STAFF REPORT FOR THE PLANNING COMMISSION MEETING OF AUGUST 31, 2022

FILE NO:LU-2022-0295 **AGENDA ITEM: 6.D**

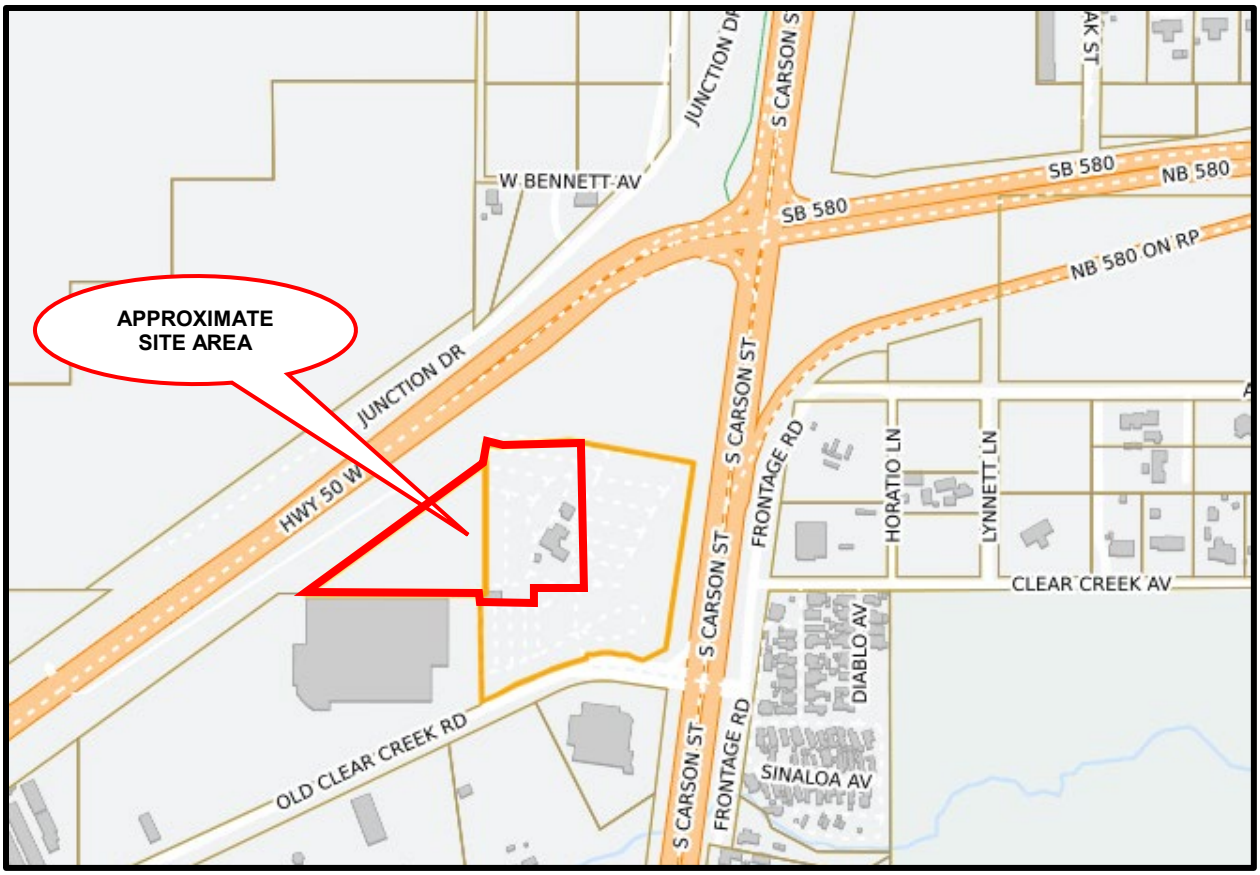
STAFF CONTACT: Heather Manzo, Associate Planner

AGENDA TITLE: LU-2022-0295 For Possible Action: Discussion and possible action regarding a request from Comstock Country RV ("Applicant") for a special use permit ("SUP") to extend an existing nonconforming recreational vehicle park ("RV Park") use onto an adjacent parcel and continuation of existing non-conformities, on a property zoned General Commercial ("GC") located at 5400 South Carson Street, Assessor's Parcel Numbers ("APNs") 009-302-03 and -17. (Heather Manzo hmanzo@carson.org)

STAFF SUMMARY: The Applicant is proposing to reduce the number of RV Park spaces and to relocate an existing RV Park use which will extend the use onto an adjacent vacant parcel. The current use does not conform with all of the standards per Carson City Municipal Code ("CCMC") Chapter 18.09 for a RV Park use. The applicant is requesting to extend the existing non-conforming use of land. Per CCMC 18.04.030 (Nonconforming Uses) and 18.04.135 ("GC"), a SUP is required. The Planning Commission is authorized to approve a SUP.

PROPOSED MOTION: "I move to approve the special use permit Case No. LU-2022-0295 based on the ability to make the required findings, and subject to the conditions of approval contained in the staff report."

VICINITY MAP:



RECOMMENDED CONDITIONS OF APPROVAL:

1. All development shall be substantially in accordance with the plans approved in association with this request.

2. All on and off-site improvements shall conform to City standards and requirements.

3. The use for which this permit is approved shall commence within twelve (12) months of the date of final approval. A single, one (1) year extension must be requested in writing to the Planning Division of the Carson City Community Development Department ("Planning Division") thirty (30) days prior to the one (1) year expiration date. Should this permit not be initiated within one (1) year and no extension granted, the permit shall become null and void.

4. The Applicant must sign and return the Notice of Decision within ten (10) days of receipt of notification. If the Notice of Decision is not signed and returned within ten (10) days, then the item may be rescheduled for the next Planning Commission meeting for further consideration.

5. Prior to the issuance of a site improvement permit, the applicant shall have plans approved that demonstrate the water main connections will be relocated so that each parcel has a separate meter and backflow preventer.

6. Prior to the issuance of a site improvement permit, the applicant shall demonstrate that the Nevada Department of Transportation ("NDOT") has approved use of their basin for detention or that onsite storm water detention has been provided.

7. Prior to the issuance of a site improvement permit, the applicant shall record the parcel map.

8. Prior to the issuance of a site improvement permit, the applicant shall have plans approved which include the construction of all offsite driveway realignment improvements. The applicant shall demonstrate that all offsite improvements shall be constructed prior to the final inspection for the site improvement permit.

9. Prior to the issuance of a site improvement permit, the applicant shall have plans approved that demonstrate all onsite utilities shall be private. Any shared utilities shall have an easement. A maintenance agreement for the shared utilities shall be provided.

10. Prior to the issuance of a site improvement permit, the applicant shall demonstrate that a demolition permit has been approved for the portions of the existing RV Park that are not associated with this project. The applicant shall be limited to a maximum of 82 RV Park spaces.

11. Prior to the issuance of a site improvement permit, the applicant shall submit an open space area plan that demonstrates the minimum amount of recreational open space has been provided.

LEGAL REQUIREMENTS: Carson City Municipal Code ("CCMC"): 18.02.080 (Special Use Permits), 18.04.135 General Commercial ("GC"), 18.09 (Recreational Vehicle Parks)

MASTER PLAN DESIGNATION: Community/Regional Commercial

PRESENT ZONING: General Commercial

KEY ISSUES: Will the extension of a non-conforming use be compatible with the surrounding neighborhood and be in keeping with the standards of the CCMC?

SURROUNDING ZONING AND LAND USE INFORMATION:
- EAST: GC / mobile home park, Western Nevada Supply, and vacant land
- WEST: GC / Costco
- NORTH: GC & OS / HWY 50 West, single family residence, commercial uses and undeveloped open space
- SOUTH: GC & PR / Bodine's Casino and Carson City Fairgrounds Fuji Park

ENVIRONMENTAL INFORMATION:
- FLOOD ZONE: X Shaded
- EARTHQUAKE FAULT: Greater than 500 feet
- SLOPE/DRAINAGE: A portion of the site is developed. Where proposed, extended development onto the vacant property to the west will provide for adequate slopes and drainage as identified in the conceptual drainage study provided.

SITE DEVELOPMENT INFORMATION:
- SITE SIZE: ±6.35 acres of an overall 13.19-acre site consisting of two parcels
- PROPOSED PROJECT: Relocate and reduce an existing non-conforming RV park use. The project will result in a reduction from 150 RV park spaces to 82 spaces, the elimination of the RV storage use from the site, and an expansion of the non-conforming use onto a vacant site.

PREVIOUS ACTIONS:

U-87-2 – On March 5, 1987 the Planning Commission approved a SUP to add 65 RV spaces. The record did not state the number of existing spaces prior to the SUP application for an expansion.

DISCUSSION: The Applicant has stated that the RV Park was initially established in 1964 and the use has been in operation for the past ±58 years at 5400 South Carson Street. The use is legally established and is a non-conforming use as the use does not conform to all of the requirements for a RV Park per CCMC. The applicant has proposed a reduction to the size and number of spaces associated with the RV Park use from 150 to 82 spaces, has proposed elimination of the RV storage use, and has proposed a circulation plan that eliminates loops and dead-ends. Per CCMC 18.04.135, a SUP is required for a RV Park use within the GC zoning district and CCMC 18.09 outlines the standards for a RV Park. CCMC 18.04.030 states that a non-conforming use of land shall not be extended or expanded except by approval of a SUP. The applicant has requested a SUP to extend the non-conforming use onto a parcel located to the west of the current site and has requested a continuation of existing non-conformities as they relate to CCMC 18.09 and the allowable length of stay per the definition of a Recreational Vehicle Park (CCMC 18.03).

A parcel map application (PM-2022-0208) has been filed that would result in the creation of a ±6.35 acre parcel for the subject site and would create 3 other parcels on the remaining portion of 5400 South Carson Street. The remaining RV Park use not located on the subject site would be demolished and future commercial development is anticipated.

PUBLIC COMMENTS: Public notices were mailed on August 17, 2022 to 99 property owners and 67 mobile home park residents located within 1,600 feet of the subject property. As of the writing of this report, no comments from property owners in the vicinity of the proposed project have been received. Any comments that are received after this report is completed will be submitted to the Planning Commission prior to or at the meeting on August 31, 2022, depending on the date of submission of the comments to the Planning Division.

OTHER CITY DEPARTMENTS OR OUTSIDE AGENCY COMMENTS: The following comments were received by various City departments. Recommendations have been incorporated into the recommended conditions of approval, where applicable.

Carson City Public Works Department, Engineering Group ("Development Engineering"): Development Engineering has no preference or objection to the SUP provided that the following conditions are met:

- The water main connections must be relocated so that each parcel has a separate meter and backflow preventer.
- The use of the NDOT basin for detention must be approved by NDOT prior to issuance of a site improvement permit, otherwise storm water detention must be provided onsite.
- The final parcel map must be recorded prior to issuance of a site improvement permit.
- The offsite driveway realignment improvements are constructed prior to or concurrent with the onsite improvements.
- All onsite utilities must be private any shared utilities must have an easement and maintenance agreement.

- All Carson City Development Standards and Standard Details including but not limited to

the following:

- Site improvement plans will need to demonstrate compliance with the requirements of CCMC 18.09 - Recreational Vehicle Parks with the exception of 18.09.050 (9.a) as discussed under Finding No. 5 of this report.
- The project must complete and submit a Technical Drainage Study that meets the Carson City Drainage Manual requirements.
- One of the nine parking spaces must be Americans with Disabilities Act ("ADA") van accessible.

Development Engineering has reviewed the application within our areas of purview relative to adopted standards and practices and to the provisions of CCMC 18.02.080, Conditional Uses and offers the following discussion:

CCMC 18.02.080(5)(a) - Master Plan
The request is not in conflict with any Engineering Master Plans.

CCMC 18.02.080(5)(b) – Use, Peaceful Enjoyment, Economic Value, Compatibility
Development Engineering has no comment on this finding.

CCMC 18.02.080(5)(c) - Traffic/Pedestrians
Local intersections: The closest intersection is South Carson Street and Old Clear Creek Road. South Carson Street is NDOT right-of-way and is classified as a freeway/principal arterial while Old Clear Creek Road is a minor collector.

Parking and internal circulation: Onsite parking if offered in the form of RV pads and 9 parking spaces.

Adjacent Streets On-Street Parking: There is no on-street parking.
Proposed and/or necessary improvements:

- Per Carson City Development Standards ADA compliant sidewalk ramps must be installed at the driveway ingress/egress on Old Clear Creek Road. A sidewalk connection must be provided from the driveway to the existing sidewalk at the intersection of Old Clear Creek Road and South Carson Street.

CCMC 18.02.080(5)(d) - Public Services
Sanitary Sewer: There is a 10" PVC main along the south frontage of the property. This main is approximately 30% full (d/D). There is sufficient capacity in the main to serve the project.

Water: The existing water main is 12-inches PVC on the south end of the property (Old Clear Creek Rd). There is sufficient pressure and flow to serve the project. Per Carson City Development standards:

- All water meters shall be located per the typical utility lateral detail C-1.2.5.
- The domestic water line requires a reduced pressure principle assembly backflow preventer consist with the Carson City Standard Detail C-3.3.3.

Storm Drain: A FEMA floodplain study of the Clear Creek Watershed is currently being completed. The floodplain on the property may be affected by the study. Future improvements will need to follow requirements per CCMC Section 12.09 using the FEMA designation at the time of permit application.

Development must follow the Carson City Drainage Manual, effective July 1, 2021. The storm drain

infrastructure in place can handle the intended use. The project may use the NDOT facility for detention if documentation is provided that the basin has capacity and NDOT accepts the additional flow, alternatively detention may be provided onsite.

CCMC 18.02.080(5)(e) – Title 18 Standards
Development Engineering has no comment on this finding.

CCMC 18.02.080(5)(f) – Public health, Safety, Convenience, and Welfare
The project will meet engineering standards for health and safety if conditions are met.
Earthquake faults: The closest earthquake fault is over 500-ft away.
FEMA flood zones: The current FEMA flood zone is Zone X (unshaded).
Site slope: The site has a moderate slope.

CCMC 18.02.080(5)(g) – Material Damage or Prejudice to Other Property
Development Engineering has no comment on this finding.

CCMC 18.02.080(5)(h) – Adequate Information
The plans and reports provided were adequate for this analysis.

Fire Department:
The project must comply with the 2018 International Fire Code ("IFC") and Northern Nevada Fire Code amendments as adopted by Carson City, including providing adequate access to the site. Fire access roads shall be a minimum of 20 feet wide and provide a minimum turn radius of 30 feet inside and 50 feet outside. The radius is required for all roadways within the park, per 2018 IFC Appendix D. Onsite fire hydrants shall be provided and spaced every 500 feet.

SPECIAL USE PERMIT FINDINGS: Staff's recommendation is based upon the findings as required by CCMC Section 18.02.080 (Special Use Permits) enumerated below and substantiated in the public record for the project.

1. Will be consistent with the master plan elements.

The requested development is consistent with the concept of a Compact and Efficient Pattern of Growth (Guiding Principle 1). Carson City is committed to a compact pattern that makes efficient use of the limited land area and water resources it has available for urban growth, and that fosters the provision of infrastructure and services in a cost-effective manner. The subject property is served by water and sewer.

Goal 1.2 of the Master Plan discusses promoting infill and redevelopment in targeted areas. It encourages mixed-use development as a redevelopment strategy along the City's major gateway corridors.

The proposed project will result in a smaller footprint and operation of a nonconforming use. The reduced footprint will set the stage for the redevelopment of property within the South Carson Street and HWY 50 West corridor. The request continues to support placing people near economic centers to encourage mixed-use activity and centers, and promotes infill along one of the City's major gateways.

2. Will not be detrimental to the use, peaceful enjoyment, economic value, or development of surrounding properties or the general neighborhood; and will cause no objectionable noise, vibrations, fumes, odors, dust, glare or physical activity.

This use will not be detrimental to the use, peaceful enjoyment, or economic value of surrounding properties. The request will relocate a portion of the RV Park, reduce the footprint, and will set the stage for an infill development along the Carson Street corridor and near its intersection with HWY 50 West. Site lighting will be required to meet CCDS Division 1.3 and will be pointed downward so as not to spill over onto adjacent properties or roadways. The use is compatible with surrounding commercial uses.

3. Will have little or no detrimental effect on vehicular or pedestrian traffic.

The proposed project will improve onsite circulation, provide additional parking, and will result in additional sidewalks and improvements along the site frontage. Since the request will result in a reduction to the RV Park operations, there will be a reduction to the impact of the development on the roadway network as a result of this project.

4. Will not overburden existing public services and facilities, including schools, police and fire protection, water, sanitary sewer, public roads, storm drainage, and other public improvements.

The project will result in an overall reduction in the number of RV spaces from 150 to 82 spaces which will reduce the need for services and facilities. The site is within a developed area of the City and adequate public facilities and services exist to serve the site. As proposed and with recommended conditions, the project will comply with storm drainage requirements. The Carson City Fire Department will review the site improvement permit application to ensure applicable Fire requirements are met.

5. Meets the definition and specific standards set forth elsewhere in this title for such particular use and meets the purpose statement of that district.

The GC zoning district is intended to provide for a broad range of commercial uses. A RV Park is subject to a SUP within the GC zone and is subject to the RV Park standards contained in CCMC 18.09. The current use is a non-conforming use as it does not meet the transient occupancy definition and does not comply with all of the RV Park requirements in CCMC 18.09.050. The Applicant has requested the extension of the non-conforming RV Park use onto the undeveloped portion of the site (APN 009-302-03) and a continuation of specified non-conformities as noted and discussed below:

A RV Park is by definition a transient use. For “transient dwelling purposes”, this means the continual rental of a RV Park space to the same person shall not exceed 28 days (short term) or 180 days (extended stay). The RV Park was established prior the established time limitation for guests to occupy a space, the park currently operates without time limitations, and the Applicant has requested that the non-conforming use be allowed to be extended beyond 180 days.

Staff Response: The existing non-conforming use provides for an option for guests to stay longer term than 6 months. The occupancy has no effect on the surrounding properties and staff recommends allowing the extension of the non-conforming use.

The Applicant has requested a SUP for the extension of the non-conforming use as presented by this project. The existing use does not conform to CCMC 18.09.050 1, 7.d, 8.a, 8.b, 8.d, and 9.a.

The following summarizes the sections of 18.09.050 that the Applicant has proposed to conform as well as discusses the potential impacts of the extended existing non-conforming use:

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.

Staff Response: Existing non-conforming use to be extended. The proposed extension complies with CCMC to the extent possible including compliance with Fire Department and Carson City Health and Human Services, Environmental Health Division requirements. However, the Applicant has requested a continued non-conforming use in other areas as discussed below.

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.

Staff Response: The project as presented and with conditions of approval demonstrates compliance with this requirement.

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

Staff Response: The project demonstrates compliance with this requirement. The Applicant has obtained a grading permit and site improvements will need to comply with the standards contained in the Drainage Manual.

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

Staff Response: The project complies with this requirement as the site is not located within a flood zone.

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.

Staff Response: The project demonstrates compliance with this requirement. All spaces are designed to accommodate a single recreational vehicle and its associated tow vehicle where applicable.

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) mobilehome used for living quarters by the operators or manager of the park.

Staff Response: The existing buildings will remain. These buildings include restrooms, showers, laundry facilities, management quarters and a retail element to serve the RV Park guests. Additionally, there is a pool, dog walking areas, and other amenities located onsite that are accessory to the RV Park use.

7. Property development standards are:

   a. Maximum building height: Two (2) stories but no greater than twenty-six feet (26′).

   b. Minimum net area per recreational vehicle space: One thousand (1,000) 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.

   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′).

   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.

Staff Response: Existing non-conforming use to be extended. The project demonstrates compliance with this requirement with the exception of 7.d. The existing RV Park spaces located along the north property line do not currently meet the 20-foot setback from the property line. This non-conforming setback will be extended onto the new portion of the RV Park. The non-conforming setback will not have an impact on surrounding properties as the north property line abuts HWY 50 West right-of-way. It is worth noting that the total density for the project is approximately 13 RV Park sites per acre.

8. Placement required for recreation vehicles on individual recreational vehicle spaces are:

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

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

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

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

Staff Response: Existing non-conforming use to be extended relative to 8.a, 8.b and 8.d. The project does not comply with 8.a as the applicant has noted the current RV spaces do not comply with as it pertains to the spaces along the north property line and the spaces at the ends of each row. Required turning radius have been provided to ensure adequate emergency vehicle access and all other portions of the project will comply with the standard. The project does not comply with 8.b and 8.d as the applicant has noted that current RV Park spaces are 24 feet wide and new spaces are also proposed to be the same minimum width. In some cases, especially when RVs have slides, the minimum distance between RVs may not be met; however the spaces are wide enough to accommodate a RV with slides on both sides within the confines of the 24 foot wide RV

space. Allowing the extension of the non-conformity to these standards will not have an impact on surrounding properties and will not affect vehicle circulation or emergency vehicle access.

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.

    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.

Staff Response: Existing non-conforming site improvements to be extended to the new portion of the project relate to the proposed surface of each RV Park space. The applicant has requested to extend the use of compacted base with gravel surfaces within the RV spaces. Exposed ground surfaces in all other parts of the RV park will comply with these requirements and with the requirement for paved surfaces.

10. Recreational Vehicle Park Site Development Standards. Singular recreational vehicle park spaces shall have the following standards:

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

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

    Staff Response: The project demonstrates compliance with this requirement as the RV space grades do not exceed 5% and each RV space will include full hookups including its own water connection.

11. Open Space Areas. All recreational vehicle parks shall have at least one (1) recreation 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.

Staff Response: The project demonstrates compliance with this requirement. The Applicant has proposed a tree for every RV space and has noted that the recreational areas within the park are easily accessible from all RV Park spaces and the site improvement plans will demonstrate the minimum area has been provided. It is recommended that the applicant provide an open space area plan with the site improvement permit to demonstrate that this requirement is met by the project.

12. Requirements for 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.

    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.

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.
(2) Surfacing. All internal recreational vehicle park site access roadways and individual vehicle parking spaces must be hard surfaced and well drained.
(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.
(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.
(b) All roads and road structures shall be graded and surfaced and of sufficient design to support the weight of twenty (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.

Staff Response: The project demonstrates compliance with these requirements and the proposed reconfiguration will improve site circulation and safe movements throughout the park. The application will result in a reduction to the number of RV Park spaces from 150 to 82 spaces, resulting in less traffic generated by the use. The project includes a realignment of the access driveway from Clear Creek Road. All drive aisles will comply with the minimum width, one way drives will be a minimum of 20 feet wide while two way driveways will be a minimum of 26 feet wide. The proposed project will eliminate dead end driveways and disconnected loops making onsite circulation safer and easier for RV Park guests and staff. With the exception of the spaces along the north property line, all sites have been designed for pull-through access. Each RV Space will accommodate guest parking and sufficient maneuvering onsite. Roadways will be required to meet the vehicle load as stated in subsection 12.c.4.b of this standard.

The other standards contained in CCMC 18.09 related to water systems, sewage disposal, electrical systems, trash storage, fire protection, and accessory buildings and services are met by this project. Of note, each RV Park space will include full hookups including water, sewer, and electrical. Trash containers are proposed at the end of each row in addition to the trash enclosure located between Buildings B and C. The design complies with Fire Department standards for vehicle access and the existing accessory buildings are not proposed to be modified.

The applicant will need to demonstrate that plans are consistent with the approved SUP. Compliance with these standards, unless otherwise approved by the SUP for extended non-conforming use, will be demonstrated with the site improvement permit.

6. Will not be detrimental to the public health, safety, convenience and welfare.

The RV Park exists; however, this project proposes the extension of a portion of the RV Park onto an adjacent vacant parcel. Additionally, the project would result in the overall reduction in the

number of RV spaces. The use is within the GC zoning district, located along a major arterial, and is currently served by existing site improvements and infrastructure. As conditioned, the proposed use will not be detrimental to public health, safety, convenience, and welfare. The use is compatible with other uses in the neighborhood.

7. Will not result in material damage or prejudice to other property in the vicinity.

The RV Park exists; however, this project proposes the extension of a portion of the RV Park onto an adjacent vacant parcel. Additionally, the project would result in the overall reduction in the number of RV spaces. The proposed project is compatible with other surrounding commercial uses and will not result in material damage to other property in the vicinity.

