located within areas within the 1.0 percent annual chance of flooding. Figure 6 shows the FIRM mapping for the area of the site.

7.0 CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on our investigation conducted in October of 2018. Our recommendations pertain to general site grading, seismic parameters, flexible pavement design, concrete flatwork, utility installations, and erosion control measures.

7.1 General

Based upon the results of this investigation, the site is suitable for the proposed development, provided the recommendations presented herein are implemented in the design and construction of the project.

7.1.1 Our field investigation indicates that the site is primarily covered by a thick layer of undocumented fill and by native alluvial deposits to the total depth explored.

7.1.2 The undocumented fill is not suitable for direct support of pavements or structures and either complete removal or overexcavation as discussed herein should be considered.

7.1.3 Soil Conservation Service data and our local experience indicate that site soils and undocumented fill are not aggressive for either Type II or Type IP concrete. However, site native and fill soils are moderately aggressive (corrosive) to very aggressive for uncoated steel. The project structural engineer should consider the use of coatings or other cathodic protection where uncoated steel may be in contact with saturated or very moist soils.

7.1.4 A preconstruction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer and geotechnical engineer in attendance. Clearing and grubbing, soil handling, overexcavation, and grading requirements can be discussed at that time. Grading and excavations will require light to moderate effort with conventional heavy-duty grading/excavation equipment capable of excavating through the shallow bedrock.

7.2 Seismic Design Criteria

We recommend that seismic design of the structures be in accordance with the latest version of the International Building Code (IBC) and the American Society of Civil Engineers (ASCE) Standard 7-10. Site-specific acceleration information presented in Table 7.2 below is from the USGS Earthquake Hazards Program (<http://earthquake.usgs.gov/designmaps/us/application.php>) which reflects the 2012 version of the IBC as well as the ASCE Standard. Seismic design information from the USGS website is as follows:

**Table 7.2
2012 IBC Seismic Design Parameters**

Parameter	Factors	IBC Reference
Site Class	C	Table 20.3-1
Spectral Acceleration	$S_s = 2.522$ $S_1 = 0.902^*$	Figure 1613.3.1 (1) Figure 1613.3.1 (2)
Seismic Coefficient, F_a	$F_a = 1.000$	Table 1613.3.3 (1)
Seismic Coefficient, F_v	$F_v = 1.300$	Table 1613.3.3 (2)
Adjusted Spectral Response, S_{MS} , S_{MI}	$S_{MS} = 2.522$ $S_{MI} = 1.173$	Equation 16-37 Equation 16-38
Design Spectral Acceleration, S_{DS} , S_{D1}	$S_{DS} = 1.681$ $S_{D1} = 0.782$	Equation 16-39 Equation 16-40

* ASCE 7-10 requires all sites with S_1 accelerations over 0.75g to be designed for Seismic Design Category E

Table 7.2 for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life and not to necessarily avoid structural damage, since such design may be economically prohibitive.

- 7.2.1 The site is located near faults capable of generating strong seismic shaking during the life of the project.
- 7.2.2 Structures should be designed in accordance with 2012 IBC Seismic requirements. Spectral Acceleration of S_1 being greater than 0.75 g requires the building Seismic Design Category to be "E."
- 7.2.3 The site is Site Class C or "very dense soil and soft rock profile" as defined by the 2012 IBC and as indicated by field observations made during our investigation.

7.3 Soil Handling, Excavation and Grading

- 7.3.1 Imported structural fill material should meet the Standard Specifications for Public Works specifications (304.03). Structural fill is defined herein as all fill placed within three feet of foundations and all fill placed beneath pavement and flatwork sections. Import structural fill material should be sampled and approved by us prior to its transportation to the site.
- 7.3.2 Temporary excavations, such as utility trench sidewalls excavated within undisturbed, unsaturated native soils or structural fill should remain near-vertical to depths of five feet. Some minor sloughing should be expected within some of the cleaner sand lenses or during periods of high precipitation. On-site imported or native soils and structural fill soils should be considered Type C by OSHA Standards in light of their sandy, locally cohesionless nature. It is the contractor's responsibility to provide sufficient and safe excavation support per OSHA Standards as well as protecting nearby utilities, structures, and other improvements, which may be damaged by earth movements.
- 7.3.3 Earthwork operations should be observed and compacted fill tested by our representative.
- 7.3.4 All references to relative compaction and optimum moisture content in this report are based on the ASTM D1557-12 Test Procedure.
- 7.3.5 During or immediately following wet weather, the near-surface clayey soils or the bottom of overexcavated areas may deflect or pump under heavy equipment loads. Yielding soil conditions can typically be stabilized using one of the methods listed below. However, soil

conditions and mitigation methods should be reviewed and approved by RCI when encountered.

- **Option 1.** Deeply scarify (10 to 12 inches) allow to air dry to near optimum moisture content and re-compact.
- **Option 2.** Remove unstable (wet) soils to a firm base and allow the wet subgrade soil to dry to near optimum moisture content and re-compact. Replace the removed soils with drier soil meeting the structural fill specifications.

Other stabilization alternatives may be appropriate depending on the situation. Consultation with RCI is crucial for expedient and appropriate mitigation.

7.4 Building Pad and Parking Lot Preparation and Fill Placement

- 7.4.1 For the purposes of this report, the structural building pad area should extend a minimum of five feet beyond the outside dimensions of buildings.
- 7.4.2 Overexcavation requirements for building structures should conform to Lumos and Associates report recommendations. Specifically, full depth removal of the undocumented fill and replacement with compacted structural fill or five feet of overexcavation, placement of compacted structural fill including two layers of biaxial geogrid. Lumos allowed for the construction of footings on the undocumented fill. However, they specifically did not recommend this option. RCI concurs with Lumos in this regard and does not recommend direct support of foundations on the uncontrolled fill.
- 7.4.3 Soils utilized as fill within the building, flatwork, and parking areas should meet the *Standard Specifications for Public Works Construction* minimum requirements for structural fill.

**TABLE 7.4.3
STRUCTURAL FILL REQUIREMENTS**

Sieve	Percent Passing
4-inch	100
3/4-inch	70-100
No. 40	15-65
No. 200	5-20
Liquid Limit	35 Max.
Plasticity Index	12 Max.
R-value	30 Min.

- 7.4.4 Prior to fill placement, exposed surfaces should be scarified at least eight inches, moisture-conditioned to near optimum moisture content, and compacted to at least 90% relative compaction for granular soils and to from 85% to 90% compaction for clay soils. For granular soils moisture should be from 3% below optimum to 1% over optimum. In clay soil areas moisture should be from 2% below optimum moisture to 3% over optimum moisture.
- 7.4.5 Structural fill should be placed in thin lifts (un-compacted thickness of 8 inches or less), moisture-conditioned to near optimum moisture content, and compacted to at least 90% relative compaction prior to placement of the next lift. Thicker lifts may be allowed by the project geotechnical engineer, depending on the type of equipment and number of passes.

7.5 Treatment of Cut-fill Transitions

Conventional spread footings for the proposed building should bear on compacted structural fill. We anticipate that cut fill transitions will not occur beneath the structures due to the flat lying topography of the fills on the site. Should cut fill transitions occur, the cut areas should be undercut such that one foot of structural fill underlies the entire building area.

7.6 Foundation Design Criteria

At the time of this report, no information on structural systems or building grading plans were available and therefore these recommendations should be considered preliminary.

- 7.6.1 Conventional foundations should consist of continuous perimeter strip (or spread) footings and isolated interior spread footings. Minimum strip footing width should not be less than 16 inches; isolated spread footings should be at least 24 inches square.
- 7.6.2 Where curtain walls (or frost walls) are employed they should be a minimum of 12 inches wide and extend to a minimum of 24 inches below exterior grade for frost protection.
- 7.6.3 Perimeter continuous footings should extend at least 24 inches below lowest adjacent exterior grade bearing on compacted structural fill. Interior footings should extend at least 12 inches below lowest adjacent grade. These embedment recommendations are crucial for frost protection, minimizing surface water intrusion, to develop bearing capacity, and to provide lateral force resistance. Final surface grading should provide for positive drainage away from the structure per the 2012 IBC. Footing and retaining wall foundation backfill should be compacted to at least 90% relative compaction.
- 7.6.4 Shallow perimeter foundations or column footings proportioned as recommended above may be assumed for planning purposes and cost estimating only to have an allowable bearing pressure of 1,500 pounds per square foot (psf) when founded on compacted structural fill. It should be noted that RCI concurs with Lumos and Associates recommendations that ***“additional investigations, testing, and analyses should be performed for structures and retaining walls.”***
- 7.6.5 Adjacent utilities should not be constructed in the zone of influence parallel to footings. The zone of influence may be taken to be the area beneath the footing and within a 1:1 plane extending out and down from the bottom of the footing. Utility penetrations into the building envelope should be made perpendicular to the building stem wall if possible.
- 7.6.6 Post-construction total and differential settlements under static loading conditions are estimated to be less than 1 inch and 3/4 inch respectively.
- 7.6.7 Foundation reinforcement should be designed by the project structural engineer.

7.7 Grading – Underground Utilities

- 7.7.1 Underground utility trenches within structural areas (building pads, parking lots, and streets) should be backfilled with properly compacted qualified material for use as bedding or backfill.
- 7.7.2 For cost estimating, it is recommended that importation of bedding and backfill be assumed. The material excavated from the trenches may be adequate for on-site use as backfill provided it does not contain deleterious matter, vegetation or rock larger than four inches in maximum dimension. Suitability of native soils and the uncontrolled fill materials should be verified, as clayey sand layers may result in an excessive fines content.
- 7.7.3 Trench backfill should be placed in loose lifts not exceeding eight inches. The lifts should be compacted to a minimum of 90% relative compaction at or near optimum moisture content.

- 7.7.4 Bedding and pipe zone backfill should extend from the bottom of the trench excavation to a minimum of 6 inches above the crown of the pipe. Pipe bedding material should consist of Class A Backfill material as defined by the Standard Specifications for Public Works (Orange Book). Bedding and pipe zone material should be hand compacted in 6-inch maximum lifts.

7.8 Grading – Pavement, Flatwork and Paver Areas

- 7.8.1 It is recommended that both pavements and flatwork be underlain by a minimum of twelve inches of aggregate base and structural fill to provide support and frost protection.
- 7.8.2 Pavers subject to pedestrian or light vehicle traffic should be underlain by a minimum of eight inches of compacted aggregate base. This thickness may include a leveling course of sand per the manufacturer's recommendations. Should pavers be used in areas subject to recreational vehicles or truck traffic we should be contacted for additional recommendations.
- 7.8.3 Soils exposed at the bottom of the excavation should be scarified six inches and compacted to a minimum of 90% relative compaction at or near optimum moisture content if granular. Where clay soils are present, the subgrade should be moisture conditioned to from 2% below optimum moisture to 3% over optimum moisture and compacted to from 85% to 90% relative density. If the surface has become dry and loose, it should be moisture conditioned and lightly compacted to a firm surface prior to the placement of additional fill or aggregate base.
- 7.8.4 The subgrade soils for pavements should be finished to a compacted smooth unyielding surface. We recommend proof-rolling the subgrade with a loaded water truck (or similar equipment) to verify the stability of the subgrade prior to placing aggregate base.
- 7.8.5 Aggregate base used to support pedestrian and vehicular pavements should be compacted to a minimum of 95% relative compaction.

7.9 Slabs-on-Grade and Paver Surfaces

- 7.9.1 Conventional concrete slab-on-grade recommendations presented herein are intended to reduce the potential for cracking of slabs as a result of differential movement. However, even with the incorporation of the recommendations presented herein, slabs-on-grade will still exhibit some cracking. The occurrence of concrete shrinkage cracks is independent of the soil supporting characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of concrete, the use of crack control joints and proper concrete placing and curing. Adherence to ACI and Portland Concrete Association (PCA) recommendations including those for low humidity and wind, if applicable, should be incorporated into project construction practices.
- 7.9.2 Slab floors are suitable for the buildings if prepared as recommended in Section 7.8. A minimum 10-mil-thick vapor retarder meeting ASTM E1745-97 Class C requirements shall be placed below the slab where interior moisture is considered undesirable. At a minimum, two-inches (minimum) layers of clean sand should be provided above the vapor barrier material so as to protect it from puncture or damage. To reduce the potential for punctures, a higher quality vapor retarder (15 mil. Class A or B) may be used. The vapor retarder, if used, should extend to the edges of the slab, and should be sealed at all seams and penetrations. In any case, care should be taken to avoid any disturbance or rupture to the water-proofing measures throughout the construction process.
- 7.9.3 Slabs should be underlain by a minimum of 12 inches of compacted (95% minimum relative density) aggregate base. Slab thickness and reinforcement should be determined by the structural engineer based on the anticipated loading.
- 7.9.4 If a significant amount of time has passed since building pad grading and the soil surface of the building pad has become dry, then it should be re-moistened prior to placing the

moisture retarding system. The building pad should be moistened by soaking or sprinkling such that the upper 12 inches of soil is near optimum moisture, as determined by a representative of RCI at least 48 hours before concrete placement.

- 7.9.5 Some floor coverings, such as tile or linoleum, are sensitive to moisture that can be transmitted from and through the slab. Slab floors should be moist cured for a minimum of 7 days prior to placing any floor coverings. Floor coverings should be installed in accordance with the manufacturer’s recommendations including any moisture transmissivity testing requirements.
- 7.9.6 A modulus of subgrade reaction (k) of 250 pounds per cubic inch (pci) is recommended for the structural design of slabs. This value assumes contact with the sand or aggregate base materials.
- 7.9.7 Crack control spacing should be determined by the project structural engineer based on slab thickness and intended usage.
- 7.9.8 All exterior concrete should be air entrained from 4.5% to 7.0% air content. The water cement ratio for all exterior concrete should be 0.45 or less. The use of mid-range plasticizer is recommended to facilitate the finishing process while maintaining the desired water cement ratio.
- 7.9.9 Exterior concrete should be placed and finished in accordance with American Concrete Institute (ACI) recommendations for concrete placed in areas subject to freeze-thaw environments.
- 7.9.10 Where pavers are used for pedestrian areas or light duty vehicles, the subgrade should be prepared as described in Section 7.8.3.

7.10 Pavements

- 7.10.1 Pavement sections are intended for on-site use only. Pavement sections are based on Asphalt Institute recommendations for parking areas subject to automobile and truck traffic.
- 7.10.2 The following Asphalt Concrete pavement sections are recommended for parking and driveway areas.

**Table 7.10.2
Preliminary Flexible Pavement Sections**

	AC Thickness (inches)	AB Thickness (inches)
RV and Automobile Parking Areas	3.0	12.0
Driveways Subject to Truck Traffic and Dumpster Areas	4.0	10.0

The preliminary pavement section is based on the following assumptions:

- The subgrade soil has an R-Value of 35 or higher.
- The Type 2, Class B Aggregate Base (AB) has a minimum R-Value of 70 and meets the requirements of the *Standard Specifications for Public Works Construction*.
- The aggregate base is compacted to 95% or higher relative compaction at or near optimum moisture content.

- Soil subgrade has been prepared as previously recommended in Section 7.8.
- Asphalt concrete should conform to Section 320.02 of the Orange Book.

It is recommended that the use of 64PG-NV (polymerized asphalt oil or equivalent) be considered as we have found that it substantially reduces cracking due to thermal stresses prevalent in the freeze thaw environment of this area. The savings in long-term maintenance of the pavement including crack sealing is in our opinion worth the extra expense. However, this recommendation is optional in that it is relative to frequency of maintenance only and does not affect structural calculations.

7.10.3 If Portland Concrete Cement (PCC) or Concrete Paver driveways and parking are required, they should be constructed as shown in Table 7.10.3 below.

**Table 7.10.3
PCC and Paver Pavement Sections**

Location	PCC Thickness (inches)	AB Thickness (inches)
Automobile Parking Areas and Driveways	6.0	12.0
Location	Paver Thickness (inches)	AB Thickness (inches)
Automobile Parking Areas and Driveways	3.125 Typical	8.0

- Subgrade soils should be compacted as appropriate to the type of material present. Aggregate base should be compacted to at least 95% of maximum dry density.
- The minimum compressive strength (28-day) should be at least 3,000 psi and meet the requirements stated in Section 7.10 as appropriate. Traffic on the slab should be avoided until at least 80% of the design strength has been verified by testing. In Carson City, concrete in right of way areas shall have a minimum 28-day compressive strength of 4,000 psi.
- Reinforcement of the PCC driveways should be specified by the project structural (or civil) engineer.
- Construction (or crack control) joints should also be as recommended by the project structural (or civil) engineer.
- Pavers should be installed per manufacturer’s specifications including sand leveling course over AB.

7.11 Site Drainage

7.11.1 Adequate drainage is crucial to reduce the potential for differential soil movement, erosion and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to footings. The site should be graded and maintained such that surface drainage is directed away from structures and the top of slopes into swales or other controlled drainage devices. The percent fall of slopes around structures should be as per the most current version of the IBC as adopted by the local governing agency.

7.11.2 Roof and pavement drainage should be directed into conduits to carry runoff away from the structures. Landscape irrigation should be kept at least three feet away from all foundations. We recommended that drip irrigation be installed within six feet of foundations wherever feasible.

8.0 FURTHER GEOTECHNICAL SERVICES

8.1 Plan and Specification Review

We should review the improvement plans, foundation plans, and specifications prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required.

8.2 Testing and Observation Services

The recommendations provided in this report are based on the assumption that we will continue as Geotechnical Engineer-of-Record throughout each construction phase. It is important to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during design. In accordance with 2012 IBC, testing and observation services by the Geotechnical Engineer-of-Record are required to verify that construction has been performed in accordance with this report, approved plans and specifications. If we are not retained for these services, we cannot assume any responsibility for other's interpretation of our recommendations or the future performance of the project.

9.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, we should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous materials or environmental contamination was not part of our scope of services.

This report is issued with the understanding that it is the responsibility of the owner or their representative to ensure that the information and recommendations contained herein are brought to the attention of the design team for the project and incorporated into the plans and specifications, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

The recommendations contained in this report are preliminary until verified during construction by representatives of our firm. Changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. Additionally, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated partially or wholly by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices used in the Carson City at this time. No warranty is expressed or implied.

10.0 REFERENCES

ASCE/SEI 7-10 Standard with March 2013 errata, Minimum Design Loads for Buildings and Other Structures American Society of Civil Engineers.

Carson City Folio Geologic Map, Nevada Bureau of Mines and Geology, Scale 1: 24,000, 1977.

Carson City Quadrangle Earthquake Hazards Map, Nevada Bureau of Mines and Geology, Scale 1:24,000, 1979.

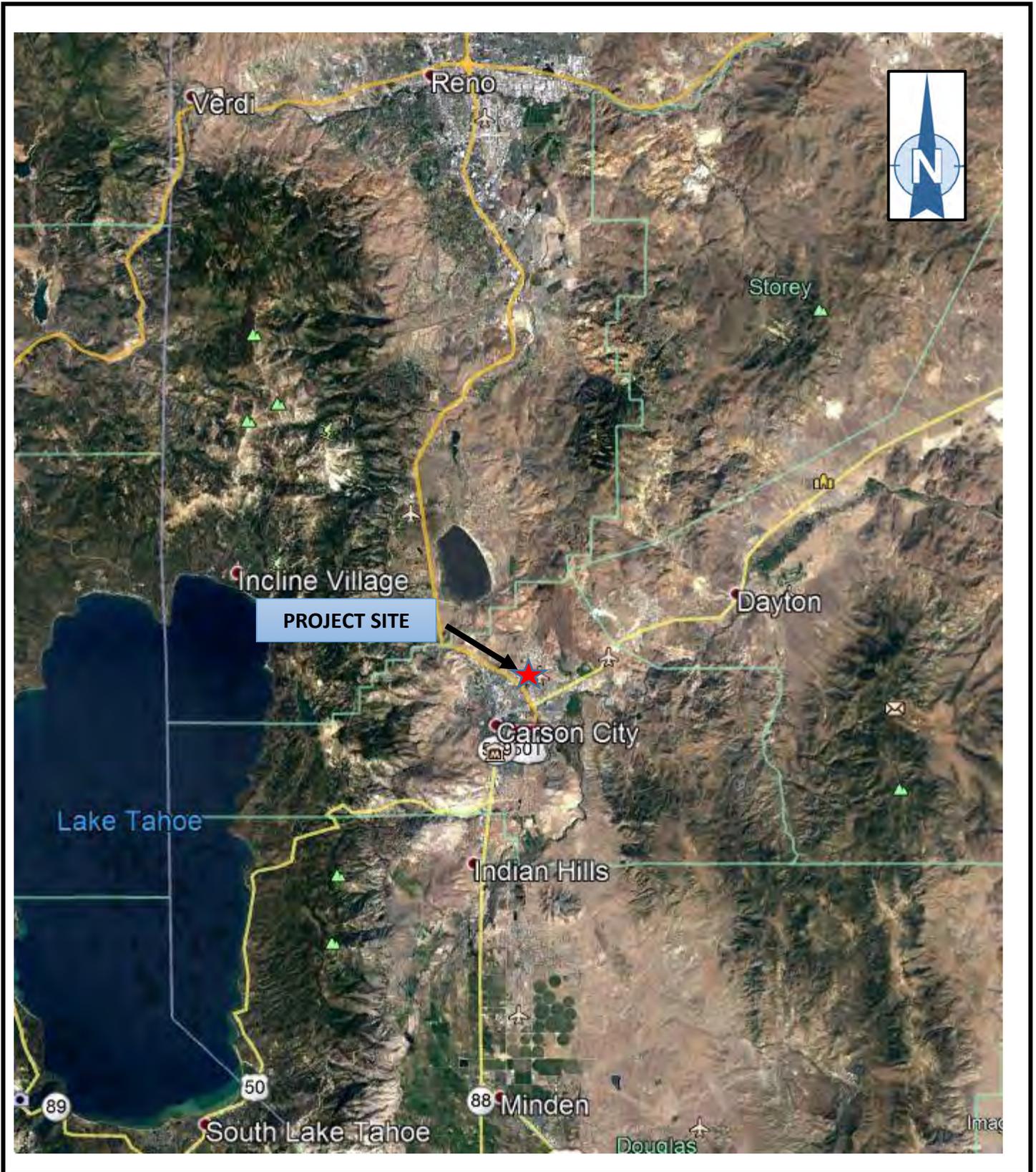
New Empire Folio Geologic Map, Nevada Bureau of Mines and Geology, Scale 1: 24,000, 1977.

New Empire Quadrangle Earthquake Hazards Map, Nevada Bureau of Mines and Geology, Scale 1:24,000, 1979.

Preliminary Subsurface Investigation Report for Shaheen RV Park, 1100 Mark Way, Carson City, Nevada, Lumos and Associates, Inc., October 2016.

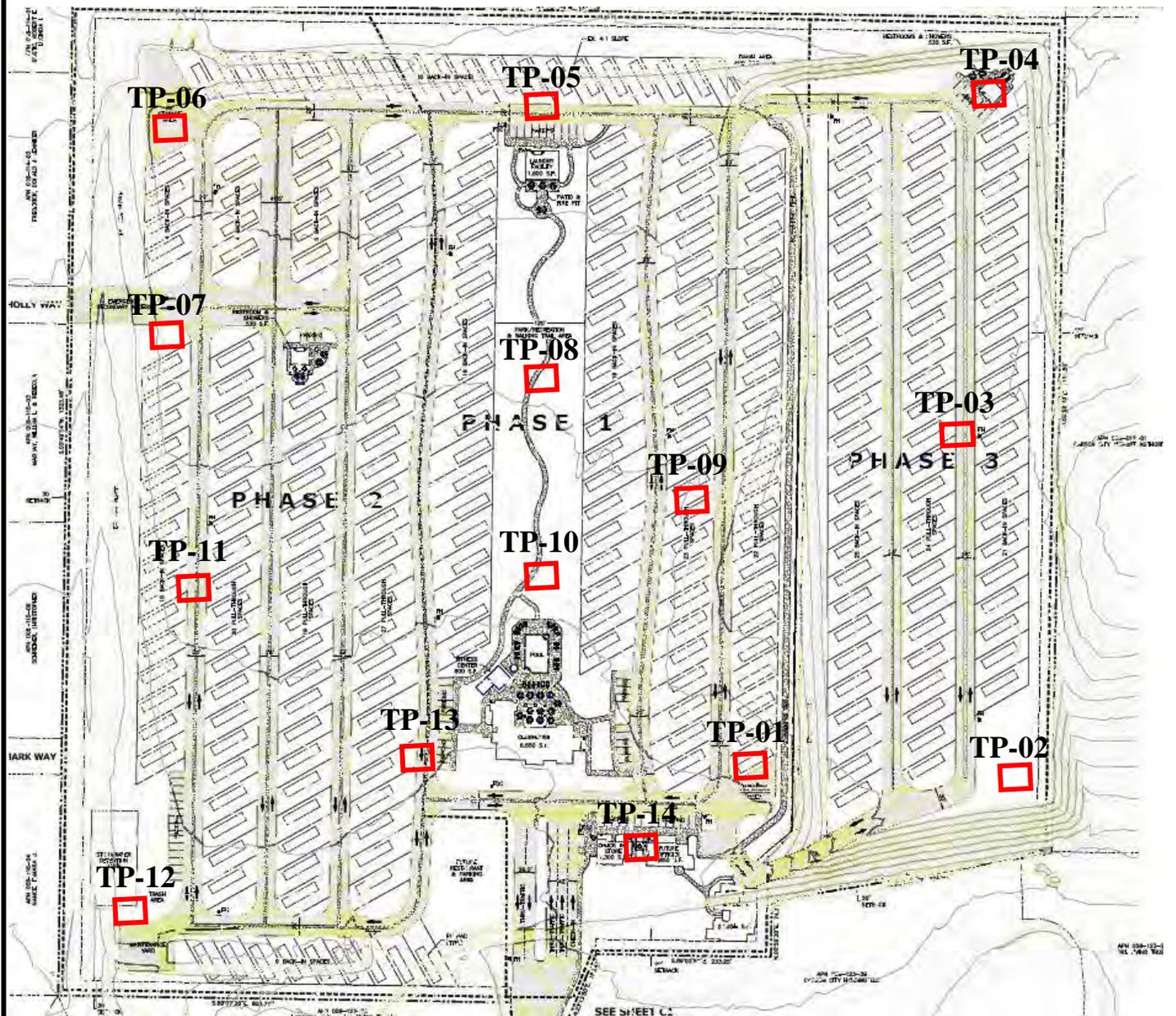
Quaternary fault and fold database for the United States, U.S. Geological Survey and Nevada Bureau of Mines and Mineral Resources, accessed November 2018, from USGS web site: <http://earthquake.usgs.gov/regional/qfaults/>.

Soil Survey of Carson City Area, Nevada, Natural Resources Conservation Service Website accessed November 2018, <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>.



	<p>340 N. Minnesota St. Carson City, NV 89703 775 883-1600</p>
<p>GL</p>	

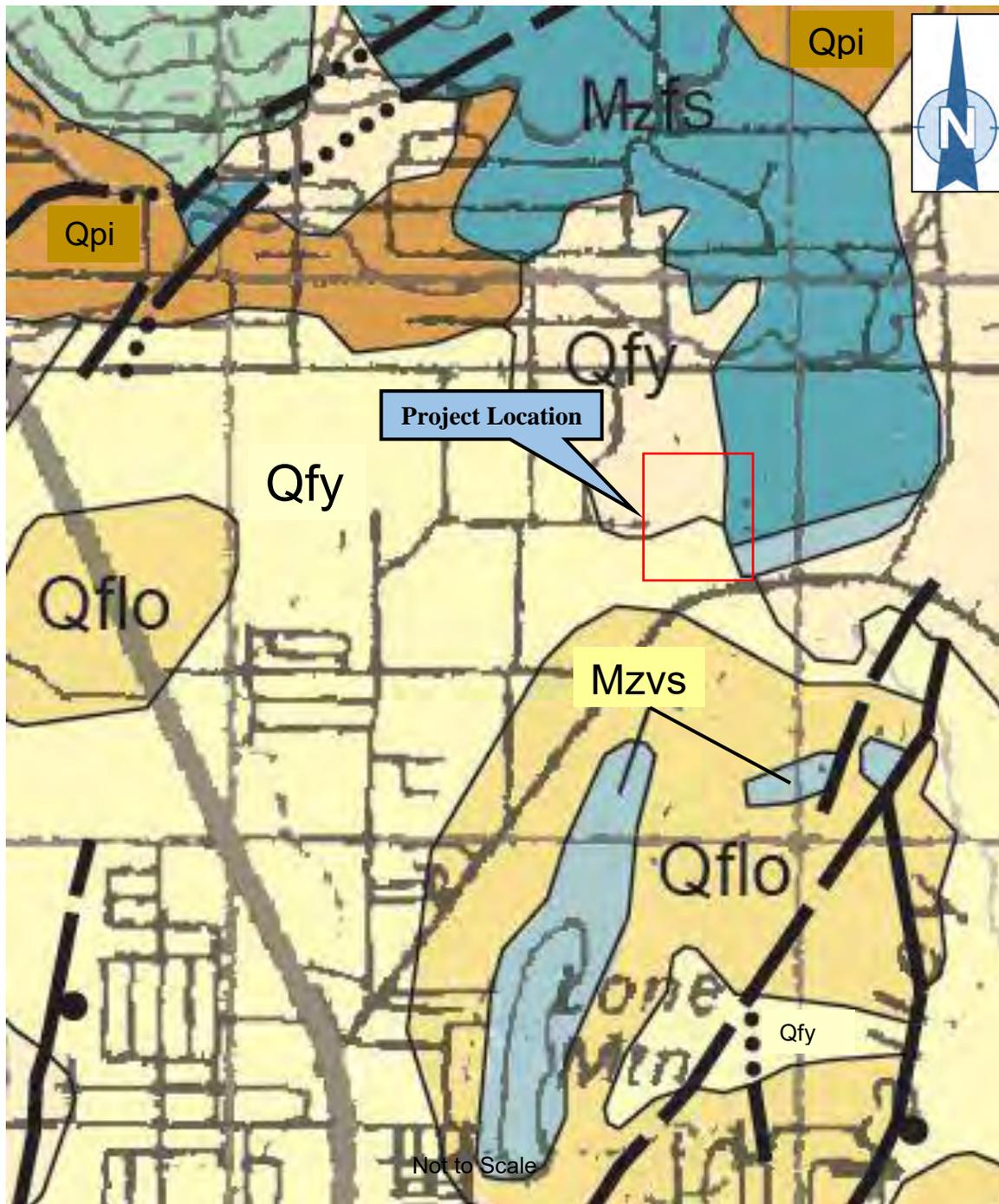
<p>FIGURE 1 VICINITY MAP</p>
<p>SIERRA SKIES RV RESORT CARSON CITY, NV</p>
<p>PROJECT NO. 18-135.6</p>



 TEST PIT LOCATIONS

	340 N. Minnesota St. Carson City, NV 89703 775 883-1600
	GL

FIGURE 2 SITE PLAN
SIERRA SKIES RV PARK CARSON CITY, NV
PROJECT NO. 18-135.6



- Qfy-** Older Alluvial Deposits
- Qflo-** Alluvial-Plain Deposits
- Qpi-** Pediment Deposits
- Mzfs-** Intermediate Metavolcanic Rocks, Undifferentiated
- MZvs-** Felsic Schist and Gneiss

- FAULT (Dashed Where Location Approximate)
- INFERRED FAULT LOCATION

Map Reference: Nevada Bureau of Mines and Geology, 1999
 Geologic Map of the Carson City 30X60 Minute Quadrangle