Attachments:

Application LU-2022-0295

Resource Concepts Inc

August 8, 2022

Ms. Heather Manzo
Carson City Planning Division
108 E. Proctor Street
Carson City, NV 89701
(775) 283-7075

Subject: Comstock Country RV Relocation
Special Use Permit Application Revised
LU-2022-0295

Dear Ms. Manzo:

Please find enclosed the following submittal package (revised) copies for the Comstock Country RV Special Use Permit revised application:

Application Form - signed
Detailed Written Project Description
Site Plan (Letter size)
Building Elevation Drawings and Floor Plans *(Not applicable – existing building)*
Special Use Permit Findings
Master Plan Policy Checklist
Applicant's Acknowledgment Statement (see application)
Documentation of Taxes Paid-to-Date
Project Impact Reports (Engineering) – Conceptual Drainage Study

As requested, the Findings and Site Plan have been revised to more clearly defined those items which are currently non-compliant and will remain versus those for which the new relocated RV spaces will comply.

Please don't hesitate to call me with any questions.

Sincerely,

Keith R Shaffer, PE
Senior Project Engineer

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 18.02.080

SPECIAL USE PERMIT

FEE*: **$2,450.00 MAJOR**
$2,200.00 MINOR (Residential zoning districts)
+ noticing fee
***Due after application is deemed complete by staff**

SUBMITTAL PACKET – 4 Complete Packets (1 Unbound Original and 3 Copies) including:

- ☐ Application Form
- ☐ Detailed Written Project Description
- ☐ Site Plan
- ☐ Building Elevation Drawings and Floor Plans
- ☐ Special Use Permit Findings
- ☐ Master Plan Policy Checklist
- ☐ Applicant's Acknowledgment Statement
- ☐ Documentation of Taxes Paid-to-Date
- ☐ Project Impact Reports (Engineering)

☐ **CD or USB DRIVE with complete application in PDF**

Application Received and Reviewed By:

_____

Submittal Deadline: Planning Commission application submittal schedule.

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

FILE #

APPLICANT	**PHONE #**
Comstock Country RV	(775) 315-9292
MAILING ADDRESS, CITY, STATE, ZIP	
5400 S. Carson Street, Carson City, 89701	
EMAIL ADDRESS	
Mattlepire@gmail.com	
PROPERTY OWNER	**PHONE #**
The Eugine L & Judeth L. Lepire 1977 Trust	(775) 315-9292
MAILING ADDRESS, CITY, STATE, ZIP	
5400 S. Carson Street, Carson City, NV 89701	
EMAIL ADDRESS	
mattlepire@gmail.com	
APPLICANT AGENT/REPRESENTATIVE	**PHONE #**
Matt Lepire	(775) 315-9292
MAILING ADRESS, CITY STATE, ZIP	
5400 S. Carson Street, Carson City, NV	
EMAIL ADDRESS	
mattlepire@gmail.com	

Project's Assessor Parcel Number(s):	Street Address

Project's Master Plan Designation	Project's Current Zoning	Nearest Major Cross Street(s)
009-302-03 & 17	General Commercial - GC	Old Clear Creek Rd

Please provide a brief description of your proposed project and/or proposed use below. Provide additional pages to describe your request in more detail
This project is the relocation and modification of a portion of the existing Comstock Country RV park, reducing the total approximate 175 existing RV spaces to approximately 82 RV spaces.

The existing buildings and ammenities will remain with no new building improvements. New driveway

PROPERTY OWNER'S AFFIDAVIT

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

Signature: _____ Address: PO Box 4353 CC NV 89702 Date: 5/19/22

Use additional page(s) if necessary for additional owners.

STATE OF NEVADA)
COUNTY Carson City consolidated)

On May 19, 2022, Matthew Lepire, 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 acknowledged that he/she executed the foregoing document.

Notary Public: Shari Baughman

SHARI BAUGHMAN
NOTARY PUBLIC
STATE OF NEVADA
No. 08-7130-5 My Appt. Exp. May 4, 2024

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.

If there is any additional information that would provide a clearer picture of your proposal that you would like to add for presentation to the Planning Commission, please be sure to include it in your detailed description.

Please type and sign the statement on the following page at the end of your findings response.

ACKNOWLEDGMENT OF APPLICANT

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

Applicant's Signature	Print Name	Date
	Matthew Lopez	5/19/22

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

March 25, 2022

Matthew Lepire
PO Box 4353
Carson City, NV
Delivery by email: mattlepire@gmail.com

Major Project Review: MPR-2022-0070

Project Description: 5400 South Carson Street (APN 009-302-17) is currently fully developed with an established RV park and RV storage use. The site is licensed for 150 RV Park sites and storage of up to 62 RVs. In an effort to redevelop the site, this request proposes removal of the RV park and storage use from a large portion of the existing site, and proposes to extend the use onto the adjacent parcel to the west (APN 009-302-03). This redevelopment will result in a redesign of the RV park and is proposed a) eliminate RV storage, b) to retain the existing RV Park buildings, and c) reduce the number of RV park spaces from 150 to approximately 90 spaces.

A conceptual subdivision map application was submitted concurrent to this request. Please also see comments for CSM-2022-0007 (5400 South Carson Street).

Review Date: March 1, 2022

Major Project Review Comments

The following requirements and comments are provided for your use in preparing final plans and submittals for the project. Please be advised that the comments presented in this letter are based on the plans submitted with the Major Project Review application and may not include all the requirements or conditions which may be placed on the project at the time of submittal of planning applications for approval (if applicable) or final plans for building permits. It is hoped, however, that this review will expedite the completion of your project.

Some of the requirements noted below may have already been shown or otherwise indicated in the plans and need only be submitted in the final improvement plan form. Final on- and off-site improvement plans shall be submitted to the Permit Center, (108 E. Proctor Street). These plans must contain all appropriate requirements of Development Engineering, Health, Utilities, Fire, and Planning Divisions/Departments.

Planning applications (if applicable), such as Master Plan Amendments, Zoning Changes, Special Use Permits, Variances, Lot Line Adjustments, Parcel Maps, etc. shall be submitted to the Planning Division (108 E. Proctor Street) for review and approval.

SITE INFORMATION:
Address: 5400 South Carson Street
APN: 009-302-17 & 009-302-03
Parcel Size: 13.19 acres
Master Plan Designations: Community/Regional Commercial
Zoning: General Commercial (GC)

PLANNING DIVISION
Heather Manzo, Associate Planner

1. Permitted Use – CCMC 18.04.135 (GC Zoning District); CCMC 18.04.030 (Nonconforming Uses); CCMC 18.09 (Recreational Vehicle Park Requirements)

The GC zoning district is intended for a mixture of uses primarily comprised of retail and wholesale sales, repair and service facilities, and offices. Based upon discussions with the applicant, the uses for the site include a reduction of the existing footprint of the RV Park use, elimination of the RV storage use, and extension of the RV Park onto an abutting parcel that is currently undeveloped. With the removal of a portion of the existing RV Park and RV storage use from the existing site, the applicant has indicated a desire to redevelop the site with a convenience store with gas and diesel fueling stations, a hotel use, a restaurant, a drive through facility, though other uses may be proposed to locate on the site.

Special Use Permits Required

Of the possible mix of uses discussed, the extension of the RV Park onto a new parcel would trigger a special use permit. There appear to be elements of the current RV Park operation that are not in conformance with the RV Park standards contained in CCMC 18.09. Per CCMC 18.04.030, Nonconforming Uses may be extended with the approval of a special use permit. A special use permit request will need to include a summary of the standards contained in CCMC 18.09 and identify any areas that are currently non-conforming at the current site and that are proposed to be extended onto the abutting parcel.

Other uses discussed above are allowed as long as the design complies with code. It is recommended that the applicant review the allowable uses contained in CCMC to determine whether potential future uses on the site may require an entitlement before they can be established.

The special use permit application should lay out the phasing plan for demolition, access, circulation, grading etc for the removal and extension of the RV park use. It should be clear if operations will continue during construction and how each phase will standalone without reliance on future phases to function. It is apparent that lot lines must be modified to facilitate the redevelopment of the site. Please include the proposing timing of mapping changes at the appropriate time in the process as part of the phasing plan.

In order to streamline the process if there are multiple special use permit triggers, the requested SUPs may be applied for under a single application. As part of the special use permit application, a conceptual grading plan for the site in its entirety should be provided. The existing site grading has occurred in a manner that negatively affects site access and circulation. Application materials should address slope treatments along the perimeter of the grading extents.

2. Setbacks CCMC 18.04.195 (Non-Residential)

Setbacks for the GC zone are: Front = 0 feet, Side = 0 feet, Street Side = 0, and Rear = 0 feet.

Additional notes referenced in 18.04.195 note that landscape setbacks along arterial roadway frontages are 10 feet. Carson Street is an arterial roadway so a 10 foot wide landscape buffer will be required along this frontage. For non-arterial roadways, a 6 foot wide landscape buffer along street frontages will be required. This requirement applies to both public and private streets. Because HWY 50 West abuts the project to the north, technically CCMC would require a 10 foot wide landscape buffer along the Hwy 50 frontage. There is a provision in code to allow for a request to modify the frontage landscaping to be approved by the Director. If a narrower landscape buffer is desired, the request will need to call out the alternative design for possible approval.

3. Height - CCMC 18.04.195 (Non-Residential)

The maximum building height for the GC zoning district is 45 feet, unless otherwise approved by special use permit.

4. Signs - Carson City Development Standards, Division 4.7 Sign Regulations and Standards by Use

All signs must be consistent with the sign standards contained in Division 4.7.

5. Landscaping - Carson City Development Standards, Division 3

Landscaping must be consistent with Division 3 of the Development Standards.

A minimum 10 foot wide landscape area is required as measured from the front property line along Carson Street per CCMC 18.04.195 (Non-Residential). All other frontages are required to have a 6 foot wide landscape buffer. This landscape area will count toward the required landscaping for the site.

6. Parking, Access, and Loading – Carson City Development Standards, Division 2

Parking areas should be designed based upon standards contained in the Carson City Development Standards (CCDS), Division 2 "Parking". The site will need to comply with parking requirements based on the breakdown of the use of the buildings on the site. Parking rates are in CCDS Section 2.2 (Number of Spaces Required).

Parking areas will need to comply with CCMC with regard to site lighting, landscaping, striping, circulation, emergency vehicle circulation, and other design standards for parking lots.

The conceptual site plan appears to show only one-way roads. The special use permit application should include a scaled site plan that demonstrates compliance with CCMC 18.09 and other applicable requirements.

7. Architectural Design - Carson City Development Standards, Division 1

If proposed, structures must meet the architectural standards outlined in the Development Standards, Division 1.1.

8. Lighting - Carson City Development Standards, Division 1

Lighting must meet the standards outlined in Development Standards 1.3.

9. Roof-Mounted Equipment - Carson City Development Standards, Division 1

Roof mounted equipment must meet the standards outlined in Carson City Development Standards 1.1.7.

10. Trash Storage - Carson City Development Standards, Division 1

Trash enclosures will need to meet CCMC 18.16 Section 1.2.6 (Typical Screening) will be necessary as part of this request.

11. Growth Management - CCMC 18.12

Growth Management applies to all residential, commercial, and industrial property that is required to be served by city water and/or sewer service within the consolidated municipality of Carson City.

12. RV Park Standards – CCMC 18.09

The proposal will need to demonstrate compliance with the standards for a RV Park. Where standards are not met by current operations, and the non-conformity is desired to be extended to the new site, a special use permit request will need to include the request to extend a non-conforming use or standard onto the new parcel.

ENGINEERING AND UTILITIES
Stephen Pottey, Development Engineering

Transportation:

1. A sealed traffic trip generation must be provided. If the project will generate more than 80 peak hour trips or 500 daily trips a traffic impact study must be provided, meeting the requirements of CCDS 12.13. Please contact Bryan Byrne for traffic impact study scoping at 775-283-7431.
2. With the building permit please provide RV turning movements for RV's entering, exiting, and circulating through the proposed development.
3. All driving and parking surfaces are required to be paved, excluding RV pads.
4. Sidewalks are required to be constructed along the limits of parcel adjacent to Old Clear Creek Road per CCDS 12.12.
5. Please ensure the requirements for driveway spacing are per CCDS 12.12 which requires a minimum driveway separation of 185 feet center to center, and a minimum of 175 feet intersection corner clearance.
6. Curb returns design and radius shall be per CCDS 12.12 and Carson City Standard Details.
7. An access easement will be required for the proposed shared driveway access.
8. Internal access ways must be 26 feet wide minimum and must be privately owned and maintained.

Water:

9. The existing water main is 12-inches PVC located on the south end of the property (Old Clear Creek Rd).
10. A wet stamped water 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. -Please contact the Michael Friend at (775) 283-7713 or mfriend@carson.org to schedule a fire hydrant flow test.

11. Parcels must be served with individual meters and backflow preventers. These must be located at the right-of-way property line above ground in a hot box. The backflow preventer for the RV park must be a reduced pressure principal assembly. I fire hydrant only loop may be installed with only a single check valve in a vault at the property line.

Sewer:

12. There is an existing 10-inch PVC sewer main on the south end of the property (Old Clear Creek Rd). This main is approximately 30% full (d/D). There is an abandoned 10-inch asbestos concrete pipe on the southeast side of the property and an abandoned 6-inch asbestos concrete pipe on the east side of the property that may not be re-established for use.

13. If the project will increase the sewer use, a wet stamped sewer main analysis must be submitted that includes addressing the effect of flows on the existing City system. See section 15.3.2 of CCDS.

Storm Drainage and Flooding:

14. The current FEMA flood zone is Zone X (unshaded) and Zone AE. If the project includes any work in the area of the AE flood zone, the project must meet the requirements of CCMC 12.09 Flood Damage Prevention, including balancing cut and fill within a flood zone.

15. Recently, Carson City has adopted changes to the detention design storm requirements from a 5-year, 24-hour event to a 10-year 24-hour event and includes Low Impact Development (LID) design requirements. The drainage manual is available here: https://www.carson.org/home/showpublisheddocument/76280/637624691903200000

16. The project may use the NDOT facility for detention if documentation is provided that the basin has capacity and NDOT accepts this additional flow.

Site Specific:

17. A detailed grading plan will be required for the development of the RV park.

18. Right-of-Way Grant, BLM Serial Number NVN 087757, recorded as document #424412 on APN 009-302-03 for a drainage structure with utility related improvements will terminate on December 31, 2038. Stormwater may wish to request a permeant easement for the stormwater improvements.

19. NDOT permits must be obtained prior to issuance of any City permits requiring work in NDOT right-of-way.

20. Any disturbed areas that are not intended for immediate development must be stabilized with reseeding or similar long term solution.

21. Easements must be provided for shared access, drainage, and utilities.

22. Unused utility laterals must be abandoned.

General Comments:

23. Any commercial or industrial developments with an average daily water usage of 15,000 gallons per day or more must submit a growth management application.

24. Water and sewer connection fees must be paid. If these fees were paid in the past, then the difference between the old and new amounts of water/sewer usages must be paid. Please see CCMC 12.01.030 for the water connection fee schedule and 12.03.020 for the sewer connection fee schedule.

25. Any engineering design for 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.

26. All construction work must be to Carson City Development Standards (CCDS) and meet the requirements of the Carson City Standard Details.

27. Addresses for units will be provided during the building permit review process.

28. Fresh water must be used for Dust control. Contact the Water Operations Supervisor Public Works at (775) 283-7382 for more information.

29. 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.

30. An erosion control plan meeting section 13 of CCDS will be required in the plan set.

31. If an existing water service is to be re-used, it must be checked for condition. It may need to be replaced. Any existing water and sewer services not being used must be abandoned at the main.

32. All new electrical service must be underground.

33. Please show sufficient utility information to ensure that minimum spacing is met between water meters and dry utilities.

34. Any work performed in the street right of way will require a traffic control plan and a timeline 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.

35. Please show any easements on the construction drawings.

36. A Construction Stormwater Permit from the Nevada Division of Environmental Protection (NDEP) will be required for the construction of projects 1 acre or greater.

37. A Dust Control Permit from NDEP will be required for any project 5 acres or greater.

FIRE DEPARTMENT
Contact Jenny Williamson, Fire Department

1. Project must comply with the International Fire Code and Northern Nevada fire code amendments as adopted by Carson City.

2. Fire access roads shall be a minimum of 20 feet wide and shall provide a minimum turn radius of 30 feet inside and 50 feet outside.

3. Fire access roads shall be constructed of an approved all weather surface.

4. Additional fire hydrants will be required.

5. If any future structure is greater than 30 feet in height that structure will require a 26 foot wide aerial apparatus access road.

HEALTH AND HUMAN SERVICES DEPARTMENT
Dustin Booth – Health and Human Services

1. Plans will need to be submitted to Carson City Building Department for Health Department review.

HEALTH AND HUMAN SERVICES DEPARTMENT
Dustin Booth – Health and Human Services

1. The City will not be responsible for any landscape or irrigation system maintenance on the project. All landscaping and landscape maintenance in the right of way will be the sole responsibility of the owner. The developer is required to maintain all common landscape and open space areas within the development including any landscaping in the street(s) right of ways in perpetuity.

2. Carson City is a Bee City, USA. As a result, the developer shall use approximately 50% pollinator friendly plant material for any required landscaping on the project site. 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. The Carson City Pollinator Plant list and other plant selection resources can be found at www.carson.org/beecityusa

3. The developer is required to incorporate "best management practices" into their construction documents and specifications to reduce the spread of noxious weeds. The spread of invasive and noxious weeds is a significant issue in construction projects that involve land disturbance. Earth moving activities contribute to the spread of weeds, as does the use of contaminated construction fill, seed, or erosion-control products. Experience has demonstrated that prevention is the least expensive and most effective way to
halt the spread of noxious and invasive weeds. Preventing the establishment or spread of weeds relies upon:
• Educating workers about the importance of managing weeds on an ongoing basis;
• Properly identifying weed species to determine most appropriate treatment strategies;
• Avoiding or treating existing weed populations; and
• Incorporating measures into projects that prevent weed seeds or other plant parts from establishing new or bigger populations such as certification of weed-free products.

   For more information on "best management practices" please contact The Carson City Parks, Rec. and Open Space Dept.

4. Deciduous trees must be planted a minimum of 5' from any city/public street, sidewalk or pathway. Evergreen trees must be planted a minimum of 10' from any city/public street, sidewalk or pathway. Fruit bearing, "non-fruiting" flowering or any other trees that drop debris such as seed pods will not be permitted near or placed where they will eventually hang over city/public sidewalks or pathways.

5. Carson City Municipal Code: Title 18, Division 3 should be reviewed by any/all parties involved in the proposed landscape design prior to landscape plans being submitted to the city for final approval of a building or site improvement permit. Note: Special care and consideration should be taken in the protection of existing trees on-site. https://library.municode.com/nv/carson_city/codes/code_of_ordinances?nodeId=TIT18_APPENDIXCADEST_DIV3LA

Conclusion – The proposal includes removal of RV park and RV storage uses from a portion of an existing site and the establishment of the RV park use as an extension of current operations onto an undeveloped parcel. The request will trigger a special use permit. If any non-conforming aspect of the current site which is legally established is to be extended onto the new property, the extension of the non-conforming use will need to be requested for consideration.

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

The aforementioned comments are based on the Major Project Review Committee's review. If you have any questions, please feel free to contact the following members of staff, Monday through Friday 8:00 AM to 4:00 PM.

Planning Division –
Heather Manzo, Associate Planner
(775) 283-7075
Email: hmanzo@carson.org

Engineering Division –
Stephen Pottey, Development Engineering
(775) 283-7079
Email: spottey@carson.org

Fire Prevention –
Jenny Williamson, Fire Department
(775) 283-7152
Email: jwilliamson@carson.org

Health & Human Services –
Dustin Boothe
(775) 283-7220
Email: dboothe@carson.org

Sincerely,
Community Development Department, Planning Division

Heather Manzo
Associate Planner

cc: MPR-2022-0070

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: May 19, 2022

TO: Carson City Planning Division

FROM: Keith R Shaffer, P.E.

RCI PROJECT: Carson Country RV - Relocation (22-172.3)

SUBJECT: Special Use Permit Project Description

PROJECT DESCRIPTION

The current RV park is a fully functional and developed RV Park, licensed for 150 RV Park sites and storage of up to 62 RVs. The proposed project is to relocate the RV park portion to an adjacent, currently undeveloped lot. The revision and relocation will result in the removal of RV storage and relocation and reduction of RV sites from 150 to approximately 90 sites, and the continued use of all existing RV Park buildings.

EXISTING SITE DESCRIPTION

The proposed project will be situated on a site of approximately 6.35-acres consisting of 3.54-acre portion of an existing developed RV park and an adjacent undeveloped 2.81-acre property located at 5400 S. Carson Street, Carson City, Nevada. The project will be on properties also known as Carson City Assessor's parcel numbers 009-302-03 & 009-302-17. The site is located north of Old Clear Creek Road and south of US Hwy 50. The property is located on the corner of South Carson Street and Old Clear Creek Road. This application is limited to the use of the proposed relocated and revised Comstock Country RV Park only. All other uses on the subject parcel(s) will be evaluated separately.

General Site Characteristics

The elevation of the subject property slopes to the east and is situated behind the current Costco store to the west. Most of the site is an existing RV park and resort, however, the portion to be included in the project associated with this permit has been cleared out and ready for grading and incorporation into the new proposed 82-unit RV park. There is an existing office and caretaker's quarters and other accessory buildings on the site which are currently in use by the existing park. These will remain as part of the project and be used as they currently are. An existing drainage basin is located in the southeast portion of the property and consists of rock-lined walls and bottom with some vegetation. The site generally drains from northwest to southeast, with elevations ranging from approximately 4805 ft adjacent to Costco to approximately 4765 ft at the southeast corner of the existing RV park property. The lowest elevation of the proposed project will be approximately 4772 ft.

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 proposed development is designed to maintain and improve drainage surface flow with curb and gutter and valley gutter channels to convey stormwater toward a regionally sized detention basin on the east side of the project.

Utilities

The existing RV park and resort are currently served by city water and sewer mains with connections off-site which will be maintained at the existing location and size. With the number of RV pads reducing significantly, the demand on the system will be reduced. The "backbone" infrastructure will be reconfigured into a shared drive and utility and drainage easement (to be shared with newly created parcels under a separate permit) and connected to the new RV park in accordance with all City codes. The water usage and domestic sewer flow of the proposed relocated RV Park will be less than the current RV Park, due to a decrease in the number of RV units.

The existing buildings will be served with the same water and sewer at the same location as is currently. A 12-inch water main is located south of the property within Old Clear Creek Road, with associated existing fire hydrants and service connections to nearby properties. The new infrastructure includes 8-inch water main for domestic and fire protection and 4-inch potable water lines with appropriate backflow protection and metering, as well as an 8-inch sewer line. In addition to the existing 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. 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 and Sewer Impact Letter, included with this submittal.

Description of Proposed Development

The purpose of this Special Use Permit application is specific to the relocation and continued operation of the Comstock Country RV Resort, LLC to be a 180-day extended-stay RV resort with approximately 90 RV spaces. The RV resort will house amenities including restrooms, showers, laundry facilities, and pet area. Existing buildings are a mix of traditional wood frame construction and manufactured buildings. This Special Use permit will apply to the newly created RV storage space, only. The existing buildings providing amenities will remain and not be governed by this Special Use Permit.

Limited on-site RV storage is planned. No other outdoor storage is included in this proposed development. No other hazardous materials are expected to be housed on-site, outside of commercial-grade cleaning supplies, and landscape maintenance supplies. A CMU block retaining wall will be constructed along the north and west perimeter as a grade break between offsite adjacent projects and this project. 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 spaces 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.

Parking is provided at each RV space, as well as parking at the check-in office, each restroom, and laundry facility. ADA spaces are included at each separate parking area.

Access
Access to the subject property is proposed from Old Clear Creek Road with an emergency secondary access to the west, connecting further up Old Clear Creek Rd. The existing main entrance from Old Clear Creek Road will be reconfigured to accommodate code compliant access which will be designed to meet the needs of the overall development (separate permits) in accordance with appropriate traffic studies. Trip generation for the site includes AM and PM peak hour trips based on the number of RV spaces. Based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (2017), the AM peak hour trips for the proposed development is an average trip factor of 0.21 per space resulting in approximately 20 AM peak trips for Campground/RV Parks (Code 260). The PM peak hour trip factor of 0.27 results in approximately 24 for the proposed development. A full traffic study, **specifically and related to the RV Park only,** is not required based on Carson City trip generation thresholds as defined in Carson City Development Standards Section 12.13.1:

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 (other than the manager's residence) 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)?