340 N. Minnesota St.
 Carson City, NV 89703
 775 883-1600

FIGURE 3 GEOLOGIC MAP
SIERRA SKIES RV RESORT
CARSON CITY, NV

PROJECT NO. 18-135.6




RCI
Resource Concepts Inc

340 N. Minnesota St.
Carson City, NV 89703
775 883-1600

GL

FIGURE 4 SOIL MAP

SIERRA SKIES RV RESORT
CARSON CITY, NV

PROJECT NO. 18-135.6

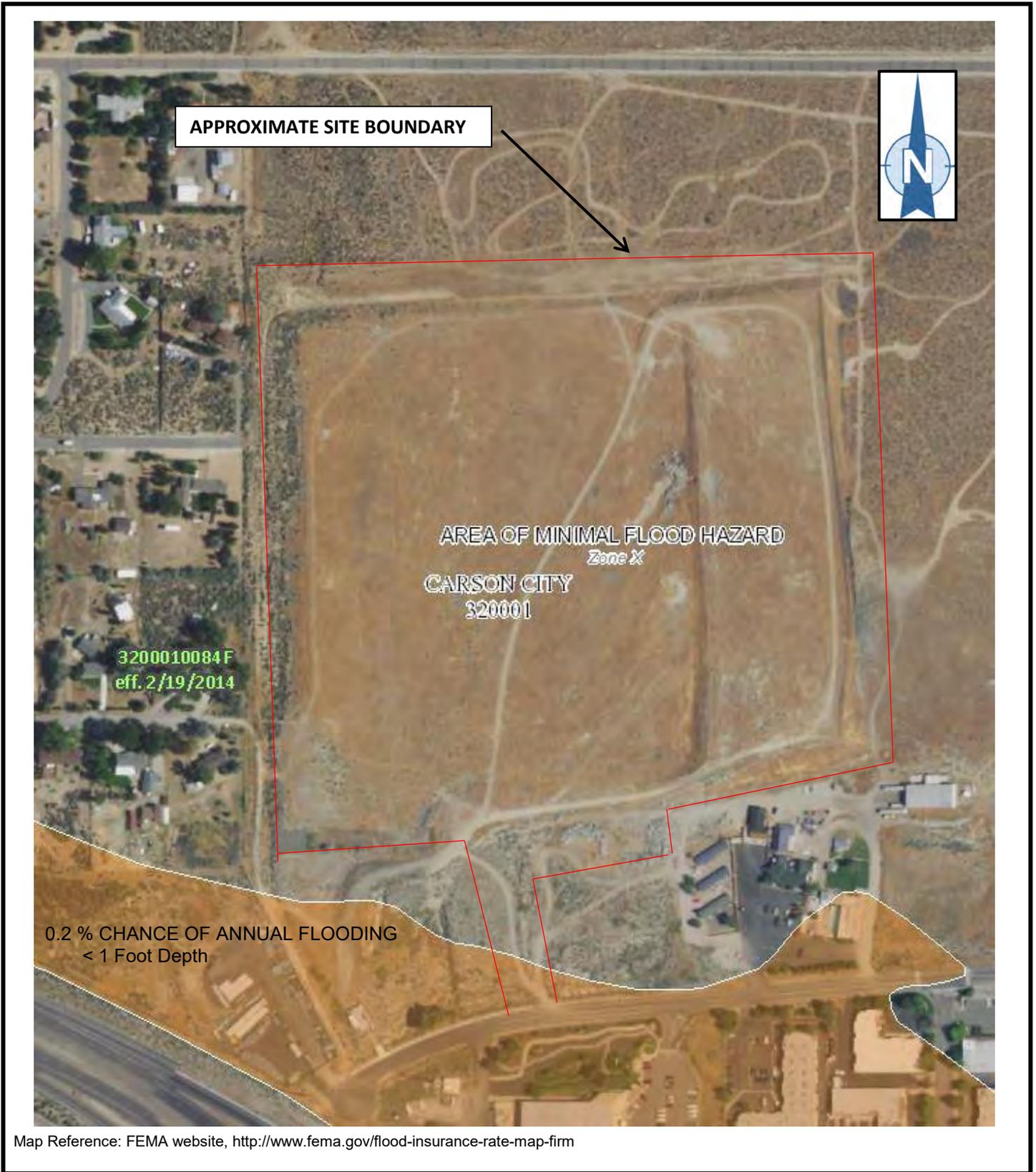


- Quaternary Fault (Inactive)
- Holocene Fault (Active)

Fault Mapping from USGS Website – Holocene (Active) Fault Location Shown in Red Mapped by Lumos and Assoc. 1990

	<p>340 N. Minnesota St. Carson City, NV 89703 775 883-1600</p>
GL	

FIGURE 5 FAULT MAP
SIERRA SKIES RV RESORT CARSON CITY, NV
PROJECT NO. 18-135.6



	340 N. Minnesota St. Carson City, NV 89703 775 883-1600
	GL

FIGURE 6 FLOOD ZONE MAP
SIERRA SKIES RV RESORT CARSON CITY, NV
PROJECT NO. 18-135.6

APPENDIX A

FIELD INVESTIGATION



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-1

PAGE 1 OF 1

CLIENT Rodger Shaheen
PROJECT NUMBER 18-135.6
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
EXCAVATION CONTRACTOR R Construction
EXCAVATION METHOD Backhoe
LOGGED BY RB **CHECKED BY** GL and JK
NOTES _____

PROJECT NAME Sierra Sky
PROJECT LOCATION 1100 Mark Way
GROUND ELEVATION 4713 ft 4723 **TEST PIT SIZE** _____
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0						
		MC = 13% LL = 36 PL = 18 Fines = 45% MC = 28% Fines = 75%	SC		(SC) Fill, CLAYEY SAND, 2.5Y 3/3 (light brown), dry, medium dense	4711.0
2.5			CL		(CL) Fill, CLAY WITH SAND, 10 YR 3/1 (dark grey), moist, stiff	4709.9
			SC		(SC) Fill, CLAYEY SAND, 7.5YR 4/2 (dark grey), moist, medium dense	
5.0						
			SC		(SC) Fill, CLAYEY SAND, 7.5 YR 5/2 (olive brown), moist, firm	4704.0
7.5						
			SC		GRAVEL WEATHERED BEDROCK, dark greenish grey, moist, very dense, meta-andesite.	4702.8
10.0						
						4701.0
12.0						

Bottom of test pit at 12.0 feet.



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-2

PAGE 1 OF 1

CLIENT Rodger Shaheen
PROJECT NUMBER 18-135.6
DATE STARTED 11/1/18 COMPLETED 11/1/18
EXCAVATION CONTRACTOR R Construction
EXCAVATION METHOD Backhoe
LOGGED BY RB CHECKED BY GL and JK
NOTES _____

PROJECT NAME Sierra Sky
PROJECT LOCATION 1100 Mark Way
GROUND ELEVATION 4745 ft 4723 TEST PIT SIZE _____
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION
0.0				(CL) Fill, SANDY CLAY, 7.5 YR 4/6 (brown), dry, firm	
2.0		CL		(CL) Fill, SANDY CLAY, 7.5 YR 4/6 (brown), dry, firm	4743.0
2.5				(CL) Fill, CLAY WITH FINE SAND, 7.5 YR 4/1 (olive grey) moist, firm	
5.0		CL		(CL) Fill, CLAY WITH FINE SAND, 7.5 YR 4/1 (olive grey) moist, firm	
7.5					
10.0					
11.0		CL		(CL) Fill, CLAY WITH SAND, 7.5 YR 3/1 (dark brown), moist, stiff	4734.0
12.5					
13.0		SC		(SC) Fill, CLAYEY SAND, 7.5 YR 2.5/1 (olive grey) moist, dense forming in fist size clumps	4732.0
15.0					4730.0

Bottom of test pit at 15.0 feet.

258

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-3

PAGE 1 OF 1

CLIENT Rodger Shaheen
PROJECT NUMBER 18-135.6
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
EXCAVATION CONTRACTOR R Construction
EXCAVATION METHOD Backhoe
LOGGED BY RB **CHECKED BY** GL and JK
NOTES _____

PROJECT NAME Sierra Sky
PROJECT LOCATION 1100 Mark Way
GROUND ELEVATION 4745 ft 4723 **TEST PIT SIZE** _____
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION
0.0					
2.5		CL		(CL) Fill, SANDY CLAY, 7.5 YR 4/6 (light brown), slightly moist, firm	
3.0					4742.0
5.0		CL		(CL) Fill, CLAY WITH SAND, 10YR 6/2 (dark grey), moist, firm	
7.5					
8.0					4737.0
10.0				GRAVEL WEATHERED BEDROCK, dark greenish grey, moist, very dense, meta-andesite.	4735.0

Bottom of test pit at 10.0 feet.



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-4

CLIENT Rodger Shaheen
PROJECT NUMBER 18-135.6
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
EXCAVATION CONTRACTOR R Construction
EXCAVATION METHOD Backhoe
LOGGED BY RB **CHECKED BY** GL and JK
NOTES _____

PROJECT NAME Sierra Sky
PROJECT LOCATION 1100 Mark Way
GROUND ELEVATION 4745 ft 4723 **TEST PIT SIZE** _____
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION
0.0						
2.5		MC = 14% LL = 36 PL = 17 Fines = 52%	CL		(CL) Fill, SANDY CLAY, 10 YR 5/3 (light brown), dry, medium firm	
5.0		MC = 12% LL = 30 PL = 18 Fines = 35%	SC		(SC) Fill, CLAYEY SAND, 10 YR 5/6 (red/brown), moist, medium dense	4742.2
7.5		MC = 16% Fines = 43%	SC		(SC) Fill, CLAYEY SAND, 10 YR 3/3 (dark grey), moist, very dense	4739.6
10.0			CL		(CL) Fill, SANDY CLAY, 10 YR 5/2 (olive grey to light brown), moist, firm	4737.0
12.5						
13.0						4732.0

Bottom of test pit at 13.0 feet.



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-5

PAGE 1 OF 1

CLIENT Rodger Shaheen
PROJECT NUMBER 18-135.6
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
EXCAVATION CONTRACTOR R Construction
EXCAVATION METHOD Backhoe
LOGGED BY RB **CHECKED BY** GL and JK
NOTES _____

PROJECT NAME Sierra Sky
PROJECT LOCATION 1100 Mark Way
GROUND ELEVATION 4731 ft 4723 **TEST PIT SIZE** _____
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0						
2.5			SC		(SC) Fill, CLAYEY SAND, 2.5 Y 3/3 (brown), dry, dense	4729.0
5.0		MC = 24% Fines = 68%	CL		(CL) Fill, CLAY WITH SAND, 2.5 Y 3/1 (brown), moist, dense	
7.5						4723.0
10.0		MC = 14% Fines = 18%	SC		(SC) CLAYEY SAND, 2.5 Y 6/3 (brown), moist, dense	4721.0
12.0			CL		(CL) SANDY CLAY with minor gravel layering, 2.5 Y 5/2 (brown), moist, firm-stiff	4719.0

Bottom of test pit at 12.0 feet.



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-6

PAGE 1 OF 1

CLIENT Rodger Shaheen
PROJECT NUMBER 18-135.6
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
EXCAVATION CONTRACTOR R Construction
EXCAVATION METHOD Backhoe
LOGGED BY RB **CHECKED BY** GL and JK
NOTES _____

PROJECT NAME Sierra Sky
PROJECT LOCATION 1100 Mark Way
GROUND ELEVATION 4732 ft 4723 **TEST PIT SIZE** _____
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0						
		MC = 2% Fines = 27%	SC		(SC) Fill, CLAYEY SAND, 7.5 YR 4/4 (brown), dry, dense	4731.0
			SC		(SC) Fill, CLAYEY SAND, 7.5 YR 3/3 (brown), slightly moist, dense	4730.0
2.5			SP		(SP) Fill, POORLY GRADED FINE GRAIN SANDS, 7.5 YR 4/4, moist, dense	4728.0
5.0			CL		(CL) Fill, CLAY WITH SAND, 7.5 YR 3/2 (dark brown), moist, firm	4723.0
7.5						
10.0			SC		(SC) SAND WITH CLAY, 7.5 YR 6/3 (light grey), moist, dense	4721.0
			SC		(SC) SAND WITH CLAY, 10 YR 6/3 (red-light grey), moist, dense	4720.0

Bottom of test pit at 12.0 feet.



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-7

PAGE 1 OF 1

CLIENT Rodger Shaheen
PROJECT NUMBER 18-135.6
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
EXCAVATION CONTRACTOR R Construction
EXCAVATION METHOD Backhoe
LOGGED BY RB **CHECKED BY** GL and JK
NOTES _____

PROJECT NAME Sierra Sky
PROJECT LOCATION 1100 Mark Way
GROUND ELEVATION 4730 ft 4723 **TEST PIT SIZE** _____
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0						
		MC = 4% Fines = 21%	SC		(SC) Fill, CLAYEY SAND, 7.5 YR 4/4 (brown), dry, dense	
1.5						4728.5
			CL		(CL) Fill, CLAY WITH MINOR SANDS, 7.5 YR 5/4 (brown), moist, firm	
2.5						
5.0						
7.5						
9.0						4721.0
			CL		(CL) Fill, SANDY CLAY, 7.5 YR 4/2, moist, dense	
10.0						
11.0						4719.0
			SC		(SC) Fill, CLAYEY SAND, 7.5 YR 6/2 (light grey), moist, dense	
12.5						
13.0						4717.0

Bottom of test pit at 13.0 feet.



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-8

PAGE 1 OF 1

CLIENT <u>Rodger Shaheen</u>	PROJECT NAME <u>Sierra Sky</u>
PROJECT NUMBER <u>18-135.6</u>	PROJECT LOCATION <u>1100 Mark Way</u>
DATE STARTED <u>11/1/18</u> COMPLETED <u>11/1/18</u>	GROUND ELEVATION <u>4722 ft 4723</u> TEST PIT SIZE _____
EXCAVATION CONTRACTOR <u>R Construction</u>	GROUND WATER LEVELS:
EXCAVATION METHOD <u>Backhoe</u>	AT TIME OF EXCAVATION <u>---</u>
LOGGED BY <u>RB</u> CHECKED BY <u>GL and JK</u>	AT END OF EXCAVATION <u>---</u>
NOTES _____	AFTER EXCAVATION <u>---</u>

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0						
		MC = 9% LL = 35 PL = 17 Fines = 28%	SC		(SC) Fill, CLAYEY SAND, 5 YR 4/2 (red/brown), dry, medium dense	4721.0
			SC		(SC) Fill, SANDY CLAY, 10 YR 3/3 (brown), slightly moist, firm	4720.0
2.5					(CL) Fill, CLAY WITH MINOR SAND, 10 YR 3/1 (dark grey), moist, firm	
					3-8' Large asphalt and concrete debris	
					11' refusal	
5.0			CL			
7.5						
10.0						
						4711.0

Bottom of test pit at 11.0 feet.



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-9

PAGE 1 OF 1

CLIENT Rodger Shaheen
PROJECT NUMBER 18-135.6
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
EXCAVATION CONTRACTOR R Construction
EXCAVATION METHOD Backhoe
LOGGED BY RB **CHECKED BY** GL and JK
NOTES _____

PROJECT NAME Sierra Sky
PROJECT LOCATION 1100 Mark Way
GROUND ELEVATION 4722 ft 4723 **TEST PIT SIZE** _____
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION
0.0				(SC) Fill, SAND WITH CLAY AND MINOR GRAVEL, 10 YR 5/8 (brown), dry, medium dense	
		SC			
					1.8 4720.2
		SC		(SC) Fill, SAND WITH CLAY AND LARGE COBBLES, 2.5 4/2 (grey), moist, medium dense	
2.5					
		CL		(CL) Fill, SANDY CLAY, 2.5 Y 6/4 (brown), moist, firm	
					3.8 4718.2
5.0		CL		(CL) Fill, SANDY CLAY, 10 YR 5/4 (brown), moist, firm	
					8.5 4713.5
7.5		CL		WEATHERD CEMENTED CALCITIC LAYER	
				GRAVEL WEATHERED BEDROCK, dark greenish grey, moist, very dense, meta-andesite.	
10.0					10.0 4712.0
					10.4 4711.6
					12.0 4710.0

Bottom of test pit at 12.0 feet.



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-10

CLIENT <u>Rodger Shaheen</u>	PROJECT NAME <u>Sierra Sky</u>
PROJECT NUMBER <u>18-135.6</u>	PROJECT LOCATION <u>1100 Mark Way</u>
DATE STARTED <u>11/1/18</u> COMPLETED <u>11/1/18</u>	GROUND ELEVATION <u>4722 ft 4723</u> TEST PIT SIZE _____
EXCAVATION CONTRACTOR <u>R Construction</u>	GROUND WATER LEVELS:
EXCAVATION METHOD <u>Backhoe</u>	AT TIME OF EXCAVATION <u>---</u>
LOGGED BY <u>RB</u> CHECKED BY <u>GL and JK</u>	AT END OF EXCAVATION <u>---</u>
NOTES _____	AFTER EXCAVATION <u>---</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION	
0.0				(SC) Fill, SAND WITH CLAY, 10 YR 5/2 (brown), dry, medium dense		
		SC				
				1.5	(CL) Fill, CLAY WITH SAND, 10 YR 4/3 (brown), moist, firm	4720.5
2.5		CL				
				4.0	(CL) Fill, SANDY CLAY, 10 YR 4/3 (brown), moist, firm	4718.0
5.0		CL				
7.5		CL				
10.0		CL				
		CL		(CL) Fill, SANDY CLAY, 10 YR 3/1 (steel grey), moist, firm	4711.7	
12.5		CL				
		CL		(CL) Fill, SANDY CLAY, 10 YR 6/3 (tan brown), moist, firm	4708.3	
15.0		CL			266	
					4707.0	

Bottom of test pit at 15.0 feet.



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

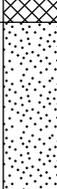
TEST PIT NUMBER TP-11

PAGE 1 OF 1

CLIENT Rodger Shaheen
PROJECT NUMBER 18-135.6
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
EXCAVATION CONTRACTOR R Construction
EXCAVATION METHOD Backhoe
LOGGED BY RB **CHECKED BY** GL and JK
NOTES _____

PROJECT NAME Sierra Sky
PROJECT LOCATION 1100 Mark Way
GROUND ELEVATION 4722 ft 4723 **TEST PIT SIZE** _____
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					
		MC = 4% LL = 27 PL = 20 Fines = 25%	CL-ML		(CL-ML) Fill, CLAY AND SILT WITH MINOR GRAVEL, 10 YR 4/2 (tan/brown), dry, medium dense 4720.8
2.5					
		MC = 7% Fines = 25%	SC		(SC) Fill, CLAYEY SAND WITH COBBLES, 10 YR 5/4 (brown), moist, dense 4714.7
5.0					
7.5					
			CL		(CL) Fill, CLAY WITH SAND, 10 YR 3/1 (grey green), moist, firm 4710.0
10.0					
12.5					
			SP		(SP) POORLY GRADED FINE GRAIN SAND, 10 YR 5/8 (red/brown), slightly moist, medium dense 4710.0
14.0					

Bottom of test pit at 14.0 feet.



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-12

CLIENT Rodger Shaheen
PROJECT NUMBER 18-135.6
DATE STARTED 11/1/18 **COMPLETED** 11/1/18
EXCAVATION CONTRACTOR R Construction
EXCAVATION METHOD Backhoe
LOGGED BY RB **CHECKED BY** GL and JK
NOTES _____

PROJECT NAME Sierra Sky
PROJECT LOCATION 1100 Mark Way
GROUND ELEVATION 4722 ft 4723 **TEST PIT SIZE** _____
GROUND WATER LEVELS:
AT TIME OF EXCAVATION ---
AT END OF EXCAVATION ---
AFTER EXCAVATION ---

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	
0.0						
		MC = 6% Fines = 35%	SC		(SC) Fill, CLAYEY SAND WITH GRAVEL, 10 YR 6/2, dry, dense	
			CL			
1.5					(CL) Fill, CLAY WITH SAND, 5 Y 4/2 (olive grey) dry, very stiff-stiff	4720.0
2.0					(CL) Fill, CLAY WITH SAND, 10 YR 3/2 (grey/brown) moist, firm	
2.5						
5.0			CL			
7.5						
8.4					(SC) SAND WITH CLAY, 2.5 YR 4/4 (red/brown), moist, dense	4713.6
10.0			SC			
12.5						
13.0						4709.0

Bottom of test pit at 13.0 feet.



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-13

CLIENT <u>Rodger Shaheen</u>	PROJECT NAME <u>Sierra Sky</u>
PROJECT NUMBER <u>18-135.6</u>	PROJECT LOCATION <u>1100 Mark Way</u>
DATE STARTED <u>11/1/18</u> COMPLETED <u>11/1/18</u>	GROUND ELEVATION <u>4715 ft 4723</u> TEST PIT SIZE _____
EXCAVATION CONTRACTOR <u>R Construction</u>	GROUND WATER LEVELS:
EXCAVATION METHOD <u>Backhoe</u>	AT TIME OF EXCAVATION <u>---</u>
LOGGED BY <u>RB</u> CHECKED BY <u>GL and JK</u>	AT END OF EXCAVATION <u>---</u>
NOTES _____	AFTER EXCAVATION <u>---</u>

DEPTH (ft)	SAMPLE TYPE NUMBER	TESTS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0					
		MC = 10% Fines = 57%	CL		(CL) Fill, CLAY WITH SAND, 7.5 YR 3/2 (dark brown), dry, firm
2.5					4713.0
		MC = 24% Fines = 47%	SC		(SC) Fill, CLAYEY SAND, 2.5 Y 3/1 (grey), moist, dense 9.5' refusal (Large boulder)
5.0					
7.5					
					4705.5

Bottom of test pit at 9.5 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ



Resource Concepts, Inc.
4010 Technology Way
Carson City, Nevada 89703
775-883-1600

TEST PIT NUMBER TP-14

PAGE 1 OF 1

CLIENT Rodger Shaheen **PROJECT NAME** Sierra Sky
PROJECT NUMBER 18-135.6 **PROJECT LOCATION** 1100 Mark Way
DATE STARTED 11/1/18 **COMPLETED** 11/1/18 **GROUND ELEVATION** 4715 ft 4723 **TEST PIT SIZE** _____
EXCAVATION CONTRACTOR R Construction **GROUND WATER LEVELS:**
EXCAVATION METHOD Backhoe **AT TIME OF EXCAVATION** ---
LOGGED BY RB **CHECKED BY** GL and JK **AT END OF EXCAVATION** ---
NOTES This test pit was located in Sierra Skies active workzone which we estimate AFTER EXCAVATION already.

DEPTH (ft)	SAMPLE TYPE NUMBER	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION
0.0				
2.5		CL		(CL) Fill, SANDY CLAY WITH COBBLES, 2.5 Y 2.5/1 (dark grey), moist, firm 4' refusal
4.0				

Bottom of test pit at 4.0 feet.

4711.0

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 11/30/18 13:44 - C:\USERS\RYAN\DESKTOP\GINT DESKTOP WORKING FOLDER\SIERRA SKYS V2 18-135.GPJ

APPENDIX B

LABORATORY TESTING

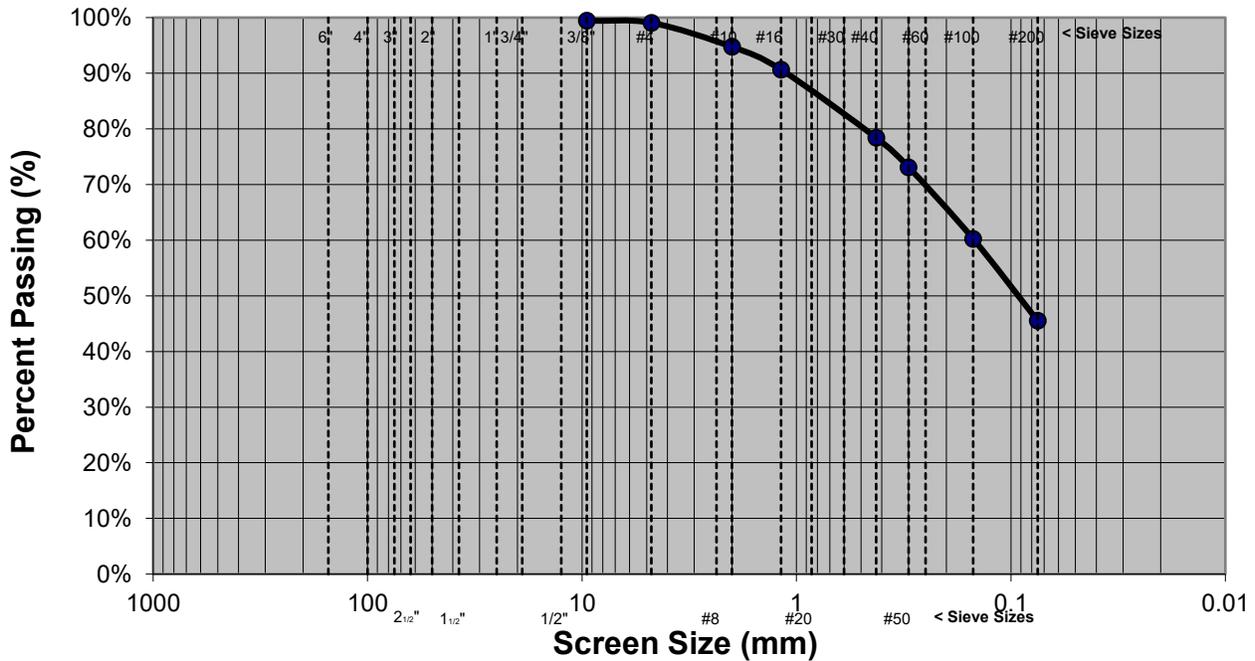


4010 Technology, Unit D Carson City, NV
Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
Project No: 18-135.6
Lab No: CC445
Date Sampled: 11/1/2018
Date Tested: 11/8/2018
Sample No: TP-1 0.0 - 2.2
Material Desc: SC, Clayey Sand, Light Brown

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



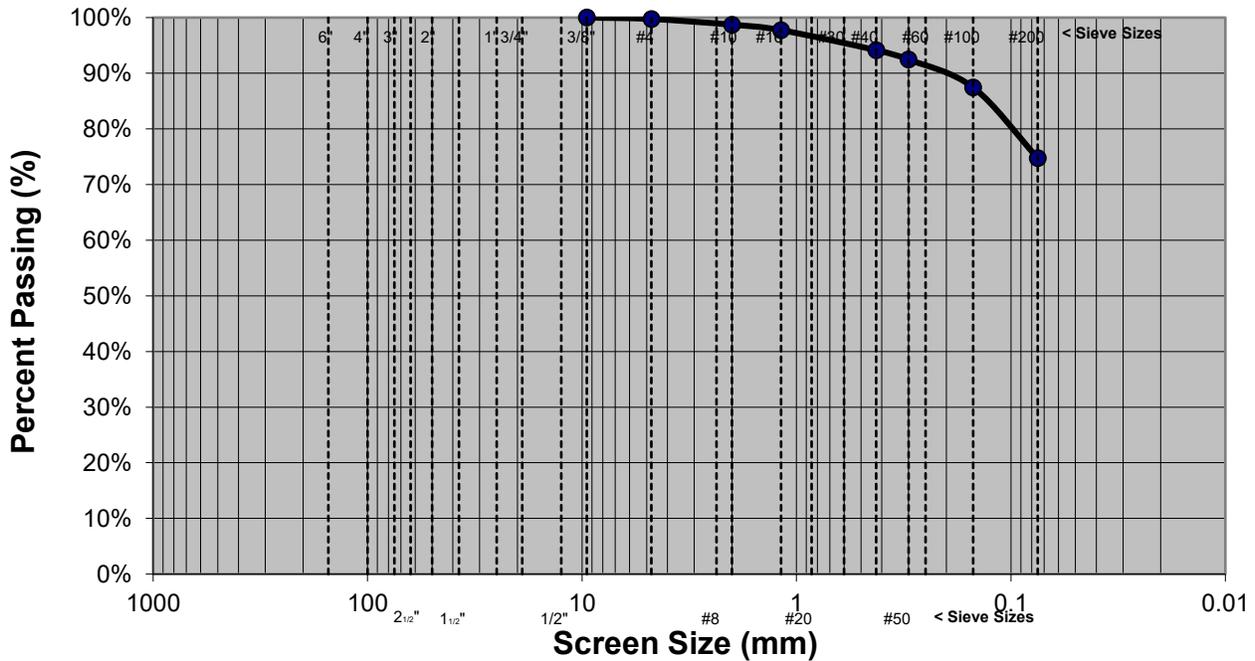


4010 Technology, Unit D, Carson City, NV 89703
 Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
 Project No: 18-135.6
 Lab No: CC445
 Date Sampled: 11/1/2018
 Date Tested: 11/8/2018
 Sample No: TP-1 2.0 - 3.1
 Material Desc: CL, Clay w/ Sand, Grey

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



Tr & Wt Samp:	518.8			
Tr & Dry Samp:	464.3			
Water Loss:	54.5			
Tare Weight:	269.8			
Dry Weight:	194.5			
% Moisture:	28.0%			
		Sieve Size	Percent Passing	Specification -
		6"		GRAVEL %
		4"		
		3"		
		2 1/2"		
		2"		
		1 1/2"		
		1"		
		3/4"	100.0%	
		1/2"	100.0%	
		3/8"	100.0%	
		#4	99.7%	
		#8	98.7%	SAND %
		#10	98.7%	
		#16	97.7%	
		#20		
		#30		
		#40	94.1%	
		#50	92.4%	
		#60		
		#100	87.5%	
		#200	74.8%	
				FINES %

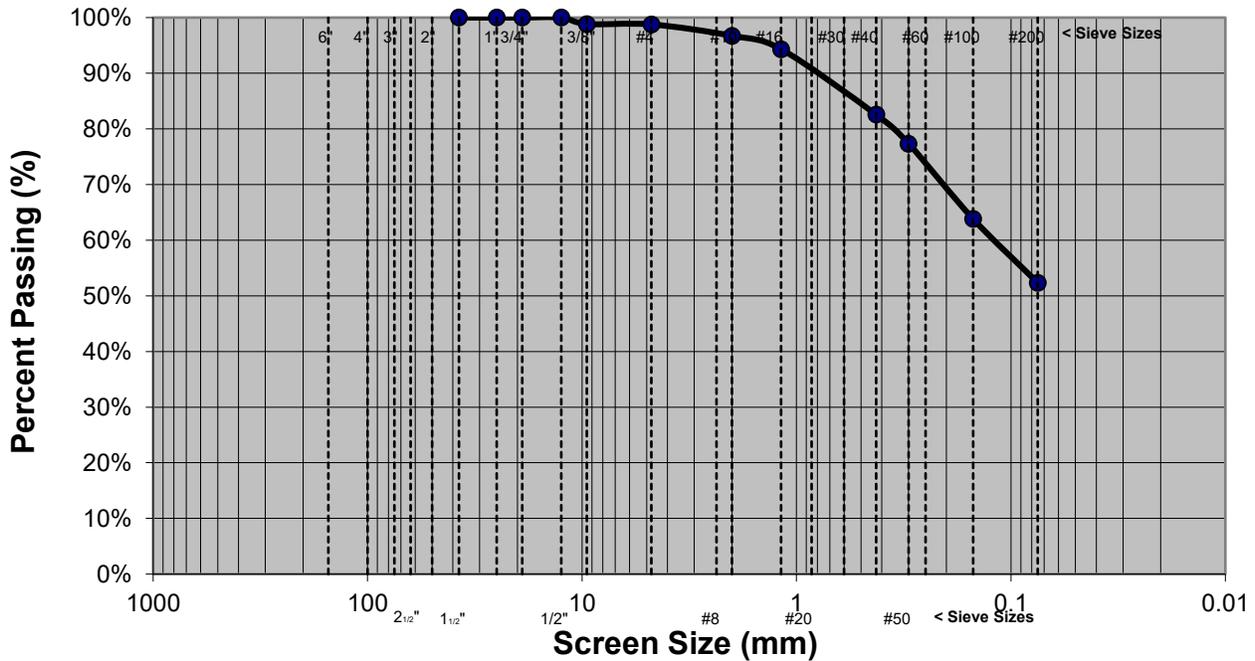


4010 Technology, Unit D, Carson City, NV 89703
 Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
 Project No: 18-135.6
 Lab No: CC445
 Date Sampled: 11/1/2018
 Date Tested: 11/8/2018
 Sample No: TP-4 0.0 - 2.8
 Material Desc: CL, Sandy Clay, Dark Brown