Buildings are existing and not proposed to change. Any new or future building 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, except that all existing sidewalk access from Old Clear Creek to Hwy 395 will be maintained.

- 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 a 100-ft setback, which will include landscaping and walking paths adjacent to single-family residential use along the west side of the property.

- 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 southeastern corner of the site, adjacent to Old Clear Creek Road is within Zone AE Flood Zone, which is considered a special flood hazard area. However, this portion of the existing project is not part of the area governed by this Special Use Permit. There are no known geologic hazard areas on 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. As this application is for the reduction in the number of RV spaces the proposed impact on utilities will be less than previous.

- o 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)?

Anh On-site outdoor and recreation areas and amenities will be available for guest use, walking trails, pet areas. These amenities are anticipated to meet recreation needs of guests.

- o 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:

- o 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 (other than the manager's residence).

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

This project does not include retail sales outside of the general store, which is intended for guest use. The development 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.

- 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 (other than the manager's residence).

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. Architectural elevations are provided in Attachment E.

- ✓ 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, as shown in the architectural elevations shown in Attachment E.

- ✓ 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, as shown in the architectural elevations shown in Attachment E. 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 (other than the manager's residence).

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)?

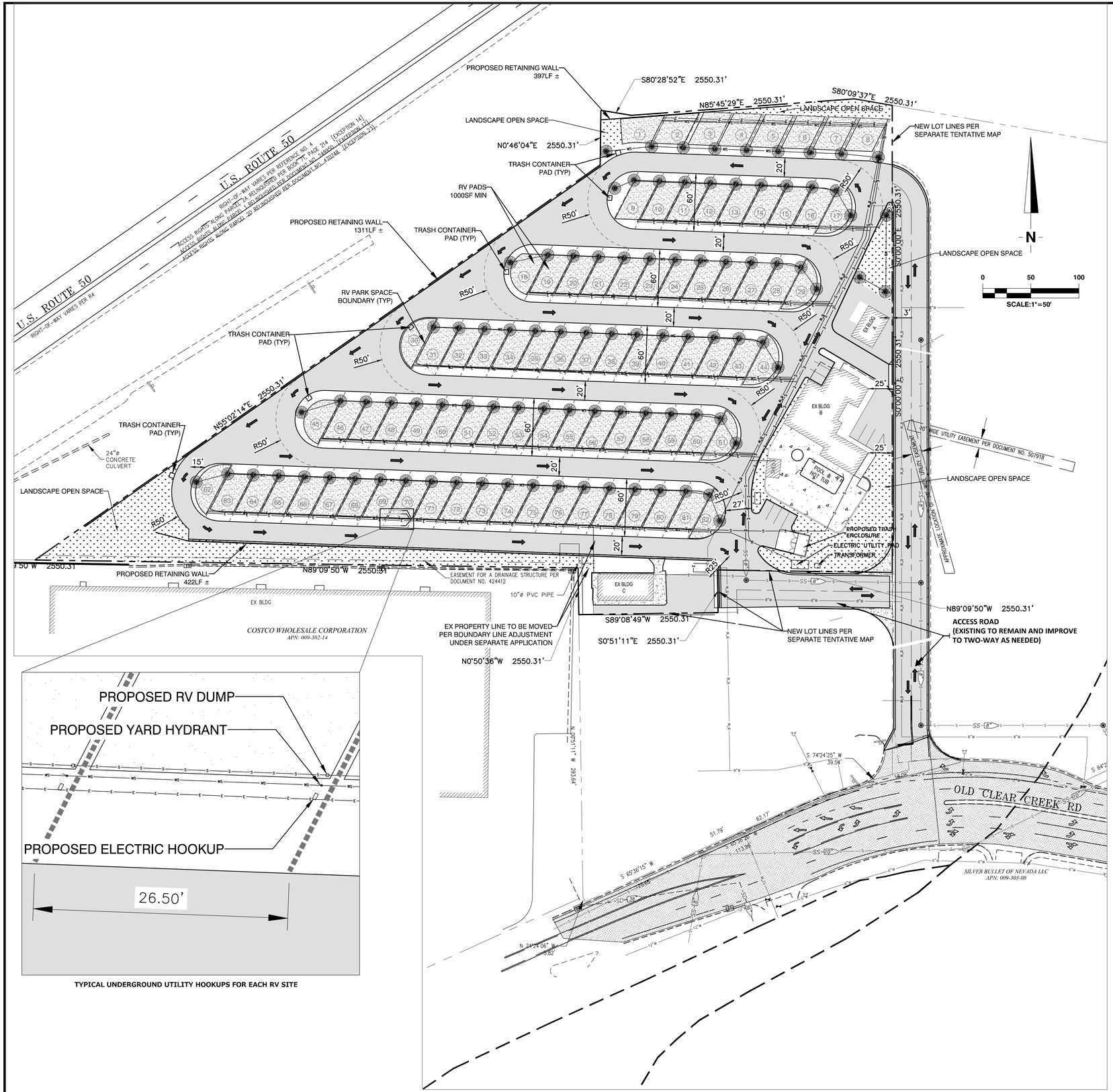
The project is located along an existing paved street and is close to major arterials. The site is suitable to facilitate future transit options. The nearest existing public transit bus stop is located less than ¼ mile to the east on Old Hot Springs Road.

- ✓ 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.



TYPICAL UNDERGROUND UTILITY HOOKUPS FOR EACH RV SITE

LOCATED WITHIN SECTION 31, T.15N., R.20E., M.D.M.

VICINITY MAP

NOT TO SCALE

BASIS OF BEARINGS

NORTH AMERICAN DATUM OF 1983, EPOCH DATE 1994 (AKA NAD 83/94), NEVADA STATE PLANE WEST ZONE AS DETERMINED BY FAST STATIC GPS OBSERVATIONS THAT WERE CONSTRAINED TO NDOT (LPN 702) MONUMENTS 158220X, V357X, AND COOPERATIVE STATION DOT1.

BASIS OF ELEVATION

NDOT SURVEY MONUMENT 158220X (LPN 702), ELEVATION OF 4923.19, AS DETERMINED USING NDOT'S ELLIPSOID ELEVATION AND APPLYING GEOID99 HEIGHTS FOR A NORTH AMERICAN VERTICAL DATUM (NAVD88) LEVELED ELEVATION. NGS LISTS THIS STATION (AI5106) AS HAVING AN ELEVATION OF 4923.23±0.15 FT. ALL GPS POINTS ADJUSTED HORIZONTALLY AND VERTICALLY TO CARSON CITY CONTROL NETWORK MONUMENT "CC034" (ROS2749), WHICH HAS A PUBLISHED ELEVATION OF 4767.70 FEET.

OWNER/APPLICANT

LEPIRE 1977 TRUST
1865 BERKLEY DR
RENO, NEVADA 89509
775.315.9292

ENGINEER

RESOURCE CONCEPTS, INC.
CONTACT: KEITH R SHAFFER, P.E.
340 NORTH MINNESOTA STREET
CARSON CITY, NEVADA 89703
775.883.1600

PROJECT DATA

ASSESSOR'S PARCEL NUMBER:	009-302-03 (HWY 50 W) 009-302-17
TOTAL SITE AREA:	2.81 ACRES; 10.38 ACRES (6.35 AC PROPOSED PARCEL)
MASTER PLAN DESIGNATION:	COMMUNITY/REGIONAL COMMERCIAL
CURRENT ZONING:	GENERAL COMMERCIAL
FEMA FLOOD HAZARD ZONE:	X (UNSHADED)
NUMBER OF PROPOSED MULTIPLE RV SPACES:	82
NUMBER OF VEHICLES:	164
MAX NUMBER OF VEHICLES:	189
LANDSCAPE/OPEN SPACE AREA:	29,718 SF (0.68 AC)
OPEN SPACE/VEHICLE PARK AREA RATIO:	10.75%

FOR REVIEW ONLY

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

DATE

REVISION

COMSTOCK COUNTRY RV PARK
RELOCATION & IMPROVEMENTS
HWY 50 W, CARSON CITY, NV

SPECIAL USE PERMIT PROPOSED SITE

KEITH R SHAFFER
EXP. 06/30/22
CIVIL
No. 12106
STATE OF NEVADA
PROFESSIONAL ENGINEER

08-08-2022

JOB NO.:	22-172
DATE:	08-08-2022
DESIGNED:	DMH
DRAWN :	DMH
CHECKED:	KRS

C1

TYPICAL RV PARKING SPACE

FOR REVIEW ONLY

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Resources • Environmental Services
www.rci-nv.com

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340 N. Minnesota St.
Carson City, NV 89703-4152
775-883-1600

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

Resource Concepts Inc.

REVISION	DATE

COMSTOCK COUNTRY RV PARK
RELOCATION & IMPROVEMENTS
HWY 50 W, CARSON CITY, NV

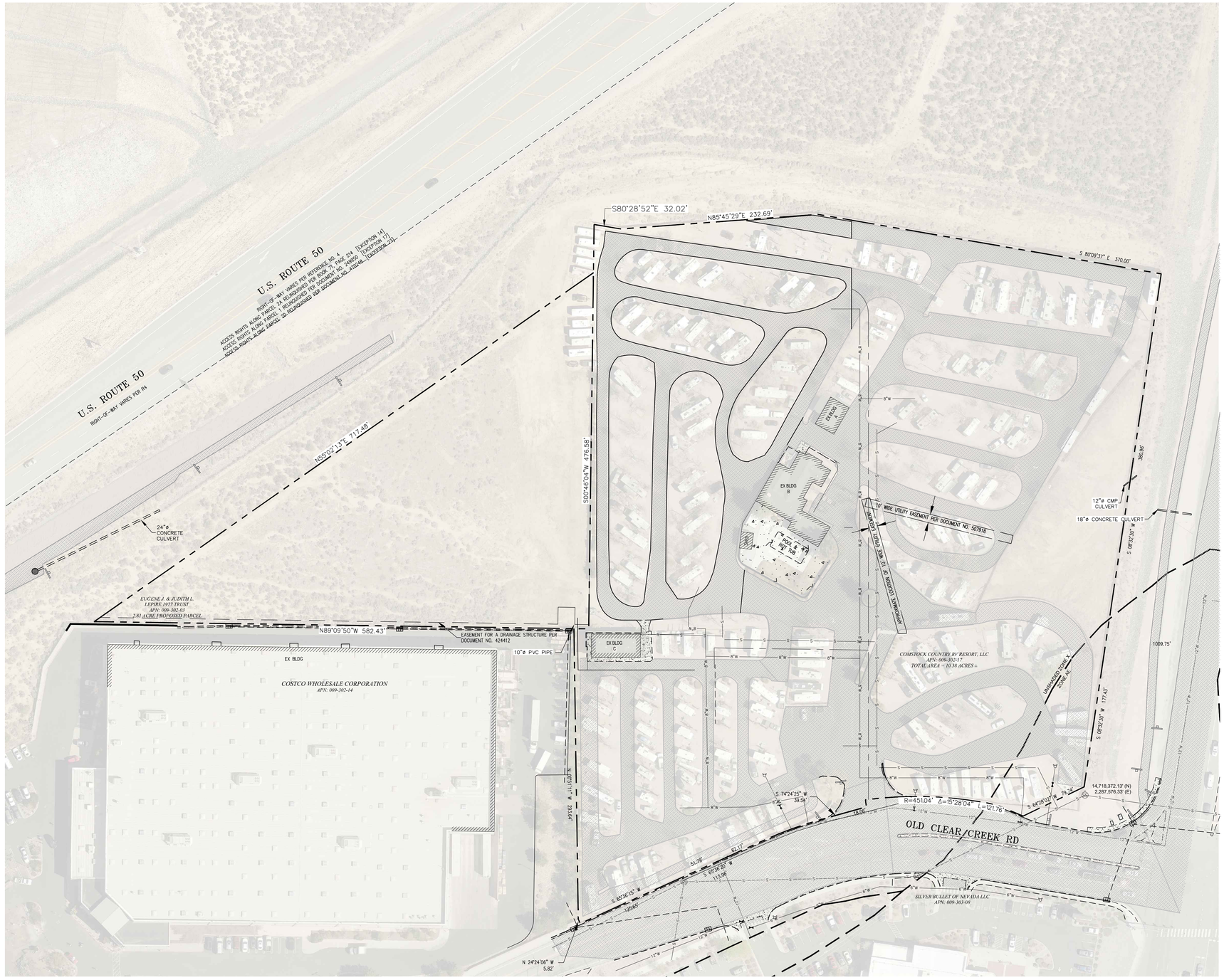
DETAILS

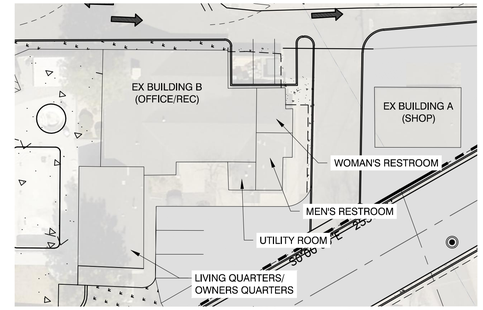
PROFESSIONAL ENGINEER • STATE OF NEVADA
KRISTOPHER R SHAFFER
EXP. 06/30/22
CIVIL
No. 12106

08-08-2022

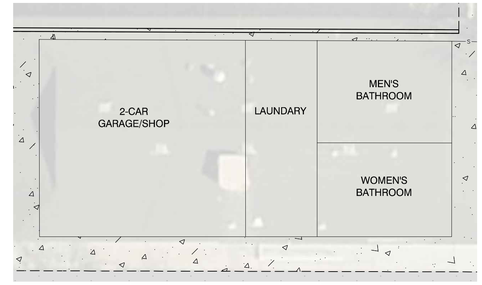
JOB NO.:	22-172
DATE:	08-08-2022
DESIGNED:	DMH
DRAWN :	DMH
CHECKED:	KRS

C2





EXISTING BUILDINGS A & B



EXISTING BUILDING C FIRST STORY

EXISTING BUILDING C SECOND STORY

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RCI
Resource Concepts Inc.

DATE	REVISION

COMSTOCK COUNTRY RV PARK
RELOCATION & IMPROVEMENTS
HWY 50 W, CARSON CITY, NV

EXISTING SITE PLAN

STATE OF NEVADA • PROFESSIONAL ENGINEER
KEITH R SHAFFER
EXP. 06/30/22
CIVIL
No. 12106

08-08-2022

JOB NO.:	22-172
DATE:	08-08-2022
DESIGNED:	DMH
DRAWN :	DMH
CHECKED:	KRS

C3

Resource Concepts Inc
Engineering • Surveying • Water Rights
Resource & Environmental Services
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CARSON CITY OFFICE
340 N. Minnesota St.
Carson City, NV 89703-4152
Ph: 775 / 883-1600
Fax: 775 / 883-1656

Memorandum

DATE: June 24, 2022 (Revised 8/4/2022)

TO: Carson City Planning Division

FROM: Keith R Shaffer, P.E.

RCI PROJECT: Comstock Country RV – Relocation (21-172)

SUBJECT: Special Use Permit Application Findings LU-2022-0295

CCMC 18.02.080(5) FINDINGS

1. **Will be consistent with the objectives of the Master Plan elements**

   Comstock Country RV Park is consistent with the objectives of the Carson City Master Plan. Please refer to the Project Description for the Master Plan Policy Checklist. ***This project is the relocation of an existing RV park and reducing the number of RV Spaces and eliminating the existing storage spaces.***

   SEE ITEM 8 BELOW FOR FINDINGS ASSOCIATED WITH SPECIFIC RV PARK REQUIREMENTS, CCMC 18.09.050, WITH A STATEMENT OF FINDING BASED UPON AN COMPLIANCE EVALUATION OF THE EXSITING PARK AND HOW THE RELOCATION WILL, OR WILL NOT, COMPLY WITH CURRENT CODE.

2. **Will not be detrimental to the use, peaceful enjoyment, economic value, or development of surrounding properties or the general neighborhood; and is compatible with and preserves the character and integrity of adjacent development and neighborhoods or includes improvements or modifications either on-site or within the public right-of-way to mitigate development related to adverse impacts such as noise, vibrations, fumes, odors, dust, glare or physical activity.**

   A. The project location is zoned for General Commercial. Areas surrounding the project location are zoned General Commercial and Public Recreation. Directly to the east of the site is US Highway 395, with a trailer park and retail uses on GC zoning across the highway. To the north of the project site is US Hwy 50 and NDOT Right of Way, with GC zoning and retail uses across the highway. To the west of the project site is GC zoning with a Costco warehouse retail store use. To the south of the project site is GC zoning with a Bodines Casino, with a portion of Fuji Park facility and PR zoning across the Old Clear Creek Road.

B. The project area is located near and surrounded by several businesses. This project will not decrease adjacent property values because it will be the improvement and updating of an existing RV park with the reduction and upgrading of RV parking spaces. New construction will provide an aesthetically pleasing development that will bring visitors to the area, which will provide economic benefit to surrounding and area-wide businesses. This project is not similar to other existing development in the area but provides additional lodging and recreation options to tourists.

C. Existing structures will continue to be used as they have historically. On-site landscaping will be attractive and will include plants along the west boundary of the site that will effectively provide a visual barrier, as well as landscaping buffers with attractive living material adjacent to the remaining property boundaries.

D. The Comstock Country RV resort will provide a comfortable and attractive location for travelers to stay, and will benefit surrounding businesses. It is expected that visitors to the resort will bring additional business to the Carson City area and surrounding businesses, given their close proximity. Re-location of the existing RV resort will not negatively affect the development of surrounding properties or the neighborhood as a whole.

E. The RV park will have outdoor lighting. All lighting will be in accordance with the dark skies lighting ordinances. The lighting will not be facing any residential property and will not be located along property boundaries. Internal pathway lighting will utilize dimming technology to further reduce lighting on-site.

F. The short-range and long-range benefits of the Comstock Country RV Resort include the economic contribution in the form of short-term construction jobs and spending, and long-term tourism economic benefits. A comfortable and modern RV resort with amenities will persuade tourists to visit and stay in the Carson City area for a longer period. Attracting more tourists will result in increased local revenue for retail, food, gas, dining, entertainment, and recreation in Carson City.

3. Will have little or no detrimental effect on vehicular or pedestrian traffic.

Access to the subject existing RV Park is provided from off of Old Clear Creek Road via an existing appropriately sized approach. The proposed main entrance from Old Clear Creek Road, will align with the existing entrance and be operated in accordance with city codes and conditions. Trip generation for the site is not necessary as this project proposes the decrease of RV parking spaces, which will have a decreased impact on traffic. However, both trip generators verify that ADT and Peak Hour trips are less than required to trigger a Technical Traffic Study. Future applications will incorporate traffic generators for future uses, but this application does not anticipate such items.

4. Will not overburden existing public services and facilities, including schools, police and fire protection, water, sanitary sewer, public roads, storm drainage and other public improvements.

A. The RV park is designed as a tourist destination. The project will not have any effect on the school district or student population.

B. The project is not expected to have significant police and fire needs. There are a limited number of structures on site, and no other materials that would pose a significant fire risk. The development is designed with sufficient fire hydrants, fire department connections for buildings, and access width for fire apparatus.

C. The water supply for the RV resort will be the Carson City water system. The water main within Old Clear Creek Road and the on-site system laterals are all existing and have been providing adequate flow for the existing RV Park. This application is the reduction of RV spaces and as such a decrease in water demand. The water pressure and supply are adequate for the development, and the development will not adversely affect the surrounding area in terms of water supply.

D. Stormwater runoff for the project is designed to route drainage water to be in substantially the same manner as the existing system routing all drainage, overland, to established curbs and inlets to the regional ditch and detention system at the NDOT frontage of HWY 395. This swale and ditch then direct flow to the large basin on the northeast side of the HWY 50 – I580 interchange. Refer to Attachment B, Conceptual Drainage Study, for calculations and design of drainage infrastructure. Off-site runoff entering the site will be routed similarly to the current condition, and stormwater discharge will not increase in peak flow or velocity from the existing condition.

E. The project will connect to the Carson City sanitary sewer system. Refer to the Site Plan for the existing collection system which will be maintained and connected to new laterals for the RV Spaces. A Water and Sewer Study will be completed and submitted with improvement plans for this project. Based on information provided by Carson City, the sanitary sewer infrastructure is sufficient to serve this project.

F. No off-site road improvements are proposed at this time in conjunction with this project. A private paved access drive connecting the development area to Old Hot Springs Road has already been completed.

5. Meets the definition and specific standards set forth elsewhere in Carson City Municipal Code, Title 18 for such particular use and meets the purpose statement of that district.

CCMC 18.04.140 describes General Commercial (GC) as:

> The GC District is intended to permit a broad range of primary and accessory commercial uses including tourist commercial or RV Parks with a Special use permit, to encourage tourism and to serve the visitor-related activities of Carson City.

Comstock Country RV Resort will meet the purpose of the designated zoning requirements. It will provide the option for short or long-term stays for RV tourists. It is conveniently located near US HWY 395 and the I580 – US HWY 50 interchange which provides tourists with quick access to highway infrastructure. This project will continue to attract tourists traveling by RV to the Carson City Area because it provides a convenient location for tourists to explore the Carson City area for an extended period of time, as well as a visually appealing RV resort with several amenities for a comfortable stay.

The RV Park adheres to the requirements in CCMC Section 18.04.195 (Non-Residential), including minimum lot size and dimensions, minimum setbacks, and a maximum height of proposed buildings. The project will also adhere to airport-related requirements such as the maximum height of structures and other features.

6. Will not be detrimental to public health, safety, convenience, and welfare.

This project is designed to provide a convenient and comfortable experience for tourists, without negatively affecting residents. Access to the proposed RV resort will be via Old Clear Creek Road, separate from any residential area to the west of the project. The project will help to safeguard public health by having adequate and modern utility infrastructure and waste collection on-site. Public safety is not expected to be impacted by the development, as a manager will be housed on-site for supervising the RV resort and attending to visitor's needs. The project will not create any health issues for the general public, and the park will be safe for visitors and surrounding residents. Tourists visiting the RV resort for short or extended stays will positively contribute to the local economy through spending in retail, gas, restaurants, entertainment, and recreation.

7. Will not result in material damage or prejudice to other property in the vicinity, as a result of proposed mitigation measures.

The RV resort is surrounded by commercial uses on all sides of the property. There is a large buffer area (US HWY 395) between the project location and the residential area to the east. The RV resort relocation and refresh will not impact the existing residences and once the RV park is in use, all proper measures will be taken to ensure that residential properties are not disturbed. Traffic and access during the construction period will not be limited for surrounding businesses. Development of the property will improve drainage infrastructure in the area. Grading, drainage, and landscaping design and construction on-site will not adversely impact adjacent properties or make them less attractive or constructible in the future.

8. Meets the definition and specific standards set forth in Carson City Municipal Code, Title 18.09.050 Recreational Park Requirements as itemized below for each specific item and criteria.

SPECIAL NOTE: This project is the relocation and rearrangement of the RV spaces only, in the existing long-time established Comstock Country RV Park. Nearly all the amenities, office buildings, pool, recreation areas, and access will be maintained and may not meet the standards put forth below. This statement of findings will define each current code requirement and provide a statement of whether, or not, the existing park meets the standard. In the case where the standard is not currently met, the applicant has attempted to comply, as much as possible, but may not be able to and has defined those standards which will continue to be out of compliance with the relocation.

18.09.050 Recreational vehicle park requirements.

The standards provided in this section are intended to encourage proper recreational vehicle park development by providing sufficient open space and complementary uses under conditions which assure protection of the character of the district in which the recreational vehicle park is located. Each recreational vehicle park constructed and operated under the provisions of this chapter must provide for the following in the manner herein specified:

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.
    a. ***Finding – NONCOMPLIANT - The proposed project is the relocation of the RV spaces in and existing RV Park and to the extent possible will comply with existing codes. However, due to the legacy nature and long-term existence of the existing park, many items are currently in compliance and will not be brought to current code since it is an established existing use.***
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.
    a. ***Finding – NONCOMPLIANT - All newly constructed access driveways, access isles, water and sewer utilities will be designed and constructed in accordance with the currently adopted City and State codes. Any other codes relative to street design for existing streets will remain as is.***
3. Recreational vehicle parks must be located on a well drained site, properly graded in accordance with city standards.
    a. ***Finding – COMPLIANT - The newly constructed RV spaces, pads, and access isles will direct the stormwater to the existing established storm drainage facilities. A Conceptual Drainage study provided with this application shows the new drainage patterns will be consistent with the existing facilities and not increase the runoff flow beyond what the established system is capable of supporting.***

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

    a. ***Finding – COMPLIANT -The proposed park is located in the FEMA Flood Zone X-Unshaded, which is not considered a Special Flood Hazard Area (A).***

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.

    a. ***Finding – COMPLIANT - All RV spaces in the proposed relocation are single RV per site spaces.***

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; ***Finding – NONCOMPLIANT Existing store and amenity to remain- no changes***

        (2) Laundry room; ***Finding – NONCOMPLIANT - Existing laundry facilities to remain – no changes.***

        (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.

        Finding – NONCOMPLIANT - Existing other amenity uses such as a common pool, restroom facilities, and dog walking areas are existing and to remain with no changes.

    b. Management offices, one (1) single family dwelling or one (1) mobilehome used for living quarters by the operators or manager of the park.

    Finding – COMPLIANT - Existing Office and managers quarters building to remain with no changes.

7. Property development standards are:

    a. Maximum building height: Two (2) stories but no greater than twenty-six feet (26').

    Finding – COMPLIANT - All existing building to remain with no changes.

    b. Minimum net area per recreational vehicle space: One thousand (1,000) square feet.

    Finding – NONCOMPLIANT - All new RV spaces will be single unit spaces and be a minimum of 1000 S.F. per the attached plans and space layout details.

    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.

    Finding – COMPLIANT - There will be no multiple RV 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').

        i. ***Finding – NONCOMPLIANT - The north property line of existing RV spaces are currently non-conforming to the setback requirement and will continue to be less than the 20' setback.***

ii. ***COMPLIANT - All other areas and newly constructed spaces on the west south and east will comply with the setback requirements.***

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.

Finding – COMPLIANT - The proposed project will utilize an approximately 6.35 acre portion of two adjoining parcels which are the subject of a development application. The proposed density of the 82-unit RV park is approximately 13 sites per acre which is less than the required 30.

8. Placement required for recreation vehicles on individual recreational vehicle spaces are:

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

Finding – NONCOMPLIANT - The current RV sites do not comply with this provision particularly at the end cap of each existing row or line of spaces. As such, the proposed relocation will also not comply in some areas. Although efforts have been made to meet this requirement in general along the access street sides (See plans and typical space details).

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

Finding – NONCOMPLIANT - The current RV sites do not comply with this provision in all cases, however, the proposed project will have RV sites which are from 24'-30' wide and 45'-65' deep providing for required separation in many cases.

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

Finding – COMPLIANT - This requirement is currently met in the existing park and will be maintained in the proposed.

e. Expandable sections of recreational vehicles shall be considered a part of the recreational vehicle proper.

Finding – NONCOMPLIANT - This requirement is not applicable to the new park as provision for expanded sections will be provided for in the proposed spaces.

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.

Finding – NONCOMPLIANT - The parking pads for the sites in the existing park are composed of compacted base with gravel surface top to accommodate LID drainage and mitigate heat conditions. This construction will be maintained in the proposed park. Each RV Space will be a gravel space with dimensions that comply with this standard.

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.

Finding – COMPLIANT - This requirement will be met in the development of the proposed project.

10. Recreational Vehicle Park Site Development Standards. Singular recreational vehicle park spaces shall have the following standards: ***Finding –COMPLIANT - All site specific criteria will be in compliance in the proposed project.***

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

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

11. Open Space Areas. All recreational vehicle parks shall have at least one (1) recreation 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.

    Finding – COMPLIANT - The proposed RV Park plan show the location of open space areas proposed in the park and easily accessible to each proposed new space. However, the cumulative size of all spaces will comply with the 10% standard whether the existing site does currently.

12. Requirements for 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.

       Finding – COMPLIANT - The existing entrance from Old Clear Creek Road will be preserved and used as is. No improvements are required nor proposed for that access and entrance to the park. The existing access drive isles within the park, parking around the facility and access to the office and amenities will be consistent with the existing park.

    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.

       Finding – COMPLIANT - The new drive isles will be 20' wide minimum for the one-way travel and all spaces adjacent to such will be "pull-through" spaces to accommodate easy loading and unloading. Any two-way isles will be 26' wide (See proposed plans).

    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.

       Finding – COMPLIANT - This requirement will be met with the proposed grading plan and layout.

       (1) Alignment and Grade. All internal recreational vehicle park site access roadways shall be properly 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.

       (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.

       (4) Maneuvering Space.

       Finding – COMPLIANT - This requirement will be met or exceeded with the proposed layout (see plans).

(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.

(b) All roads and road structures shall be graded and surfaced and of sufficient design to support the weight of twenty (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. ***N/A***

(Ord. 2002-19 § 2 (part), 2002).

18.09.060 Water system.

Water system shall comply with the latest Uniform Plumbing Code, as adopted by Carson City.

Finding – COMPLIANT - All modifications to the existing water system will be designed and constructed in accordance with the UPC as adopted by Carson City. All existing supply lines which will not be relocated or moved will remain as is.

(Ord. 2002-19 § 2 (part), 2002).

18.09.070 Sewage disposal.

1. An adequate and safe sewerage system must be provided in all recreational vehicle parks for conveying and disposing of all sewage. All systems must be designed, constructed and maintained in accordance with all applicable state and city codes, requirements and standards. Where a public sewerage is available, connection must be made thereto subject to all necessary and appropriate Carson City fees.

   Finding – COMPLIANT - The existing facility sewer connection to the City system will remain unchanged and since the connections for the relocated park will be less than the previous, there should be no issues with connection capacity and availability.

2. One sanitary station must be provided for every twenty-five (25) recreational vehicle park spaces or fractional part thereof not having individual sewer connections and shall conform to the following minimum standards.

   Finding - Not applicable

   a. Each sanitary station must contain a trapped four (4) inch sewer riser pipe, connected to the recreational vehicle park sewerage system, surrounded at the inlet end by a concrete apron, that must have at a minimum a six hundred (600) square foot drainage area, sloped to the drain, and provided with a hinged cover and a water outlet, with the necessary appurtenances, connected to the recreational vehicle park water supply system to permit periodic washdown of the drain area. The water supply must have a backflow prevention device.

   b. Sanitary stations must be screened from view by fencing and/or landscaping and must be located at least fifty feet (50') away from any recreational vehicle park space.

3. Approval of the sewage disposal system from the development services and environmental health departments, and if over five thousand (5,000) gallons, approval by the Nevada Department of Environmental Protection must be a condition of final approval.

Finding – N/A – Existing services to remain.

4. Compliance with the latest Uniform Plumbing Code, as adopted by Carson City.

Finding – N/A – Existing services to remain.

(Ord. 2002-19 § 2 (part), 2002).

18.09.080 Electrical system.

All electrical systems must comply with the National Electrical Code as adopted by Carson City.

(Ord. 2002-19 § 2 (part), 2002).

Finding – All new electrical service laterals and construction will be in accordance with currently adopted codes.

18.09.090 Accessory buildings and service facilities. Existing non-compliant structures

1. A central accessory building containing the necessary toilet and other plumbing fixtures must be provided in recreational vehicle parks. Accessory buildings must be conveniently located within a radius of five hundred feet (500') to the recreational vehicle park spaces to be served and must conform to the following standards:

   Finding – The existing toilet and shower facilities that serve the current RV Park will be maintained at full capacity for the newly relocated spaces. The facilities are currently NOT COMPLIANT with the provisions of this section in regard to number of toilets, showers, and laundry. However, such facilities are located in two separate buildings as shown on the plan – Building B and Building C. Each has a separate men's, women's restroom, shower, and laundry facility. These buildings do meet the code with regard to the 500' radius from every RV Space in the relocated park.

   All plumbing fixtures for toilets, urinals and showers shall be ultra low flow.

   Finding – NONCOMPLIANT - Existing Facilities to remain.

2. All uses and related facilities shall be subject to approval by the planning commission and shall be shown on the plot plan when application for a permit is filed.

   Not Applicable for review – existing to remain.

(Ord. 2002-19 § 2 (part), 2002).

18.09.100 Refuse storage and insect control.

Finding – NONCOMPLIANT - The intent of the below regulations will be accepted, with the exception of the distance to appropriate receptacles, where the 50' minimum distance cannot be accommodated. This provision is currently out of compliance and will remain out of compliance in the relocated spaces.

1. The storage, collection and disposal of refuse in the recreational vehicle park must be so conducted as to create no health hazards or air pollution. The minimum standards for the handling of refuse shall be as follows:

   a. All refuse must be stored in containers which are watertight and rodent proof and must be located not less than fifty feet (50') and not more than one hundred fifty feet (150') from any recreational vehicle park space. Containers must be provided in sufficient number and capacity to properly store all refuse.

   b. Refuse collection areas must be screened from view by fencing and/or landscaping.

c. All refuse containing garbage must be collected at least twice weekly or as necessary and transported in covered containers to a disposal site approved by local law.

2. Grounds, buildings and structures must be maintained free of insect and rodent harborage and infestation. Extermination methods and other measures to control insects/rodents shall conform to requirements of existing laws.

3. Every person who is the owner of any animal must keep the same within the recreational vehicle space area or shall keep the same under his or her control when not within the recreational vehicle space but still within the confines of the recreational vehicle park. No person shall keep any such animal unless its living area is kept clean and free from offensive odors, animal wastes and rodents, flies, or any other offensive or unwholesome condition.

(Ord. 2002-19 § 2 (part), 2002).

18.09.110 Fuel supply and storage.

Finding – Not Applicable – No fuel supply nor storage

1. Liquefied petroleum gas containers installed on a recreational vehicle space shall be securely, but not permanently, fastened to prevent overturning. Such containers must not contain a gross capacity of more than sixty (60) U.S. gallons and must be located in approved storage area.

2. All fuel oil storage tanks or cylinders installed on a recreational vehicle space must be securely fastened in place and must be located in approved storage areas. A gross capacity in excess of sixty (60) U.S. gallons is prohibited.

(Ord. 2002-19 § 2 (part), 2002).

18.09.120 Fire protection standards.

Finding –COMPLIANT - All new RV spaces, drive isles, routing, water supply and hydrants will be updated per Carson City Fire Department requirements in all new RV space areas.

1. All recreational vehicle parks shall be subject to the rules and regulations of the Carson City fire department.
2. Fire Protection. In every recreational vehicle park there shall be installed and maintained fire hydrants, and fire extinguishers of the number and size, and in such locations as may be required by the fire department.
    a. Where public water supply is available fire hydrants will be placed at a maximum of three hundred feet (300') spacing and/or as determined by the fire department.
    b. When a satisfactory public water supply is not available, requirements will be based upon information contained in NFPA 1231 (suburban and rural fire fighting).
3. Recreational vehicle parks must be kept free of weeds, litter, rubbish and other flammable materials.

(Ord. 2002-19 § 2 (part), 2002).

18.09.130 General regulations.

Finding – COMPLIANT - All of the following General Regulations will be adopted and accepted as part of the proposed relocation project.

1. Every owner or operator of a recreational vehicle park must maintain a register containing a record of all vehicles and occupants. Such register shall be made available to authorized persons inspecting the campground. Such register must contain:
    a. The names and addresses of the vehicle occupants;
    b. The make, model and license number of any vehicles;
    c. The arrival and departure date of the vehicles.
2. It is unlawful for any person to operate, maintain or permit the operation or maintenance of any recreational vehicle park unless there is a caretaker, owner or manager in the park to enforce the provisions of this chapter.
3. No recreational vehicle park shall be occupied unless a final inspection and written approval is obtained by the environmental health department and a certificate of use occupancy has been obtained from Carson City building department and applicable state departments.

(Ord. 2002-19 § 2 (part), 2002).

Property Information

Parcel ID	009-302-17	**Parcel Acreage**	10.3800
Tax Year	2021	**Assessed Value**	1,067,191
Land Use Group	COM	**Tax Rate**	3.5700
Land Use	490 - Mixed Use with Commercial as Primary Use	**Total Tax Fiscal Year (2021 - 2022)**	$20,010.70
Zoning	GC	**Total Unpaid All Years**	$0.00
Tax District	025		Pay Taxes
Site Address	5400 S CARSON ST		
Public Notes	2 BDRMS, 1 BATH, LIVING RM, DINING AREA, DEP 3% TO ACCOUNT FOR WEST WALL IN COMMON WITH THE OFFICE/CLUBHOUSE COMPLEX		

Conceptual Drainage Study

COMSTOCK COUNTRY RV RESORT, LLC
RELOCATION AND IMPROVEMENTS

APN 009-302-17
APN 009-302-03

5400 S Carson St
Carson City, Nevada

June 10, 2022

Prepared for:

Matthew Lepire
Comstock Country RV Resort, LLC
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Reno, NV 89509

Prepared by:

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Carson City, Nevada 89703

www.rci-nv.com

06/15/2022

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INTRODUCTION

This Conceptual Drainage Study is prepared for submittal to Carson City Community Development, on behalf of Comstock Country RV Resort, LLC. The purpose of this study is to support the Comstock Country RV Resort Tentative Parcel Map, provide information pertaining to the site drainage and determine the existing and proposed peak flows, as well as off-site releases and their impacts to downstream systems. This study considers the 2-, 10-, and 100-year, 24-hour storm events. 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 Comstock Country RV Resort Tentative Parcel Map pertains to 5400 S Carson St (APN 009-302-17), located within Section 31, T15N, R20E, S 1/2, SE 1/4, MDM. The proposed future development on the subject property will include removal of the existing RV park and storage areas, and extension of the RV park onto the adjacent parcel. Land disturbing activity will include grading. Potential for erosion is minimal due to gently sloping existing site topography.

This Conceptual Drainage Study accompanies the Tentative Parcel Map for the subject parcels owned by Comstock Country RV Resort, LLC. The proposed development will consist of removal of the RV park and storage use from a large portion of the existing site, and extension of the use onto the adjacent parcel to the west (APN 009-302-03). The pre-developed site is comprised of approximately 20% impervious surfaces. Upon removal and replacement of existing asphalt, the proposed site will consist of approximately 51% impervious surfaces. Refer to Appendix B for site development plan.

Existing Site Conditions

To the north of the property is US HWY 50. To the east of the property is US HWY 395. Costco Wholesale is located to the west of the project location. Old Clear Creek Rd and Bodine's Casino is located to the south.

Existing site soils consist of Surpass gravelly sandy loam, 6719, 0-2% slopes, which is comprised of loam, with a Hydrologic Soil Group A designation, and Surpass sandy loam, 6721, 8-15% slopes, which is comprised of loam, with a Hydrologic Soil Group A designation. Frequency of flooding is rare and there is no frequency of ponding. The Soil Resource Report for the site is included in Appendix B and identifies the site soil as having very low probability of surface runoff. Existing ground cover is undisturbed and consists of sparse vegetation. The project site is not located in a USGS-designated wetland area. The site is developed as Mixed Use with Commercial as Primary Use and is zoned GC for General Commercial.

Site topography generally slopes to the southeast and runoff generally flows in this direction. On-site drainage is conveyed off-site into a rip-rap lined roadside ditch along the western side of US HWY 395, flowing from the south to the north. No offsite flows appear to enter the property.

Figure 1: Location Map

Map depicting location of proposed development

Not to Scale

EXISTING AND PROPOSED HYDROLOGY

Drainage Basin Boundaries

The existing site is mostly surrounded by existing development. Costco Wholesale is located to the west, Old Clear Creek Rd and Bodine's Casino is located to the south, and US HWY 395 to the east. Immediately to the north of the property is a small undeveloped parcel consisting of vacant land, and US HWY 50. No existing flows from the surrounding developments flow onto or significantly impact the subject site. Surrounding lots are generally graded to direct any runoff from the west to the east along Old Clear Creek Rd and into the roadside ditch located along the west side of US HWY 395. Drainage maps depicting the existing and proposed site drainage are included in Appendix B.

Topography of the existing developed site generally slopes from northwest to southeast at approximately 3.9%. Topography of the undeveloped parcel to the west generally slopes from northwest to southeast at approximately 5.8%. This parcel will require grading. The proposed finished grade for the developed site is 3.3%. Runoff will flow in the direction of historic drainage paths. No existing drainage problems have been identified on-site. No areas with high potential for erosion or sediment deposition have been identified. Peak flows and volumes for the 2-year, 10-year, and 100-year, 24-hour duration storm events are provided in Table 1 below. Refer to Appendix A for SCS TR-20 calculations.

Table 1: Peak Flows

Storm Event	Pre-Developed Peak Flow (cfs)	Construction Peak Flow (cfs)	Post-Developed Peak Flow (cfs)
2-Year	0.86	0.49	1.82
10-Year	2.11	2.03	4.91
100-Year	5.36	6.52	11.91

Table 2: Peak Flow Increase

Storm Event	Pre-Developed Peak Flow (cfs)	Increase in Peak Flow Construction (cfs)	Increase in Peak Flow Post-Developed (cfs)
2-Year	0.86	-0.37	0.96
10-Year	2.11	-0.08	2.80
100-Year	5.36	1.16	6.55

Table 3: Design Storm and Storage Volumes

Storm Event	Total Storm Volume (cf)	Storage Volume Construction (cf)	Storage Volume Post-Developed (cf)
2-Year	4749	707	704
10-Year	12589	2117	2911
100-Year	28923	4945	11127

On-Site & Downstream Drainage Description

Historic and current on-site drainage occurs as sheet flow and shallow concentrated flow from northwest to southeast, toward the intersection of US HWY 395 and Old Clear Creek Rd. The flow then enters the roadside ditch located along the west side of US HWY 395. There are no existing drainage channels or basins located on site. The existing undeveloped site consists of undisturbed soil and sparse vegetation. A map depicting the current drainage of the site is provided in Appendix B.

Floodplain & Irrigation Information

The subject site is located primarily in a FEMA-designated Area of Minimal Flood Hazard, Zone X (Unshaded). A small portion of the southeast corner of the property is located in Zone A with Base Flood Elevations between 4765 feet and 4769 feet. The area located across Old Clear Creek Rd to the south of the site consists of Zone A with Base Flood Elevations 4765-4769 feet, and Zone X (Shaded), 0.2% Annual Chance Flood Hazard, with Base Flood Elevations 4769-4782 feet. There is no proposed development on or near these flood hazard areas. There is no existing or proposed irrigation on the subject parcel.

Previous Drainage Studies

Any previous drainage studies associated with this parcel should be on file with Carson City.

EROSION AND SEDIMENT CONTROL MEASURES

A temporary basin will be placed near the southeast corner of the parcel to control runoff during construction. Fiber rolls and silt fence will be placed as needed to limit erosion and sedimentation during the construction phase. A temporary gravel construction entrance will be implemented to prevent the tracking or flowing of sediment onto public right-of-ways.

PROPOSED DRAINAGE FACILITIES

Proposed Flow Routing

The on-site runoff will be routed to the southeast, following the established and preserved surface flow paths to the roadside ditch located on the west side of US HWY 395, which conveys flow from the south to the north. The proposed drainage systems will have sufficient capacity for anticipated flows. Easement access will be provided for proposed drainage facilities. No floodplain modifications will be required for this project. Refer to Appendix B for proposed flow routing.

Storm Drainage Analysis

Peak flows and volumes for the existing and proposed sites were analyzed using the SCS TR-20 Method through the use of the HydroCAD software. All precipitation data used in calculations are specific to the site area and were obtained from NOAA Atlas 14. Curve Numbers were selected based on the surface type and Hydrologic Soil Group classification. The 2-, 10-, and 100-year, 24-hr storm events were selected for analysis. A complete set of calculations, mapping, and supporting materials are included in the appendices of this study. The 2-year storm was evaluated to consider Low Impact Development (LID) flows in the future improvements.

CONCLUSIONS

Compliance with CCMC & Carson City Development Standards

The project will be in compliance with state and local drainage laws, meeting the requirements of Division 14 of the Carson City Development Standards and the Municipal Code. As the existing RV Park and development surface drain into the existing regional and area drainage features, which have been sized to take the peak flows with no adverse impacts to the surrounding areas, the proposed relocation of the RV park will likewise surface drain to the same facilities. The Hwy 395 roadside swale and large regional detention basin at the Hwy 50 and Hwy 395 interchange are adequate to receive the flow. Further, evaluation and a Technical Drainage Study will be required for the proposed future developments associated with the parcel map.

Compliance with FEMA Requirements

Existing off-site runoff will not be adversely affected by the proposed development, and no modifications to the floodplain or special design considerations are planned or anticipated as a part of this project. The proposed development is not located in a special flood hazard area.

Impact of Proposed Development on Off-Site Property & Facilities

Peak flow rates leaving the site will remain at or below pre-development values due to soil type and flow routing. Floodplain modifications are not planned. There will be limited impact on the existing storm drain system in the area due to flow routing and detention.