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



Tr & Wt Samp:	438.3			
Tr & Dry Samp:	414.8			
Water Loss:	23.5			
Tare Weight:	244			
Dry Weight:	170.8			
% Moisture:	13.8%			
		Sieve Size	Percent Passing	Specification -
		6"		
		4"		
		3"		
		2 1/2"		
		2"		
		1 1/2"	100.0%	
		1"	100.0%	
		3/4"	100.0%	
		1/2"	100.0%	
		3/8"	98.8%	
		#4	98.8%	
		#8	96.7%	
		#10	94.3%	
		#16		
		#20		
		#30		
		#40	82.6%	
		#50	77.3%	
		#60		
		#100	63.8%	
		#200	52.3%	
				FINES %

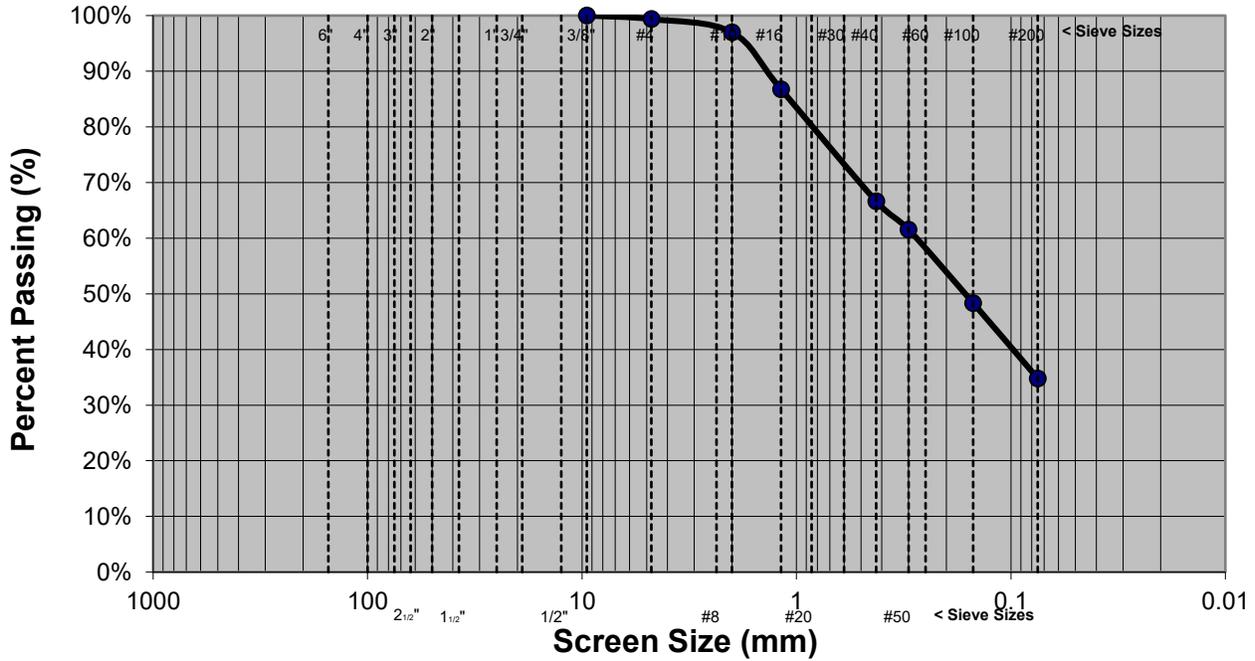


4010 Technology, Unit D, Carson City, NV 89703
 Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
 Project No: 18-135.6
 Lab No: CC445
 Date Sampled: 11/1/2018
 Date Tested: 11/8/2018
 Sample No: TP-4 2.8 - 5.4
 Material Desc: SC, Clayey Sand, Brown

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



Tr & Wt Samp:	495.1			
Tr & Dry Samp:	466.8			
Water Loss:	28.3	6"		GRAVEL %
Tare Weight:	230.6	4"		
Dry Weight:	236.2	3"		
% Moisture:	12.0%	2 1/2"		
		2"		
		1 1/2"		
		1"		
		3/4"	100.0%	
		1/2"	100.0%	
		3/8"	100.0%	
		#4	99.4%	
		#8		SAND %
		#10	97.0%	
		#16	86.7%	
		#20		
		#30		
		#40	66.6%	
		#50	61.6%	
		#60		
		#100	48.3%	
		#200	34.8%	
				FINES %

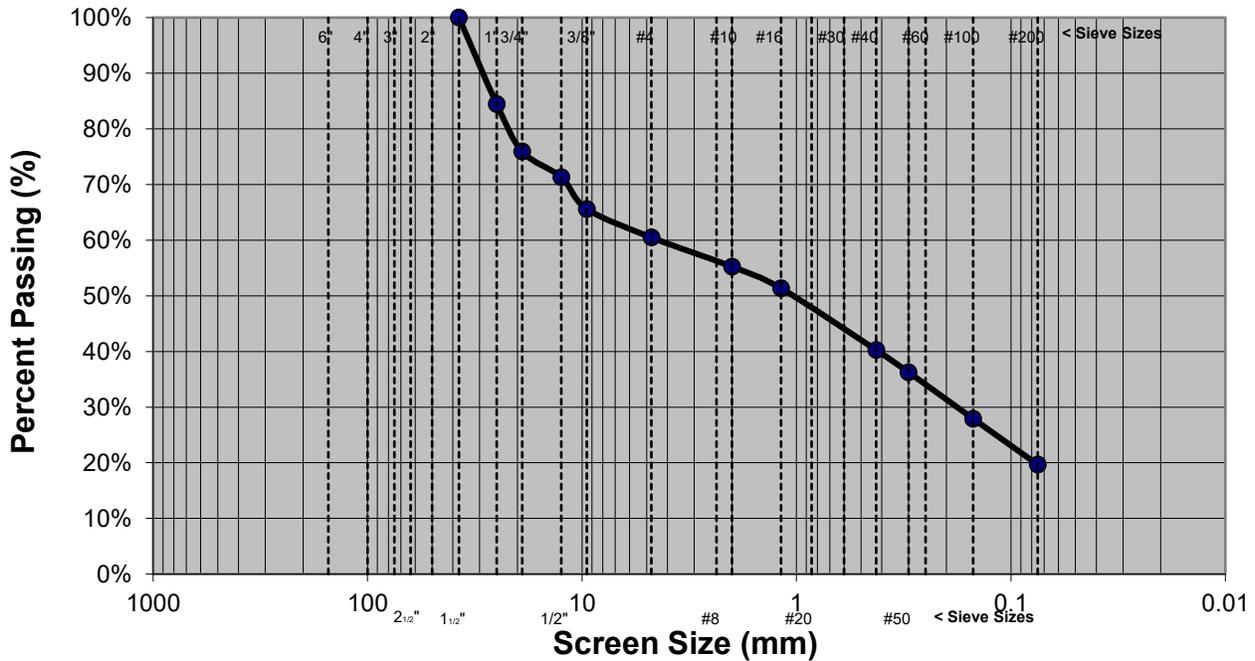


4010 Technology, Unit D, Carson City, NV 89703
 Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
 Project No: 18-135.6
 Lab No: CC445
 Date Sampled: 11/1/2018
 Date Tested: 11/8/2018
 Sample No: TP-5 8.6 - 10.0
 Material Desc: SC, Clayey Sand w/ Gravel, Brown

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



Tr & Wt Samp:	580.3			
Tr & Dry Samp:	536.8			
Water Loss:	43.5	6"		
Tare Weight:	232.3	4"		
Dry Weight:	304.5	3"		
% Moisture:	14.3%	2 1/2"		
		2"		
		1 1/2"	100.0%	
		1"	84.5%	
		3/4"	75.9%	
		1/2"	71.3%	
		3/8"	65.6%	
		#4	60.5%	
		#8		
		#10	55.2%	
		#16	51.3%	
		#20		
		#30		
		#40	40.3%	
		#50	36.3%	
		#60		
		#100	27.9%	
		#200	19.7%	
				FINES %

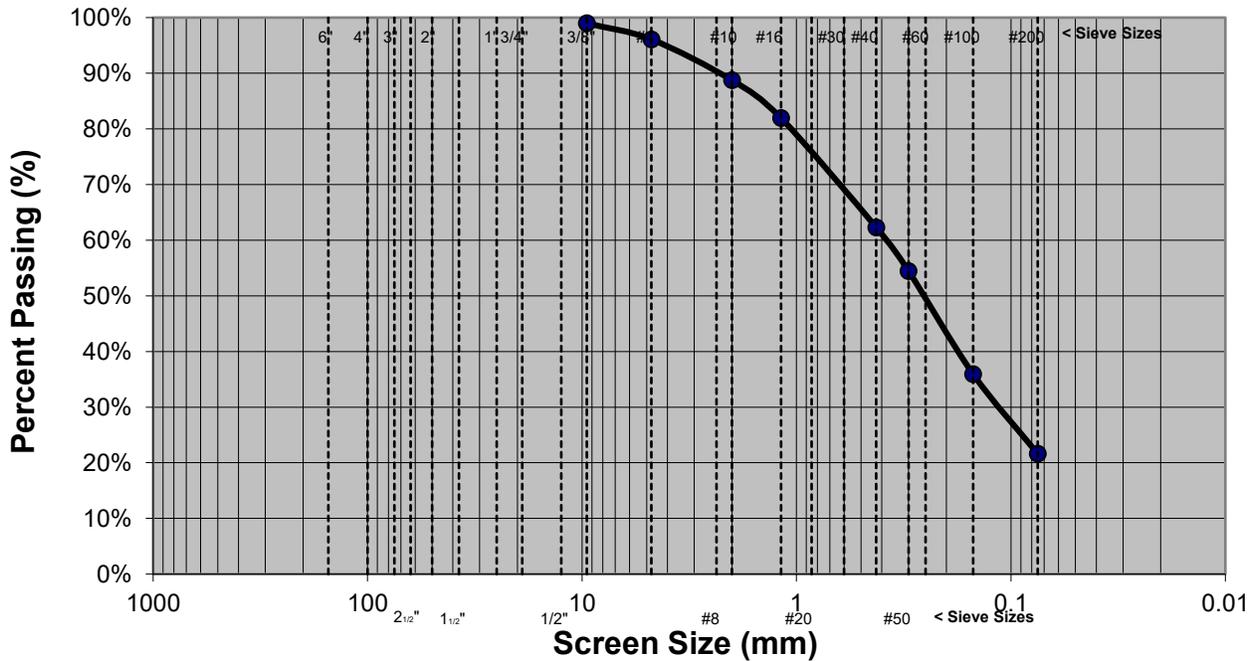


4010 Technology, Unit D, Carson City, NV 89703
Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
Project No: 18-135.6
Lab No: CC445
Date Sampled: 11/1/2018
Date Tested: 11/8/2018
Sample No: TP-7 0.0 - 1.5
Material Desc: SC, Clayey Sand, Brown

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



Tr & Wt Samp:	516.5	Sieve Size	Percent Passing	Specification -	GRAVEL %
Tr & Dry Samp:	503				
Water Loss:	13.5	6"			
Tare Weight:	192.1	4"			
Dry Weight:	310.9	3"			
% Moisture:	4.3%	2 1/2"			
		2"			
		1 1/2"			
		1"			
		3/4"	100.0%		
		1/2"	100.0%		
		3/8"	99.0%		
		#4	96.1%		
		#8			
		#10	88.7%		
		#16	81.9%		
		#20			
		#30			
		#40	62.3%		
		#50	54.4%		
		#60			
		#100	35.9%		
		#200	21.6%		
					SAND %
					FINES %

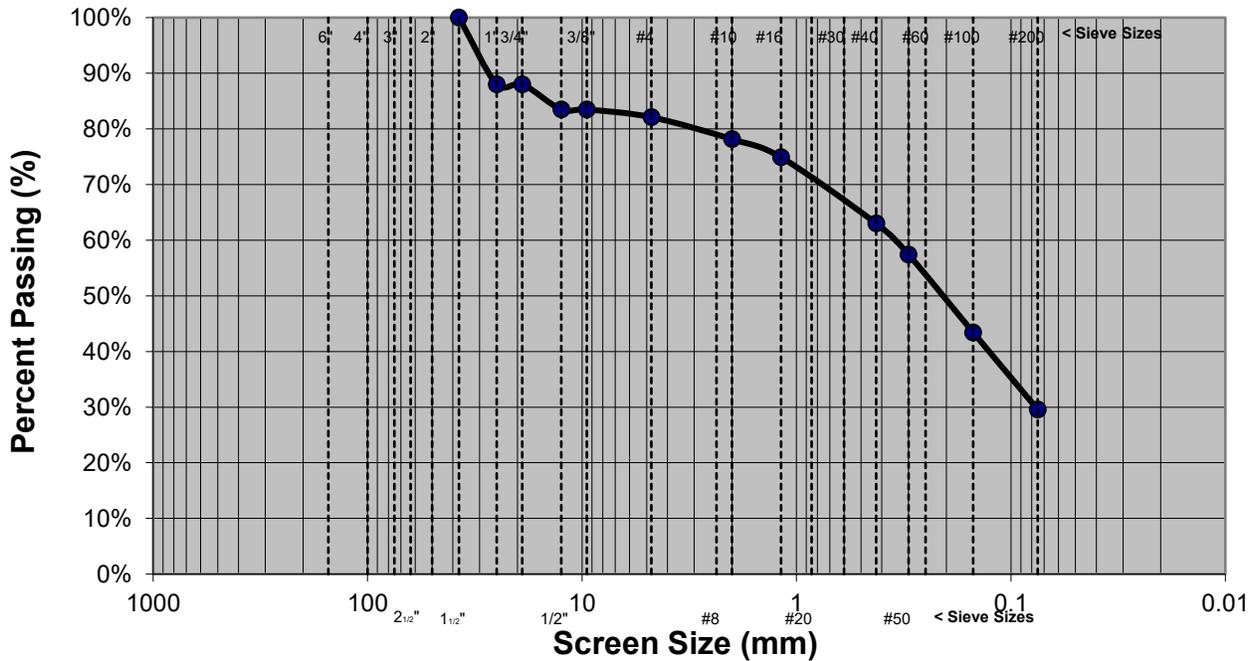


4010 Technology, Unit D, Carson City, NV 89703
 Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
 Project No: 18-135.6
 Lab No: CC445
 Date Sampled: 11/1/2018
 Date Tested: 11/8/2018
 Sample No: TP-8 0.0 - 1.0
 Material Desc: SC, Clayey Sand w/ Gravel, Brown

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



Tr & Wt Samp:	462.3			
Tr & Dry Samp:	443.7			
Water Loss:	18.6			
Tare Weight:	225.9			
Dry Weight:	217.8			
% Moisture:	8.5%			

Sieve Size	Percent Passing	Specification -	
6"			GRAVEL %
4"			
3"			
2 1/2"			
2"			
1 1/2"	100.0%		
1"	88.0%		
3/4"	88.0%		
1/2"	83.5%		
3/8"	83.5%		
#4	82.1%		
#8			SAND %
#10	78.1%		
#16	74.9%		
#20			
#30			
#40	63.0%		
#50	57.4%		
#60			
#100	43.4%		
#200	29.6%		
			FINES %

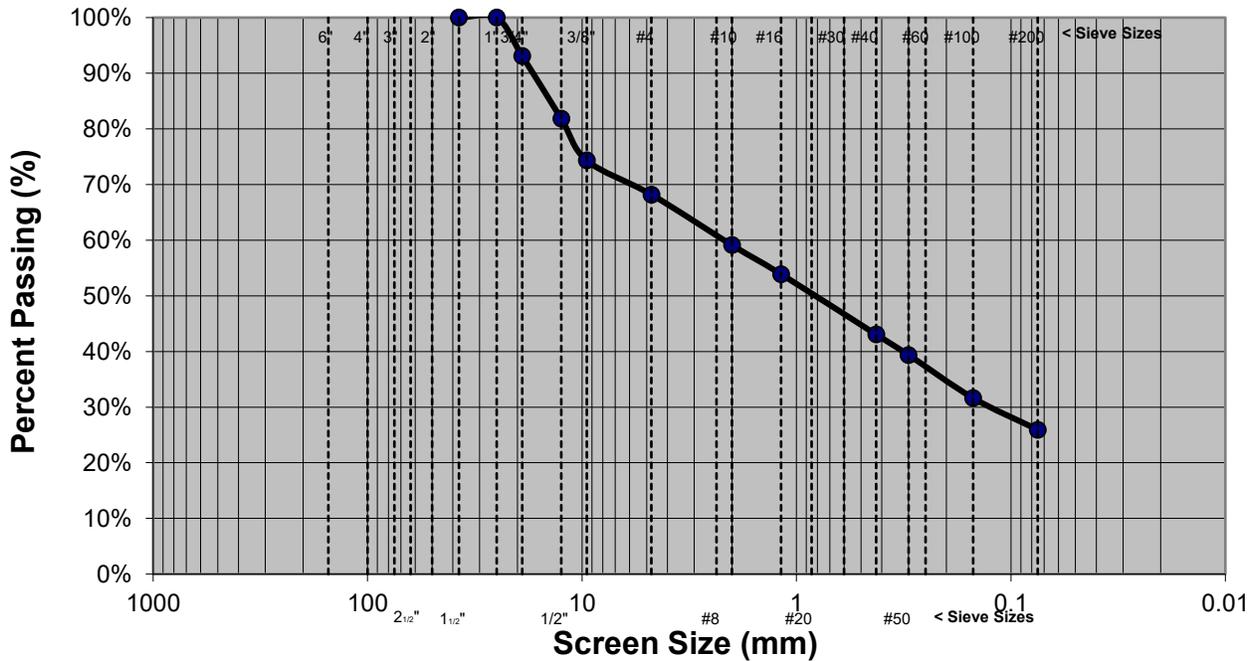


4010 Technology, Unit D, Carson City, NV 89703
Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
Project No: 18-135.6
Lab No: CC445
Date Sampled: 11/1/2018
Date Tested: 11/8/2018
Sample No: TP-11 0.0 - 1.2
Material Desc: SC, Clayey Sand w/ Gravel, Brown

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



Tr & Wt Samp:	522.1			
Tr & Dry Samp:	510.7			
Water Loss:	11.4	6"		
Tare Weight:	233.1	4"		
Dry Weight:	277.6	3"		
% Moisture:	4.1%	2 1/2"		
		2"		
		1 1/2"	100.0%	
		1"	100.0%	
		3/4"	93.1%	
		1/2"	81.8%	
		3/8"	74.3%	
		#4	68.2%	
		#8	59.1%	
		#10	53.9%	
		#16		
		#20		
		#30		
		#40	43.0%	
		#50	39.4%	
		#60		
		#100	31.6%	
		#200	25.9%	
				GRAVEL %
				SAND %
				FINES %

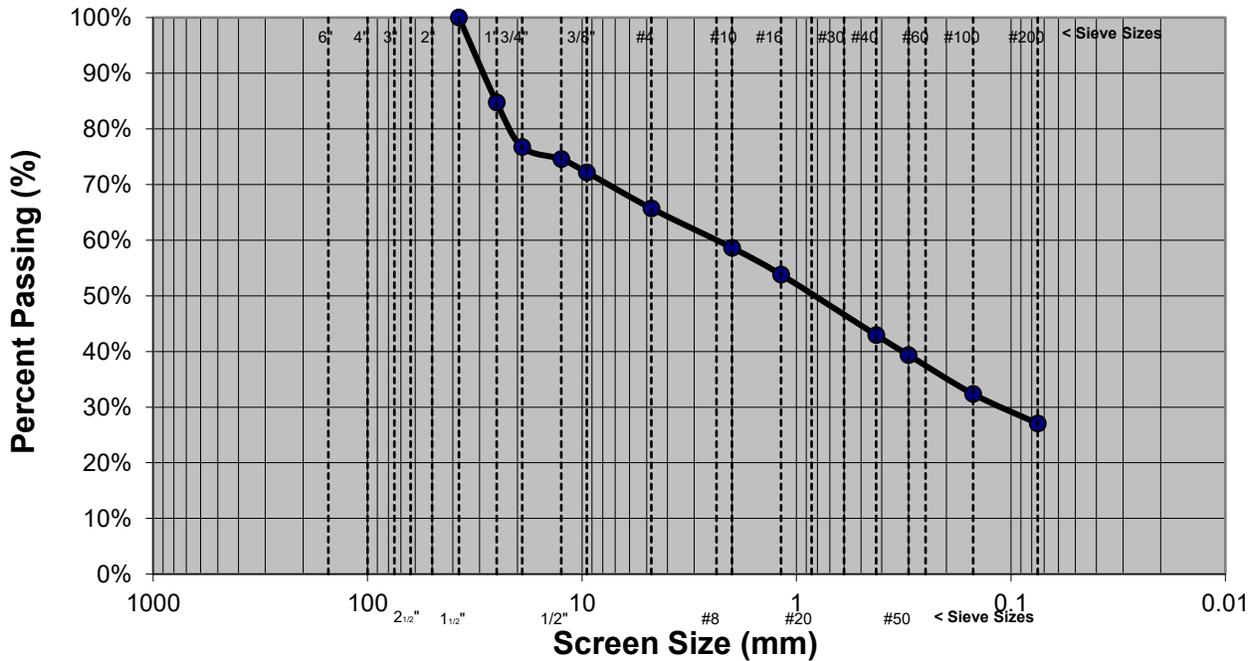


4010 Technology, Unit D Carson City, NV
Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
Project No: 18-135.6
Lab No: CC445
Date Sampled: 11/1/2018
Date Tested: 11/8/2018
Sample No: TP-11 1.2 - 7.3
Material Desc: SC, Clayey Sand w/ Gravel, Brown

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



Tr & Wt Samp:	604			
Tr & Dry Samp:	584.6			
Water Loss:	19.4	6"		
Tare Weight:	295.9	4"		
Dry Weight:	288.7	3"		
% Moisture:	6.7%	2 1/2"		
		2"		
		1 1/2"	100.0%	
		1"	84.7%	
		3/4"	76.7%	
		1/2"	74.6%	
		3/8"	72.2%	
		#4	65.7%	
		#8		
		#10	58.6%	
		#16	53.8%	
		#20		
		#30		
		#40	43.0%	
		#50	39.3%	
		#60		
		#100	32.4%	
		#200	27.1%	
				FINES %

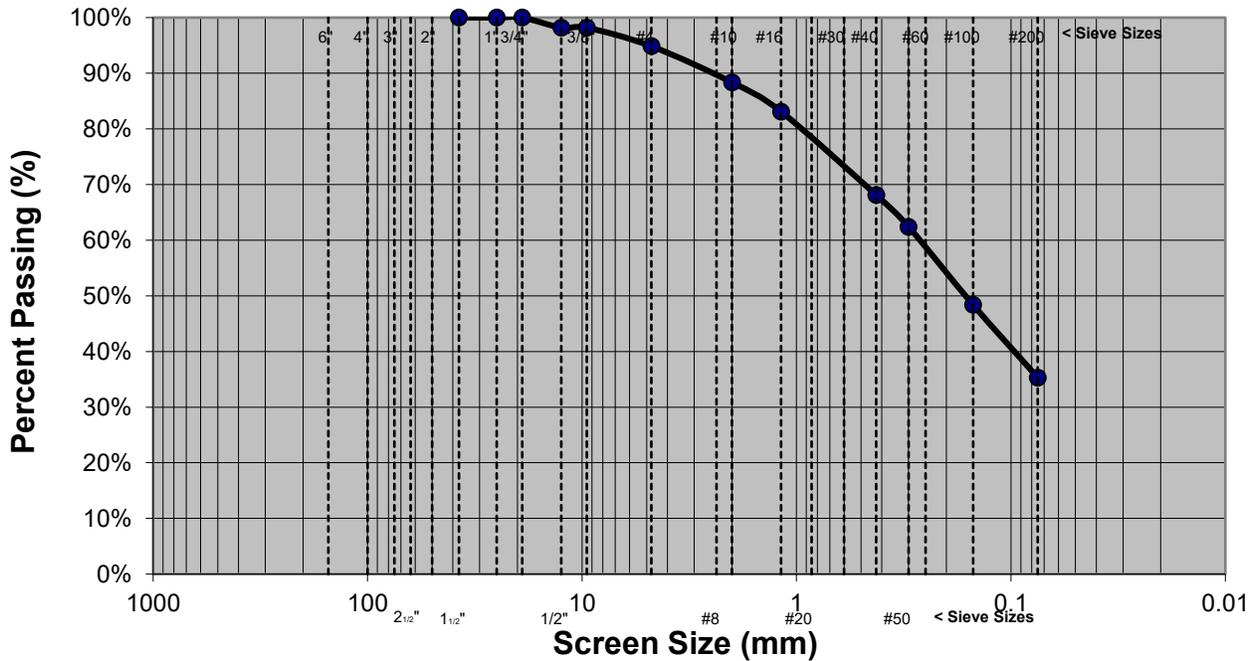


4010 Technology, Unit D, Carson City, NV 89703
Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
Project No: 18-135.6
Lab No: CC445
Date Sampled: 11/1/2018
Date Tested: 11/8/2018
Sample No: TP-12 0.0 - 1.5
Material Desc: SC, Clayey Sand, Brown

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



Tr & Wt Samp:	624.3	Sieve Size	Percent Passing	Specification -	
Tr & Dry Samp:	606.4				
Water Loss:	17.9	6"			GRAVEL %
Tare Weight:	300	4"			
Dry Weight:	306.4	3"			
% Moisture:	5.8%	2 1/2"			
		2"			
		1 1/2"	100.0%		SAND %
		1"	100.0%		
		3/4"	100.0%		
		1/2"	98.2%		
		3/8"	98.2%		
		#4	94.8%		
		#8			
		#10	88.3%		
		#16	83.1%		
		#20			
		#30			
		#40	68.1%		
		#50	62.4%		
		#60			
		#100	48.4%		
		#200	35.3%		
					FINES %

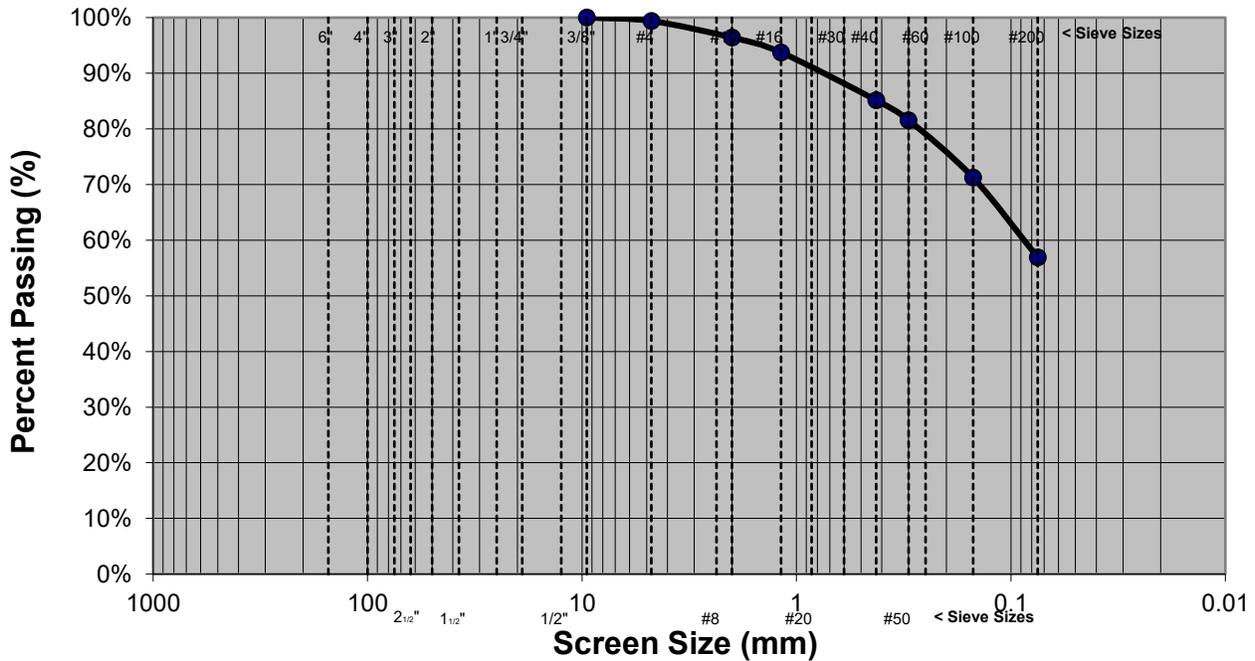


4010 Technology, Unit D Carson City, NV
Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
Project No: 18-135.6
Lab No: CC445
Date Sampled: 11/1/2018
Date Tested: 11/8/2018
Sample No: TP-13 0.0 - 2.0
Material Desc: CL, Sandy Lean Clay, Brown

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



Tr & Wt Samp:	714.3			
Tr & Dry Samp:	677.5			
Water Loss:	36.8			
Tare Weight:	304.6			
Dry Weight:	372.9			
% Moisture:	9.9%			

Sieve Size	Percent Passing	Specification -	
6"			GRAVEL %
4"			
3"			
2 1/2"			
2"			
1 1/2"			
1"			
3/4"	100.0%		SAND %
1/2"	100.0%		
3/8"	100.0%		
#4	99.4%		
#8			
#10	96.4%		
#16	93.7%		
#20			
#30			
#40	85.1%		
#50	81.6%		
#60			
#100	71.2%		
#200	56.9%		
			FINES %

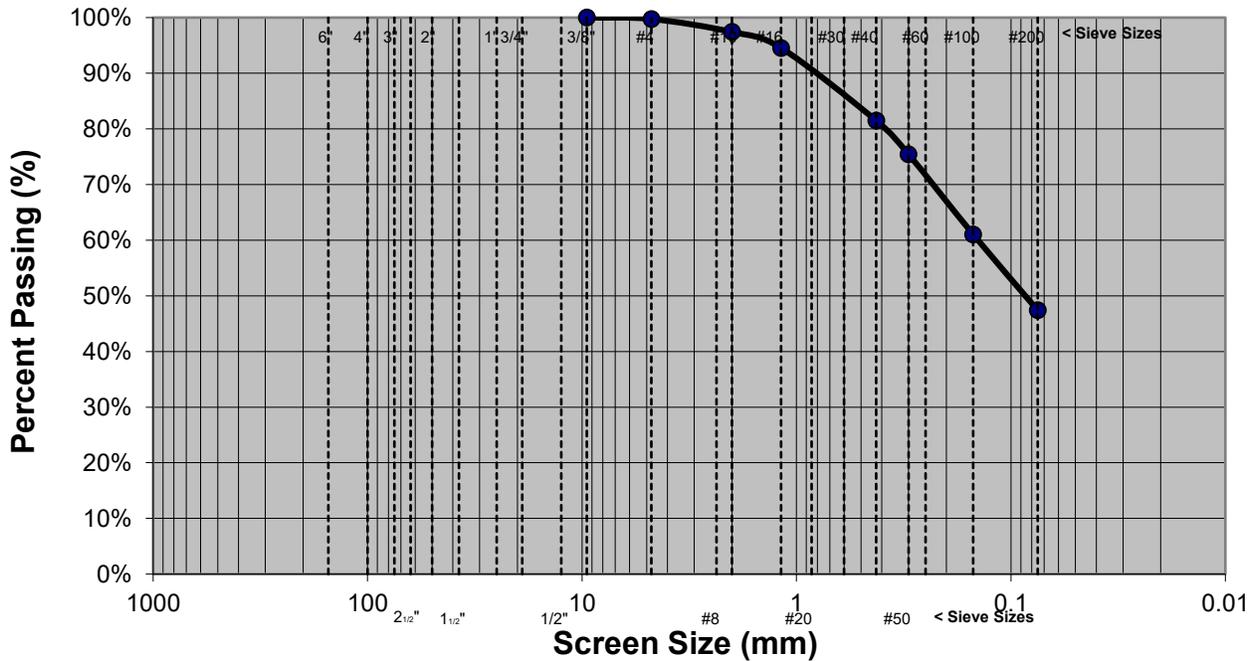


4010 Technology, Unit D, Carson City, NV 89703
 Office: 775-883-1600 Fax: 775-888-9904

Project: Sierra Skies RV Park
 Project No: 18-135.6
 Lab No: CC445
 Date Sampled: 11/1/2018
 Date Tested: 11/8/2018
 Sample No: TP-13 2.0 - 8.5
 Material Desc: SC, Clayey Sand, Dark Grey