Mitigation of Impacts & Implementation Schedule

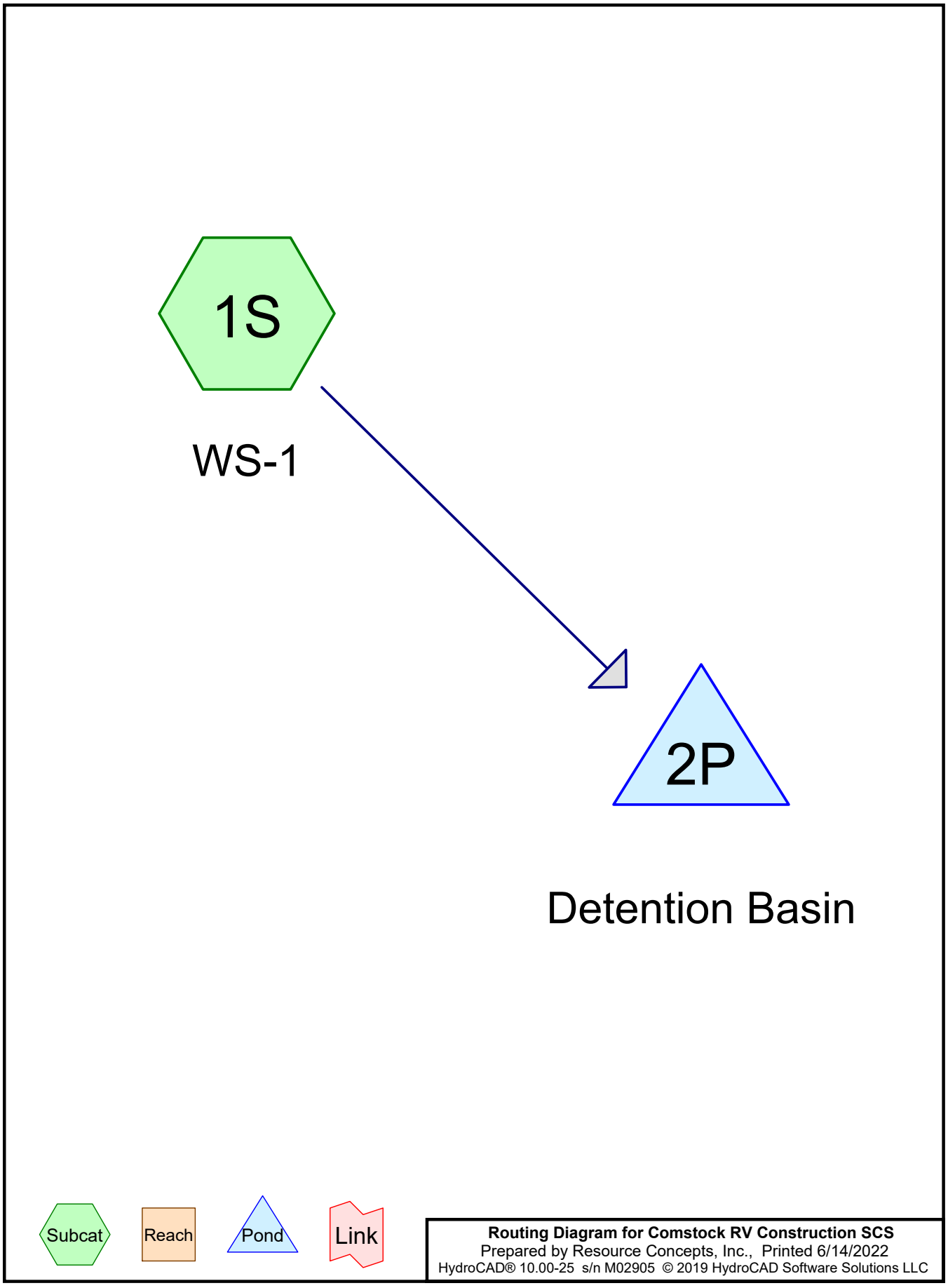
Construction and Grading Temporary Sedimentation Basin (LID). On-site erosion and sediment control during construction shall be accomplished by employing temporary erosion control measures. Such measures include the construction of temporary retention and filter basin to detain the concentrated flow and distribute the energy and flow to a surface sheet flow back to the established flow paths through the RV park to the street curb. The basin shown on the plans is a rock and filter fabric

In addition, the contractor will be required to comply with all local, state, and federal codes related to stormwater runoff. 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. 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

SCS TR-20 Peak Flow and Storage Calculations



Routing Diagram for Comstock RV Construction SCS
Prepared by Resource Concepts, Inc., Printed 6/14/2022

Project Notes

Copied 10 events from NV-Carson 24-hr S1 storm

Comstock RV Construction SCS

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.405	77	Newly graded area, HSG A (1S)
5.405	**77**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
5.405	HSG A	1S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.000	Other	
5.405		**TOTAL AREA**

Comstock RV Construction SCS

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
5.405	0.000	0.000	0.000	0.000	5.405	Newly graded area	1S
5.405	**0.000**	**0.000**	**0.000**	**0.000**	**5.405**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: WS-1 Runoff Area=5.405 ac 0.00% Impervious Runoff Depth=0.25"
Flow Length=455' Slope=0.0330 '/' Tc=14.6 min CN=77 Runoff=0.49 cfs 0.112 af

Pond 2P: Detention Basin Peak Elev=4,770.14' Storage=707 cf Inflow=0.49 cfs 0.112 af
Outflow=0.15 cfs 0.111 af

Total Runoff Area = 5.405 ac Runoff Volume = 0.112 af Average Runoff Depth = 0.25"
100.00% Pervious = 5.405 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: WS-1

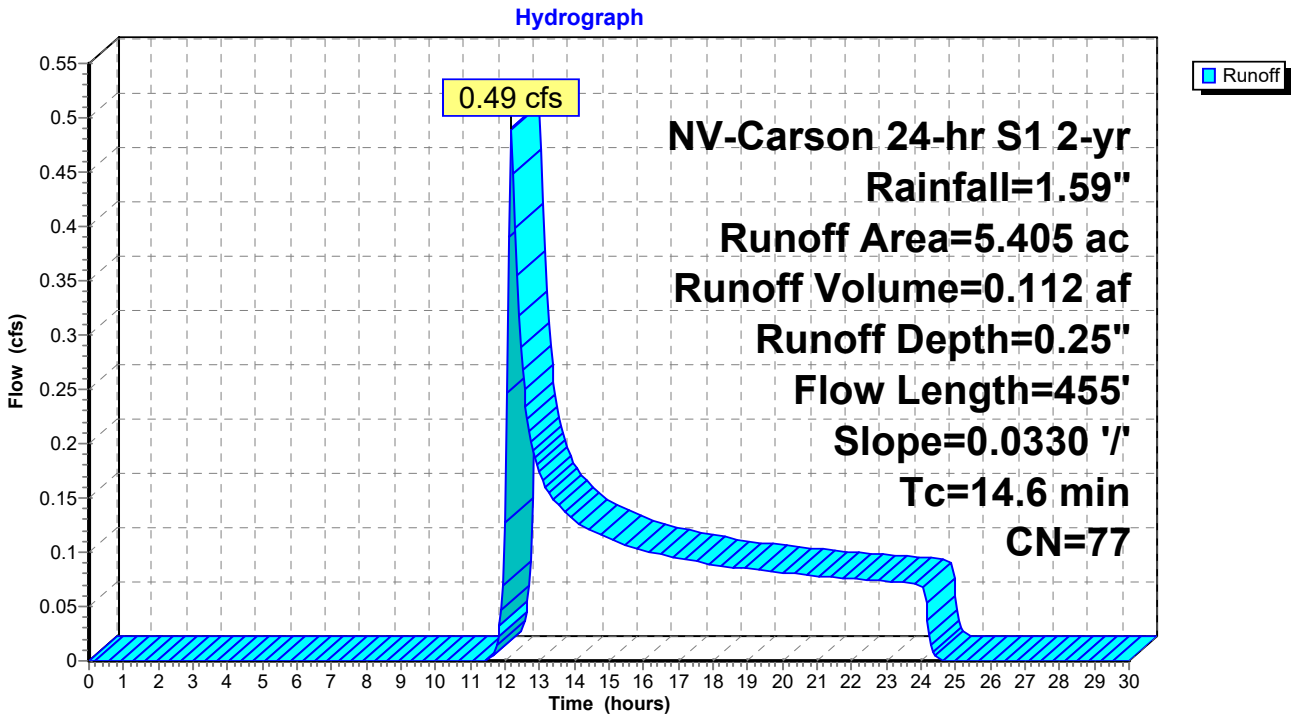
Runoff = 0.49 cfs @ 12.19 hrs, Volume= 0.112 af, Depth= 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 2-yr Rainfall=1.59"

Area (ac)	CN	Description
5.405	77	Newly graded area, HSG A
5.405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0330	0.13		**Sheet Flow, Sheet Flow** Cultivated: Residue>20% n= 0.170 P2= 1.59"
2.0	355	0.0330	2.92		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
14.6	455	Total			

Subcatchment 1S: WS-1



Summary for Pond 2P: Detention Basin

Inflow Area = 5.405 ac, 0.00% Impervious, Inflow Depth = 0.25" for 2-yr event
Inflow = 0.49 cfs @ 12.19 hrs, Volume= 0.112 af
Outflow = 0.15 cfs @ 13.36 hrs, Volume= 0.111 af, Atten= 69%, Lag= 70.3 min
Primary = 0.15 cfs @ 13.36 hrs, Volume= 0.111 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 4,770.14' @ 13.36 hrs Surf.Area= 71 sf Storage= 707 cf

Plug-Flow detention time= 77.5 min calculated for 0.111 af (100% of inflow)
Center-of-Mass det. time= 77.5 min (1,079.6 - 1,002.1)

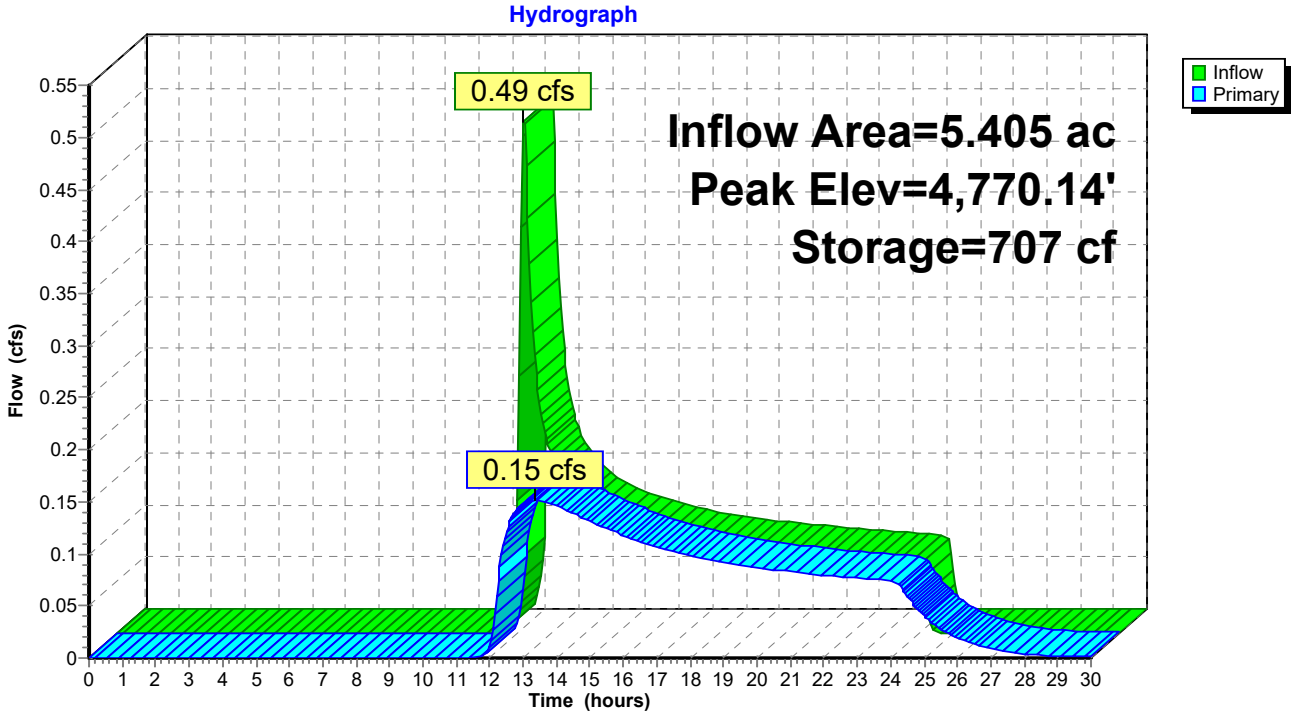
Volume	Invert	Avail.Storage	Storage Description
#1	4,770.00'	100,000 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4,770.00	0	0	0
4,790.00	10,000	100,000	100,000

Device	Routing	Invert	Outlet Devices
#1	Primary	4,770.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.11 cfs @ 13.36 hrs HW=4,770.14' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.11 cfs @ 1.28 fps)

Pond 2P: Detention Basin



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: WS-1 Runoff Area=5.405 ac 0.00% Impervious Runoff Depth=0.64"
Flow Length=455' Slope=0.0330 '/' Tc=14.6 min CN=77 Runoff=2.03 cfs 0.289 af

Pond 2P: Detention Basin Peak Elev=4,770.42' Storage=2,117 cf Inflow=2.03 cfs 0.289 af
Outflow=0.92 cfs 0.289 af

Total Runoff Area = 5.405 ac Runoff Volume = 0.289 af Average Runoff Depth = 0.64"
100.00% Pervious = 5.405 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: WS-1

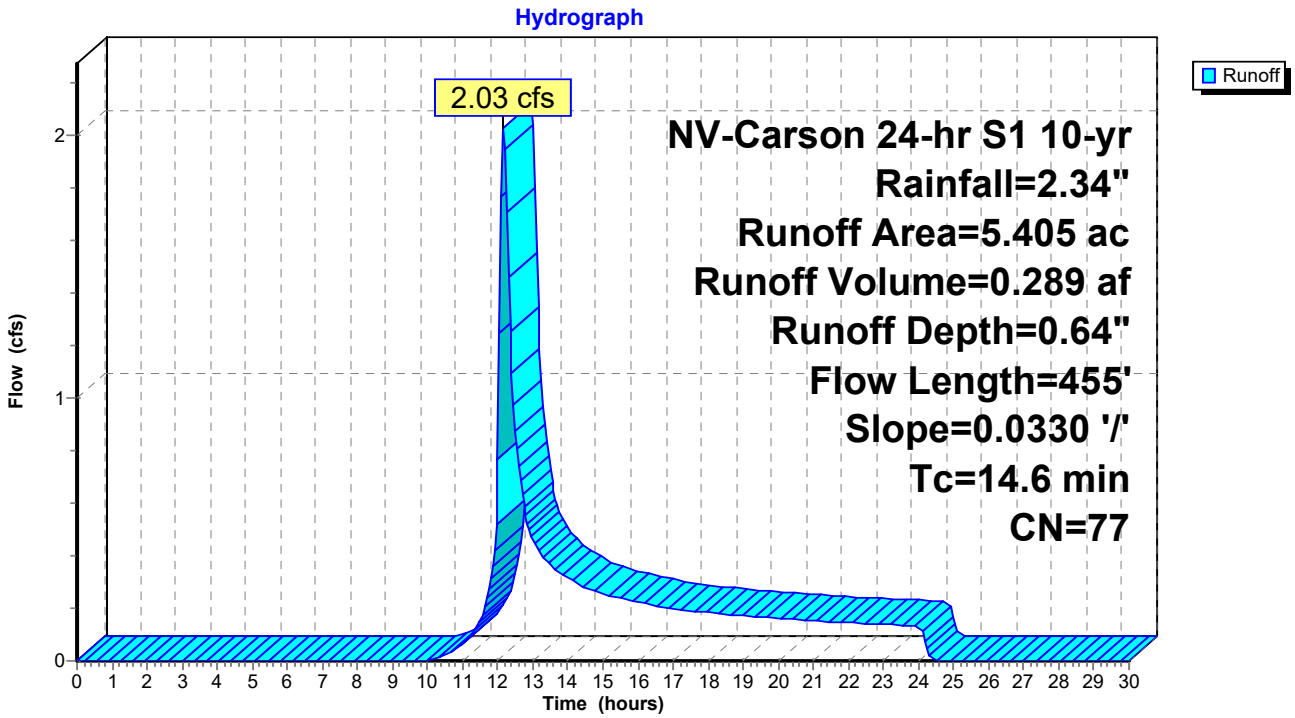
Runoff = 2.03 cfs @ 12.16 hrs, Volume= 0.289 af, Depth= 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 10-yr Rainfall=2.34"

Area (ac)	CN	Description
5.405	77	Newly graded area, HSG A
5.405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0330	0.13		**Sheet Flow, Sheet Flow** Cultivated: Residue>20% n= 0.170 P2= 1.59"
2.0	355	0.0330	2.92		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
14.6	455	Total			

Subcatchment 1S: WS-1



Summary for Pond 2P: Detention Basin

Inflow Area = 5.405 ac, 0.00% Impervious, Inflow Depth = 0.64" for 10-yr event
Inflow = 2.03 cfs @ 12.16 hrs, Volume= 0.289 af
Outflow = 0.92 cfs @ 12.48 hrs, Volume= 0.289 af, Atten= 54%, Lag= 18.7 min
Primary = 0.92 cfs @ 12.48 hrs, Volume= 0.289 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 4,770.42' @ 12.48 hrs Surf.Area= 212 sf Storage= 2,117 cf

Plug-Flow detention time= 64.0 min calculated for 0.289 af (100% of inflow)
Center-of-Mass det. time= 63.7 min (1,004.5 - 940.8)

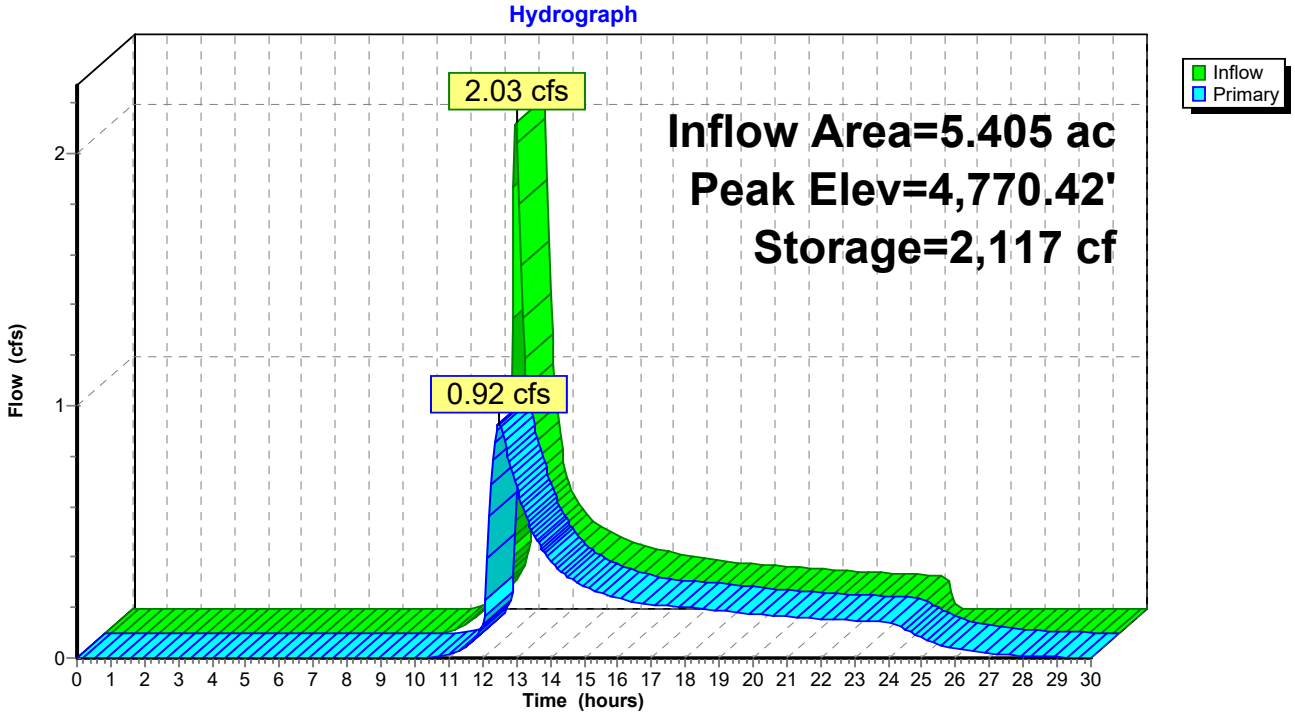
Volume	Invert	Avail.Storage	Storage Description
#1	4,770.00'	100,000 cf	**Custom Stage Data (Prismatic)** Listed below

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4,770.00	0	0	0
4,790.00	10,000	100,000	100,000

Device	Routing	Invert	Outlet Devices
#1	Primary	4,770.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.91 cfs @ 12.48 hrs HW=4,770.42' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 0.91 cfs @ 2.21 fps)

Pond 2P: Detention Basin



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: WS-1 Runoff Area=5.405 ac 0.00% Impervious Runoff Depth=1.48"
Flow Length=455' Slope=0.0330 '/' Tc=14.6 min CN=77 Runoff=6.52 cfs 0.664 af

Pond 2P: Detention Basin Peak Elev=4,770.99' Storage=4,945 cf Inflow=6.52 cfs 0.664 af
Outflow=4.19 cfs 0.664 af

Total Runoff Area = 5.405 ac Runoff Volume = 0.664 af Average Runoff Depth = 1.48"
100.00% Pervious = 5.405 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment 1S: WS-1

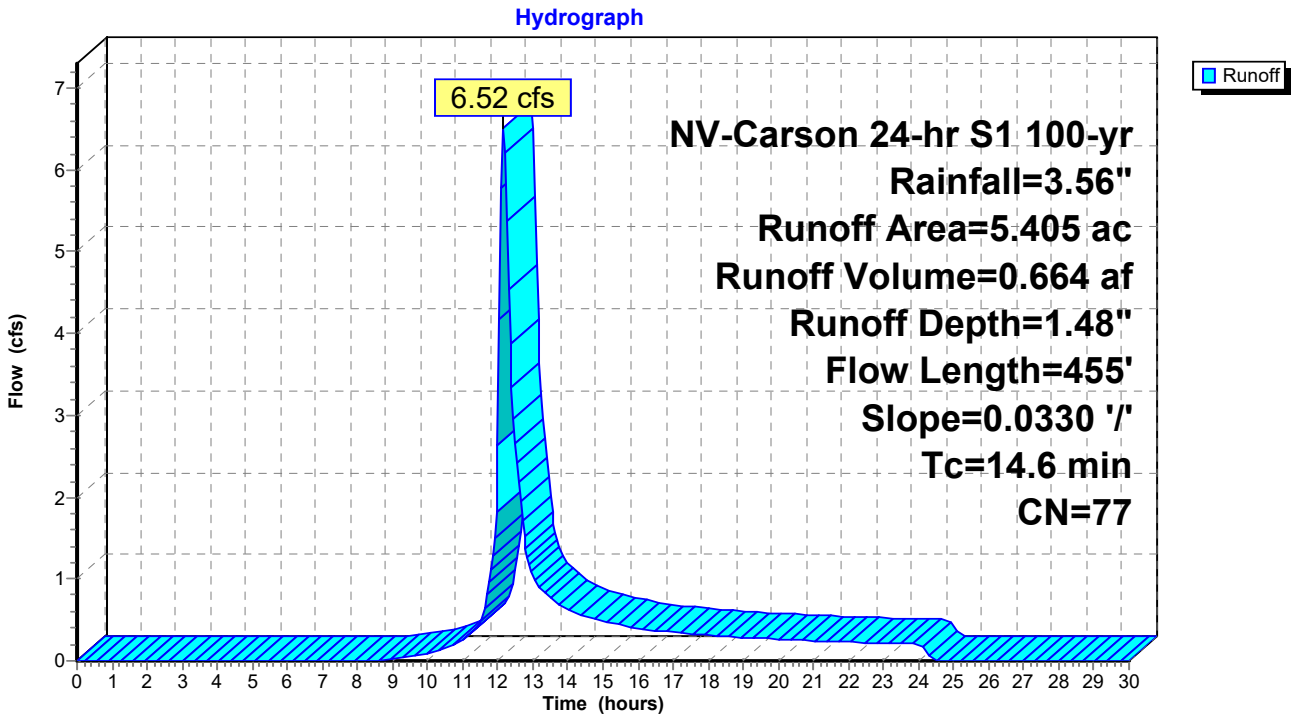
Runoff = 6.52 cfs @ 12.16 hrs, Volume= 0.664 af, Depth= 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 100-yr Rainfall=3.56"

Area (ac)	CN	Description
5.405	77	Newly graded area, HSG A
5.405		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.6	100	0.0330	0.13		**Sheet Flow, Sheet Flow** Cultivated: Residue>20% n= 0.170 P2= 1.59"
2.0	355	0.0330	2.92		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
14.6	455	Total			

Subcatchment 1S: WS-1



Summary for Pond 2P: Detention Basin

Inflow Area = 5.405 ac, 0.00% Impervious, Inflow Depth = 1.48" for 100-yr event
Inflow = 6.52 cfs @ 12.16 hrs, Volume= 0.664 af
Outflow = 4.19 cfs @ 12.33 hrs, Volume= 0.664 af, Atten= 36%, Lag= 10.1 min
Primary = 4.19 cfs @ 12.33 hrs, Volume= 0.664 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 4,770.99' @ 12.33 hrs Surf.Area= 495 sf Storage= 4,945 cf

Plug-Flow detention time= 43.4 min calculated for 0.663 af (100% of inflow)
Center-of-Mass det. time= 43.5 min (925.6 - 882.0)

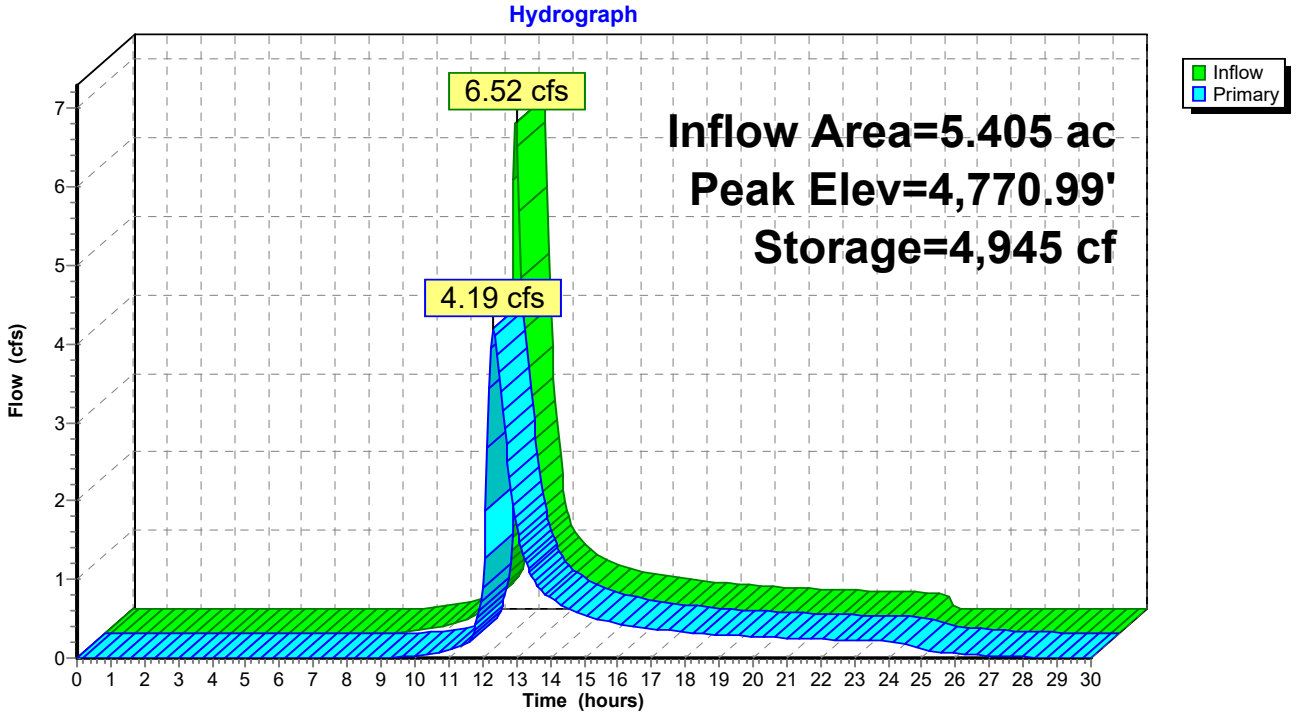
Volume	Invert	Avail.Storage	Storage Description
#1	4,770.00'	100,000 cf	**Custom Stage Data (Prismatic)** Listed below

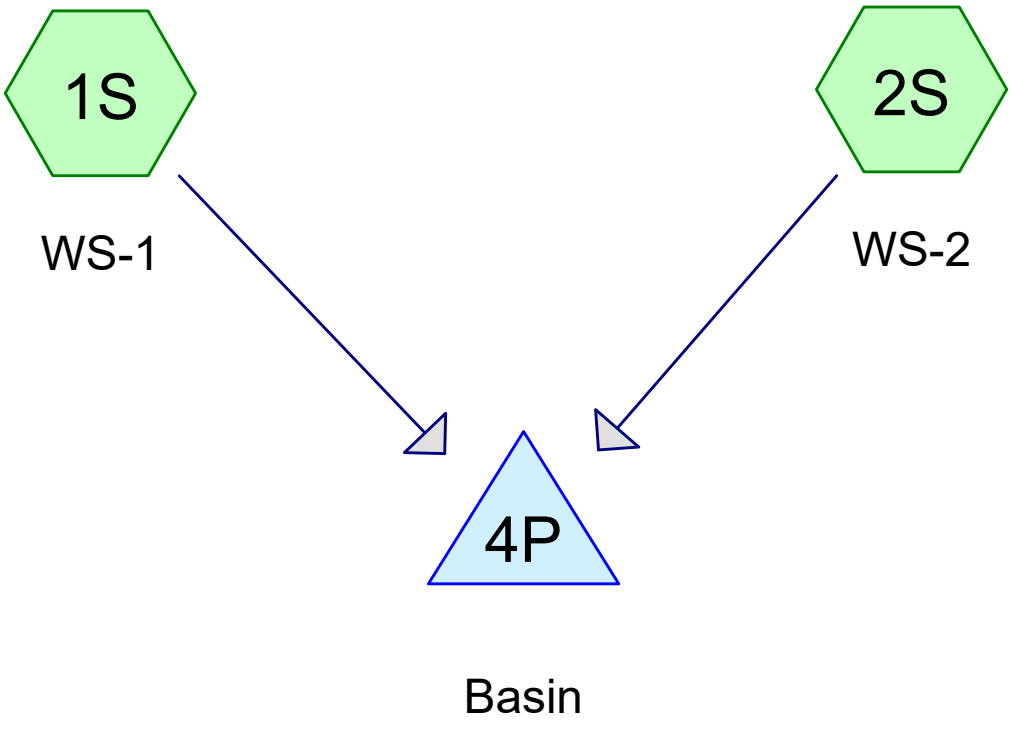
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4,770.00	0	0	0
4,790.00	10,000	100,000	100,000

Device	Routing	Invert	Outlet Devices
#1	Primary	4,770.00'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=4.17 cfs @ 12.33 hrs HW=4,770.99' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 4.17 cfs @ 3.38 fps)

Pond 2P: Detention Basin





Subcat Reach Pond Link

Routing Diagram for Comstock RV Pre-Dev SCS
Prepared by Resource Concepts, Inc., Printed 6/14/2022

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.555	76	Gravel roads, HSG A (2S)
1.066	98	Paved parking, HSG A (2S)
2.784	51	Sagebrush range, Fair, HSG B (1S)
5.405	**67**	**TOTAL AREA**

Comstock RV Pre-Dev SCS

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
2.621	HSG A	2S
2.784	HSG B	1S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
5.405		**TOTAL AREA**

Comstock RV Pre-Dev SCS

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
1.555	0.000	0.000	0.000	0.000	1.555	Gravel roads	2S
1.066	0.000	0.000	0.000	0.000	1.066	Paved parking	2S
0.000	2.784	0.000	0.000	0.000	2.784	Sagebrush range, Fair	1S
2.621	**2.784**	**0.000**	**0.000**	**0.000**	**5.405**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: WS-1 Runoff Area=121,266 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=342' Slope=0.0584 '/' Tc=12.4 min CN=51 Runoff=0.00 cfs 0.000 af

Subcatchment 2S: WS-2 Runoff Area=114,177 sf 40.68% Impervious Runoff Depth=0.51"
Flow Length=404' Slope=0.0396 '/' Tc=10.0 min CN=85 Runoff=0.86 cfs 0.111 af

Pond 4P: Basin Peak Elev=4,773.11' Storage=4,850 cf Inflow=0.86 cfs 0.111 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 5.405 ac Runoff Volume = 0.111 af Average Runoff Depth = 0.25"
80.27% Pervious = 4.339 ac 19.73% Impervious = 1.066 ac

Summary for Subcatchment 1S: WS-1

[45] Hint: Runoff=Zero

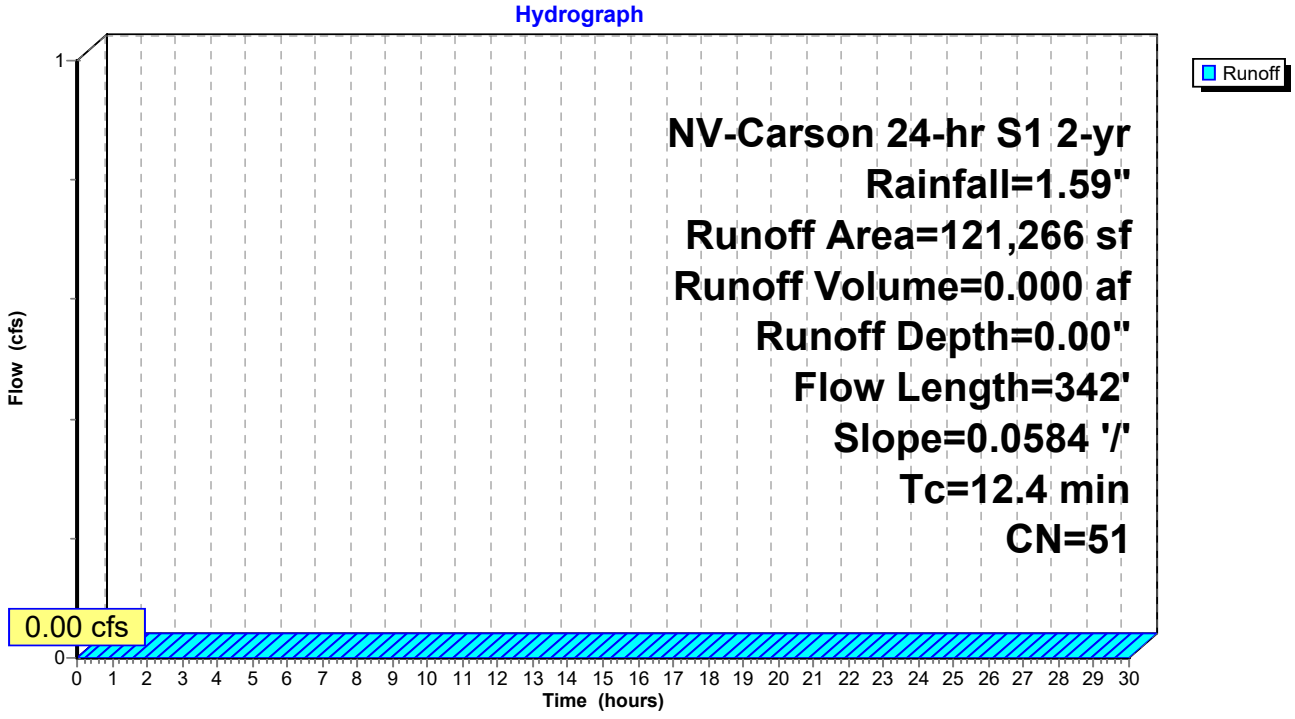
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 2-yr Rainfall=1.59"

Area (sf)	CN	Description
121,266	51	Sagebrush range, Fair, HSG B
121,266		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0584	0.15		**Sheet Flow, Sheet Flow** n= 0.200 P2= 1.59"
1.0	242	0.0584	3.89		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
12.4	342	Total			

Subcatchment 1S: WS-1



Summary for Subcatchment 2S: WS-2

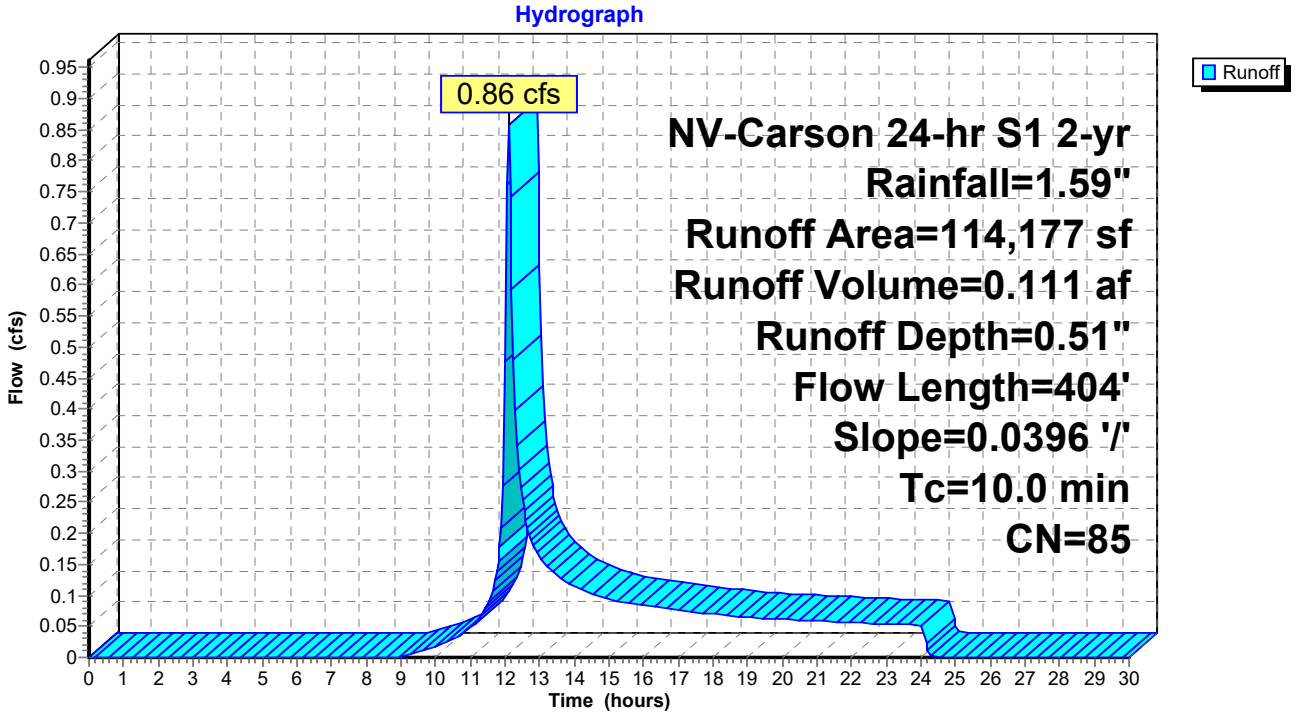
Runoff = 0.86 cfs @ 12.10 hrs, Volume= 0.111 af, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 2-yr Rainfall=1.59"

Area (sf)	CN	Description
67,732	76	Gravel roads, HSG A
46,445	98	Paved parking, HSG A
114,177	85	Weighted Average
67,732		59.32% Pervious Area
46,445		40.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0396	1.27		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 1.59"
1.3	304	0.0396	4.04		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
2.6	404	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: WS-2



Summary for Pond 4P: Basin

Inflow Area = 5.405 ac, 19.73% Impervious, Inflow Depth = 0.25" for 2-yr event
Inflow = 0.86 cfs @ 12.10 hrs, Volume= 0.111 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

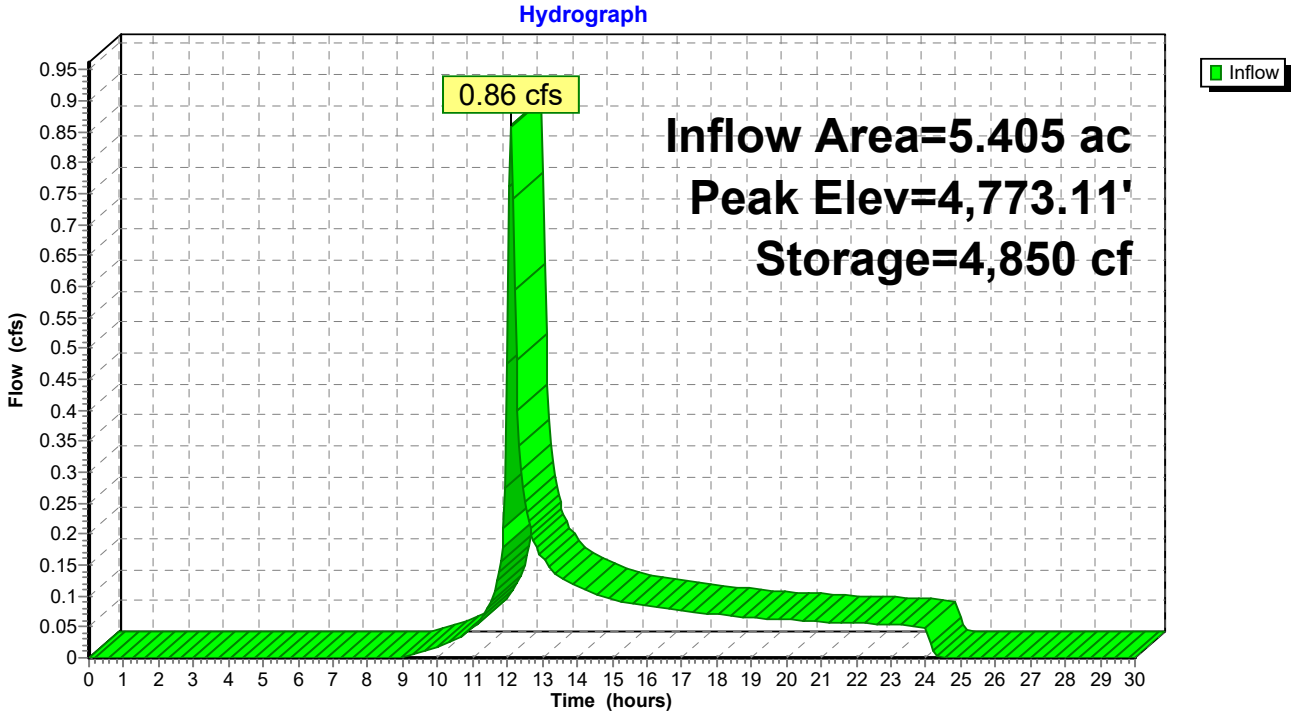
Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 4,773.11' @ 24.60 hrs Surf.Area= 3,114 sf Storage= 4,850 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

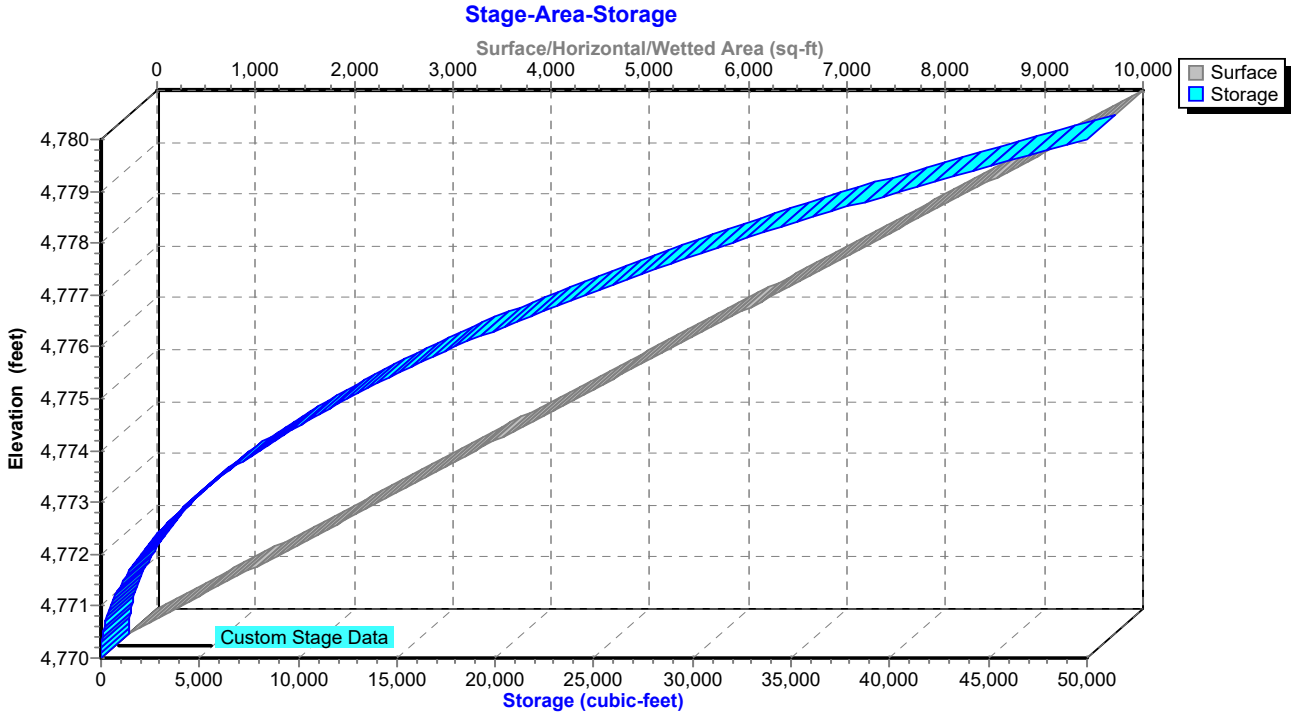
Volume	Invert	Avail.Storage	Storage Description
#1	4,770.00'	50,000 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4,770.00	0	0	0
4,780.00	10,000	50,000	50,000

Pond 4P: Basin



Pond 4P: Basin



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: WS-1 Runoff Area=121,266 sf 0.00% Impervious Runoff Depth=0.02"
Flow Length=342' Slope=0.0584 '/' Tc=12.4 min CN=51 Runoff=0.01 cfs 0.004 af

Subcatchment 2S: WS-2 Runoff Area=114,177 sf 40.68% Impervious Runoff Depth=1.05"
Flow Length=404' Slope=0.0396 '/' Tc=10.0 min CN=85 Runoff=2.11 cfs 0.230 af

Pond 4P: Basin Peak Elev=4,774.51' Storage=10,189 cf Inflow=2.11 cfs 0.234 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 5.405 ac Runoff Volume = 0.234 af Average Runoff Depth = 0.52"
80.27% Pervious = 4.339 ac 19.73% Impervious = 1.066 ac

Summary for Subcatchment 1S: WS-1

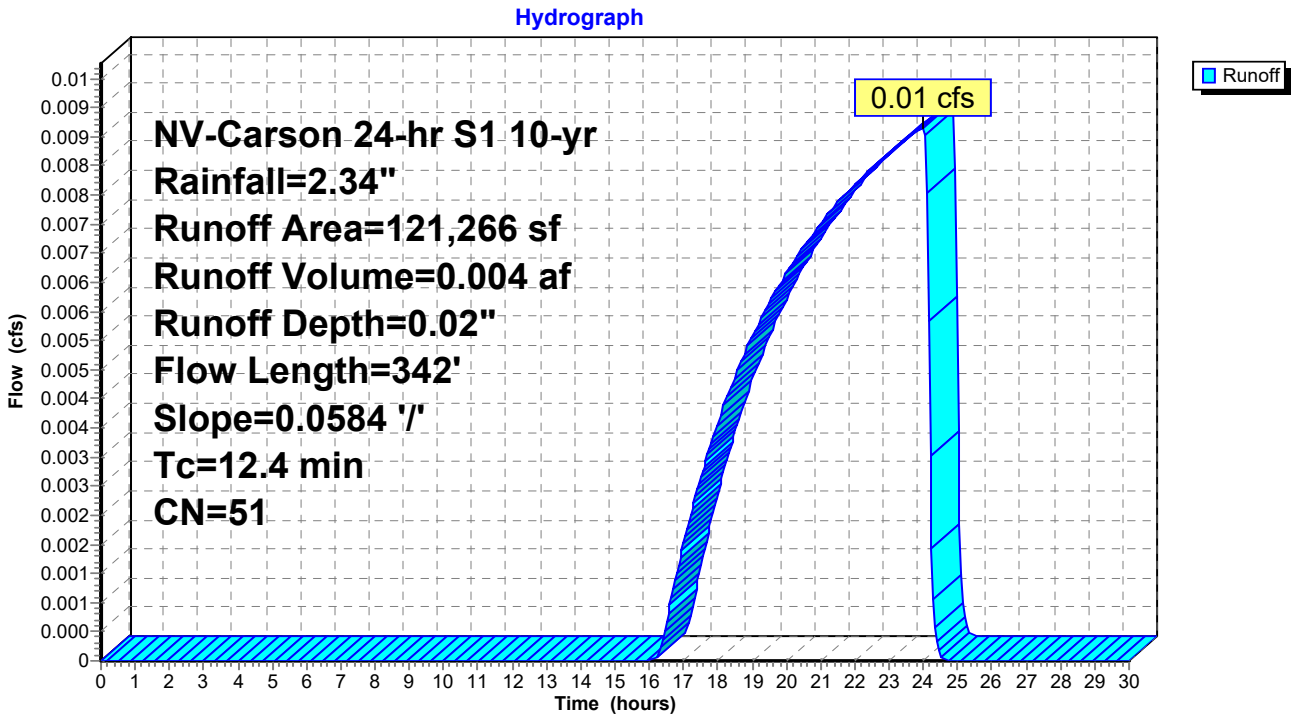
Runoff = 0.01 cfs @ 24.00 hrs, Volume= 0.004 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 10-yr Rainfall=2.34"

Area (sf)	CN	Description
121,266	51	Sagebrush range, Fair, HSG B
121,266		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0584	0.15		**Sheet Flow, Sheet Flow** n= 0.200 P2= 1.59"
1.0	242	0.0584	3.89		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
12.4	342	Total			