Sieve Analysis-ASTM C136/AASHTO T27

Soil Gradation



Tr & Wt Samp:	517.8	Sieve Size	Percent Passing	Specification -	GRAVEL %
Tr & Dry Samp:	453				
Water Loss:	64.8	6"			
Tare Weight:	178.1	4"			
Dry Weight:	274.9	3"			
% Moisture:	23.6%	2 1/2"			
		2"			
		1 1/2"			
		1"			
		3/4"	100.0%		
		1/2"	100.0%		
		3/8"	100.0%		
		#4	99.7%		
		#8	97.4%		
		#10	94.5%		
		#16	81.5%		
		#20	75.4%		
		#30	61.0%		
		#40	47.4%		
		#50			
		#60			
		#100			
		#200			
					SAND %
					FINES %

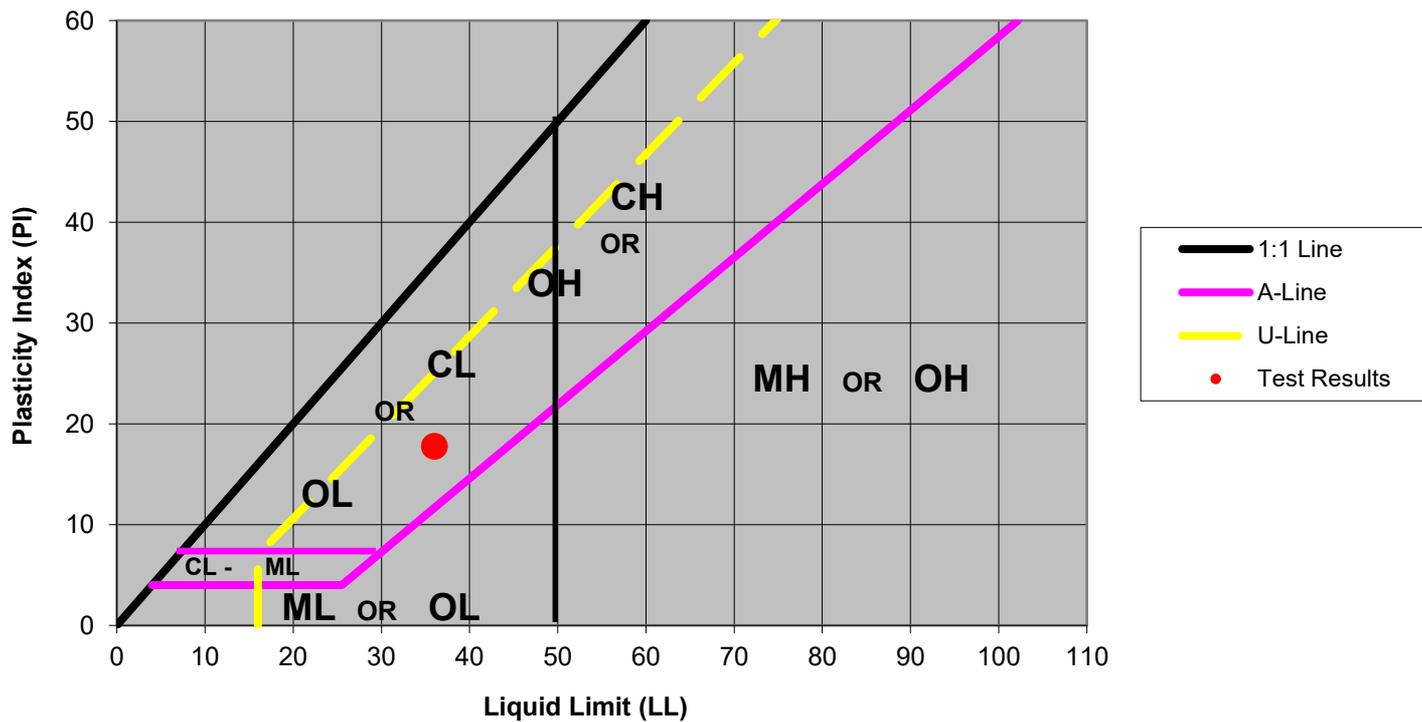


4010 Technology Way, Unit D
 Carson City, Nevada 89703
 Office: 775-883-1600 Fax: 775-888-9904

Project Name:	Sierra Skies RV Park
Project Number:	18-135.6
Sample Number:	TP-1 0.0-2.0
Date:	11/14/2018
By:	J. Hannon

PLASTICITY INDEX

Plasticity Chart (ASTM D2487)



LIQUID LIMIT	36
PLASTIC LIMIT	18
PLASTICITY INDEX	18

USCS Classification:

CL

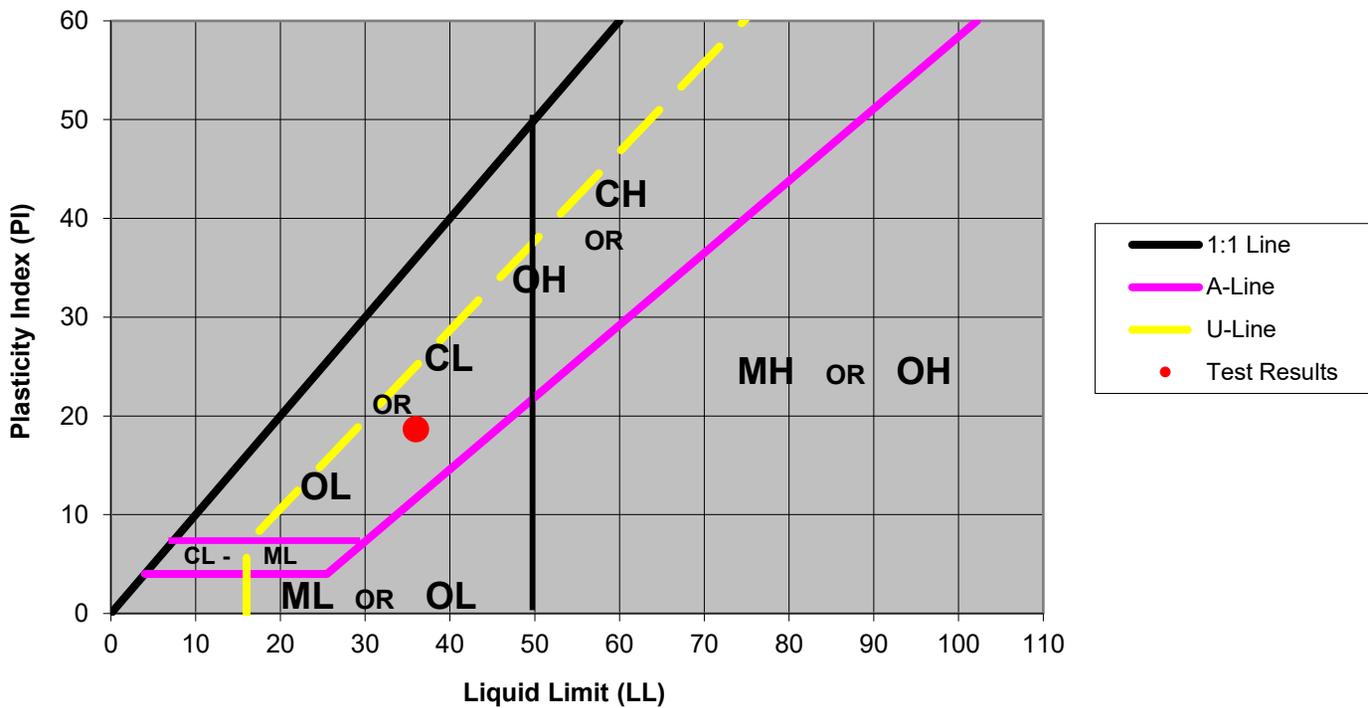


4010 Technology Way, Unit D
 Carson City, Nevada 89703
 Office: 775-883-1600 Fax: 775-888-9904

Project Name:	Sierra Skies RV Park
Project Number:	18-135.6
Sample Number:	TP-4 0.0-2.8
Date:	11/14/2018
By:	J. Hannon

PLASTICITY INDEX

Plasticity Chart (ASTM D2487)



LIQUID LIMIT	36
PLASTIC LIMIT	17
PLASTICITY INDEX	19

USCS Classification:

CL



Resource Concepts Inc

4010 Technology Way, Unit D

Carson City, Nevada 89703

Office: 775-883-1600 Fax: 775-888-9904

Project Name: Sierra Skies RV Park

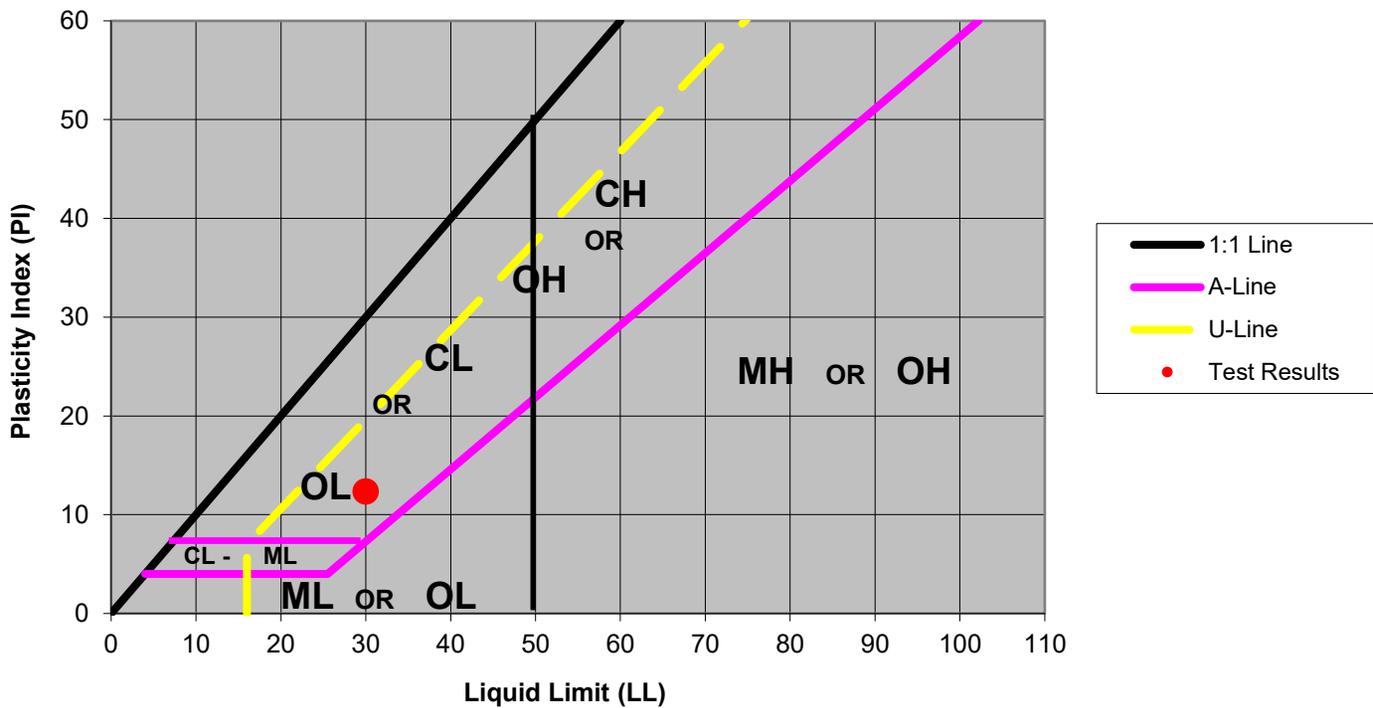
Project Number: 18-135.6

Sample Number: TP-4 2.8-5.4

Date: 11/14/2018 By: J. Hannon

PLASTICITY INDEX

Plasticity Chart (ASTM D2487)



LIQUID LIMIT	30
PLASTIC LIMIT	18
PLASTICITY INDEX	12

USCS Classification:

CL

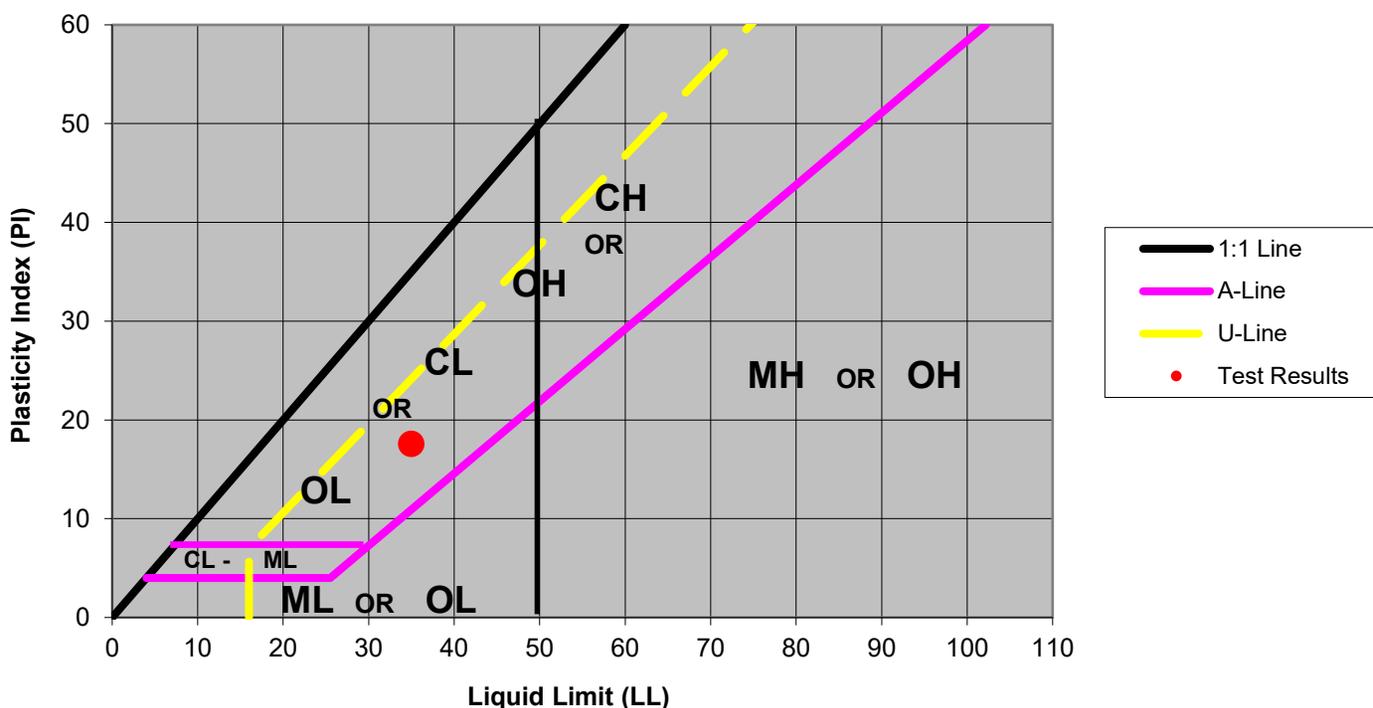


4010 Technology Way, Unit D
 Carson City, Nevada 89703
 Office: 775-883-1600 Fax: 775-888-9904

Project Name:	Sierra Skies RV Park
Project Number:	18-135.6
Sample Number:	TP-8 0.0-1.0
Date:	11/14/2018
By:	J. Hannon

PLASTICITY INDEX

Plasticity Chart (ASTM D2487)



LIQUID LIMIT	35
PLASTIC LIMIT	17
PLASTICITY INDEX	18

USCS Classification:
 CL

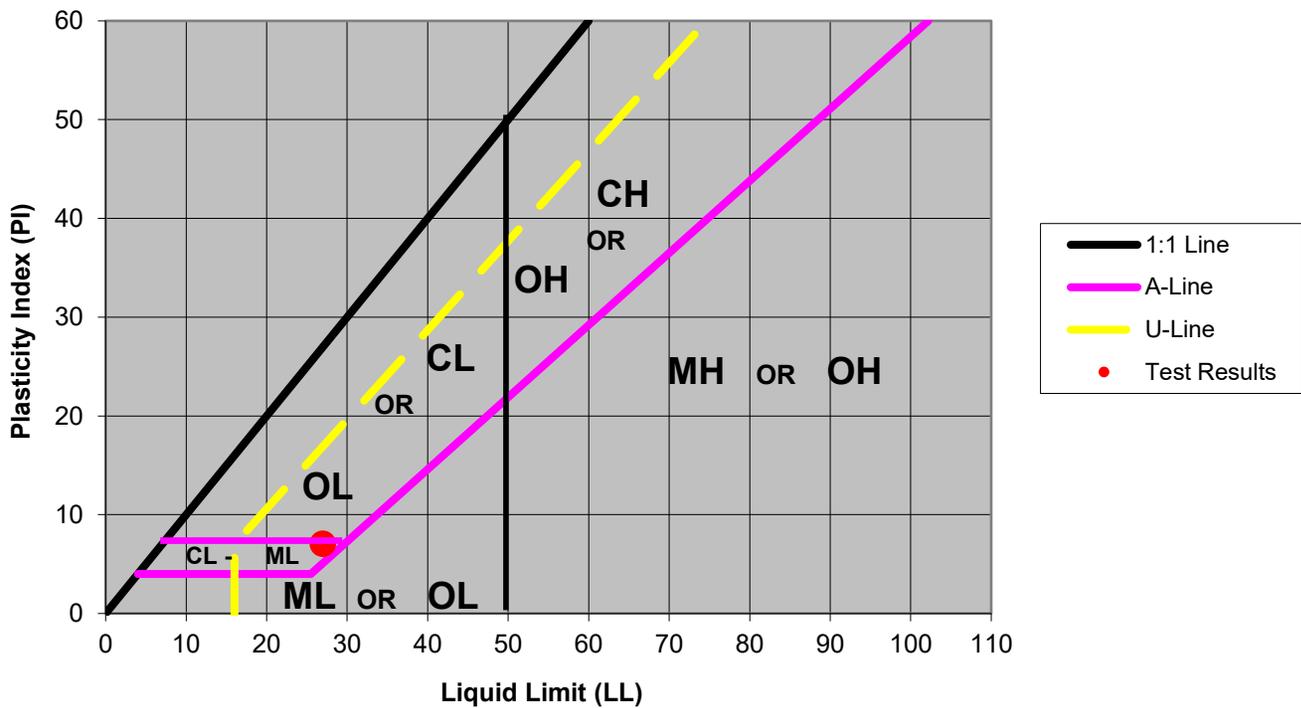


4010 Technology Way, Unit D
 Carson City, Nevada 89703
 Office: 775-883-1600 Fax: 775-888-9904

Project Name:	Sierra Skies RV Park
Project Number:	18-135.6
Sample Number:	TP-11 0.0-1.2
Date:	11/14/2018
By:	J. Hannon

PLASTICITY INDEX

Plasticity Chart (ASTM D2487)



LIQUID LIMIT	27
PLASTIC LIMIT	20
PLASTICITY INDEX	7

USCS Classification:
 CL-ML



Silver State Labs-Reno
 1135 Financial Blvd
 Reno, NV 89502
 (775) 857-2400 FAX: (888) 398-7002
 www.ssalabs.com

Analytical Report

Workorder#: 18110723
 Date Reported: 11/20/2018

Client: Resource Concepts, Inc.
Project Name: TP-9 0-1.8
PO #: 18-320.1

Sampled By: J. Koch

Laboratory Accreditation Number: NV015/CA2990

Laboratory ID	Client Sample ID	Date/Time Sampled	Date Received
18110723-01	TP-9 0-1.8	11/07/2018 14:00	11/14/2018

Parameter	Method	Result	Units	PQL	Analyst	Date/Time Analyzed	Data Flag
pH	SW-846 9045D	9.19	pH Units		KK	11/15/2018 14:03	
pH Temperature	SW-846 9045D	21.0	°C		KK	11/15/2018 14:03	
Resistivity	ASTM G-57	3100	Ohms-cm		KK	11/15/2018 14:46	
Sulfate	ASTM 1580C	< 0.02	%	0.02	KK	11/16/2018 9:07	

Analysis: PASTE pH
Method: SW-846 9045D

Batch ID: R23460

Laboratory Control Sample (LCS)

RunID: 23460 SeqNo 517256 Units: pH Units
Analysis Date: 11/15/2018 2:03:00 PM Analyst: KK

Analyte	LCS Spike Added	LCS Result	LCS % Recovery	LCSD Spike Added	LCSD Result	LCSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	Qual
pH	7.020	7.01	99.9								

Analysis: Water Soluble Sulfate-ASTM (SO4)
Method: ASTM 1580C

Batch ID: R23478

Laboratory Control Sample (LCS)

RunID: 23478 SeqNo 517626 Units: mg/L
Analysis Date: 11/16/2018 9:07:00 AM Analyst: KK

Analyte	LCS Spike Added	LCS Result	LCS % Recovery	LCSD Spike Added	LCSD Result	LCSD % Recovery	RPD	RPD Limit	Low Limit	High Limit	Qual
Sulfate	25.00	27	110								



Silver State Labs-Reno
1135 Financial Blvd
Reno, NV 89502
(775) 857-2400 FAX: (888) 398-7002
www.ssalabs.com

Definitions & Qualifiers

WO#: 18110723

Date: 11/20/2018

Definitions:

LCS: Laboratory Control Sample; prepared by adding a known mass of target analytes to a specified amount of de-ionized water and prepared with the batch of samples, used to calculate Accuracy (%REC).

LCSD: LCS Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

MBLK: Method Blank; a sample of similar matrix that is processed simultaneously with and under the same conditions as samples through all steps of the analytical procedure, and in which no target analytes or interferences are present at concentrations that impact the analytical results for sample analyses.

MS: Matrix Spike; prepared by adding a known mass of target analytes to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available, used to calculate Accuracy (%REC)

MSD: Matrix Spike Duplicate; used to calculate both Accuracy (%REC) and Precision (%RPD)

RPD: Relative Percent Difference; comparison between sample and duplicate and/or MS and MSD.

PQL: Practical Quantitation Limit; the limit to which data is quantitated for reporting.

MDL: Method Detection Limit; the limit to which the instrument can reliably detect.

MCL: Maximum Contaminant Level; value set according to EPA guidelines.

Qualifiers:

* - Analyte exceeds Safe Drinking Water Act MCL, does not meet drinking water standards.

C - Analyte value below Safe Drinking Water Act MCL, does not meet drinking water standards.

B - Analyte found above the PQL in associated method blank.

G - Calibration blank analyte detected above PQL.

H - Sample analyzed beyond holding time for this parameter.

J - Estimated Value; Analyte found between MDL and PQL limits.

L - Sample concentration is at least 5 times greater than spike contribution. Spike recovery criteria do not apply.

R - RPD between sample and duplicate sample outside the RPD acceptance limits.

S - Batch MS and/or MSD were outside acceptance limits, batch LCS was acceptable.

W - Sample temperature when received was out of limit as specified by method.



CARSON CITY

Capital of Nevada

[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: SIERRA SKIES RV RESORT LLC
 P O BOX 1781
 CARSON CITY, NV 89702-0000

Tax Year: 2018-19
 Roll #: 016218
 District: 2.4
 Tax Service:
 Land Use Code: 140

[Code Table](#)

Outstanding Taxes:

Prior Year	Tax	Penalty/Interest	Total	Amount Paid	Total Due
------------	-----	------------------	-------	-------------	-----------

Current Year

08/20/18	1,790.60		1,790.60	1,790.60	.00
10/01/18	1,790.00		1,790.00	1,790.00	.00
01/07/19	1,790.00		1,790.00	1,790.00	.00
03/04/19	1,790.00		1,790.00	1,790.00	.00

No Taxes Owing

Totals:	7,160.60	.00	7,160.60	7,160.60	
----------------	-----------------	------------	-----------------	-----------------	--

[Payment Cart](#)[History](#)

Additional Information

	2018-19	2017-18	2016-17	2015-16	2014-15
Tax Rate	3.5700	3.5700	3.5200	3.5200	3.5400
Tax Cap Percent	4.2	2.6	.2	3.2	3.0
Abatement Amount	7,312.71	7,601.32			

SIERRA SKIES RV RESORT
TRAFFIC ANALYSIS

AUGUST 2019

Solaegui

8-16-19
EXP 6-30-20

Prepared by:
Solaegui Engineers, Ltd.
715 H Street
Sparks, Nevada 89431
(775) 358-1004

TABLE OF CONTENTS

EXECUTIVE SUMMARY.....	3
INTRODUCTION.....	4
STUDY AREA.....	4
EXISTING AND PROPOSED LAND USES.....	4
EXISTING AND PROPOSED ROADWAYS AND INTERSECTIONS.....	4
TRIP GENERATION.....	6
TRIP DISTRIBUTION AND ASSIGNMENT.....	7
EXISTING AND PROJECTED TRAFFIC VOLUMES.....	7
INTERSECTION CAPACITY ANALYSIS.....	14
SITE PLAN REVIEW.....	18
RECOMMENDATIONS.....	18
APPENDIX.....	19

LIST OF FIGURES

FIGURE 1 - VICINITY MAP.....	5
FIGURE 2 - TRIP DISTRIBUTION.....	8
FIGURE 3 - TRIP ASSIGNMENT.....	9
FIGURE 4 - EXISTING TRAFFIC VOLUMES.....	10
FIGURE 5 - EXISTING PLUS PROJECT TRAFFIC VOLUMES.....	11
FIGURE 6 - 2040 BASE TRAFFIC VOLUMES.....	12
FIGURE 7 - 2040 BASE PLUS PROJECT TRAFFIC VOLUMES.....	13

SIERRA SKIES RV RESORT

TRAFFIC ANALYSIS

EXECUTIVE SUMMARY

The proposed Sierra Skies RV Resort will be located in Carson City, Nevada. The project site is generally located north of Old Hot Springs Road, south of Arrowhead Drive, west of Goni Road, and northeast of I-580. The project site is currently undeveloped land. The purpose of this study is to address the project's impact upon the adjacent street network. The College Parkway intersections with Research Way and Goni Road and the Old Hot Springs Road intersections with Research Way, Goni Road, and the project driveway have been identified for AM and PM peak hour capacity analysis for the existing, existing plus project, 2040 base, and 2040 base plus project scenarios.

The proposed Sierra Skies RV Resort will include the construction of an extended stay RV park containing 227 spaces. Project access will be provided from one driveway on Old Hot Springs Road. The proposed Sierra Skies RV Resort is anticipated to generate 788 average weekday trips with 50 trips occurring during the AM peak hour and 64 trips occurring during the PM peak hour.

Traffic generated by the proposed Sierra Skies RV Resort development will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that any required signing, striping or traffic control improvements comply with Carson City requirements.

It is recommended that the project driveway road, all internal streets, and the on-site parking areas be designed to conform to Carson City standards.

INTRODUCTION

STUDY AREA

The proposed Sierra Skies RV Resort will be located in Carson City, Nevada. The project site is generally located north of Old Hot Springs Road, south of Arrowhead Drive, west of Goni Road, and northeast of I-580. Figure 1 shows the approximate location of the project site. The purpose of this study is to address the project's impact upon the adjacent street network. The College Parkway intersections with Research Way and Goni Road and the Old Hot Springs Road intersections with Research Way, Goni Road, and the project driveway have been identified for AM and PM peak hour capacity analysis for the existing, existing plus project, 2040 base, and 2040 base plus project scenarios.

EXISTING AND PROPOSED LAND USES

The project site is currently undeveloped land. Adjacent properties generally include residential development to the west, commercial and undeveloped land to the south, and undeveloped land to the north and east. The proposed Sierra Skies RV Resort will include the construction of an extended stay RV park containing 227 spaces. Project access will be provided from one driveway on Old Hot Springs Road.

EXISTING AND PROPOSED ROADWAYS AND INTERSECTIONS

College Parkway is a four-lane roadway with two through lanes in each direction in the vicinity of the site. The speed limit is posted for 40 miles per hour in the vicinity of the site. Roadway improvements include curb, gutter, sidewalk, and a bike lane on both sides of the street. A center two-way left turn lane exists between Research Way and Goni Road and raised center medians exist west of Research Way and east of Goni Road.

Old Hot Springs Road is a two-lane roadway with one through lane in each direction in the vicinity of the site. The speed limit is not posted but assumed to be 25 miles per hour. Roadway improvements west of Goni Road generally include either curb and gutter or graded shoulders, sidewalk in some areas, and a striped centerline. Roadway improvements east of Goni Road include curb and gutter on both sides of the street and sidewalk on the south side of the street.

Research Way is a two-lane roadway with one through lane in each direction in the vicinity of the site. The speed limit is not posted but assumed to be 25 miles per hour. Roadway improvements include curb and gutter on both sides of the street and sidewalk in developed areas near College Parkway. On-street parking is permitted on both sides of the street except near College Parkway.

Goni Road is a two-lane roadway with one through lane in each direction in the vicinity of the site. The speed limit is 35 miles per hour. Roadway improvements include curb and gutter on both sides of the street and sidewalk in developed areas. Bike lanes exist on both sides of the street north of College Parkway and on-street parking is permitted south of College Parkway.

LEGEND
■ PROJECT SITE



SIERRA SKIES RV RESORT
VICINITY MAP
FIGURE 1

The College Parkway/Research Way intersection is a signalized four-leg intersection with protected/permissive phasing for the left turn movements at the east and west approaches and permissive phasing for the left turn movements at the north and south approaches. The north and south approaches each contain one left turn lane and one shared through-right turn lane. The east and west approaches each contain one left turn lane, one through lane, and one shared through-right turn lane. Pedestrian crosswalks exist at all approaches.

The College Parkway/Goni Road intersection is a signalized four-leg intersection with protected phasing for all left turn movements. The north approach contains two left turn lanes and one shared through-right turn lane. The south approach contains one left turn lane and one shared through-right turn lane. The east and west approaches each contain one left turn lane, one through lane, and one shared through-right turn lane. Pedestrian crosswalks exist at all approaches.

The Old Hot Springs Road/Goni Road intersection is an unsignalized four-leg intersection with stop sign control at the east and west approaches. The north and south approaches each contain one left turn lane and one shared through-right turn lane. The east and west approaches each contain one shared left turn-through-right turn lane. Pedestrian crosswalks exist at all the west and south approaches.

The Old Hot Springs Road/Research Way intersection is an unsignalized three-leg intersection with stop sign control at the south approach. The east approach contains one shared left turn-through lane. The west approach contains one shared through-right turn lane. The south approach contains one shared left turn-right turn lane. Pedestrian crosswalks exist at all approaches.

The Old Hot Springs Road/Project Driveway intersection is an unsignalized three-leg intersection with stop control at the north approach. The west approach contains one shared left turn-through lane. The east approach contains one shared through-right turn lane. The north approach contains one shared left turn-right turn lane.

TRIP GENERATION

In order to assess the magnitude of traffic impacts of the proposed development on the key intersections, trip generation rates and peak hours had to be determined. Trip generation rates were obtained from the Tenth Edition of *ITE Trip Generation* (2018) for Land Uses 260: Recreational Home. The proposed Sierra Skies RV Resort will include the construction of an extended stay RV park containing 227 spaces.

The trip generation for the proposed development was calculated for an average weekday and for the weekday peak hours occurring between 7:00 and 9:00 AM and 4:00 and 6:00 PM, which correspond to the peak hours of adjacent street traffic. Table 1 shows a summary of the average daily traffic (ADT) volumes and peak hour volumes generated by the project. The trip generation worksheets are included in the Appendix.

TABLE 1 TRIP GENERATION							
LAND USE	ADT	AM PEAK HOUR			PM PEAK HOUR		
		IN	OUT	TOTAL	IN	OUT	TOTAL
Recreational Home (227 Lots)	788	33	17	50	26	38	64

As shown in Table 1, the proposed Sierra Skies RV Resort is anticipated to generate 788 average weekday trips with 50 trips occurring during the AM peak hour and 64 trips occurring during the PM peak hour.

TRIP DISTRIBUTION AND ASSIGNMENT

The distribution of the new project traffic to the key intersections was based on existing peak hour traffic patterns and the locations of attractions and productions in the area. The anticipated trip distribution is shown on Figure 2. The project trips were subsequently assigned to the key intersections based on the trip distribution. Figure 3 shows the AM and PM peak hour trip assignment at the key intersections.

EXISTING AND PROJECTED TRAFFIC VOLUMES

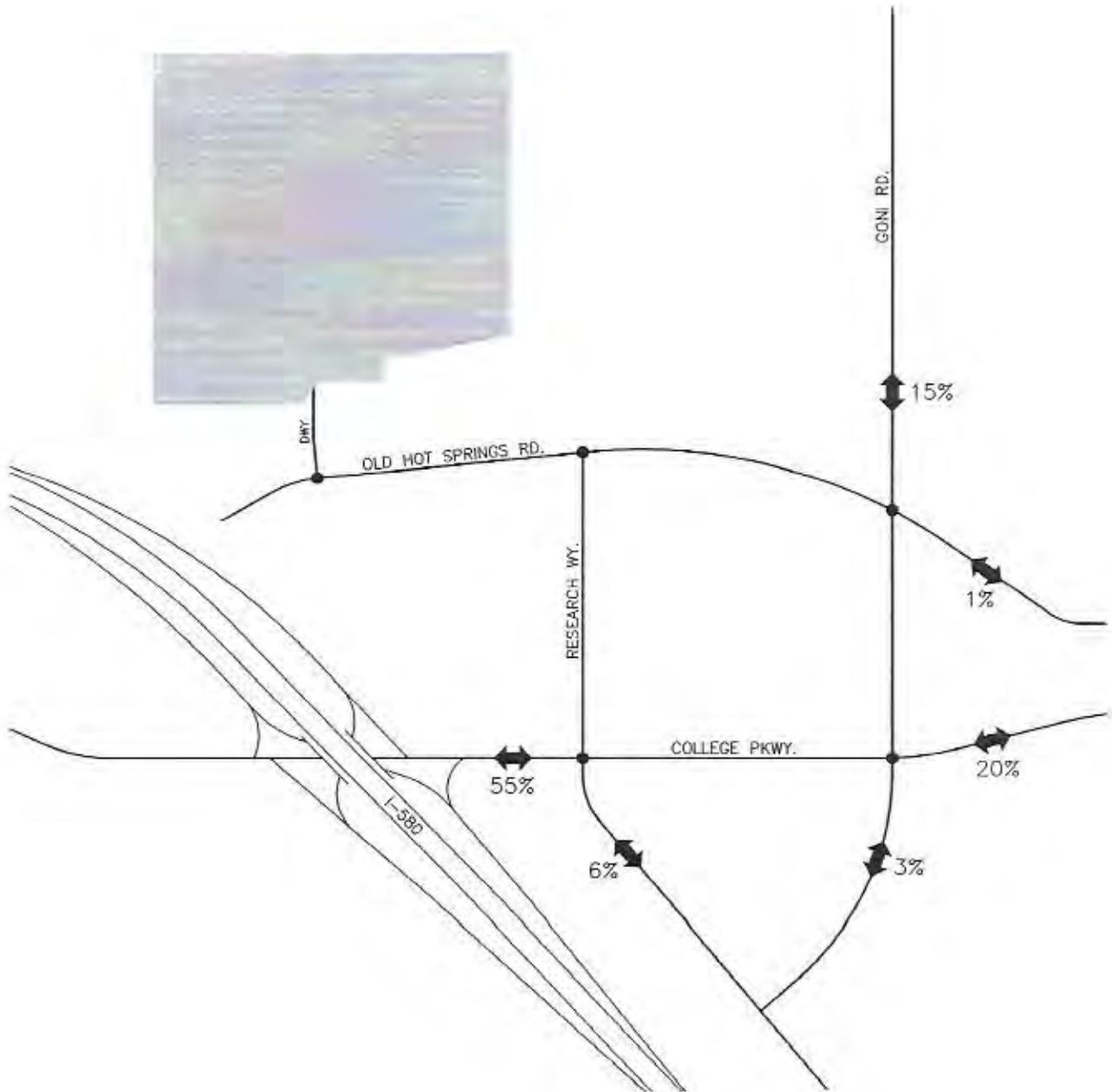
Figure 4 shows the existing traffic volumes at the key intersections for the AM and PM peak hours. The existing traffic volumes were obtained from weekday counts conducted in August of 2019.

Figure 5 shows the existing plus project traffic volumes at the key intersections for the AM and PM peak hours. The existing plus project traffic volumes were obtained by adding the trip assignment volumes shown on Figure 3 to the existing traffic volume shown on Figure 4.

Figure 6 shows the 2040 base traffic volumes at the key intersections for the AM and PM peak hours. The 2040 base traffic volumes were obtained by applying a 1% average annual growth rate to the existing traffic volumes. A negative growth rate was derived from 20-year historic traffic count data obtained from NDOT's Annual Traffic Reports for count stations on College Parkway and Goni Road near the site but the 1% growth rate was used to ensure conservative results.

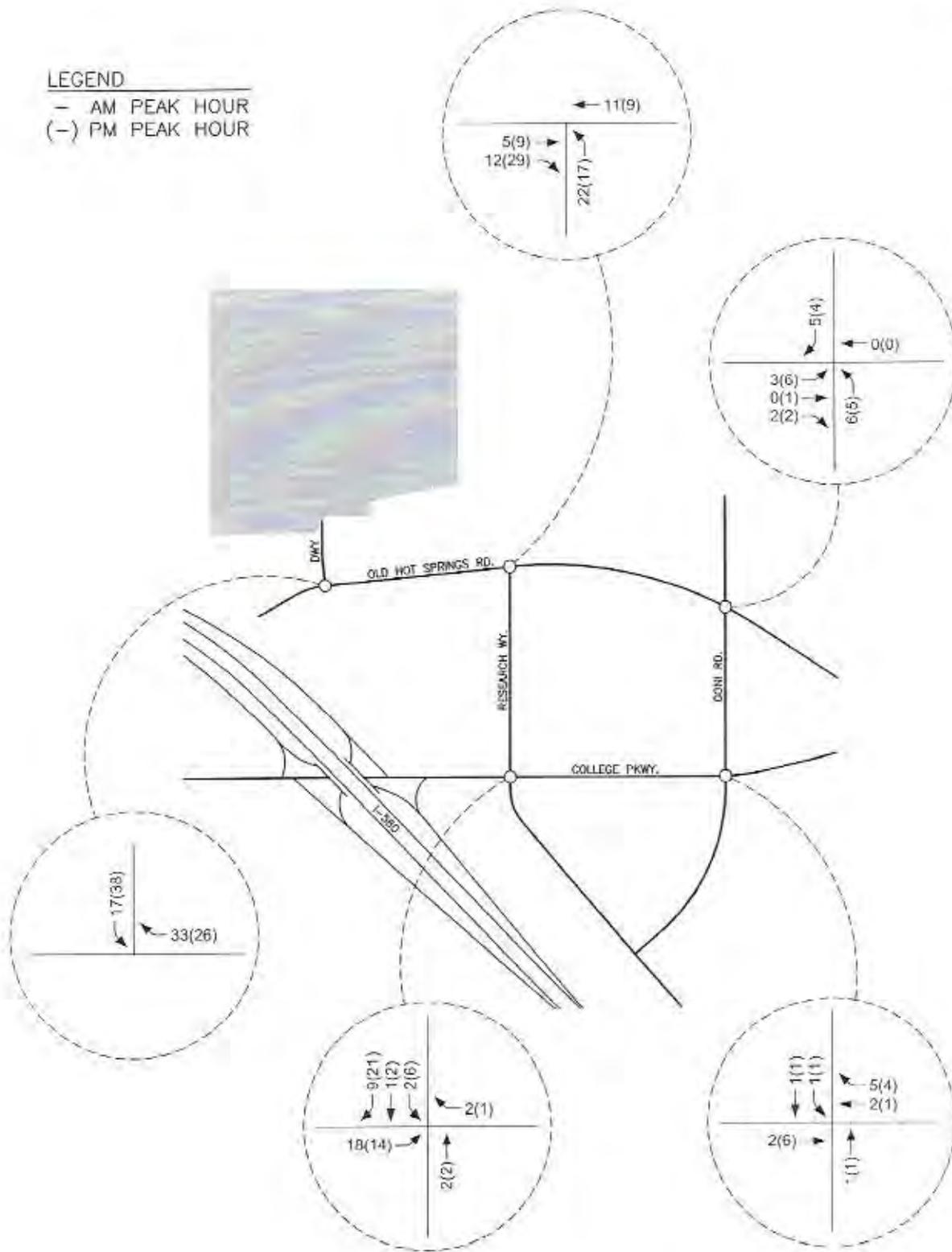
Figure 7 shows the 2040 base plus project traffic volumes at the key intersections for the AM and PM peak hours. The 2040 base plus project traffic volumes were obtained by adding the project trips shown on Figure 3 to the 2040 base traffic volumes shown on Figure 6.

LEGEND
■ PROJECT SITE



SIERRA SKIES RV RESORT
TRIP DISTRIBUTION
FIGURE 2

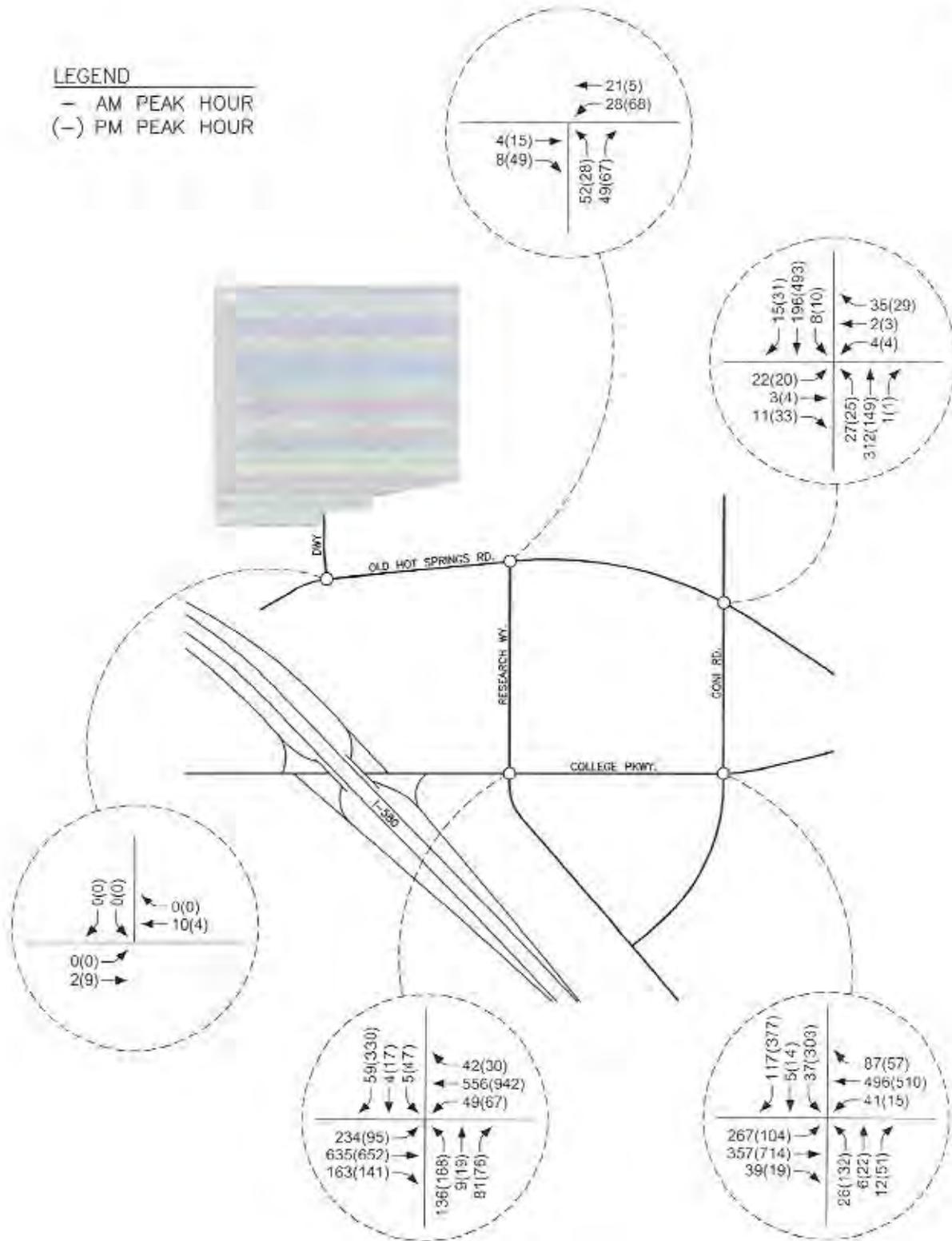
LEGEND
 - AM PEAK HOUR
 (-) PM PEAK HOUR



SIERRA SKIES RV RESORT
TRIP ASSIGNMENT
FIGURE 3

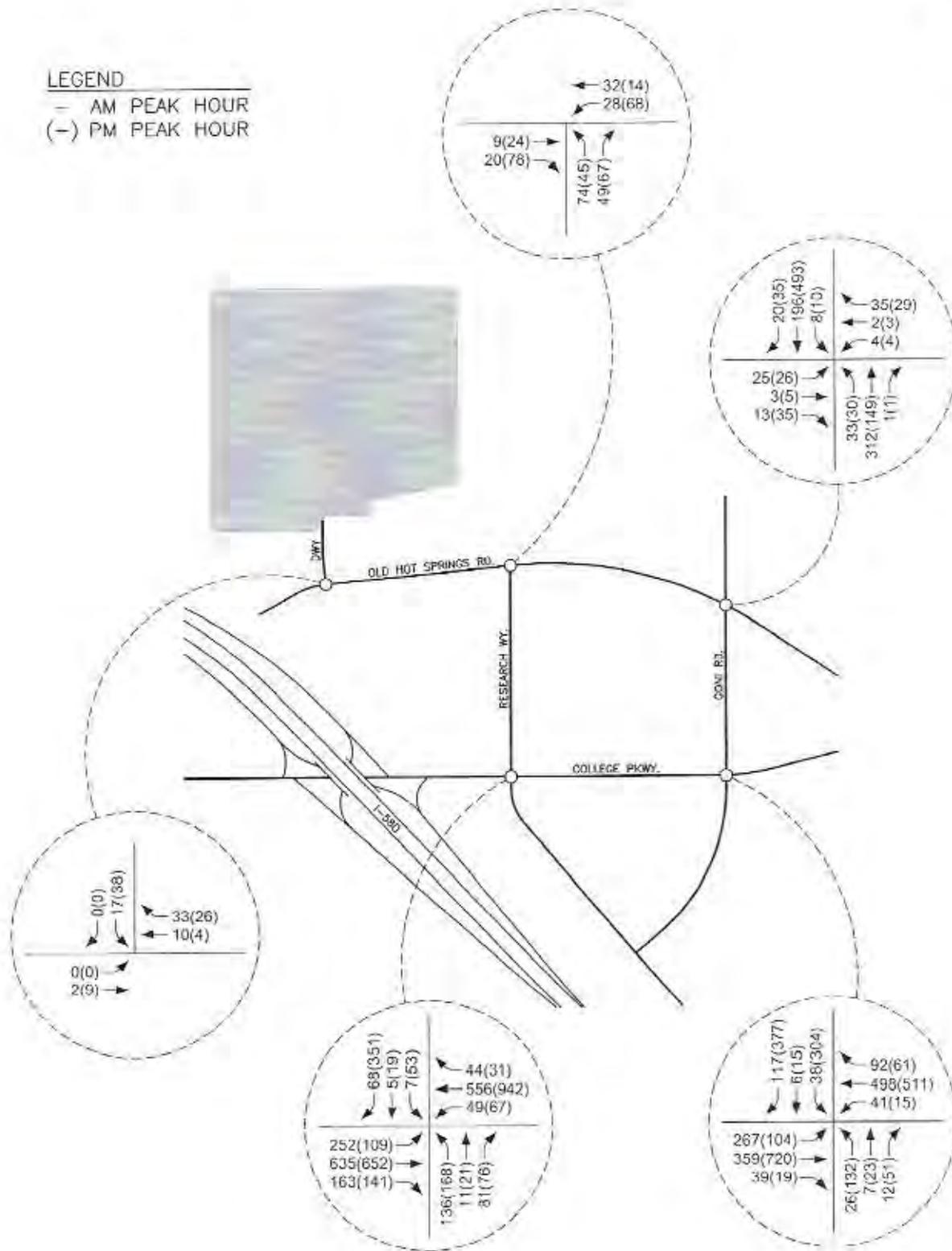
LEGEND

- AM PEAK HOUR
- (-) PM PEAK HOUR



SIERRA SKIES RV RESORT
EXISTING TRAFFIC VOLUMES
FIGURE 4

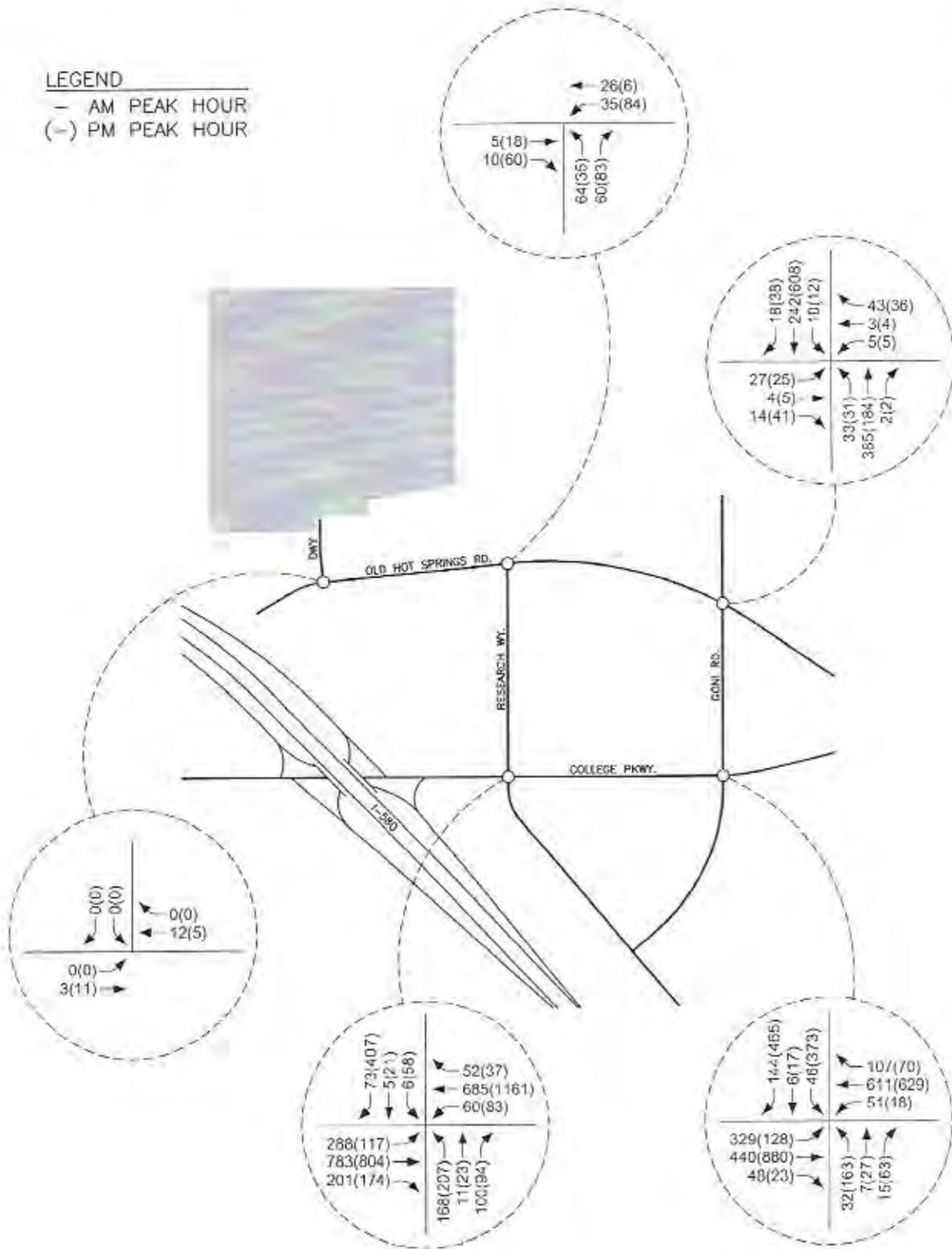
LEGEND
 = AM PEAK HOUR
 (-) PM PEAK HOUR



SIERRA SKIES RV RESORT
EXISTING PLUS PROJECT TRAFFIC VOLUMES
FIGURE 5

LEGEND

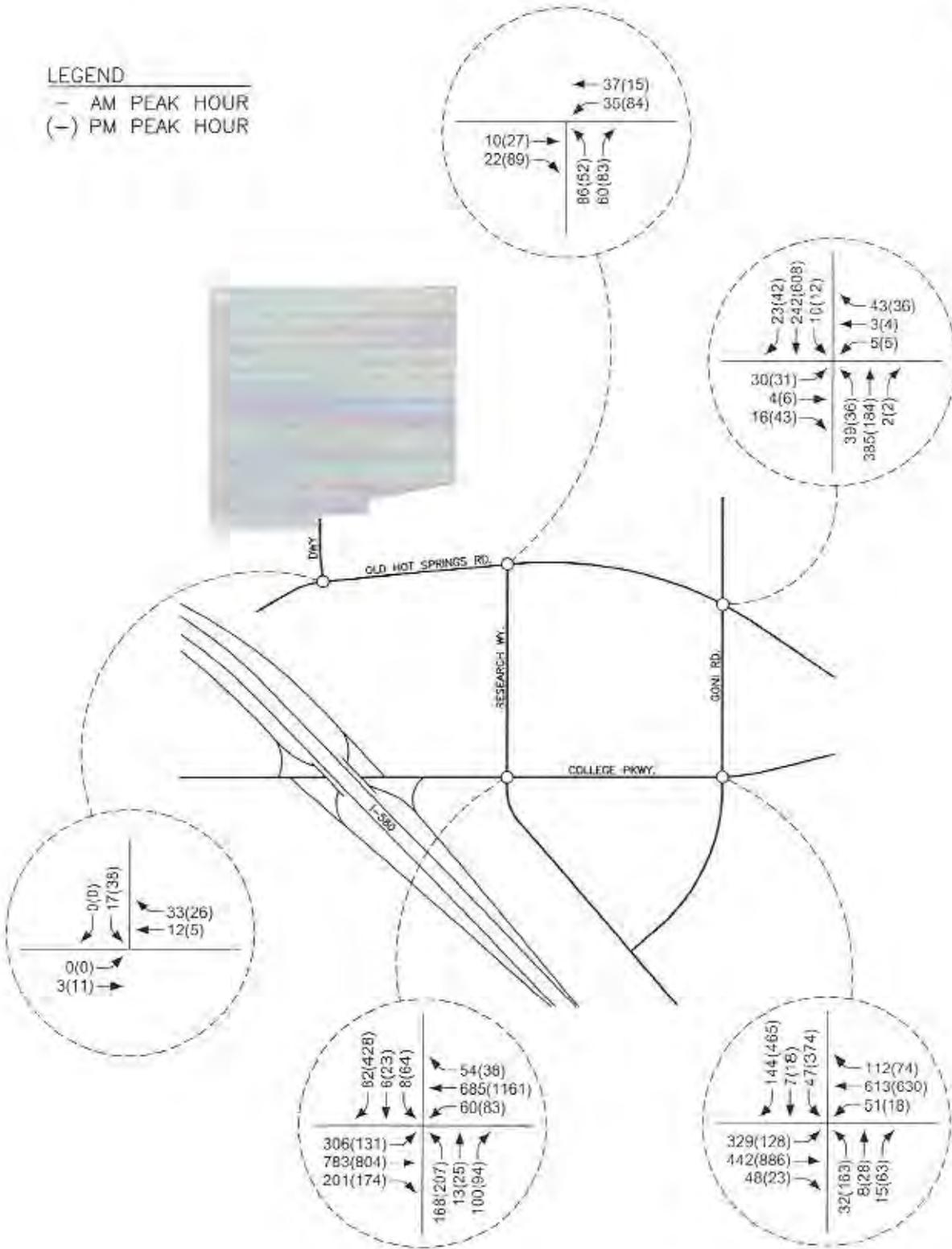
- AM PEAK HOUR
- (-) PM PEAK HOUR



SIERRA SKIES RV RESORT
2040 BASE TRAFFIC VOLUMES
FIGURE 6

LEGEND

- AM PEAK HOUR
- (-) PM PEAK HOUR



SIERRA SKIES RV RESORT
2040 BASE PLUS PROJECT TRAFFIC VOLUMES
FIGURE 7

INTERSECTION CAPACITY ANALYSIS

The key intersections were analyzed for capacity based on procedures presented in the *Highway Capacity Manual (6th Edition)*, prepared by the Transportation Research Board, for unsignalized and signalized intersections using the Synchro computer software.

The result of capacity analysis is a level of service (LOS) rating for each signalized intersection or minor movement at a two-way stop controlled intersection. Level of service is a qualitative measure of traffic operating conditions where a letter grade "A" through "F", corresponding to progressively worsening traffic operation, is assigned to the intersection or minor movement. Carson City design standards indicate that LOS D is the standard for all city maintained streets and intersections.

The *Highway Capacity Manual* defines level of service for two-way stop controlled intersections in terms of computed or measured control delay for each minor movement. Level of service is not defined for the two-way stop controlled intersection as a whole. The level of service criteria for unsignalized intersections is shown in Table 2.

LEVEL OF SERVICE	DELAY RANGE (SEC/VEH)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Level of service for signalized intersections is stated in terms of the average control delay per vehicle for a peak 15 minute analysis period. The level of service criteria for signalized intersections is shown in Table 3.

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (SEC)
A	≤ 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Table 4 shows the level of service and delay results at the key intersections for the existing, existing plus project, 2040 base, and 2040 base plus project scenarios. The intersection capacity worksheets are included in the Appendix.

INTERSECTION	EXISTING		EXISTING + PROJECT		2040 BASE		204035 BASE + PROJECT	
	AM	PM	AM	PM	AM	PM	AM	PM
College/Goni (Signal)	C27.7	D36.2	C28.0	D36.3	C31.0	D50.2	C31.4	D50.5
College/Research (Signal)	B11.4	C22.6	B11.7	C23.8	B13.0	D43.3	B13.3	D46.0
Hot Springs/Goni (Stop East/West)								
Eastbound Left-Thru-Right	B14.3	C16.0	B14.6	C17.1	C17.4	C21.1	C17.9	C22.9
Westbound Left-Thru-Right	B11.2	B11.2	B11.3	B11.3	B12.5	B12.6	B12.5	B12.8
Northbound Left	A7.7	A8.7	A7.8	A8.7	A7.9	A9.2	A7.9	A9.2
Southbound Left	A8.3	A7.6	A8.0	A7.6	A8.2	A7.7	A8.2	A7.7
Hot Springs/Research (Stop South)								
Westbound Left	A7.3	A7.5	A7.3	A7.6	A7.3	A7.5	A7.3	A7.6
Northbound Left-Right	A9.2	A9.4	A9.5	A9.9	A9.4	A9.7	A9.8	B10.3
Hot Springs/Driveway (Stop North)								
Eastbound Left	A0.0	A0.0	A0.0	A0.0	A0.0	A0.0	A0.0	A0.0
Southbound Left-Right	A0.0	A0.0	A8.7	A8.8	A0.0	A0.0	A8.7	A8.8

College Parkway/Goni Road Intersection

The College Parkway/Goni Road intersection was analyzed as a signalized four-leg intersection with the existing phasing and approach lanes for all scenarios. The intersection currently operates at LOS C with a delay of 27.7 seconds per vehicle during the AM peak hour and LOS D with a delay of 36.2 seconds per vehicle during the PM peak hour. For the existing plus project traffic volumes the intersection continues to operate at LOS C during the AM peak hour and LOS D during the PM peak hour with slight increases in delay. For the 2040 base traffic volumes the intersection operates at LOS C with a delay of 31.0 seconds per vehicle during the AM peak hour and LOS D with a delay of 50.2 seconds per vehicle during the PM peak hour. For the 2040 base plus project volumes the intersection continues to operate at LOS C during the AM peak hour and LOS D during the PM peak hour with slight increases in delay. The intersection meets Carson City's policy LOS D standard for all study scenarios.

The project is anticipated to add traffic to the southbound left turn movement at the College Parkway/Goni Road intersection. Queuing was subsequently reviewed for the left turn movement based on 95th percentile queue lengths obtained from the intersection operational analysis.

The operational analysis for the existing plus project traffic volumes indicate a 95th percentile queue length of ± 150 feet for the southbound left turn movement. The existing dual left turn lanes each contain ± 300 feet of storage length which exceeds the 150 foot queue length. The existing left turn storage lanes at the north approach are anticipated to accommodate project traffic volumes.

College Parkway/Research Way Intersection

The College Parkway/Research Way intersection was analyzed as a signalized four-leg intersection with the existing phasing and approach lanes for all scenarios. The intersection currently operates at LOS B with a delay of 11.4 seconds per vehicle during the AM peak hour and LOS C with a delay of 22.6 seconds per vehicle during the PM peak hour. For the existing plus project traffic volumes the intersection continues to operate at LOS B during the AM peak hour and LOS C during the PM peak hour with slight increases in delay. For the 2040 base traffic volumes the intersection operates at LOS B with a delay of 13.0 seconds per vehicle during the AM peak hour and LOS C with a delay of 43.3 seconds per vehicle during the PM peak hour. For the 2040 base plus project volumes the intersection continues to operate at LOS B during the AM peak hour and LOS D during the PM peak hour with slight increases in delay. The intersection meets Carson City's policy LOS D standard for all study scenarios.

The project is anticipated to add traffic to the left turn movements at the north and west approaches of the College Parkway/Research Way intersection. Queuing was subsequently reviewed for these two left turn movements based on 95th percentile queue lengths obtained from the intersection operational analysis. The operational analysis for the existing plus project traffic volumes indicate maximum 95th percentile queue lengths of ± 100 feet for the left turn movement at the west approach and ± 50 feet for the left turn movement at the north approach. The existing left turn lane at the west approach contains ± 125 feet of storage length which exceeds the 100 foot queue length. The existing left turn lane at the north approach contains ± 75 feet of storage which exceeds the 50 foot queue length. The existing left turn storage lanes at the north and west approaches are anticipated to accommodate the project traffic volumes.

Old Hot Springs Road/Goni Road Intersection

The Old Hot Springs Road/Goni Road intersection was analyzed as an unsignalized four-leg intersection with stop sign control at the east and west approaches for all scenarios. The intersection minor movements currently operate at LOS C or better during the AM and PM peak hours. For the existing plus project traffic volumes the intersection minor movements continue to operate at LOS C or better during the AM and PM peak hours with slight increases in delay. For the 2040 base traffic volumes the intersection minor movements operate at LOS C or better during the AM and PM peak hours. For the 2040 base plus project traffic volumes the intersection minor movements continue to operate at LOS C or better with slight increases in delay. The intersection was analyzed with the existing approach lanes for all scenarios. The intersection meets Carson City's policy LOS D standard for all study scenarios.