Subcatchment 1S: WS-1



Summary for Subcatchment 2S: WS-2

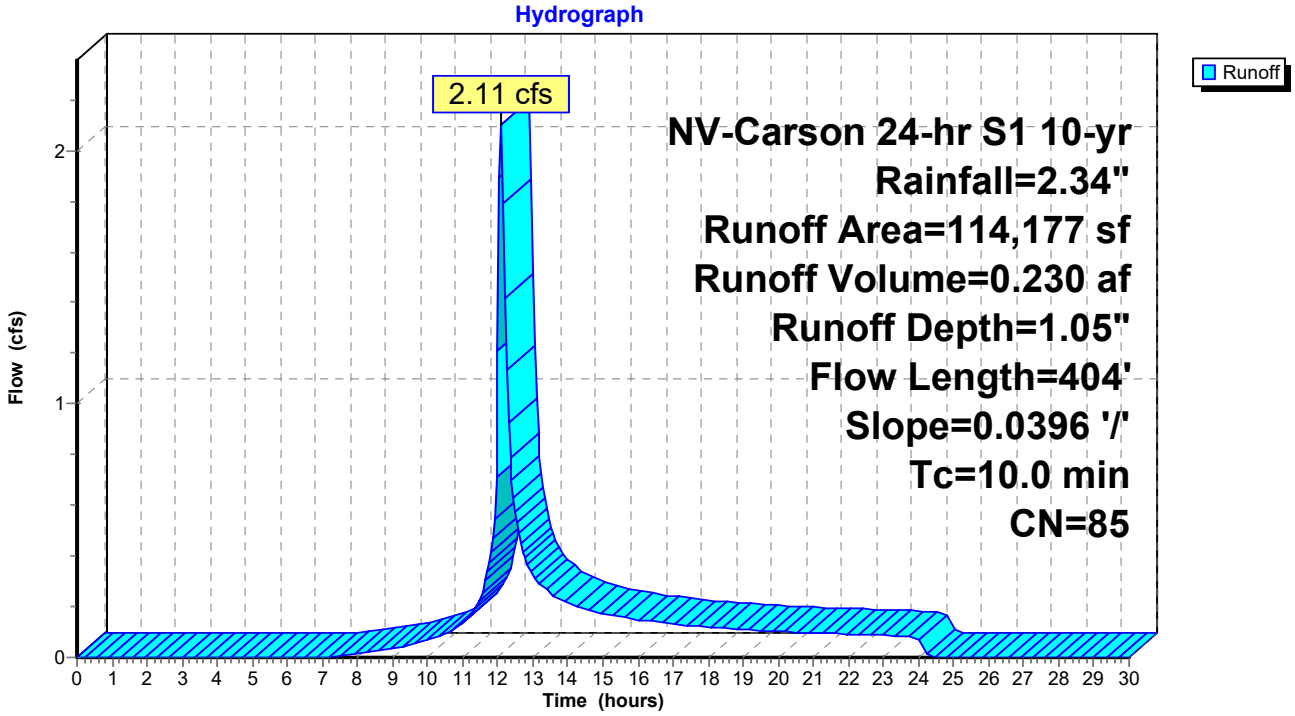
Runoff = 2.11 cfs @ 12.10 hrs, Volume= 0.230 af, Depth= 1.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 10-yr Rainfall=2.34"

Area (sf)	CN	Description
67,732	76	Gravel roads, HSG A
46,445	98	Paved parking, HSG A
114,177	85	Weighted Average
67,732		59.32% Pervious Area
46,445		40.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0396	1.27		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 1.59"
1.3	304	0.0396	4.04		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
2.6	404	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: WS-2



Summary for Pond 4P: Basin

Inflow Area = 5.405 ac, 19.73% Impervious, Inflow Depth = 0.52" for 10-yr event
Inflow = 2.11 cfs @ 12.10 hrs, Volume= 0.234 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

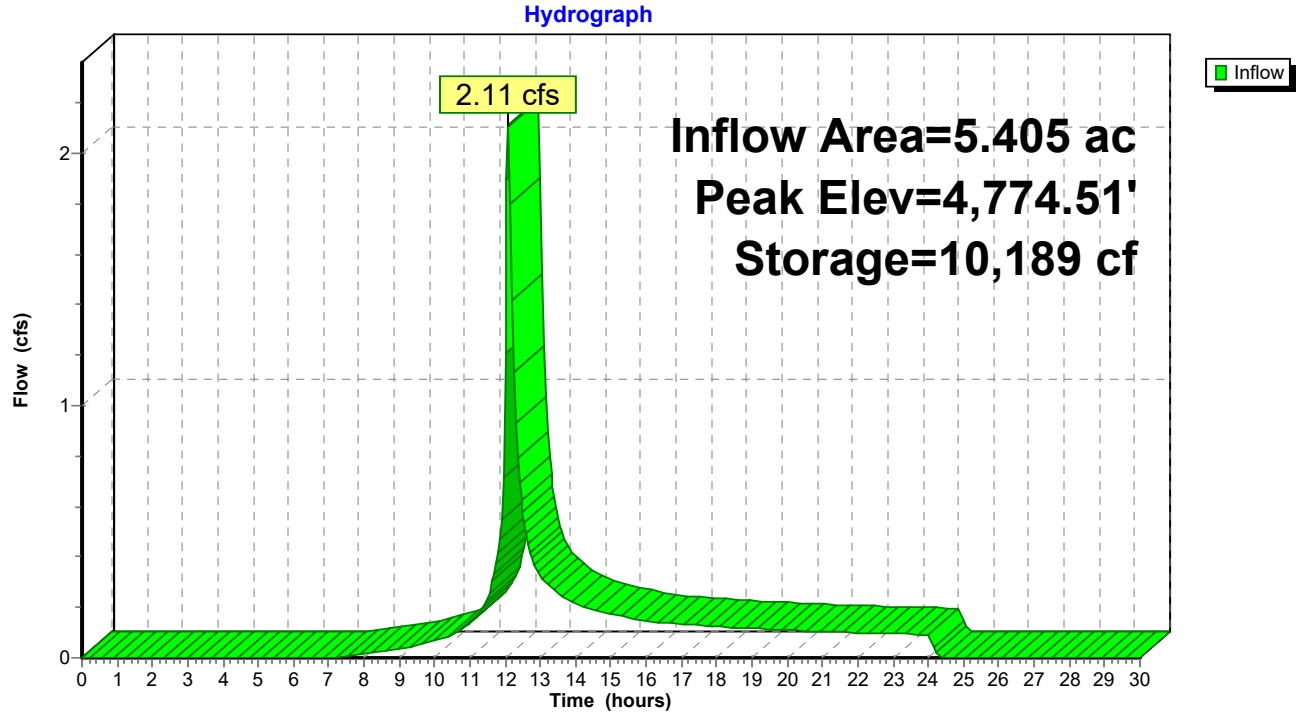
Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 4,774.51' @ 24.75 hrs Surf.Area= 4,514 sf Storage= 10,189 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

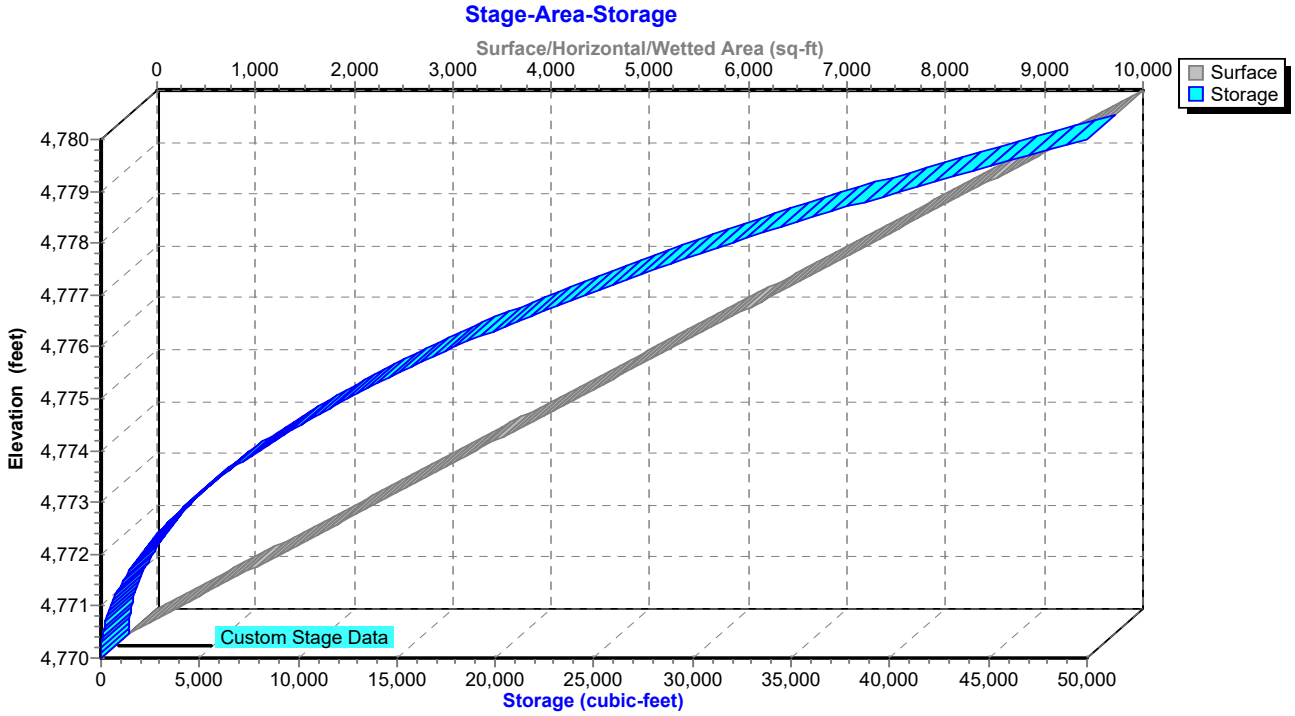
Volume	Invert	Avail.Storage	Storage Description
#1	4,770.00'	50,000 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4,770.00	0	0	0
4,780.00	10,000	50,000	50,000

Pond 4P: Basin



Pond 4P: Basin



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: WS-1 Runoff Area=121,266 sf 0.00% Impervious Runoff Depth=0.24"
Flow Length=342' Slope=0.0584 '/' Tc=12.4 min CN=51 Runoff=0.14 cfs 0.055 af

Subcatchment 2S: WS-2 Runoff Area=114,177 sf 40.68% Impervious Runoff Depth=2.07"
Flow Length=404' Slope=0.0396 '/' Tc=10.0 min CN=85 Runoff=5.35 cfs 0.452 af

Pond 4P: Basin Peak Elev=4,776.65' Storage=22,094 cf Inflow=5.36 cfs 0.507 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 5.405 ac Runoff Volume = 0.507 af Average Runoff Depth = 1.13"
80.27% Pervious = 4.339 ac 19.73% Impervious = 1.066 ac

Summary for Subcatchment 1S: WS-1

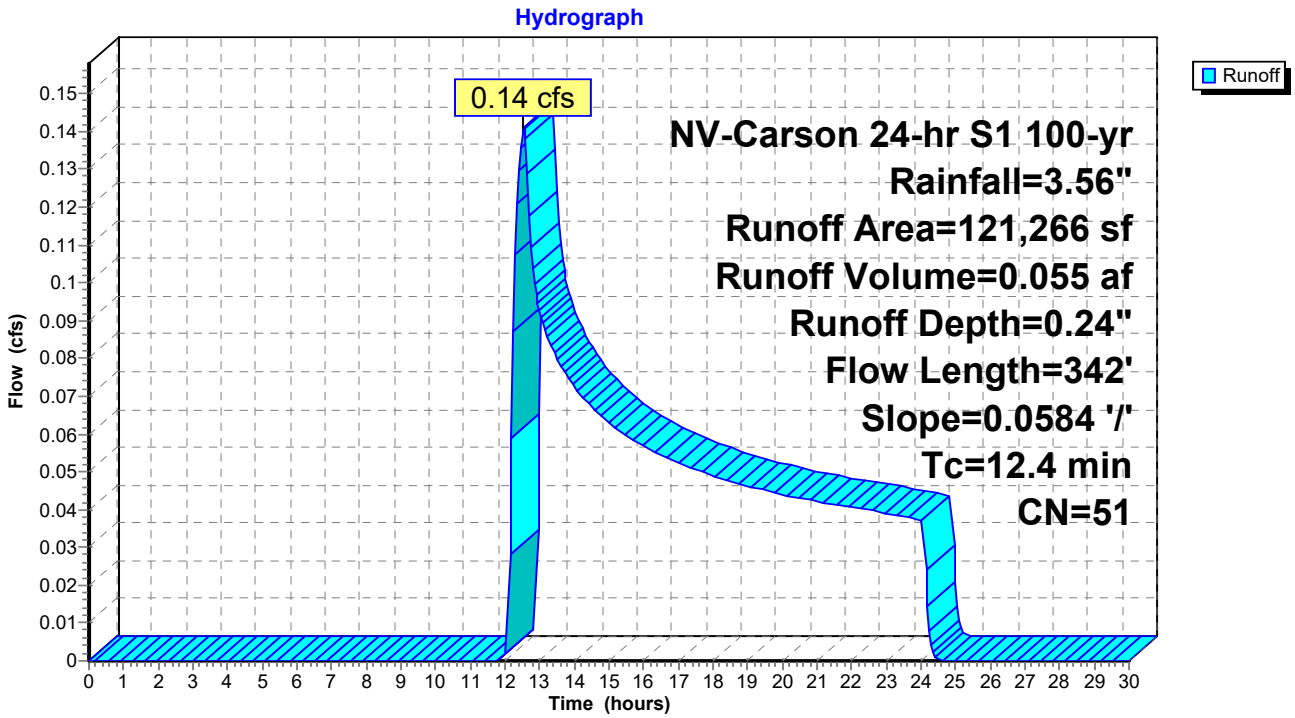
Runoff = 0.14 cfs @ 12.54 hrs, Volume= 0.055 af, Depth= 0.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 100-yr Rainfall=3.56"

Area (sf)	CN	Description
121,266	51	Sagebrush range, Fair, HSG B
121,266		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0584	0.15		**Sheet Flow, Sheet Flow** n= 0.200 P2= 1.59"
1.0	242	0.0584	3.89		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
12.4	342	Total			

Subcatchment 1S: WS-1



Summary for Subcatchment 2S: WS-2

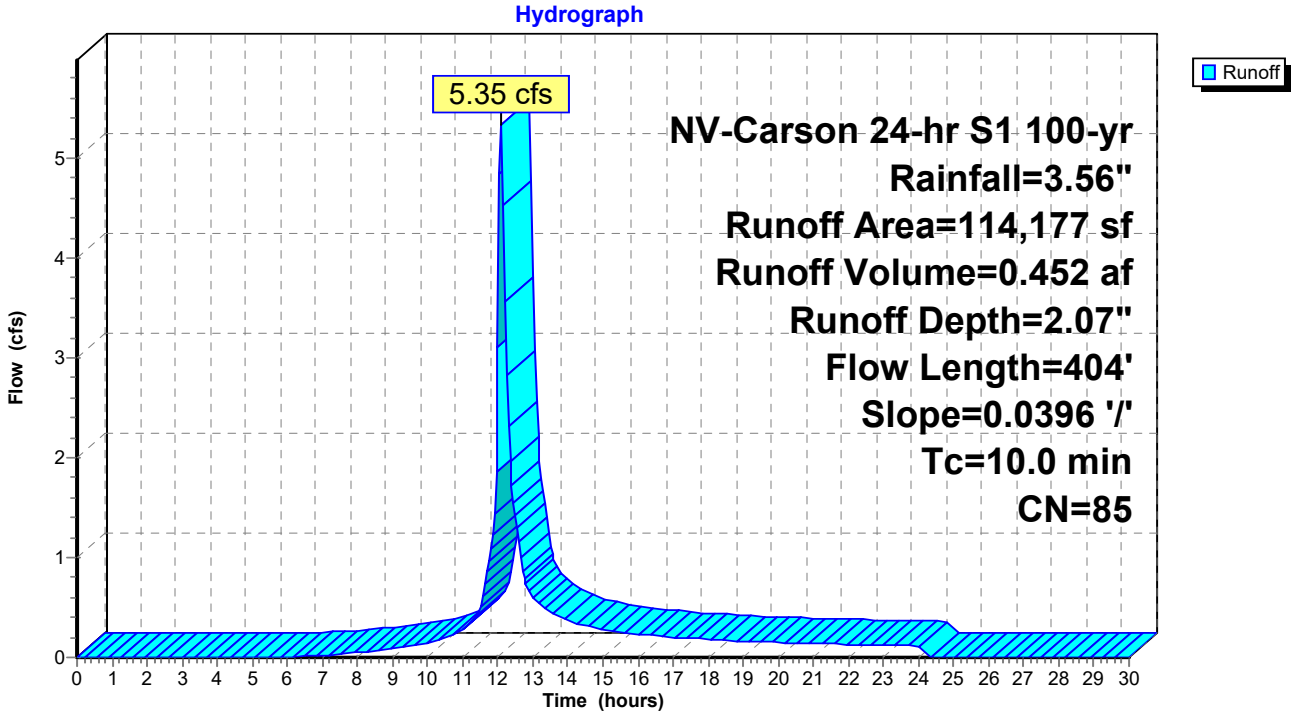
Runoff = 5.35 cfs @ 12.09 hrs, Volume= 0.452 af, Depth= 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 100-yr Rainfall=3.56"

Area (sf)	CN	Description
67,732	76	Gravel roads, HSG A
46,445	98	Paved parking, HSG A
114,177	85	Weighted Average
67,732		59.32% Pervious Area
46,445		40.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.3	100	0.0396	1.27		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 1.59"
1.3	304	0.0396	4.04		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
2.6	404	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 2S: WS-2



Summary for Pond 4P: Basin

Inflow Area = 5.405 ac, 19.73% Impervious, Inflow Depth = 1.13" for 100-yr event
Inflow = 5.36 cfs @ 12.09 hrs, Volume= 0.507 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

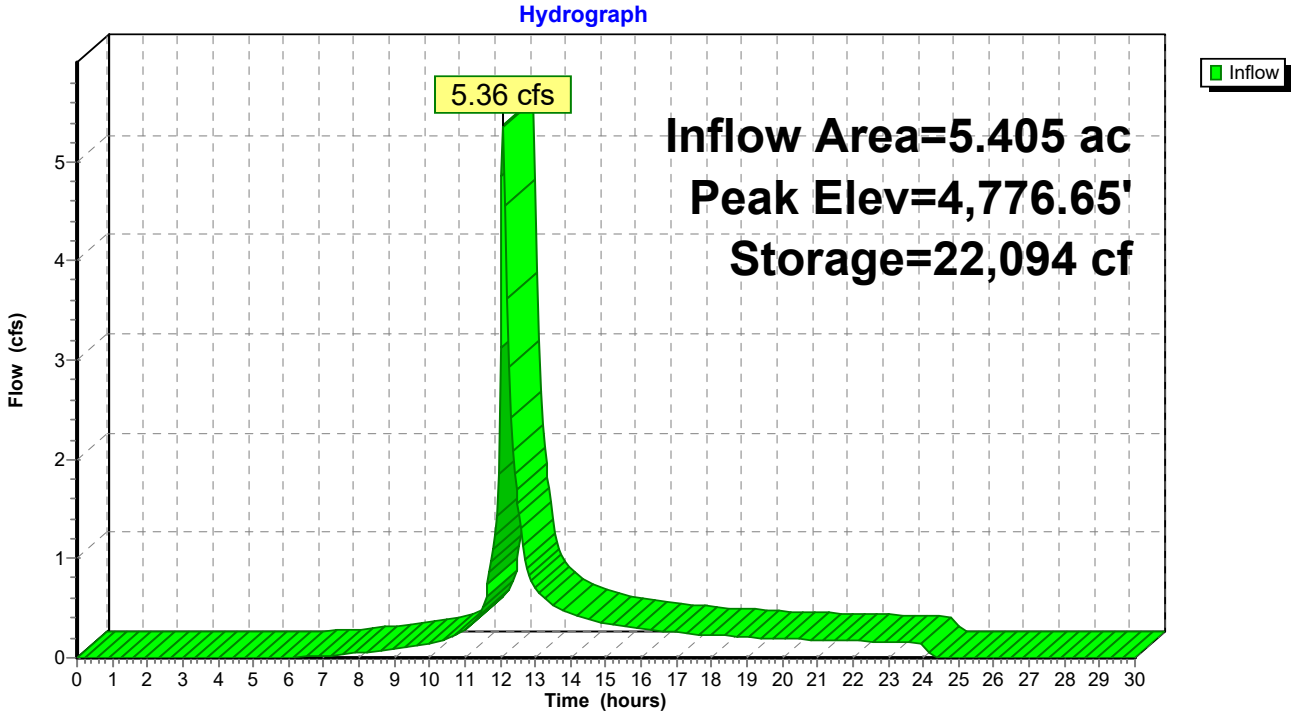
Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 4,776.65' @ 24.75 hrs Surf.Area= 6,647 sf Storage= 22,094 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

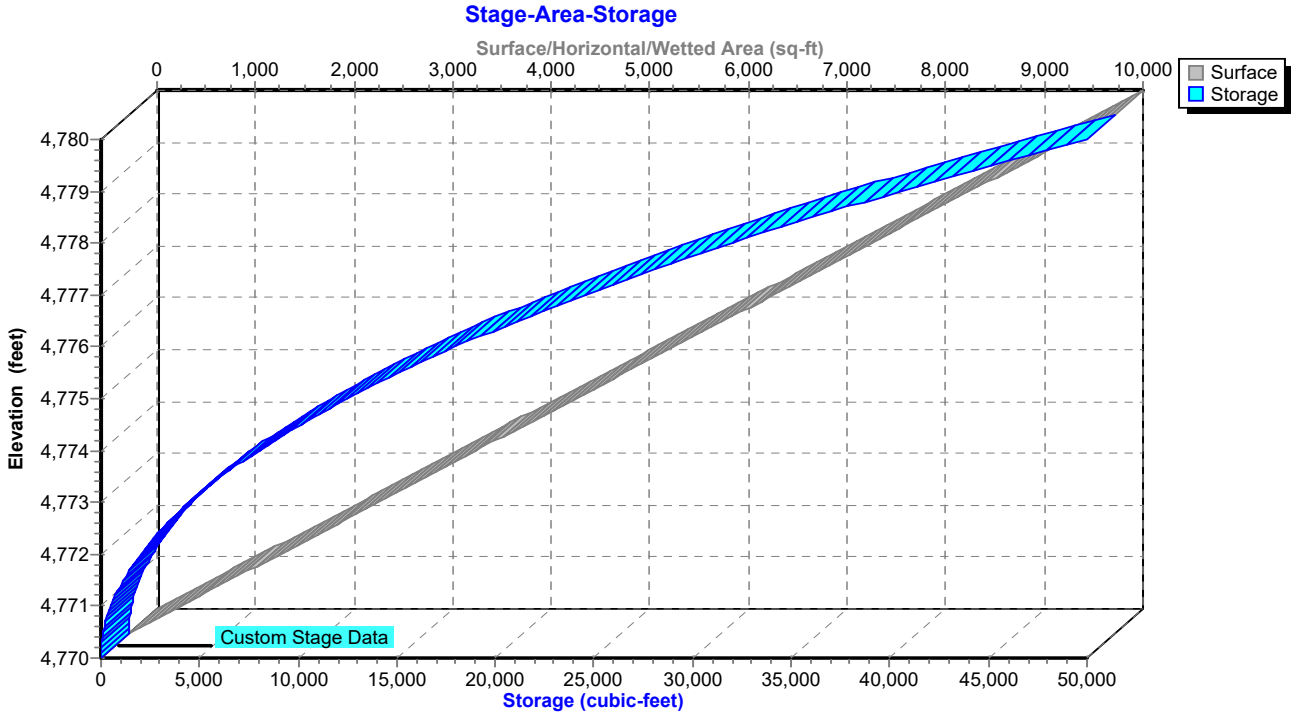
Volume	Invert	Avail.Storage	Storage Description
#1	4,770.00'	50,000 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