The project is anticipated to add traffic to the northbound left turn movement at the Old Hot Springs Road/Goni Road intersection. Queuing was subsequently reviewed for the left turn movement based on 95th percentile queue lengths obtained from the intersection operational analysis. The operational analysis for the existing plus project traffic volumes indicate a 95th percentile queue length of less than 50 feet for the northbound left turn movement. The existing left turn lane contains ±100 feet of storage length which exceeds the 50 foot queue length. The existing left turn storage lane at the south approach is anticipated to accommodate project traffic volumes.

Old Hot Springs Road/Research Way Intersection

The Old Hot Springs Road/Research Way intersection was analyzed as an unsignalized three-leg intersection with stop sign control at the south approach for all scenarios. The intersection minor movements currently operate at LOS A during the AM and PM peak hours. For the existing plus project traffic volumes the intersection minor movements continue to operate at LOS A during the AM and PM peak hours with slight increases in delay. For the 2040 base traffic volumes the intersection minor movements operate at LOS A during the AM and PM peak hours. For the 2040 base plus project traffic volumes the intersection minor movements operate at LOS A during the AM peak hour and LOS B or better during the PM peak hour. The intersection was analyzed with the existing approach lanes for all scenarios. The intersection meets Carson City's policy LOS D standard for all study scenarios.

Old Hot Springs Road/Project Driveway Intersection

The Old Hot Springs Road/Project Driveway intersection was analyzed as an unsignalized three-leg intersection with stop sign control at the north approach for all scenarios. The intersection minor movements currently operate at LOS A during the AM and PM peak hours. For the existing plus project traffic volumes the intersection minor movements continue to operate at LOS A during the AM and PM peak hours. For the 2040 base traffic volumes the intersection minor movements operate at LOS A during the AM and PM peak hours. For the 2040 base plus project traffic volumes the intersection minor movements continue to operate at LOS A during the AM and PM peak hours. The intersection was analyzed with the existing approach lanes for all scenarios. The intersection meets Carson City's policy LOS D standard for all study scenarios.

SITE PLAN REVIEW

A copy of the site plan for the Sierra Skies RV Resort development is included with this submittal. The site plan indicates that project access will be provided from one existing driveways on Old Hot Springs Road. Secondary emergency access will be provided from a gated access connection to Holy Way at the project's west boundary. The main project driveway on Old Hot Springs Road will provide direct access to the check-in area located in advance of the gate house. Beyond the gate house the main project driveway road will intersect the remaining on-site street network. The project driveway roadway and internal streets are anticipated to provide good access and internal circulation. It is recommended that the project driveway road, internal streets, and on-site parking areas be designed to conform to Carson City standards.

Project RV's will access the site by first utilizing the College Parkway/Research Way, College Parkway/Goni Road, Old Hot Springs Road/Goni Road, or Old Hot Springs Road/Research Way intersections. It is anticipated that the key intersections were designed to at least accommodate a 30 foot single unit truck which has a greater turning radius than a 30 foot mobile home per AASHTO standards. However, if Carson City staff have concerns about RV turning paths at the key intersections then it is suggested that the site civil engineer provide turning path analysis.

RECOMMENDATIONS

Traffic generated by the proposed Sierra Skies RV Resort development will have some impact on the adjacent street network. The following recommendations are made to mitigate project traffic impacts.

It is recommended that any required signing, striping or traffic control improvements comply with Carson City requirements.

It is recommended that the project driveway road, all internal streets, and the on-site parking areas be designed to conform to Carson City standards.

APPENDIX

Recreational Homes (260)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday

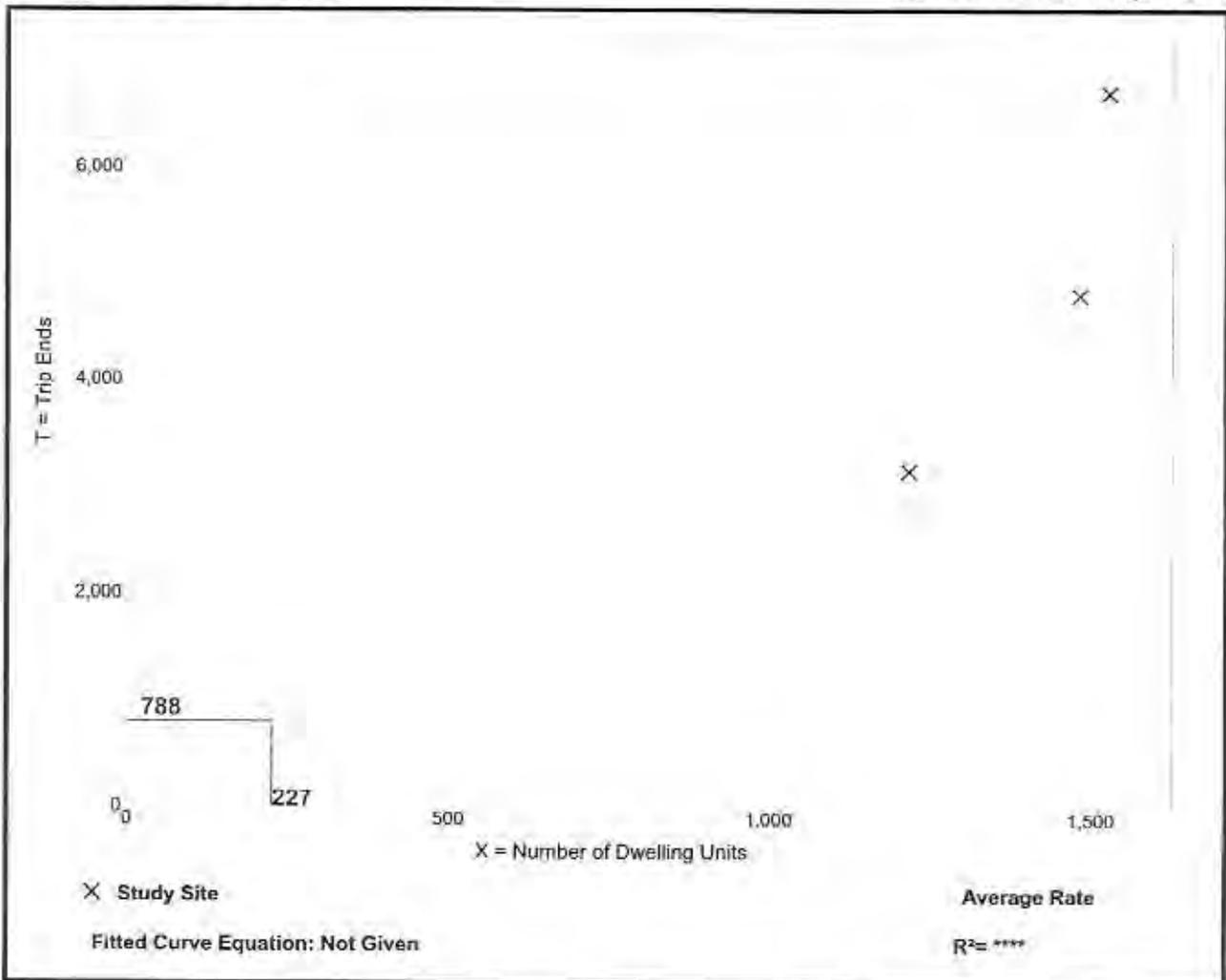
Setting/Location: Rural
Number of Studies: 3
Avg. Num. of Dwelling Units: 1409
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
3.47	2.60 - 4.40	0.91

Data Plot and Equation

Caution – Small Sample Size



Recreational Homes (260)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: Rural

Number of Studies: 3

Avg. Num. of Dwelling Units: 1409

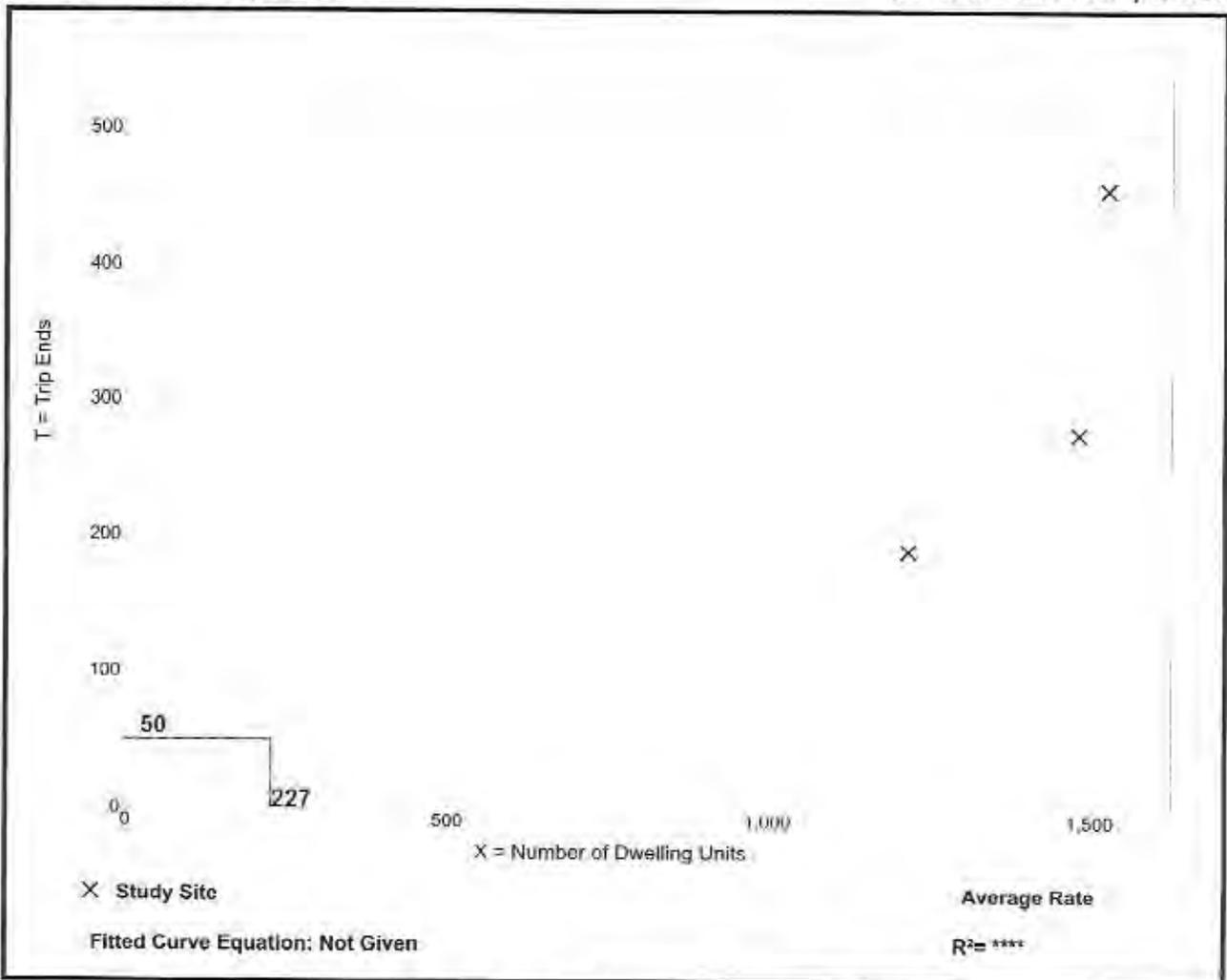
Directional Distribution: 67% entering, 33% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.22	0.16 - 0.30	0.08

Data Plot and Equation

Caution – Small Sample Size



Recreational Homes (260)

Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

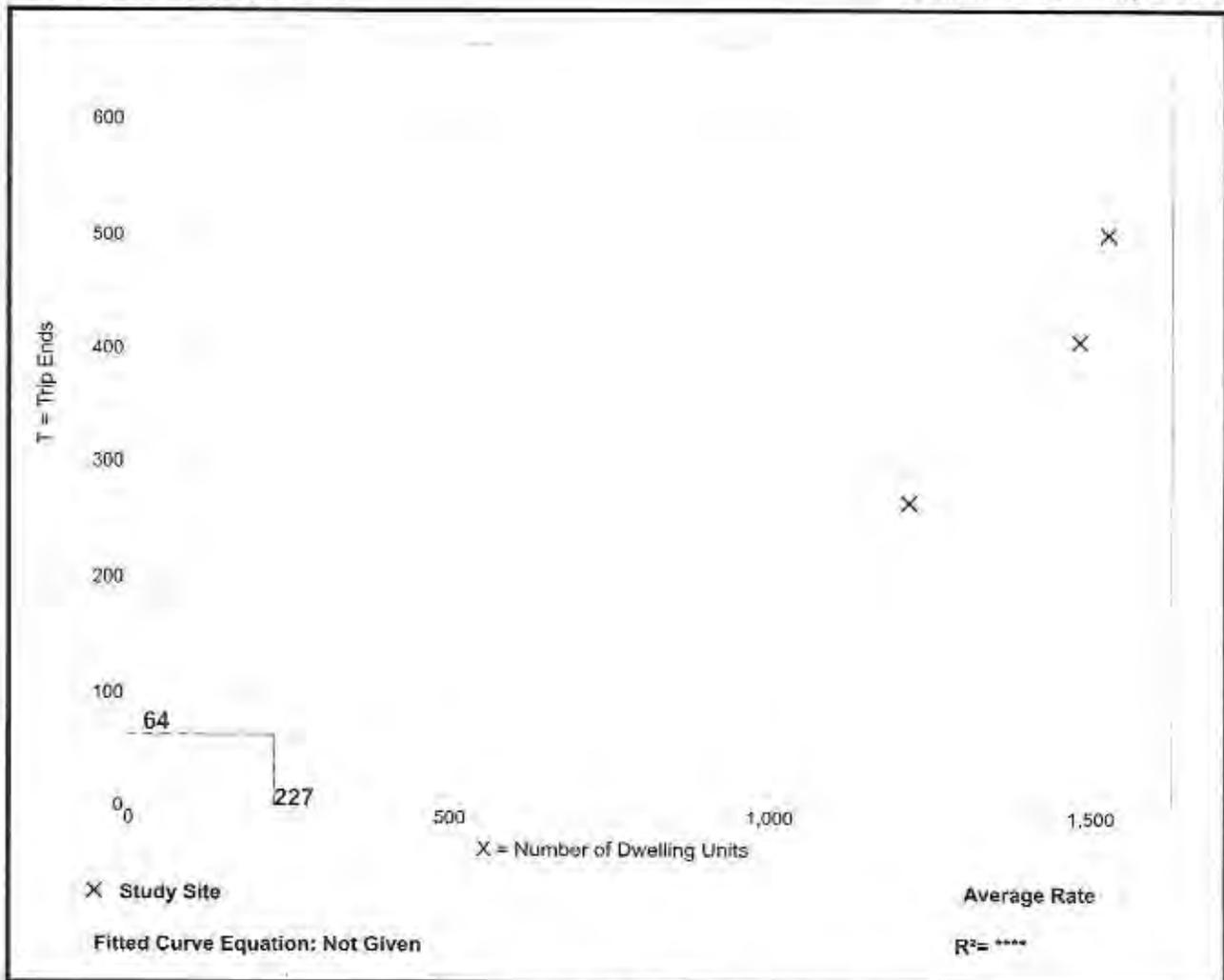
Setting/Location: Rural
 Number of Studies: 3
 Avg. Num. of Dwelling Units: 1409
 Directional Distribution: 41% entering, 59% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.28	0.22 - 0.33	0.05

Data Plot and Equation

Caution – Small Sample Size



HCM 6th Signalized Intersection Summary

6: Goni & College

08/16/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑		↙	↑↑		↙	↑		↙↘	↑	
Traffic Volume (veh/h)	267	357	39	41	496	87	26	6	12	37	5	117
Future Volume (veh/h)	267	357	39	41	496	87	26	6	12	37	5	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	290	388	42	45	539	95	28	7	13	40	5	127
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	718	2041	219	60	792	139	47	68	127	111	7	187
Arrive On Green	0.81	1.00	1.00	0.03	0.26	0.26	0.03	0.12	0.12	0.03	0.13	0.13
Sat Flow, veh/h	1781	3227	347	1781	3002	527	1781	572	1063	3456	58	1486
Grp Volume(v), veh/h	290	212	218	45	318	316	28	0	20	40	0	132
Grp Sat Flow(s), veh/h/ln	1781	1777	1797	1781	1777	1752	1781	0	1636	1728	0	1544
Q Serve(g_s), s	5.2	0.0	0.0	2.8	17.7	17.8	1.7	0.0	1.2	1.2	0.0	9.0
Cycle Q Clear(g_c), s	5.2	0.0	0.0	2.8	17.7	17.8	1.7	0.0	1.2	1.2	0.0	9.0
Prop In Lane	1.00		0.19	1.00		0.30	1.00		0.65	1.00		0.96
Lane Grp Cap(c), veh/h	718	1124	1136	60	468	462	47	0	196	111	0	194
V/C Ratio(X)	0.40	0.19	0.19	0.74	0.68	0.68	0.60	0.00	0.10	0.36	0.00	0.68
Avail Cap(c_a), veh/h	718	1124	1136	113	468	462	97	0	416	157	0	379
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.9	0.0	0.0	52.7	36.3	36.4	53.0	0.0	43.2	52.1	0.0	46.0
Incr Delay (d2), s/veh	0.3	0.3	0.3	16.3	7.7	8.0	11.8	0.0	0.2	2.0	0.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.8	0.2	0.2	2.7	13.2	13.2	1.6	0.0	0.9	1.0	0.0	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	0.3	0.3	69.0	44.0	44.4	64.8	0.0	43.4	54.1	0.0	50.1
LnGrp LOS	A	A	A	E	D	D	E	A	D	D	A	D
Approach Vol, veh/h		720			679			48				172
Approach Delay, s/veh		3.1			45.8			55.9				51.1
Approach LOS		A			D			E				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	18.2	8.7	74.6	7.9	18.8	49.3	34.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	5.0	28.0	7.0	50.0	6.0	27.0	28.0	29.0				
Max Q Clear Time (g_c+I1), s	3.2	3.2	4.8	2.0	3.7	11.0	7.2	19.8				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.6	0.0	0.6	0.8	2.5				
Intersection Summary												
HCM 6th Ctrl Delay				27.7								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

6: Goni & College

08/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	714	19	15	510	57	132	22	51	303	14	377
Future Volume (veh/h)	104	714	19	15	510	57	132	22	51	303	14	377
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	776	21	16	554	62	143	24	55	329	15	410
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	1462	40	32	866	97	175	47	108	939	15	406
Arrive On Green	0.32	0.83	0.83	0.02	0.27	0.27	0.10	0.10	0.10	0.27	0.27	0.27
Sat Flow, veh/h	1781	3531	96	1781	3209	358	1781	491	1124	3456	55	1505
Grp Volume(v), veh/h	113	390	407	16	306	310	143	0	79	329	0	425
Grp Sat Flow(s), veh/h/ln	1781	1777	1850	1781	1777	1790	1781	0	1615	1728	0	1560
Q Serve(g_s), s	4.9	6.7	6.7	0.9	15.2	15.3	7.9	0.0	4.6	7.7	0.0	27.0
Cycle Q Clear(g_c), s	4.9	6.7	6.7	0.9	15.2	15.3	7.9	0.0	4.6	7.7	0.0	27.0
Prop In Lane	1.00		0.05	1.00		0.20	1.00		0.70	1.00		0.96
Lane Grp Cap(c), veh/h	288	736	766	32	480	483	175	0	155	939	0	421
V/C Ratio(X)	0.39	0.53	0.53	0.50	0.64	0.64	0.82	0.00	0.51	0.35	0.00	1.01
Avail Cap(c_a), veh/h	288	736	766	89	480	483	249	0	436	939	0	421
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	5.6	5.6	48.7	32.2	32.2	44.2	0.0	42.9	29.3	0.0	36.5
Incr Delay (d2), s/veh	0.8	2.4	2.3	11.6	6.4	6.4	13.3	0.0	2.6	0.2	0.0	46.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	3.7	3.9	0.9	11.5	11.6	7.3	0.0	3.5	5.7	0.0	21.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.8	8.1	8.0	60.3	38.5	38.6	57.5	0.0	45.5	29.5	0.0	82.6
LnGrp LOS	C	A	A	E	D	D	E	A	D	C	A	F
Approach Vol, veh/h		910			632			222			754	
Approach Delay, s/veh		10.8			39.1			53.2			59.4	
Approach LOS		B			D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.2	14.6	6.8	46.4	14.8	32.0	21.2	32.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.0	27.0	5.0	34.0	14.0	27.0	12.0	27.0				
Max Q Clear Time (g_c+I1), s	9.7	6.6	2.9	8.7	9.9	29.0	6.9	17.3				
Green Ext Time (p_c), s	0.5	0.3	0.0	4.9	0.1	0.0	0.1	2.5				
Intersection Summary												
HCM 6th Ctrl Delay			36.2									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

6: Goni & College

08/16/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	267	359	39	41	498	92	26	7	12	38	6	117
Future Volume (veh/h)	267	359	39	41	498	92	26	7	12	38	6	117
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	290	390	42	45	541	100	28	8	13	41	7	127
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	716	2039	218	60	785	144	47	75	122	112	10	186
Arrive On Green	0.80	1.00	1.00	0.03	0.26	0.26	0.03	0.12	0.12	0.03	0.13	0.13
Sat Flow, veh/h	1781	3228	345	1781	2977	548	1781	627	1019	3456	81	1468
Grp Volume(v), veh/h	290	213	219	45	322	319	28	0	21	41	0	134
Grp Sat Flow(s), veh/h/ln	1781	1777	1797	1781	1777	1747	1781	0	1646	1728	0	1549
Q Serve(g_s), s	5.2	0.0	0.0	2.8	17.9	18.1	1.7	0.0	1.3	1.3	0.0	9.1
Cycle Q Clear(g_c), s	5.2	0.0	0.0	2.8	17.9	18.1	1.7	0.0	1.3	1.3	0.0	9.1
Prop In Lane	1.00		0.19	1.00		0.31	1.00		0.62	1.00		0.95
Lane Grp Cap(c), veh/h	716	1122	1135	60	468	461	47	0	198	112	0	196
V/C Ratio(X)	0.41	0.19	0.19	0.74	0.69	0.69	0.60	0.00	0.11	0.37	0.00	0.68
Avail Cap(c_a), veh/h	716	1122	1135	113	468	461	97	0	419	157	0	380
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.0	0.0	0.0	52.7	36.4	36.5	53.0	0.0	43.1	52.1	0.0	45.9
Incr Delay (d2), s/veh	0.3	0.4	0.4	16.3	8.0	8.3	11.8	0.0	0.2	2.0	0.0	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.8	0.2	0.2	2.7	13.4	13.3	1.6	0.0	0.9	1.0	0.0	6.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.3	0.4	0.4	69.0	44.4	44.8	64.8	0.0	43.4	54.1	0.0	50.1
LnGrp LOS	A	A	A	E	D	D	E	A	D	D	A	D
Approach Vol, veh/h		722			686			49			175	
Approach Delay, s/veh		3.1			46.2			55.6			51.0	
Approach LOS		A			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.6	18.2	8.7	74.5	7.9	18.9	49.2	34.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	5.0	28.0	7.0	50.0	6.0	27.0	28.0	29.0				
Max Q Clear Time (g_c+I1), s	3.3	3.3	4.8	2.0	3.7	11.1	7.2	20.1				
Green Ext Time (p_c), s	0.0	0.1	0.0	2.6	0.0	0.6	0.8	2.5				
Intersection Summary												
HCM 6th Ctrl Delay			28.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

6: Goni & College

08/16/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↑↑		↙	↑↑		↙	↑		↙↘	↑	
Traffic Volume (veh/h)	104	720	19	15	511	61	132	23	51	304	15	377
Future Volume (veh/h)	104	720	19	15	511	61	132	23	51	304	15	377
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	783	21	16	555	66	143	25	55	330	16	410
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	1462	39	32	860	102	175	49	108	938	16	406
Arrive On Green	0.32	0.83	0.83	0.02	0.27	0.27	0.10	0.10	0.10	0.27	0.27	0.27
Sat Flow, veh/h	1781	3532	95	1781	3185	378	1781	506	1112	3456	59	1502
Grp Volume(v), veh/h	113	394	410	16	309	312	143	0	80	330	0	426
Grp Sat Flow(s), veh/h/ln	1781	1777	1850	1781	1777	1786	1781	0	1618	1728	0	1561
Q Serve(g_s), s	4.9	6.8	6.9	0.9	15.4	15.5	7.9	0.0	4.7	7.7	0.0	27.0
Cycle Q Clear(g_c), s	4.9	6.8	6.9	0.9	15.4	15.5	7.9	0.0	4.7	7.7	0.0	27.0
Prop In Lane	1.00		0.05	1.00		0.21	1.00		0.69	1.00		0.96
Lane Grp Cap(c), veh/h	288	736	766	32	480	482	175	0	157	938	0	421
V/C Ratio(X)	0.39	0.54	0.54	0.50	0.64	0.65	0.82	0.00	0.51	0.35	0.00	1.01
Avail Cap(c_a), veh/h	288	736	766	89	480	482	249	0	437	938	0	421
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.0	5.6	5.6	48.7	32.2	32.3	44.2	0.0	42.9	29.4	0.0	36.5
Incr Delay (d2), s/veh	0.8	2.5	2.4	11.6	6.5	6.6	13.3	0.0	2.6	0.2	0.0	46.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln	3.6	3.8	3.9	0.9	11.6	11.7	7.3	0.0	3.5	5.7	0.0	21.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	30.8	8.1	8.0	60.3	38.8	38.9	57.5	0.0	45.5	29.6	0.0	83.1
LnGrp LOS	C	A	A	E	D	D	E	A	D	C	A	F
Approach Vol, veh/h		917			637			223				756
Approach Delay, s/veh		10.8			39.4			53.2				59.7
Approach LOS		B			D			D				E
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	32.1	14.7	6.8	46.4	14.8	32.0	21.2	32.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.0	27.0	5.0	34.0	14.0	27.0	12.0	27.0				
Max Q Clear Time (g_c+I1), s	9.7	6.7	2.9	8.9	9.9	29.0	6.9	17.5				
Green Ext Time (p_c), s	0.5	0.3	0.0	5.0	0.1	0.0	0.1	2.5				
Intersection Summary												
HCM 6th Ctrl Delay			36.3									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary
6: Goni & College

08/16/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	329	440	48	51	611	107	32	7	15	46	6	144
Future Volume (veh/h)	329	440	48	51	611	107	32	7	15	46	6	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	358	478	52	55	664	116	35	8	16	50	7	157
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	663	1950	211	71	820	143	53	75	150	123	9	213
Arrive On Green	0.74	1.00	1.00	0.04	0.27	0.27	0.03	0.14	0.14	0.04	0.14	0.14
Sat Flow, veh/h	1781	3224	349	1781	3006	524	1781	545	1089	3456	66	1483
Grp Volume(v), veh/h	358	262	268	55	392	388	35	0	24	50	0	164
Grp Sat Flow(s), veh/h/ln	1781	1777	1796	1781	1777	1753	1781	0	1634	1728	0	1549
Q Serve(g_s), s	9.5	0.0	0.0	3.4	22.7	22.7	2.1	0.0	1.4	1.6	0.0	11.2
Cycle Q Clear(g_c), s	9.5	0.0	0.0	3.4	22.7	22.7	2.1	0.0	1.4	1.6	0.0	11.2
Prop In Lane	1.00		0.19	1.00		0.30	1.00		0.67	1.00		0.96
Lane Grp Cap(c), veh/h	663	1075	1087	71	485	478	53	0	225	123	0	222
V/C Ratio(X)	0.54	0.24	0.25	0.77	0.81	0.81	0.66	0.00	0.11	0.41	0.00	0.74
Avail Cap(c_a), veh/h	663	1075	1087	146	485	478	81	0	401	157	0	380
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.0	0.0	0.0	52.3	37.3	37.4	52.8	0.0	41.5	51.9	0.0	45.1
Incr Delay (d2), s/veh	0.8	0.5	0.5	16.2	13.6	13.9	13.0	0.0	0.2	2.1	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.8	0.3	0.3	3.2	16.8	16.7	2.1	0.0	1.0	1.3	0.0	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.8	0.5	0.5	68.5	50.9	51.3	65.8	0.0	41.7	54.1	0.0	49.9
LnGrp LOS	B	A	A	E	D	D	E	A	D	D	A	D
Approach Vol, veh/h		888			835			59				214
Approach Delay, s/veh		4.6			52.2			56.0				50.8
Approach LOS		A			D			E				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	20.1	9.4	71.6	8.3	20.8	45.9	35.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	5.0	27.0	9.0	49.0	5.0	27.0	28.0	30.0				
Max Q Clear Time (g_c+I1), s	3.6	3.4	5.4	2.0	4.1	13.2	11.5	24.7				
Green Ext Time (p_c), s	0.0	0.1	0.0	3.3	0.0	0.7	1.0	2.1				
Intersection Summary												
HCM 6th Ctrl Delay			31.0									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
6: Goni & College

08/16/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	128	880	23	18	629	70	163	27	63	373	17	465
Future Volume (veh/h)	128	880	23	18	629	70	163	27	63	373	17	465
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	139	957	25	20	684	76	177	29	68	405	18	505
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	219	1349	35	38	899	100	209	51	120	1005	15	422
Arrive On Green	0.25	0.76	0.76	0.02	0.28	0.28	0.12	0.11	0.11	0.29	0.28	0.28
Sat Flow, veh/h	1781	3535	92	1781	3211	356	1781	483	1133	3456	54	1507
Grp Volume(v), veh/h	139	481	501	20	378	382	177	0	97	405	0	523
Grp Sat Flow(s),veh/h/ln	1781	1777	1850	1781	1777	1791	1781	0	1616	1728	0	1561
Q Serve(g_s), s	7.0	14.0	14.0	1.1	19.5	19.5	9.7	0.0	5.7	9.4	0.0	28.0
Cycle Q Clear(g_c), s	7.0	14.0	14.0	1.1	19.5	19.5	9.7	0.0	5.7	9.4	0.0	28.0
Prop In Lane	1.00		0.05	1.00		0.20	1.00		0.70	1.00		0.97
Lane Grp Cap(c), veh/h	219	678	706	38	498	501	209	0	172	1005	0	437
V/C Ratio(X)	0.64	0.71	0.71	0.53	0.76	0.76	0.85	0.00	0.56	0.40	0.00	1.20
Avail Cap(c_a), veh/h	219	678	706	89	498	501	232	0	436	1005	0	437
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.65	0.65	0.65	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.7	9.0	9.0	48.4	32.9	32.9	43.3	0.0	42.5	28.5	0.0	36.0
Incr Delay (d2), s/veh	3.9	4.1	3.9	10.9	10.4	10.4	22.8	0.0	2.9	0.3	0.0	108.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.2	6.1	6.3	1.1	14.5	14.6	9.4	0.0	4.3	6.9	0.0	34.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.6	13.1	12.9	59.3	43.4	43.4	66.1	0.0	45.4	28.7	0.0	144.9
LnGrp LOS	D	B	B	E	D	D	E	A	D	C	A	F
Approach Vol, veh/h		1121			780			274				928
Approach Delay, s/veh		16.3			43.8			58.8				94.2
Approach LOS		B			D			E				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.1	15.6	7.1	43.2	16.7	33.0	17.3	33.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.0	27.0	5.0	34.0	13.0	28.0	11.0	28.0				
Max Q Clear Time (g_c+I1), s	11.4	7.7	3.1	16.0	11.7	30.0	9.0	21.5				
Green Ext Time (p_c), s	0.4	0.4	0.0	5.7	0.1	0.0	0.1	2.4				
Intersection Summary												
HCM 6th Ctrl Delay				50.3								
HCM 6th LOS				D								

HCM 6th Signalized Intersection Summary

6: Goni & College

08/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	329	442	48	51	613	112	32	8	15	47	7	144
Future Volume (veh/h)	329	442	48	51	613	112	32	8	15	47	7	144
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	358	480	52	55	666	122	35	9	16	51	8	157
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	662	1950	210	71	813	149	53	81	145	124	11	212
Arrive On Green	0.74	1.00	1.00	0.04	0.27	0.27	0.03	0.14	0.14	0.04	0.14	0.14
Sat Flow, veh/h	1781	3225	348	1781	2980	545	1781	591	1051	3456	75	1476
Grp Volume(v), veh/h	358	263	269	55	397	391	35	0	25	51	0	165
Grp Sat Flow(s), veh/h/ln	1781	1777	1796	1781	1777	1748	1781	0	1642	1728	0	1551
Q Serve(g_s), s	9.5	0.0	0.0	3.4	23.0	23.1	2.1	0.0	1.5	1.6	0.0	11.2
Cycle Q Clear(g_c), s	9.5	0.0	0.0	3.4	23.0	23.1	2.1	0.0	1.5	1.6	0.0	11.2
Prop In Lane	1.00		0.19	1.00		0.31	1.00		0.64	1.00		0.95
Lane Grp Cap(c), veh/h	662	1074	1086	71	485	477	53	0	226	124	0	223
V/C Ratio(X)	0.54	0.25	0.25	0.77	0.82	0.82	0.66	0.00	0.11	0.41	0.00	0.74
Avail Cap(c_a), veh/h	662	1074	1086	146	485	477	81	0	403	157	0	381
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.87	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.1	0.0	0.0	52.3	37.5	37.5	52.8	0.0	41.5	51.9	0.0	45.1
Incr Delay (d2), s/veh	0.8	0.5	0.5	16.2	14.3	14.6	13.0	0.0	0.2	2.2	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.8	0.3	0.3	3.2	17.1	17.0	2.1	0.0	1.1	1.3	0.0	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.9	0.5	0.5	68.5	51.7	52.1	65.8	0.0	41.7	54.1	0.0	49.9
LnGrp LOS	B	A	A	E	D	D	E	A	D	D	A	D
Approach Vol, veh/h		890			843			60				216
Approach Delay, s/veh		4.7			53.0			55.8				50.8
Approach LOS		A			D			E				D
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	20.2	9.4	71.5	8.3	20.8	45.9	35.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	5.0	27.0	9.0	49.0	5.0	27.0	28.0	30.0				
Max Q Clear Time (g_c+l1), s	3.6	3.5	5.4	2.0	4.1	13.2	11.5	25.1				
Green Ext Time (p_c), s	0.0	0.1	0.0	3.3	0.0	0.7	1.0	2.0				
Intersection Summary												
HCM 6th Ctrl Delay			31.4									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
6: Goni & College

08/16/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖		↖↗	↖	
Traffic Volume (veh/h)	128	886	23	18	630	74	163	28	63	374	18	465
Future Volume (veh/h)	128	886	23	18	630	74	163	28	63	374	18	465
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.96	1.00		0.96	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	139	963	25	20	685	80	177	30	68	407	20	505
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	219	1349	35	38	894	104	209	53	120	1004	17	421
Arrive On Green	0.25	0.76	0.76	0.02	0.28	0.28	0.12	0.11	0.11	0.29	0.28	0.28
Sat Flow, veh/h	1781	3535	92	1781	3192	372	1781	496	1123	3456	59	1502
Grp Volume(v), veh/h	139	484	504	20	381	384	177	0	98	407	0	525
Grp Sat Flow(s), veh/h/ln	1781	1777	1850	1781	1777	1787	1781	0	1619	1728	0	1562
Q Serve(g_s), s	7.0	14.2	14.2	1.1	19.7	19.7	9.7	0.0	5.8	9.5	0.0	28.0
Cycle Q Clear(g_c), s	7.0	14.2	14.2	1.1	19.7	19.7	9.7	0.0	5.8	9.5	0.0	28.0
Prop In Lane	1.00		0.05	1.00		0.21	1.00		0.69	1.00		0.96
Lane Grp Cap(c), veh/h	219	678	706	38	498	500	209	0	173	1004	0	437
V/C Ratio(X)	0.64	0.71	0.71	0.53	0.77	0.77	0.85	0.00	0.57	0.41	0.00	1.20
Avail Cap(c_a), veh/h	219	678	706	89	498	500	232	0	437	1004	0	437
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	0.61	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	35.7	9.0	9.0	48.4	33.0	33.0	43.3	0.0	42.5	28.5	0.0	36.0
Incr Delay (d2), s/veh	3.7	3.9	3.8	10.9	10.7	10.8	22.8	0.0	2.9	0.3	0.0	110.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	6.0	6.2	1.1	14.6	14.7	9.4	0.0	4.3	7.0	0.0	35.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.4	12.9	12.8	59.3	43.7	43.8	66.1	0.0	45.4	28.8	0.0	146.4
LnGrp LOS	D	B	B	E	D	D	E	A	D	C	A	F
Approach Vol, veh/h		1127			785			275				932
Approach Delay, s/veh		16.1			44.1			58.7				95.1
Approach LOS		B			D			E				F
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	34.0	15.7	7.1	43.2	16.7	33.0	17.3	33.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	14.0	27.0	5.0	34.0	13.0	28.0	11.0	28.0				
Max Q Clear Time (g_c+I1), s	11.5	7.8	3.1	16.2	11.7	30.0	9.0	21.7				
Green Ext Time (p_c), s	0.4	0.4	0.0	5.7	0.1	0.0	0.1	2.4				
Intersection Summary												
HCM 6th Ctrl Delay			50.5									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

3: Research & College

08/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	635	163	49	556	42	136	9	81	5	4	59
Future Volume (veh/h)	234	635	163	49	556	42	136	9	81	5	4	59
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.97	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	254	690	177	53	604	46	148	10	88	5	4	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	671	1830	469	455	2029	154	257	29	257	230	17	267
Arrive On Green	0.07	0.66	0.66	0.05	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1781	2783	713	1781	3339	254	1324	160	1411	1289	92	1468
Grp Volume(v), veh/h	254	440	427	53	321	329	148	0	98	5	0	68
Grp Sat Flow(s), veh/h/ln	1781	1777	1719	1781	1777	1816	1324	0	1572	1289	0	1560
Q Serve(g_s), s	5.5	12.4	12.4	1.3	0.0	0.0	11.8	0.0	6.0	0.4	0.0	4.1
Cycle Q Clear(g_c), s	5.5	12.4	12.4	1.3	0.0	0.0	15.9	0.0	6.0	6.4	0.0	4.1
Prop In Lane	1.00		0.41	1.00		0.14	1.00		0.90	1.00		0.94
Lane Grp Cap(c), veh/h	671	1169	1131	455	1080	1104	257	0	286	230	0	284
VC Ratio(X)	0.38	0.38	0.38	0.12	0.30	0.30	0.58	0.00	0.34	0.02	0.00	0.24
Avail Cap(c_a), veh/h	945	1169	1131	526	1080	1104	413	0	472	382	0	468
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	5.8	8.6	8.6	7.7	0.0	0.0	45.3	0.0	39.2	42.0	0.0	38.5
Incr Delay (d2), s/veh	0.4	0.9	1.0	0.1	0.7	0.6	2.0	0.0	0.7	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.2	7.9	7.8	0.8	0.4	0.4	7.3	0.0	4.3	0.2	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.2	9.5	9.5	7.8	0.7	0.6	47.3	0.0	40.0	42.1	0.0	38.9
LnGrp LOS	A	A	A	A	A	A	D	A	D	D	A	D
Approach Vol, veh/h		1121			703			246				73
Approach Delay, s/veh		8.8			1.2			44.4				39.1
Approach LOS		A			A			D				D
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.0	7.6	77.4		25.0	13.1	71.8				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		33.0	7.0	55.0		33.0	25.0	37.0				
Max Q Clear Time (g_c+I1), s		17.9	3.3	14.4		8.4	7.5	2.0				
Green Ext Time (p_c), s		0.9	0.0	6.1		0.4	0.6	4.1				
Intersection Summary												
HCM 6th Ctrl Delay	11.4											
HCM 6th LOS	B											

HCM 6th Signalized Intersection Summary

3: Research & College

08/16/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	652	141	67	942	30	168	19	76	47	17	330
Future Volume (veh/h)	95	652	141	67	942	30	168	19	76	47	17	330
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	709	153	73	1024	33	183	21	83	51	18	359
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	255	1155	249	293	1412	45	273	127	504	522	29	585
Arrive On Green	0.06	0.40	0.40	0.12	0.80	0.80	0.39	0.39	0.39	0.39	0.39	0.39
Sat Flow, veh/h	1781	2889	623	1781	3510	113	1005	325	1285	1286	75	1493
Grp Volume(v), veh/h	103	436	426	73	518	539	183	0	104	51	0	377
Grp Sat Flow(s),veh/h/ln	1781	1777	1735	1781	1777	1846	1005	0	1610	1286	0	1568
Q Serve(g_s), s	3.9	19.5	19.5	0.0	13.7	13.7	17.8	0.0	4.2	2.7	0.0	19.2
Cycle Q Clear(g_c), s	3.9	19.5	19.5	0.0	13.7	13.7	37.1	0.0	4.2	6.9	0.0	19.2
Prop In Lane	1.00		0.36	1.00		0.06	1.00		0.80	1.00		0.95
Lane Grp Cap(c), veh/h	255	711	694	293	715	742	273	0	631	522	0	615
V/C Ratio(X)	0.40	0.61	0.61	0.25	0.73	0.73	0.67	0.00	0.16	0.10	0.00	0.61
Avail Cap(c_a), veh/h	298	711	694	293	715	742	281	0	644	533	0	627
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.6	23.9	23.9	30.1	7.2	7.2	39.2	0.0	19.8	22.0	0.0	24.3
Incr Delay (d2), s/veh	1.0	3.9	4.0	0.4	5.7	5.5	5.9	0.0	0.1	0.1	0.0	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	13.3	13.0	2.5	6.5	6.7	8.4	0.0	2.9	1.5	0.0	11.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	27.8	27.9	30.5	12.8	12.6	45.1	0.0	19.9	22.1	0.0	26.0
LnGrp LOS	C	C	C	C	B	B	D	A	B	C	A	C
Approach Vol, veh/h		965			1130			287				428
Approach Delay, s/veh		27.4			13.9			35.9				25.6
Approach LOS		C			B			D				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		44.2	10.8	45.0		44.2	10.6	45.2				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		40.0	5.0	40.0		40.0	8.0	37.0				
Max Q Clear Time (g_c+I1), s		39.1	2.0	21.5		21.2	5.9	15.7				
Green Ext Time (p_c), s		0.1	0.0	5.0		2.8	0.0	6.7				
Intersection Summary												
HCM 6th Ctrl Delay			22.6									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

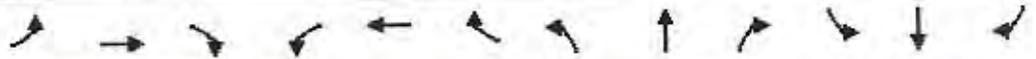
3: Research & College

08/16/2019

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	635	163	49	556	44	136	11	81	7	5	68
Future Volume (veh/h)	252	635	163	49	556	44	136	11	81	7	5	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.97	0.99		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	274	690	177	53	604	48	148	12	88	8	5	74
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	672	1813	465	451	1981	157	255	36	261	237	19	275
Arrive On Green	0.08	0.65	0.65	0.05	1.00	1.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	2782	713	1781	3327	264	1311	189	1388	1287	99	1463
Grp Volume(v), veh/h	274	440	427	53	322	330	148	0	100	8	0	79
Grp Sat Flow(s),veh/h/ln	1781	1777	1719	1781	1777	1814	1311	0	1577	1287	0	1562
Q Serve(g_s), s	6.1	12.6	12.7	1.3	0.0	0.0	12.0	0.0	6.0	0.6	0.0	4.8
Cycle Q Clear(g_c), s	6.1	12.6	12.7	1.3	0.0	0.0	16.7	0.0	6.0	6.6	0.0	4.8
Prop In Lane	1.00		0.41	1.00		0.15	1.00		0.88	1.00		0.94
Lane Grp Cap(c), veh/h	672	1157	1120	451	1058	1080	255	0	297	237	0	294
V/C Ratio(X)	0.41	0.38	0.38	0.12	0.30	0.31	0.58	0.00	0.34	0.03	0.00	0.27
Avail Cap(c_a), veh/h	934	1157	1120	521	1058	1080	402	0	473	381	0	468
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.1	8.9	8.9	8.2	0.0	0.0	45.3	0.0	38.7	41.6	0.0	38.2
Incr Delay (d2), s/veh	0.4	1.0	1.0	0.1	0.7	0.7	2.1	0.0	0.7	0.1	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.6	8.1	7.9	0.8	0.4	0.4	7.3	0.0	4.4	0.4	0.0	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.5	9.8	9.9	8.3	0.7	0.7	47.4	0.0	39.4	41.6	0.0	38.7
LnGrp LOS	A	A	A	A	A	A	D	A	D	D	A	D
Approach Vol, veh/h		1141			705			248				87
Approach Delay, s/veh		9.1			1.3			44.2				38.9
Approach LOS		A			A			D				D
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		25.7	7.7	76.7		25.7	13.8	70.5				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		33.0	7.0	55.0		33.0	25.0	37.0				
Max Q Clear Time (g_c+I1), s		18.7	3.3	14.7		8.6	8.1	2.0				
Green Ext Time (p_c), s		0.9	0.0	6.1		0.4	0.7	4.1				
Intersection Summary												
HCM 6th Ctrl Delay				11.7								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary
3: Research & College

08/16/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕	↗	↖	↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	109	652	141	67	942	31	168	21	76	53	19	351
Future Volume (veh/h)	109	652	141	67	942	31	168	21	76	53	19	351
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	118	709	153	73	1024	34	183	23	83	58	21	382
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	1155	249	279	1358	45	261	140	508	532	33	595
Arrive On Green	0.06	0.40	0.40	0.10	0.77	0.77	0.40	0.40	0.40	0.40	0.40	0.40
Sat Flow, veh/h	1781	2889	623	1781	3505	116	981	350	1264	1284	82	1488
Grp Volume(v), veh/h	118	436	426	73	519	539	183	0	106	58	0	403
Grp Sat Flow(s), veh/h/ln	1781	1777	1735	1781	1777	1845	981	0	1615	1284	0	1570
Q Serve(g_s), s	4.5	19.5	19.5	0.0	15.8	15.8	18.5	0.0	4.2	3.0	0.0	20.7
Cycle Q Clear(g_c), s	4.5	19.5	19.5	0.0	15.8	15.8	39.2	0.0	4.2	7.3	0.0	20.7
Prop In Lane	1.00		0.36	1.00		0.06	1.00		0.78	1.00		0.95
Lane Grp Cap(c), veh/h	252	711	694	279	688	715	261	0	646	532	0	628
V/C Ratio(X)	0.47	0.61	0.61	0.26	0.75	0.75	0.70	0.00	0.16	0.11	0.00	0.64
Avail Cap(c_a), veh/h	283	711	694	279	688	715	261	0	646	532	0	628
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.89	0.89	0.89	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.3	23.9	23.9	31.1	8.7	8.7	40.1	0.0	19.3	21.6	0.0	24.2
Incr Delay (d2), s/veh	1.3	3.9	4.0	0.4	6.7	6.5	8.1	0.0	0.1	0.1	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.4	13.3	13.0	2.6	7.4	7.5	8.7	0.0	2.9	1.7	0.0	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	27.8	27.9	31.5	15.4	15.2	48.1	0.0	19.4	21.7	0.0	26.4
LnGrp LOS	C	C	C	C	B	B	D	A	B	C	A	C
Approach Vol, veh/h		980			1131			289				461
Approach Delay, s/veh		27.5			16.3			37.6				25.8
Approach LOS		C			B			D				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		45.0	10.0	45.0		45.0	11.3	43.7				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		40.0	5.0	40.0		40.0	8.0	37.0				
Max Q Clear Time (g_c+I1), s		41.2	2.0	21.5		22.7	6.5	17.8				
Green Ext Time (p_c), s		0.0	0.0	5.0		2.9	0.0	6.4				
Intersection Summary												
HCM 6th Ctrl Delay			23.8									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary
 3: Research & College

08/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	288	783	201	60	685	52	168	11	100	6	5	73
Future Volume (veh/h)	288	783	201	60	685	52	168	11	100	6	5	73
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	313	851	218	65	745	57	183	12	109	7	5	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	613	1733	444	359	1856	142	283	33	300	250	20	311
Arrive On Green	0.10	0.62	0.62	0.06	1.00	1.00	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1781	2783	713	1781	3337	255	1306	156	1418	1264	93	1470
Grp Volume(v), veh/h	313	543	526	65	396	406	183	0	121	7	0	84
Grp Sat Flow(s),veh/h/ln	1781	1777	1719	1781	1777	1816	1306	0	1574	1264	0	1563
Q Serve(g_s), s	7.7	18.3	18.3	1.7	0.0	0.0	14.9	0.0	7.2	0.5	0.0	4.9
Cycle Q Clear(g_c), s	7.7	18.3	18.3	1.7	0.0	0.0	19.9	0.0	7.2	7.7	0.0	4.9
Prop In Lane	1.00		0.41	1.00		0.14	1.00		0.90	1.00		0.94
Lane Grp Cap(c), veh/h	613	1106	1070	359	988	1010	283	0	333	250	0	331
V/C Ratio(X)	0.51	0.49	0.49	0.18	0.40	0.40	0.65	0.00	0.36	0.03	0.00	0.25
Avail Cap(c_a), veh/h	880	1106	1070	387	988	1010	351	0	415	316	0	412
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.87	0.87	0.87	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.3	11.3	11.3	10.1	0.0	0.0	44.4	0.0	37.0	40.4	0.0	36.1
Incr Delay (d2), s/veh	0.7	1.6	1.6	0.2	1.1	1.0	2.8	0.0	0.7	0.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.8	11.2	10.9	1.1	0.5	0.5	8.8	0.0	5.2	0.3	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.9	12.8	12.9	10.3	1.1	1.0	47.2	0.0	37.7	40.4	0.0	36.5
LnGrp LOS	A	B	B	B	A	A	D	A	D	D	A	D
Approach Vol, veh/h		1382			867			304				91
Approach Delay, s/veh		11.7			1.7			43.5				36.8
Approach LOS		B			A			D				D
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		28.3	8.2	73.5		28.3	15.6	66.2				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		29.0	5.0	61.0		29.0	27.0	39.0				
Max Q Clear Time (g_c+I1), s		21.9	3.7	20.3		9.7	9.7	2.0				
Green Ext Time (p_c), s		0.8	0.0	8.3		0.4	0.8	5.3				
Intersection Summary												
HCM 6th Ctrl Delay				13.0								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary
 3: Research & College

08/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	804	174	83	1161	37	207	23	94	58	21	407
Future Volume (veh/h)	117	804	174	83	1161	37	207	23	94	58	21	407
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	127	874	189	90	1262	40	225	25	102	63	23	442
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	1097	237	209	1334	42	235	133	543	539	33	627
Arrive On Green	0.05	0.38	0.38	0.05	0.38	0.38	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	1781	2887	624	1781	3512	111	927	317	1293	1260	78	1492
Grp Volume(v), veh/h	127	538	525	90	638	664	225	0	127	63	0	465
Grp Sat Flow(s), veh/h/ln	1781	1777	1734	1781	1777	1846	927	0	1610	1260	0	1569
Q Serve(g_s), s	5.0	26.9	26.9	0.0	34.7	34.8	17.6	0.0	5.0	3.3	0.0	24.4
Cycle Q Clear(g_c), s	5.0	26.9	26.9	0.0	34.7	34.8	42.0	0.0	5.0	8.3	0.0	24.4
Prop In Lane	1.00		0.36	1.00		0.06	1.00		0.80	1.00		0.95
Lane Grp Cap(c), veh/h	161	675	659	209	675	702	235	0	676	539	0	659
VC Ratio(X)	0.79	0.80	0.80	0.43	0.95	0.95	0.96	0.00	0.19	0.12	0.00	0.71
Avail Cap(c_a), veh/h	161	675	659	209	675	702	235	0	676	539	0	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.72	0.72	0.72	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.2	27.6	27.6	42.7	30.0	30.0	43.6	0.0	18.3	20.9	0.0	23.9
Incr Delay (d2), s/veh	22.5	9.5	9.7	1.0	18.8	18.5	46.7	0.0	0.1	0.1	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.4	18.3	18.0	3.8	23.1	23.9	13.5	0.0	3.4	1.8	0.0	14.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.8	37.0	37.3	43.7	48.8	48.5	90.4	0.0	18.4	21.0	0.0	27.3
LnGrp LOS	D	D	D	D	D	D	F	A	B	C	A	C
Approach Vol, veh/h		1190			1392			352				528
Approach Delay, s/veh		38.5			48.3			64.4				26.6
Approach LOS		D			D			E				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		47.0	10.0	43.0		47.0	10.0	43.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		42.0	5.0	38.0		42.0	5.0	38.0				
Max Q Clear Time (g_c+l1), s		44.0	2.0	28.9		26.4	7.0	36.8				
Green Ext Time (p_c), s		0.0	0.0	4.3		3.3	0.0	0.9				
Intersection Summary												
HCM 6th Ctrl Delay			43.3									
HCM 6th LOS			D									

HCM 6th Signalized Intersection Summary

3: Research & College

08/16/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕		↖	↕		↖	↕	
Traffic Volume (veh/h)	306	783	201	60	685	54	168	13	100	8	6	82
Future Volume (veh/h)	306	783	201	60	685	54	168	13	100	8	6	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	0.99		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	333	851	218	65	745	59	183	14	109	9	7	89
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	616	1714	439	354	1805	143	281	39	305	257	25	316
Arrive On Green	0.10	0.62	0.62	0.06	1.00	1.00	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1781	2783	713	1781	3327	263	1293	180	1399	1262	114	1453
Grp Volume(v), veh/h	333	543	526	65	398	406	183	0	123	9	0	96
Grp Sat Flow(s), veh/h/ln	1781	1777	1719	1781	1777	1814	1293	0	1578	1262	0	1567
Q Serve(g_s), s	8.5	18.6	18.6	1.8	0.0	0.0	15.1	0.0	7.3	0.7	0.0	5.6
Cycle Q Clear(g_c), s	8.5	18.6	18.6	1.8	0.0	0.0	20.7	0.0	7.3	7.9	0.0	5.6
Prop In Lane	1.00		0.41	1.00		0.15	1.00		0.89	1.00		0.93
Lane Grp Cap(c), veh/h	616	1094	1059	354	964	984	281	0	344	257	0	341
V/C Ratio(X)	0.54	0.50	0.50	0.18	0.41	0.41	0.65	0.00	0.36	0.04	0.00	0.28
Avail Cap(c_a), veh/h	869	1094	1059	382	964	984	340	0	416	315	0	413
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.86	0.86	0.86	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.7	11.7	11.7	10.7	0.0	0.0	44.5	0.0	36.5	39.9	0.0	35.8
Incr Delay (d2), s/veh	0.7	1.6	1.7	0.2	1.1	1.1	3.2	0.0	0.6	0.1	0.0	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%), veh/ln	5.3	11.4	11.1	1.2	0.5	0.5	8.8	0.0	5.2	0.4	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	8.4	13.3	13.4	10.9	1.1	1.1	47.7	0.0	37.1	39.9	0.0	36.3
LnGrp LOS	A	B	B	B	A	A	D	A	D	D	A	D
Approach Vol, veh/h		1402			869			306				105
Approach Delay, s/veh		12.2			1.8			43.4				36.6
Approach LOS		B			A			D				D
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		29.0	8.3	72.8		29.0	16.4	64.7				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		29.0	5.0	61.0		29.0	27.0	39.0				
Max Q Clear Time (g_c+I), s		22.7	3.8	20.6		9.9	10.5	2.0				
Green Ext Time (p_c), s		0.7	0.0	8.3		0.5	0.9	5.3				
Intersection Summary												
HCM 6th Ctrl Delay			13.3									
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary
 3: Research & College

08/16/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	131	804	174	83	1161	38	207	25	94	64	23	428
Future Volume (veh/h)	131	804	174	83	1161	38	207	25	94	64	23	428
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	142	874	189	90	1262	41	225	27	102	70	25	465
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh. %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	1097	237	209	1333	43	214	142	536	537	34	626
Arrive On Green	0.05	0.38	0.38	0.05	0.38	0.38	0.42	0.42	0.42	0.42	0.42	0.42
Sat Flow, veh/h	1781	2887	624	1781	3508	114	906	338	1275	1258	80	1490
Grp Volume(v), veh/h	142	538	525	90	639	664	225	0	129	70	0	490
Grp Sat Flow(s), veh/h/ln	1781	1777	1734	1781	1777	1846	906	0	1613	1258	0	1570
Q Serve(g_s), s	5.0	26.9	26.9	0.0	34.8	34.9	15.7	0.0	5.0	3.7	0.0	26.3
Cycle Q Clear(g_c), s	5.0	26.9	26.9	0.0	34.8	34.9	42.0	0.0	5.0	8.8	0.0	26.3
Prop In Lane	1.00		0.36	1.00		0.06	1.00		0.79	1.00		0.95
Lane Grp Cap(c), veh/h	161	675	659	209	675	701	214	0	677	537	0	659
VC Ratio(X)	0.88	0.80	0.80	0.43	0.95	0.95	1.05	0.00	0.19	0.13	0.00	0.74
Avail Cap(c_a), veh/h	161	675	659	209	675	701	214	0	677	537	0	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.71	0.71	0.71	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.6	27.6	27.6	42.7	30.0	30.0	44.8	0.0	18.3	21.0	0.0	24.5
Incr Delay (d2), s/veh	39.1	9.5	9.7	1.0	18.7	18.4	75.5	0.0	0.1	0.1	0.0	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	7.2	18.3	18.0	3.8	23.1	23.9	15.5	0.0	3.4	2.0	0.0	15.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.7	37.0	37.3	43.7	48.7	48.5	120.3	0.0	18.4	21.2	0.0	29.0
LnGrp LOS	E	D	D	D	D	D	F	A	B	C	A	C
Approach Vol, veh/h		1205			1393			354				560
Approach Delay, s/veh		40.9			48.3			83.2				28.0
Approach LOS		D			D			F				C
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		47.0	10.0	43.0		47.0	10.0	43.0				
Change Period (Y+Rc), s		5.0	5.0	5.0		5.0	5.0	5.0				
Max Green Setting (Gmax), s		42.0	5.0	38.0		42.0	5.0	38.0				
Max Q Clear Time (g_c+I1), s		44.0	2.0	28.9		28.3	7.0	36.9				
Green Ext Time (p_c), s		0.0	0.0	4.3		3.3	0.0	0.8				
Intersection Summary												
HCM 6th Ctrl Delay			46.0									
HCM 6th LOS			D									

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↖	↗		↖	↗	
Traffic Vol, veh/h	22	3	11	4	2	35	27	312	1	8	196	15
Future Vol, veh/h	22	3	11	4	2	35	27	312	1	8	196	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	24	3	12	4	2	38	29	339	1	9	213	16

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	657	637	221	645	645	340	229	0	0	340	0	0
Stage 1	239	239	-	398	398	-	-	-	-	-	-	-
Stage 2	418	398	-	247	247	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	378	395	819	385	391	702	1339	-	-	1219	-	-
Stage 1	764	708	-	628	603	-	-	-	-	-	-	-
Stage 2	612	603	-	757	702	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	348	384	819	368	380	702	1339	-	-	1219	-	-
Mov Cap-2 Maneuver	348	384	-	368	380	-	-	-	-	-	-	-
Stage 1	747	703	-	614	590	-	-	-	-	-	-	-
Stage 2	564	590	-	737	697	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.3	11.2	0.6	0.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1339	-	-	426	621	1219	-	-
HCM Lane V/C Ratio	0.022	-	-	0.092	0.072	0.007	-	-
HCM Control Delay (s)	7.7	-	-	14.3	11.2	8	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.2	0	-	-

Intersection												
Int Delay, s/veh	2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗		↖	↗	
Traffic Vol, veh/h	20	4	33	4	3	29	25	149	1	10	493	31
Future Vol, veh/h	20	4	33	4	3	29	25	149	1	10	493	31
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	4	36	4	3	32	27	162	1	11	536	34

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	809	792	553	812	809	163	570	0	0	163	0	0
Stage 1	575	575	-	217	217	-	-	-	-	-	-	-
Stage 2	234	217	-	595	592	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	299	322	533	298	314	882	1002	-	-	1416	-	-
Stage 1	503	503	-	785	723	-	-	-	-	-	-	-
Stage 2	769	723	-	491	494	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	278	311	533	268	303	882	1002	-	-	1416	-	-
Mov Cap-2 Maneuver	278	311	-	268	303	-	-	-	-	-	-	-
Stage 1	489	499	-	764	703	-	-	-	-	-	-	-
Stage 2	718	703	-	450	490	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16	11.2	1.2	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1002	-	-	389	624	1416	-	-
HCM Lane V/C Ratio	0.027	-	-	0.159	0.063	0.008	-	-
HCM Control Delay (s)	8.7	-	-	16	11.2	7.6	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.2	0	-	-

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↗	↘		↗	↘	
Traffic Vol, veh/h	25	3	13	4	2	35	33	312	1	8	196	20
Future Vol, veh/h	25	3	13	4	2	35	33	312	1	8	196	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	3	14	4	2	38	36	339	1	9	213	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	674	654	224	663	665	340	235	0	0	340	0	0
Stage 1	242	242	-	412	412	-	-	-	-	-	-	-
Stage 2	432	412	-	251	253	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	368	386	815	375	381	702	1332	-	-	1219	-	-
Stage 1	762	705	-	617	594	-	-	-	-	-	-	-
Stage 2	602	594	-	753	698	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	337	373	815	357	368	702	1332	-	-	1219	-	-
Mov Cap-2 Maneuver	337	373	-	357	368	-	-	-	-	-	-	-
Stage 1	741	700	-	600	578	-	-	-	-	-	-	-
Stage 2	552	578	-	731	693	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.6		11.3		0.7		0.3	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1332	-	-	418	617	1219	-	-
HCM Lane V/C Ratio	0.027	-	-	0.107	0.072	0.007	-	-
HCM Control Delay (s)	7.8	-	-	14.6	11.3	8	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.2	0	-	-

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖		↗	↖	
Traffic Vol, veh/h	26	5	35	4	3	29	30	149	1	10	493	35
Future Vol, veh/h	26	5	35	4	3	29	30	149	1	10	493	35
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	28	5	38	4	3	32	33	162	1	11	536	38

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	823	806	555	828	825	163	574	0	0	163	0	0
Stage 1	577	577	-	229	229	-	-	-	-	-	-	-
Stage 2	246	229	-	599	596	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	292	316	531	290	308	882	999	-	-	1416	-	-
Stage 1	502	502	-	774	715	-	-	-	-	-	-	-
Stage 2	758	715	-	488	492	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	271	303	531	257	295	882	999	-	-	1416	-	-
Mov Cap-2 Maneuver	271	303	-	257	295	-	-	-	-	-	-	-
Stage 1	485	498	-	748	691	-	-	-	-	-	-	-
Stage 2	703	691	-	445	488	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.1	11.3	1.5	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	999	-	-	370	614	1416	-	-
HCM Lane V/C Ratio	0.033	-	-	0.194	0.064	0.008	-	-
HCM Control Delay (s)	8.7	-	-	17.1	11.3	7.6	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.2	0	-	-

Intersection												
Int Delay, s/veh	2.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖		↗	↖	
Traffic Vol, veh/h	27	4	14	5	3	43	33	385	2	10	242	18
Future Vol, veh/h	27	4	14	5	3	43	33	385	2	10	242	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	29	4	15	5	3	47	36	418	2	11	263	20

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	811	787	273	796	796	419	283	0	0	420	0	0
Stage 1	295	295	-	491	491	-	-	-	-	-	-	-
Stage 2	516	492	-	305	305	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	298	324	766	305	320	634	1279	-	-	1139	-	-
Stage 1	713	669	-	559	548	-	-	-	-	-	-	-
Stage 2	542	548	-	705	662	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	266	312	766	287	308	634	1279	-	-	1139	-	-
Mov Cap-2 Maneuver	266	312	-	287	308	-	-	-	-	-	-	-
Stage 1	693	662	-	543	533	-	-	-	-	-	-	-
Stage 2	485	533	-	680	655	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.4	12.5	0.6	0.3
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1279	-	-	339	537	1139	-	-
HCM Lane V/C Ratio	0.028	-	-	0.144	0.103	0.01	-	-
HCM Control Delay (s)	7.9	-	-	17.4	12.5	8.2	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0.3	0	-	-

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖		↗	↖	
Traffic Vol, veh/h	25	5	41	5	4	36	31	184	2	12	608	38
Future Vol, veh/h	25	5	41	5	4	36	31	184	2	12	608	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	27	5	45	5	4	39	34	200	2	13	661	41

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	999	978	682	1002	997	201	702	0	0	202	0	0
Stage 1	708	708	-	269	269	-	-	-	-	-	-	-
Stage 2	291	270	-	733	728	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	222	250	450	221	244	840	895	-	-	1370	-	-
Stage 1	426	438	-	737	687	-	-	-	-	-	-	-
Stage 2	717	686	-	412	429	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	201	238	450	189	233	840	895	-	-	1370	-	-
Mov Cap-2 Maneuver	201	238	-	189	233	-	-	-	-	-	-	-
Stage 1	410	434	-	709	661	-	-	-	-	-	-	-
Stage 2	653	660	-	363	425	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.1	12.6	1.3	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	895	-	-	300	520	1370	-	-
HCM Lane V/C Ratio	0.038	-	-	0.257	0.094	0.01	-	-
HCM Control Delay (s)	9.2	-	-	21.1	12.6	7.7	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1	0.3	0	-	-

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗		↖	↗	
Traffic Vol, veh/h	30	4	16	5	3	43	39	385	2	10	242	23
Future Vol, veh/h	30	4	16	5	3	43	39	385	2	10	242	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	33	4	17	5	3	47	42	418	2	11	263	25

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	826	802	276	811	813	419	288	0	0	420	0	0
Stage 1	298	298	-	503	503	-	-	-	-	-	-	-
Stage 2	528	504	-	308	310	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	291	317	763	298	313	634	1274	-	-	1139	-	-
Stage 1	711	667	-	551	541	-	-	-	-	-	-	-
Stage 2	534	541	-	702	659	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	259	303	763	279	300	634	1274	-	-	1139	-	-
Mov Cap-2 Maneuver	259	303	-	279	300	-	-	-	-	-	-	-
Stage 1	688	660	-	533	523	-	-	-	-	-	-	-
Stage 2	475	523	-	675	652	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.9	12.5	0.7	0.3
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1274	-	-	333	533	1139	-	-
HCM Lane V/C Ratio	0.033	-	-	0.163	0.104	0.01	-	-
HCM Control Delay (s)	7.9	-	-	17.9	12.5	8.2	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.3	0	-	-

Intersection												
Int Delay, s/veh	2.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Vol, veh/h	31	6	43	5	4	36	36	184	2	12	608	42
Future Vol, veh/h	31	6	43	5	4	36	36	184	2	12	608	42
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	-	-	-	-	100	-	-	200	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	34	7	47	5	4	39	39	200	2	13	661	46

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1011	990	684	1016	1012	201	707	0	0	202	0	0
Stage 1	710	710	-	279	279	-	-	-	-	-	-	-
Stage 2	301	280	-	737	733	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	218	246	449	216	239	840	891	-	-	1370	-	-
Stage 1	424	437	-	728	680	-	-	-	-	-	-	-
Stage 2	708	679	-	410	426	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	197	233	449	182	226	840	891	-	-	1370	-	-
Mov Cap-2 Maneuver	197	233	-	182	226	-	-	-	-	-	-	-
Stage 1	405	433	-	696	650	-	-	-	-	-	-	-
Stage 2	641	649	-	358	422	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.9	12.8	1.5	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	891	-	-	287	511	1370	-	-
HCM Lane V/C Ratio	0.044	-	-	0.303	0.096	0.01	-	-
HCM Control Delay (s)	9.2	-	-	22.9	12.8	7.7	-	-
HCM Lane LOS	A	-	-	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.2	0.3	0	-	-

Intersection						
Int Delay, s/veh	7					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	4	8	28	21	52	49
Future Vol, veh/h	4	8	28	21	52	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	9	30	23	57	53

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	13	0	92
Stage 1	-	-	-	-	9
Stage 2	-	-	-	-	83
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1606	-	908
Stage 1	-	-	-	-	1014
Stage 2	-	-	-	-	940
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1606	-	891
Mov Cap-2 Maneuver	-	-	-	-	891
Stage 1	-	-	-	-	995
Stage 2	-	-	-	-	940

Approach	EB	WB	NB
HCM Control Delay, s	0	4.2	9.2
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	971	-	-	1606	-
HCM Lane V/C Ratio	0.113	-	-	0.019	-
HCM Control Delay (s)	9.2	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.4	-	-	0.1	-

Intersection						
Int Delay, s/veh	6.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↕			↕		↕
Traffic Vol, veh/h	15	49	68	5	28	67
Future Vol, veh/h	15	49	68	5	28	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	53	74	5	30	73
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	69	0	196	43
Stage 1	-	-	-	-	43	-
Stage 2	-	-	-	-	153	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1532	-	793	1027
Stage 1	-	-	-	-	979	-
Stage 2	-	-	-	-	875	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1532	-	755	1027
Mov Cap-2 Maneuver	-	-	-	-	755	-
Stage 1	-	-	-	-	932	-
Stage 2	-	-	-	-	875	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	7	9.4			
HCM LOS						A
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	928	-	-	1532	-	
HCM Lane V/C Ratio	0.111	-	-	0.048	-	
HCM Control Delay (s)	9.4	-	-	7.5	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.4	-	-	0.2	-	

Intersection						
Int Delay, s/veh	6.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	9	20	28	32	74	49
Future Vol, veh/h	9	20	28	32	74	49
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	22	30	35	80	53
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	32	0	116	21
Stage 1	-	-	-	-	21	-
Stage 2	-	-	-	-	95	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1580	-	880	1056
Stage 1	-	-	-	-	1002	-
Stage 2	-	-	-	-	929	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1580	-	863	1056
Mov Cap-2 Maneuver	-	-	-	-	863	-
Stage 1	-	-	-	-	983	-
Stage 2	-	-	-	-	929	-
Approach	EB	WB	NB			
HCM Control Delay, s	0	3.4	9.5			
HCM LOS			A			
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	931	-	-	1580	-	
HCM Lane V/C Ratio	0.144	-	-	0.019	-	
HCM Control Delay (s)	9.5	-	-	7.3	0	
HCM Lane LOS	A	-	-	A	A	
HCM 95th %tile Q(veh)	0.5	-	-	0.1	-	

Intersection						
Int Delay, s/veh	5.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↕		↔
Traffic Vol, veh/h	24	78	68	14	45	67
Future Vol, veh/h	24	78	68	14	45	67
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	85	74	15	49	73

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	111	0	232
Stage 1	-	-	-	-	69
Stage 2	-	-	-	-	163
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1479	-	756
Stage 1	-	-	-	-	954
Stage 2	-	-	-	-	866
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1479	-	718
Mov Cap-2 Maneuver	-	-	-	-	718
Stage 1	-	-	-	-	906
Stage 2	-	-	-	-	866

Approach	EB	WB	NB
HCM Control Delay, s	0	6.3	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	861	-	-	1479	-
HCM Lane V/C Ratio	0.141	-	-	0.05	-
HCM Control Delay (s)	9.9	-	-	7.6	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Intersection						
Int Delay, s/veh	7.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔		↔	
Traffic Vol, veh/h	5	10	35	26	64	60
Future Vol, veh/h	5	10	35	26	64	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	11	38	28	70	65

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	16	0	115
Stage 1	-	-	-	-	11
Stage 2	-	-	-	-	104
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1602	-	881
Stage 1	-	-	-	-	1012
Stage 2	-	-	-	-	920
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1602	-	860
Mov Cap-2 Maneuver	-	-	-	-	860
Stage 1	-	-	-	-	988
Stage 2	-	-	-	-	920

Approach	EB	WB	NB
HCM Control Delay, s	0	4.2	9.4
HCM LOS	A		

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	950	-	-	1602	-
HCM Lane V/C Ratio	0.142	-	-	0.024	-
HCM Control Delay (s)	9.4	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %ile Q(veh)	0.5	-	-	0.1	-

Intersection

Int Delay, s/veh 6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	18	60	84	6	35	83
Future Vol, veh/h	18	60	84	6	35	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	65	91	7	38	90

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	85	0	242
Stage 1	-	-	-	-	53
Stage 2	-	-	-	-	189
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1512	-	746
Stage 1	-	-	-	-	970
Stage 2	-	-	-	-	843
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1512	-	701
Mov Cap-2 Maneuver	-	-	-	-	701
Stage 1	-	-	-	-	912
Stage 2	-	-	-	-	843

Approach	EB	WB	NB
HCM Control Delay, s	0	7	9.7
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	895	-	-	1512	-
HCM Lane V/C Ratio	0.143	-	-	0.06	-
HCM Control Delay (s)	9.7	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.5	-	-	0.2	-

Intersection

Int Delay, s/veh 6.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶			↷	↷	
Traffic Vol, veh/h	10	22	35	37	86	60
Future Vol, veh/h	10	22	35	37	86	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	24	38	40	93	65

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	35	0	139
Stage 1	-	-	-	-	23
Stage 2	-	-	-	-	116
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1576	-	854
Stage 1	-	-	-	-	1000
Stage 2	-	-	-	-	909
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1576	-	833
Mov Cap-2 Maneuver	-	-	-	-	833
Stage 1	-	-	-	-	975
Stage 2	-	-	-	-	909

Approach	EB	WB	NB
HCM Control Delay, s	0	3.6	9.8
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	912	-	-	1576	-
HCM Lane V/C Ratio	0.174	-	-	0.024	-
HCM Control Delay (s)	9.8	-	-	7.3	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-

Intersection

Int Delay, s/veh 5.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔	↔	
Traffic Vol, veh/h	27	89	84	15	52	83
Future Vol, veh/h	27	89	84	15	52	83
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	97	91	16	57	90

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	126	0	276
Stage 1	-	-	-	-	78
Stage 2	-	-	-	-	198
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1460	-	714
Stage 1	-	-	-	-	945
Stage 2	-	-	-	-	835
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1460	-	669
Mov Cap-2 Maneuver	-	-	-	-	669
Stage 1	-	-	-	-	885
Stage 2	-	-	-	-	835

Approach	EB	WB	NB
HCM Control Delay, s	0	6.5	10.3
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	832	-	-	1460	-
HCM Lane V/C Ratio	0.176	-	-	0.063	-
HCM Control Delay (s)	10.3	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.6	-	-	0.2	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	2	10	0	0	0
Future Vol, veh/h	0	2	10	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	11	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	11	0	-	0	13
Stage 1	-	-	-	-	11
Stage 2	-	-	-	-	2
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1608	-	-	-	1006
Stage 1	-	-	-	-	1012
Stage 2	-	-	-	-	1021
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1608	-	-	-	1006
Mov Cap-2 Maneuver	-	-	-	-	1006
Stage 1	-	-	-	-	1012
Stage 2	-	-	-	-	1021

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1608	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	9	4	0	0	0
Future Vol, veh/h	0	9	4	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	4	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	4	0	14
Stage 1	-	-	4
Stage 2	-	-	10
Critical Hdwy	4.12	-	6.42
Critical Hdwy Stg 1	-	-	5.42
Critical Hdwy Stg 2	-	-	5.42
Follow-up Hdwy	2.218	-	3.518
Pot Cap-1 Maneuver	1618	-	1005
Stage 1	-	-	1019
Stage 2	-	-	1013
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1618	-	1005
Mov Cap-2 Maneuver	-	-	1005
Stage 1	-	-	1019
Stage 2	-	-	1013

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1618	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	2	10	33	17	0
Future Vol, veh/h	0	2	10	33	17	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	2	11	36	18	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	47	0	0	31	29
Stage 1	-	-	-	29	-
Stage 2	-	-	-	2	-
Critical Hdwy	4.12	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	3.518	3.318
Pot Cap-1 Maneuver	1560	-	-	983	1046
Stage 1	-	-	-	994	-
Stage 2	-	-	-	1021	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1560	-	-	983	1046
Mov Cap-2 Maneuver	-	-	-	983	-
Stage 1	-	-	-	994	-
Stage 2	-	-	-	1021	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1560	-	-	-	983
HCM Lane V/C Ratio	-	-	-	-	0.019
HCM Control Delay (s)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	9	4	26	38	0
Future Vol, veh/h	0	9	4	26	38	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	4	28	41	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	32	0	-	0	28 18
Stage 1	-	-	-	-	18 -
Stage 2	-	-	-	-	10 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1580	-	-	-	987 1061
Stage 1	-	-	-	-	1005 -
Stage 2	-	-	-	-	1013 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1580	-	-	-	987 1061
Mov Cap-2 Maneuver	-	-	-	-	987 -
Stage 1	-	-	-	-	1005 -
Stage 2	-	-	-	-	1013 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1580	-	-	-	987
HCM Lane V/C Ratio	-	-	-	-	0.042
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	0	3	12	0	0	0
Future Vol, veh/h	0	3	12	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Yeh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	13	0	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	13	0	0 16 13
Stage 1	-	-	- 13 -
Stage 2	-	-	- 3 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1606	-	- 1002 1067
Stage 1	-	-	- 1010 -
Stage 2	-	-	- 1020 -
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	1606	-	- 1002 1067
Mov Cap-2 Maneuver	-	-	- 1002 -
Stage 1	-	-	- 1010 -
Stage 2	-	-	- 1020 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1606	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Traffic Vol, veh/h	0	11	5	0	0	0
Future Vol, veh/h	0	11	5	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	5	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	5	0	-	0	17
Stage 1	-	-	-	-	5
Stage 2	-	-	-	-	12
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1616	-	-	-	1001
Stage 1	-	-	-	-	1018
Stage 2	-	-	-	-	1011
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1616	-	-	-	1001
Mov Cap-2 Maneuver	-	-	-	-	1001
Stage 1	-	-	-	-	1018
Stage 2	-	-	-	-	1011

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1616	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection

Int Delay, s/veh 2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	3	12	33	17	0
Future Vol, veh/h	0	3	12	33	17	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	13	36	18	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	49	0	0 34 31
Stage 1	-	-	- 31 -
Stage 2	-	-	- 3 -
Critical Hdwy	4.12	-	- 6.42 6.22
Critical Hdwy Stg 1	-	-	- 5.42 -
Critical Hdwy Stg 2	-	-	- 5.42 -
Follow-up Hdwy	2.218	-	- 3.518 3.318
Pot Cap-1 Maneuver	1558	-	- 979 1043
Stage 1	-	-	- 992 -
Stage 2	-	-	- 1020 -
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1558	-	- 979 1043
Mov Cap-2 Maneuver	-	-	- 979 -
Stage 1	-	-	- 992 -
Stage 2	-	-	- 1020 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.7
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1558	-	-	-	979
HCM Lane V/C Ratio	-	-	-	-	0.019
HCM Control Delay (s)	0	-	-	-	8.7
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	4.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	0	11	5	26	38	0
Future Vol, veh/h	0	11	5	26	38	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	5	28	41	0

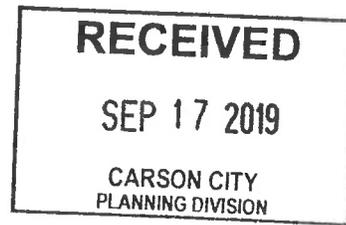
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	33	0	-	0	31 19
Stage 1	-	-	-	-	19 -
Stage 2	-	-	-	-	12 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1579	-	-	-	983 1059
Stage 1	-	-	-	-	1004 -
Stage 2	-	-	-	-	1011 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1579	-	-	-	983 1059
Mov Cap-2 Maneuver	-	-	-	-	983 -
Stage 1	-	-	-	-	1004 -
Stage 2	-	-	-	-	1011 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	8.8
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1579	-	-	-	983
HCM Lane V/C Ratio	-	-	-	-	0.042
HCM Control Delay (s)	0	-	-	-	8.8
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

September 17, 2019

Carson City Planning Commission
108 E. Proctor Street
Carson City, NV 89701



Attn: Heather Ferris, Associate Planner

Re: Tentative Commercial Planned Development File No. TPUD-19-142

Ms. Ferris:

My name is Nicole Lubich and I am the new owner of the property at 1001 Mark Way, Carson City, Nevada. I would like to put on record that I am opposed to the sale of individual RV sites under the file No. TPUD-19-142, Tentative Commercial Planned Unit Development that will be brought up for action at the Planning Commission meeting on September 25, 2019. Due to a new baby, and the eventful life that follows, my mother, Tammy Lubich will be representing me and herself and our interests in this case.

The Sierra Skies RV Resort has been an issue of controversy in this neighborhood for many years. Despite opposition, the Sierra Skies RV Resort has been granted everything they have requested, so this is a battle lost. But, now with everything the Developer has been granted, it is not enough. Now they want to sell individual RV sites. Why? And, how would this work with a Recreational Vehicle park, synonymous with "campground" (a plot of ground upon which two (2) or more campsites are located, established or maintained for occupancy by camping units as temporary living quarters for recreation, education, or vacation purposes), or the zoning compliance for Tourist Commercial Property?

This request violates the very definition of an RV Park as defined by Title 18 of the Carson City Code of Ordinance; 18.0.030 definitions a "Recreational Vehicle Park (RV Park) means a parcel or tract of land containing (1) gross acre minimum land area, having as its principle use the Transient Rental of two (2) or more spaces for recreational vehicles including buildings and structures and uses. There will not be more than thirty (30) spaces per acre". This definition clearly states that the principle use of a RV Park is for Transient Rental. A Recreational Vehicle Space (RV Space) as defined by Title 18 of the Carson City Code of Ordinances; 18.09.030

definitions, “means a lot or parcel of land in a Recreation Vehicle Park containing a net minimum area of one thousand (1,000) square feet for the placement of a single Recreational Vehicle for the exclusive use of its occupants for Transient Dwelling Purposes, including permitted accessory uses and structures”. Once again, Title 18 of the Carson City Code of Ordinances has made it very clear that by the very definition of an RV Space within an RV Park is for the exclusive use of its occupants for Transient Dwelling purposes; meaning the continual rental of a Recreational Space or Spaces to the same person not to exceed one hundred eight (180) days, as defined by Title 18 of the Carson City Code of Ordinances; 18.09.030, definitions.

The above three (3) definitions clearly states that the spaces with an RV Park are for temporary use of tourists, and are not to exceed the Transient Dwelling Purposes for more than one hundred eight (180) days. If individual RV Spaces are sold, how is it possible to regulate or maintain the one hundred (180) day stay provision within the thirty (30) day park leave of an individual’s personally owned property? Potentially two hundred twenty-seven (227) spaces could be sold negating the parks responsibility to maintain the length of stay adhering to Recreational Vehicle Park Code Compliance with special one hundred eighty (180) day permit uses. With this being said, the potential and probable non-compliance of Recreational Vehicle Park ordinances will also violate zoning ordinances as the property is zoned Tourist Commercial (TC), and not Mobile Home Park (MHP).

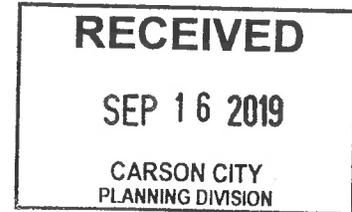
I request that the Planning Commission does not recommend nor support this to the Board of Supervisors.

Respectfully,

Nicole Lubich and Tammy Lubich

September 15, 2019

Carson City Planning Commission
108 E. Proctor Street
Carson City, Nevada 89701



Re: Tentative Commercial Planned Unit Development
File No. TPUD-19-142
1400 Old Hot Springs Road

Dear Members of the Carson City Planning Commission:

We oppose the change in zoning to create 227 RV lots for sale on the property located at 1400 Old Hot Springs Road.

On January 30, 2019 the Carson City Planning Commission approved a Special Use Permit (SUP) to allow a 180-day extended stay for a RV Resort on the above mentioned property.

On April 4, 2019 the Carson City Board of Supervisors also approved a 180-day extended stay for the same RV Resort with a condition: **if guest stays 180 days continuously, they must vacate the park, remove all property, and be unregistered for a period of 30 days prior to being able to return.**

The minutes from Board of Supervisors meeting on April 4, 2019 indicate that Rachel Crider, of Resource Concepts, Inc. representing the applicant said: ***'the 180-day stay ... the majority ... of guests ... visiting the RV resort are not going to stay 180 days.'*** ***"It's really important to note: these aren't residents. These are guests that are staying at the RV park. It's not people that are going to be building sheds or building decks. It's not going to be people who are going to be enrolling their kids in ... schools ..."*** (Page 17 of the minutes)

Now 5 months later there are new plans for this same parcel to sell 227 RV lots.

We are now looking at exactly the opposite of what was originally submitted and granted. 227 permanent residences zoned for Tourist Commercial in the flight path of the airport. This increases the risk to the existing homeowners, pilots and trailer park residents.

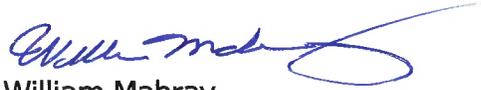
During the April 4, 2019 meeting there was a concern about permanent structures being place on the property. Associate Planner Heather Ferris explained that if a

permanent structure requires a building permit, then clearly permanent structures would not be allowed. *"However, there are some structures that don't require that and, at that point, ... it would be a management issue."* (Page 16 of the minutes)

At the January 30, 2019 Planning Commission meeting minutes regarding the 180-day stay at the RV park, Mr. Plemel explained that enforcement has been done in the past by looking into the parks' records: however, no *"routine program"* existed, and the enforcement officers handled complaints. (Page 4 of the minutes) How is Carson City going to monitor and enforce all of the individual lot owners with their construction of attached and permanent structures?

This is not a good project for Carson City and should be denied.

Thank you for your dedicated service to the Carson City community.



William Mabray



Rebecca Mabray

CARSON CITY BOARD OF SUPERVISORS
Minutes of the April 4, 2019 Meeting
Page 17

Mayor Crowell invited the applicant to the meeting table. (2:22:20) Rachel Crider, of Resource Concepts, Inc. representing the project, introduced herself for the record. She advised that the developer has “all along tried to be a good neighbor to the airport and the neighbors. But to address specifically the SUP appeal and those issues that came up. I know Phil, when he was up here, he mentioned the density from 215 to 277. Just to clarify that, I believe the 215 number was associated with the SUP from 2016. This SUP has always been the 277. And then also, just as a reiteration, we’d like to point out the density is very low density for an RV park. If they went maximum density, they’d be looking at 1,140 spaces. To be clear, they are absolutely not looking at that. They’re looking at a nice, high-end 277 spaces with amenities and landscaping. ... just wanted to clarify that point.

“If we wanted to talk about risk, I would just say the occupancy, the 30-day versus the 180-day stay, that absolutely does not change the risk of an airplane crashing.” In response to a question, Ms. Crider advised of not having specifically spoken with the owners about the suggestions posed by Supervisors Bagwell and Giomi. She advised of no particular issue with the suggestions. She noted “the 180-day stay ... the majority ... of guests ... visiting the RV resort are not going to be staying 180 days. But some of them are going to want to stay longer than 30 days. So that’s why we’ve got the SUP in the first place is to allow that. But, to be clear, the expectation is not that most of these spaces are going to be filled by people staying there for long periods of time. The majority are still going to be the short-term, 30-day stay. Maybe they want flexibility to stay 45 days if they’re having a really great time. So we want to be able to have that available to guests. And, really as far as the industry is concerned, it’s my understanding and the owner has been advised of this by many people, that an extended stay is really necessary to make an RV park viable currently. And that’s just because a lot of people, when they’re going out and RVing, they just want that option. ... So that’s just something to clarify and I hope that we can all kind of get away from the idea that this RV park is going to be filled with people that are staying there for six months. It’s really important to note: these aren’t residents. These are guests that are staying at the RV park. It’s not people that are going to be building sheds or building decks. It’s not going to be people who are going to be enrolling their kids in ... schools. ... I can’t overstate enough that the owner, it’s absolutely in their interest to make sure that they’re maintaining their RV resort in a way that’s going to attract other people there. Having an RV with a lean-to is not going to attract other people there. ... I can’t imagine that they’re going to allow that. It’s not something that is congruent with their vision of the RV park. It’s not something that’s going to make it financially viable to continue to attract RV tourists to the park.”

Ms. Crider responded to questions regarding RV park guest records and the cost to rent an RV space. In response to concerns of the neighbors, she advised that no large fuel storage will be allowed on site. She further advised that most large, modern motor coaches are primarily electrical “and there are full electricity hook ups at each site. So we don’t anticipate people would have large amounts of propane. Maybe enough to run a small barbecue.” Ms. Crider responded to additional questions of clarification, and discussion followed. Ms. Crider reiterated that the target market for the RV park is “high-end RV owners who spend maybe six months of their year traveling around to places they want to go visit and staying in their RV when they do that.” Additional discussion followed.

In response to a question regarding the proposed suggestions, Ms. Wuest expressed the opinion that “the longer they have to stay away, the less likely they are to continually come back or, at least, they can spread their 180 days out between two parks in a year.” In response to a further question, she expressed the belief that the suggested buffer zone would be appreciated by both the area residents and by Ms. Lubich.

CARSON CITY BOARD OF SUPERVISORS
Minutes of the April 4, 2019 Meeting
Page 16

the amount of time that people stay there in the park? That's the connection that I don't get between the two items being appealed." Mr. Ware reiterated "it's from the perspective of risk. I don't know how else to explain it. ... Our concern is for the public, for the traveling public and the aviator or the aviation industry. If there is a catastrophic event, the deck is not clear. The deck has got RVs if there's any occupancy at all. And ... if they're there on a longer-term basis, I don't see any other way to conclude other than the fact that that exacerbates risk to the traveling public and to the airport."

Supervisor Giomi expressed understanding for the concept of risk, "but the concept of risk and the exponential increase in that risk, the increase in probability, is for one single point in that park. And it increases over time because one individual stays in there and is exposed over more time. It doesn't minimize the risk to the pilot. The pilot risk is the same regardless of whether you've got an RV there for 30 days or 180 days. The assumption is if a plane hits the ground, that's that." Supervisor Giomi expressed agreement, "from a risk perspective, that if you, as an individual sit in one spot over 180 days, you are exposed to more risk versus if you're in that same spot over 30 days. I will concede that. But ... I don't understand how that argument changes the perspective or the risk broadly for the neighborhood because I don't believe it does. I don't believe that one issue impacts risk in any way to the neighborhood."

In response to a question, Ms. Ferris explained that the applicant is seeking approval for a special use permit for the RV park to be extended stay. "Part of that includes the total number of spaces. They can't come in with a substantially different design when they come in to build it. And that would be true if they were doing a 30-day stay and we had already met earlier in 2018 for the major project review ..." Ms. Ferris acknowledged that the applicant cannot construct 400 RV spaces without going through the entire process again. Supervisor Giomi noted "that addresses the one concern. The other concern that I heard Heather [Wuest] mention is permanent structures." In response to a question, Ms. Ferris explained that if a permanent structure requires a building permit, then clearly permanent structures would not be allowed. "However, there are some structures that don't require that and, at that point, ... it would be a management issue."

In reference to Supervisor Bagwell's comments, Supervisor Giomi agreed that "if someone has to leave for 30 days or even 15 days out of every 180 days, they're not going to build a lean-to that they have to dismantle ... The other thought I had ... because really what's before us is a 180-day stay component, ... is to potentially limit the first two rows there on the top of that picture to 30 day stays. Then, the part of the park that is closest to the residential is exactly what is permitted for this land. ... If we did nothing else, if we said that row one and row two, those are limited to 30-day RV stays. And the rest of the park is 180-day stays with whatever conditions we want to put on that. ... So not only would you have a 100-foot buffer where you don't have anything, but you also have exactly what the Code allows even without us being here today."

Mr. Ware acknowledged that leaving the property vacant would mitigate all risk. "We're not fighting that battle. That battle is over. We're just saying to minimize risk to the traveling public and to the airport aviator and to the City, ... if you want to think about risk management ..." In response to a further question, Mr. Ware expressed the opinion that "having high density residents living 2500 feet or so from the end of the runway is risky." In response to a question, Ms. Ferris advised that none of the seven findings of fact include risk analysis as part of the criteria. "There's public safety to consider broadly."

Doug Hus introduced himself and stated that he was not a Carson City resident; however, he owned an RV and had stayed in many RV parks such as ones in Virginia City, Reno, and Sparks. Mr. Hus believed “it’s really not even possible for an RV park to survive without extended stays” and spoke of the economic impact brought by the resort and cited his own experience of spending \$1,200 in rent and \$2,500 in dining, gas, and other expenses in two months. He also believed that RV enthusiasts conserve water and that they would use “substantially less” than the projected usage. Mr. Hus pointed out the growth of the RV industry among millennials and baby-boomers and suggested attracting their “tourist dollars”. He did not think that anyone spending over \$15 million on an RV park would let it deteriorate.

Tammy Lubich introduced herself as “one of the neighbors to the west” and a Mark Way resident. Ms. Lubich stated that she was opposed to the park, especially the 180-day stay and noted that they were not notified when the zoning change took place. She also cited an airplane crash on the property which now would house propane tanks. Ms. Lubich wished to see the stay limited to 30 days and believed that anyone wishing to stay for six months should purchase a home and live in Carson City.

There were no additional comments; therefore, Chairperson Sattler closed the public comments portion of the hearing and entertained Commissioner comments and responses to the public comments.

Mr. Plemel explained that enforcement has been done in the past by looking into the parks’ records; however, no “routine program” existed, and that enforcement officers handled complaints. He also believed that recreational vehicle storage was permitted in a Tourist Commercial district and was specifically listed in the Special Use Permit. Ms. Kryder explained that they had not done “a specific line of sight analysis” regarding the vegetation; however, she believed that the grading on the west side of the property would address both the drainage and the fence, adding that the area to the east of the property, a higher plateau area, would not have significant grading changes; however, “in conjunction with the landscape”, there would be “less visibility”. Discussion ensued regarding adjacent properties and Commissioner Dawers wished to hear from the residents. One resident who did not identify herself was concerned with the drainage and possible overflows. In response to a question regarding enforcement, Mr. Plemel indicated that non-compliance would generally lead to a citation, adding that Special Use Permit violations would be escalated to the Planning Commission for a decision.

Chairperson Sattler inquired about RV size limits and Ms. Ferris clarified that “as long as it meets the definition of an RV” the vehicles would be allowed by the City; however, she believed that resort operators may have their own size guidelines and Mr. Plemel stated that regulations were clear on not allowing manufactured homes. In response to two questions by Commissioner Preston, Mr. Plemel clarified that no review period was specified in the conditions of approval and noted that the Commission must add a condition of approval in order to address line of sight issues in the future. Commissioner Borders reminded the commissioners that “length of stay” was the only item agendaized for discussion; however, Commissioner Dawers believed that the Special Use Permit could be utilized to maintain [area residents’] quality of life and the property, adding “we can manipulate all these conditions, I mean everyone here is right, but I think we can certainly leverage to help homeowners to say let’s readdress it in two years in terms of are they sticking to their 180-day limit?. Let’s approve it and [with] the condition of [readdressing it] like we did with the asphalt guy.” Discussion ensued and Chairperson Sattler explained that there was limited use for the property due to its proximity to the airport and it being “at the end of a runway, and they don’t have to be here if it’s 30 days [of stay]”. Commissioner Dawers wished to go on record by stating that if the only thing the Commission was voting on was the 180-day stay, “there wouldn’t be any of these conditions” and believed that the Commission had every right and a responsibility to the community.