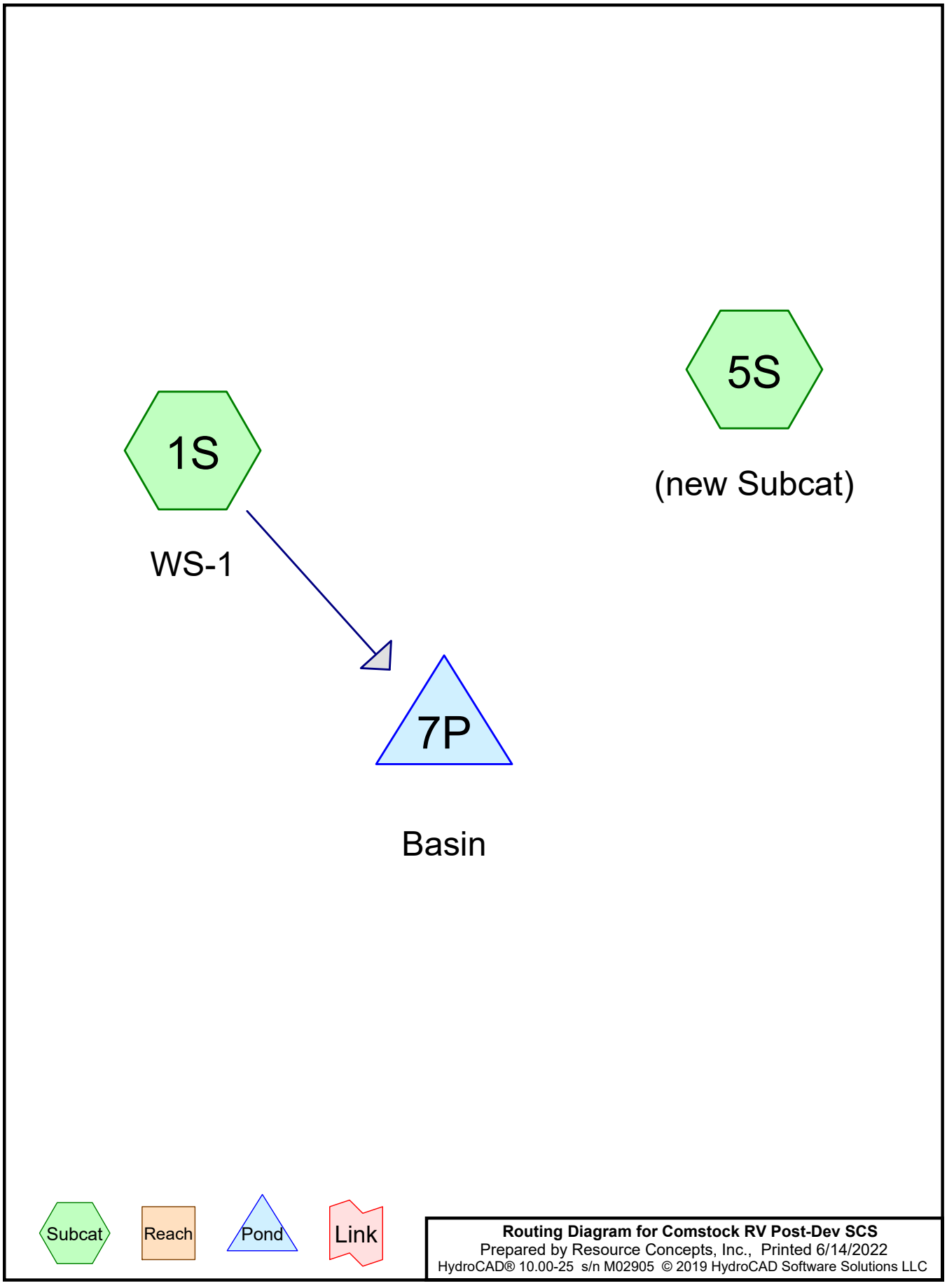
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4,770.00	0	0	0
4,780.00	10,000	50,000	50,000

Pond 4P: Basin



Pond 4P: Basin




5S
(new Subcat)
1S
WS-1
7P
Basin
Subcat
Reach
Pond
Link
Routing Diagram for Comstock RV Post-Dev SCS
Prepared by Resource Concepts, Inc., Printed 6/14/2022
HydroCAD® 10.00-25 s/n M02905 © 2019 HydroCAD Software Solutions LLC

Project Notes

Copied 10 events from NV-Carson 24-hr S1 storm

Comstock RV Post-Dev SCS

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.612	0	Asphalt (5S)
2.678	0	Gravel (5S)
2.678	76	Gravel roads, HSG A (1S)
2.727	98	Paved parking, HSG A (1S)
8.694	**54**	**TOTAL AREA**

Comstock RV Post-Dev SCS

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
5.405	HSG A	1S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
3.289	Other	5S
8.694		**TOTAL AREA**

Comstock RV Post-Dev SCS

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.612	0.612	Asphalt	5S
0.000	0.000	0.000	0.000	2.678	2.678	Gravel	5S
2.678	0.000	0.000	0.000	0.000	2.678	Gravel roads	1S
2.727	0.000	0.000	0.000	0.000	2.727	Paved parking	1S
5.405	**0.000**	**0.000**	**0.000**	**3.289**	**8.694**	**TOTAL AREA**	

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: WS-1 Runoff Area=235,442 sf 50.46% Impervious Runoff Depth=0.60"
Flow Length=773' Tc=14.8 min CN=87 Runoff=1.82 cfs 0.270 af

Subcatchment 5S: (new Subcat) Runoff Area=143,280 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=481' Tc=10.0 min CN=0 Runoff=0.00 cfs 0.000 af

Pond 7P: Basin Peak Elev=4,771.68' Storage=704 cf Inflow=1.82 cfs 0.270 af
Outflow=1.13 cfs 0.270 af

Total Runoff Area = 8.694 ac Runoff Volume = 0.270 af Average Runoff Depth = 0.37"
68.63% Pervious = 5.967 ac 31.37% Impervious = 2.727 ac

Summary for Subcatchment 1S: WS-1

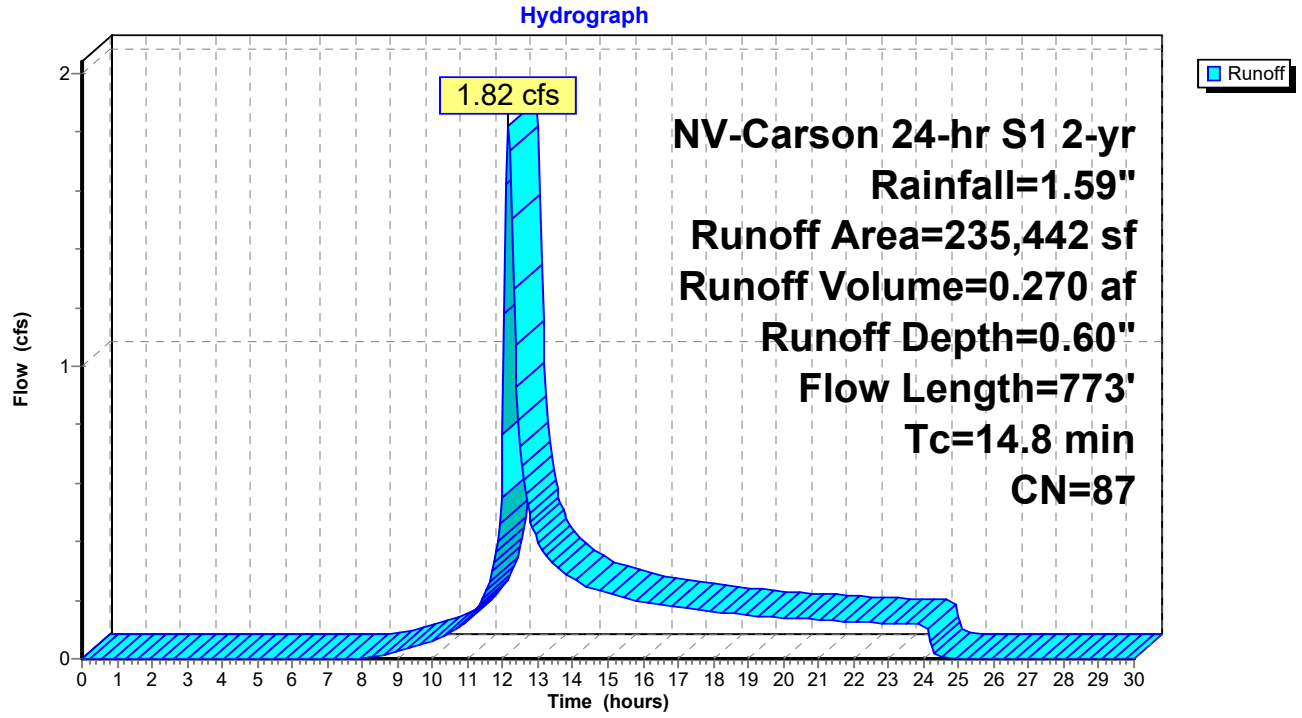
Runoff = 1.82 cfs @ 12.16 hrs, Volume= 0.270 af, Depth= 0.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 2-yr Rainfall=1.59"

Area (sf)	CN	Description
116,636	76	Gravel roads, HSG A
118,806	98	Paved parking, HSG A
235,442	87	Weighted Average
116,636		49.54% Pervious Area
118,806		50.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	300	0.0268	0.40		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 1.59"
0.6	100	0.0268	2.64		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
1.8	373	0.0080	3.37	30.34	**Trap/Vee/Rect Channel Flow, Swale** Bot.W=0.00' D=3.00' Z= 1.0 '/' Top.W=6.00' n= 0.041
14.8	773	Total			

Subcatchment 1S: WS-1



Summary for Subcatchment 5S: (new Subcat)

[40] Hint: Not Described (CN=0)

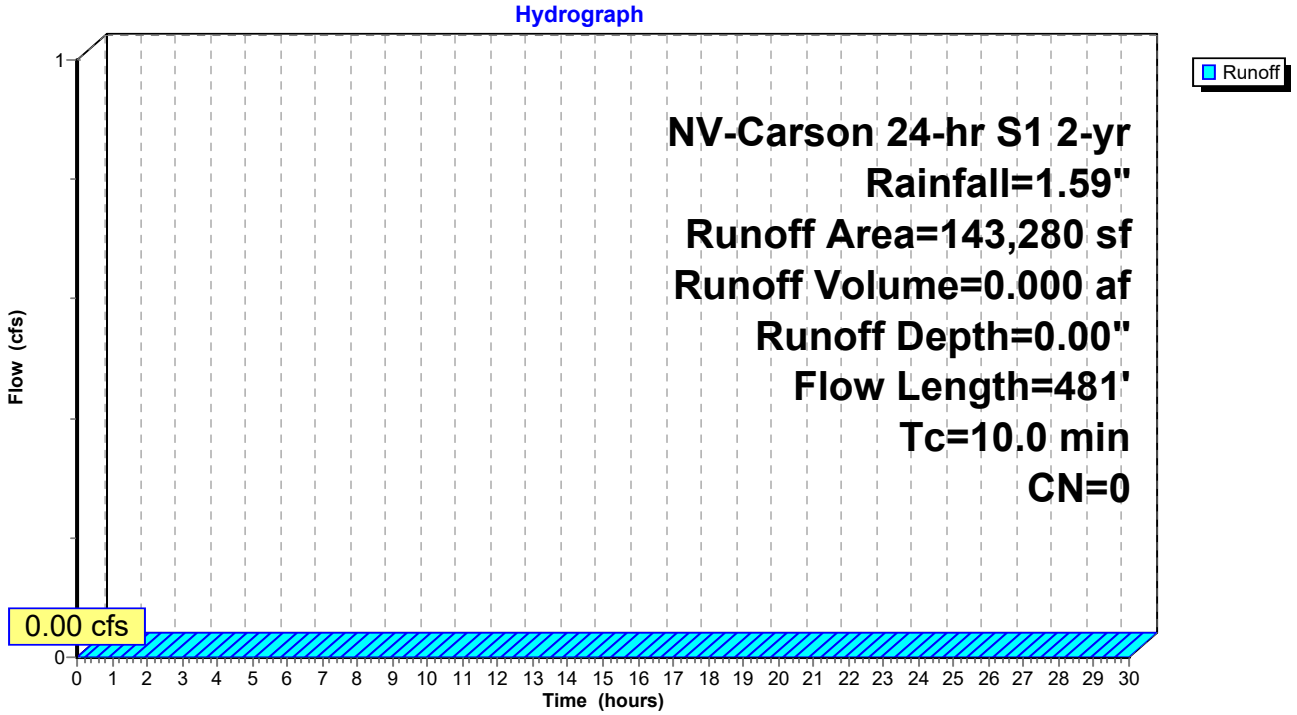
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 2-yr Rainfall=1.59"

	Area (sf)	CN	Description
*	116,636	0	Gravel
*	26,644	0	Asphalt
	143,280	0	Weighted Average
	143,280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0268	1.09		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 1.59"
1.5	304	0.0268	3.32		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
0.2	77	0.0260	6.08	54.70	**Trap/Vee/Rect Channel Flow, Swale** Bot.W=0.00' D=3.00' Z= 1.0 '/' Top.W=6.00' n= 0.041 Riprap, 2-inch
3.2	481	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 5S: (new Subcat)



Summary for Pond 7P: Basin

Inflow Area = 5.405 ac, 50.46% Impervious, Inflow Depth = 0.60" for 2-yr event
Inflow = 1.82 cfs @ 12.16 hrs, Volume= 0.270 af
Outflow = 1.13 cfs @ 12.34 hrs, Volume= 0.270 af, Atten= 38%, Lag= 10.6 min
Primary = 1.13 cfs @ 12.34 hrs, Volume= 0.270 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 4,771.68' @ 12.34 hrs Surf.Area= 839 sf Storage= 704 cf

Plug-Flow detention time= 3.3 min calculated for 0.269 af (100% of inflow)
Center-of-Mass det. time= 3.3 min (924.7 - 921.4)

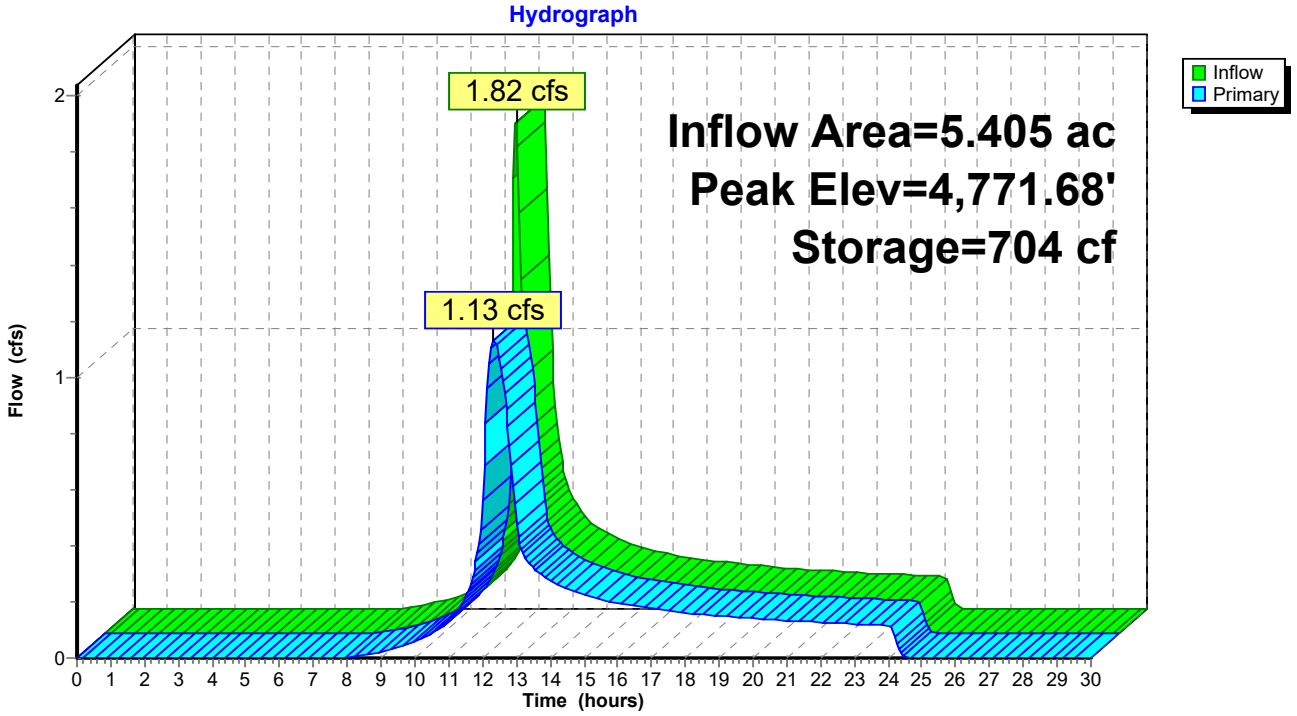
Volume	Invert	Avail.Storage	Storage Description
#1	4,770.00'	100,000 cf	**Custom Stage Data (Prismatic)**Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4,770.00	0	0	0
4,790.00	10,000	100,000	100,000

Device	Routing	Invert	Outlet Devices
#1	Primary	4,770.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.13 cfs @ 12.34 hrs HW=4,771.68' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 1.13 cfs @ 5.75 fps)

Pond 7P: Basin



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: WS-1 Runoff Area=235,442 sf 50.46% Impervious Runoff Depth=1.18"
Flow Length=773' Tc=14.8 min CN=87 Runoff=4.15 cfs 0.531 af

Subcatchment 5S: (new Subcat) Runoff Area=143,280 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=481' Tc=10.0 min CN=0 Runoff=0.00 cfs 0.000 af

Pond 7P: Basin Peak Elev=4,773.41' Storage=2,911 cf Inflow=4.15 cfs 0.531 af
Outflow=1.68 cfs 0.531 af

Total Runoff Area = 8.694 ac Runoff Volume = 0.531 af Average Runoff Depth = 0.73"
68.63% Pervious = 5.967 ac 31.37% Impervious = 2.727 ac

Summary for Subcatchment 1S: WS-1

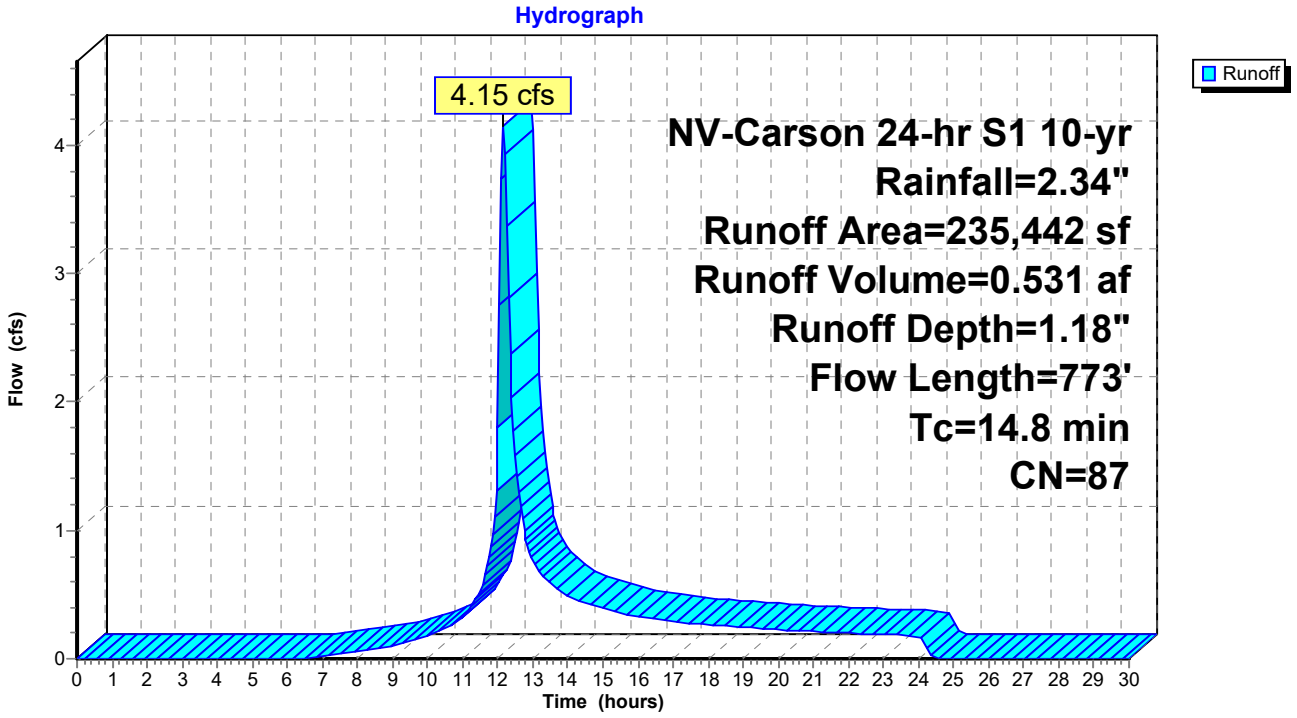
Runoff = 4.15 cfs @ 12.16 hrs, Volume= 0.531 af, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 10-yr Rainfall=2.34"

Area (sf)	CN	Description
116,636	76	Gravel roads, HSG A
118,806	98	Paved parking, HSG A
235,442	87	Weighted Average
116,636		49.54% Pervious Area
118,806		50.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	300	0.0268	0.40		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 1.59"
0.6	100	0.0268	2.64		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
1.8	373	0.0080	3.37	30.34	**Trap/Vee/Rect Channel Flow, Swale** Bot.W=0.00' D=3.00' Z= 1.0 '/' Top.W=6.00' n= 0.041
14.8	773	Total			

Subcatchment 1S: WS-1



Summary for Subcatchment 5S: (new Subcat)

[40] Hint: Not Described (CN=0)

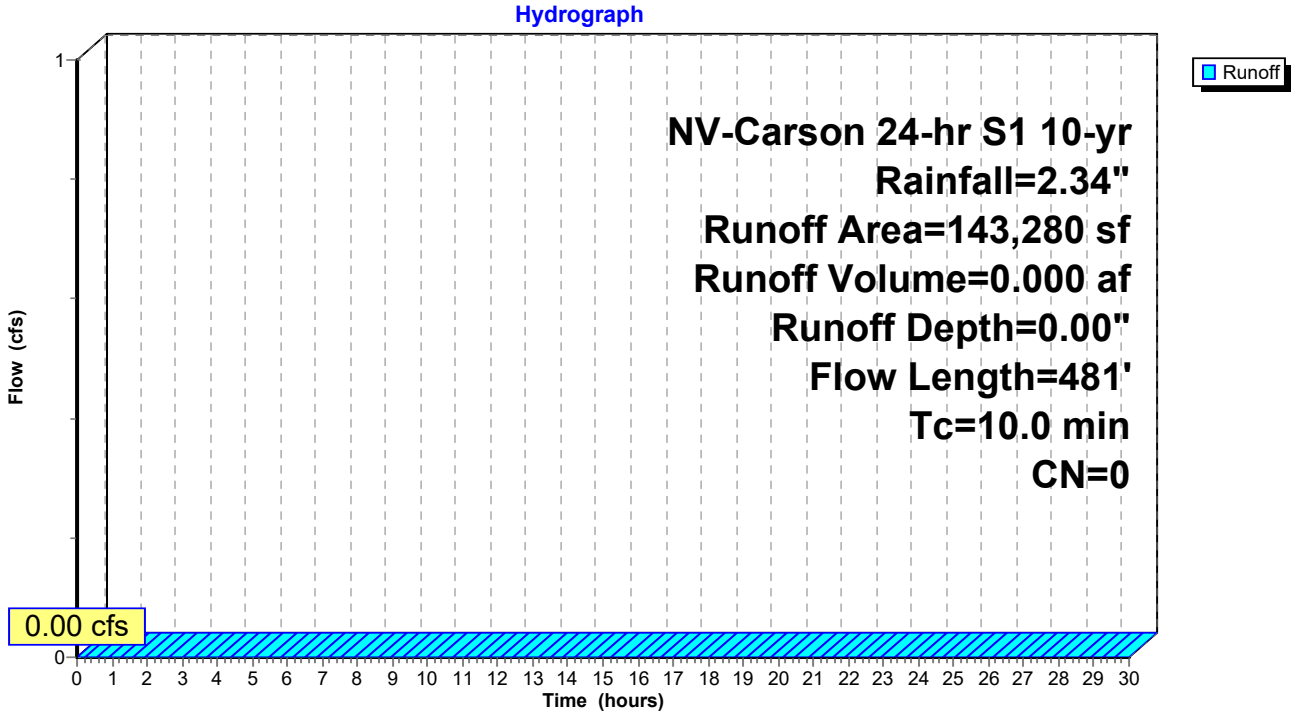
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 10-yr Rainfall=2.34"

	Area (sf)	CN	Description
*	116,636	0	Gravel
*	26,644	0	Asphalt
	143,280	0	Weighted Average
	143,280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0268	1.09		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 1.59"
1.5	304	0.0268	3.32		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
0.2	77	0.0260	6.08	54.70	**Trap/Vee/Rect Channel Flow, Swale** Bot.W=0.00' D=3.00' Z= 1.0 '/' Top.W=6.00' n= 0.041 Riprap, 2-inch
3.2	481	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 5S: (new Subcat)



Summary for Pond 7P: Basin

Inflow Area = 5.405 ac, 50.46% Impervious, Inflow Depth = 1.18" for 10-yr event
Inflow = 4.15 cfs @ 12.16 hrs, Volume= 0.531 af
Outflow = 1.68 cfs @ 12.47 hrs, Volume= 0.531 af, Atten= 60%, Lag= 19.0 min
Primary = 1.68 cfs @ 12.47 hrs, Volume= 0.531 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 4,773.41' @ 12.47 hrs Surf.Area= 1,706 sf Storage= 2,911 cf

Plug-Flow detention time= 9.2 min calculated for 0.530 af (100% of inflow)
Center-of-Mass det. time= 9.2 min (891.5 - 882.2)

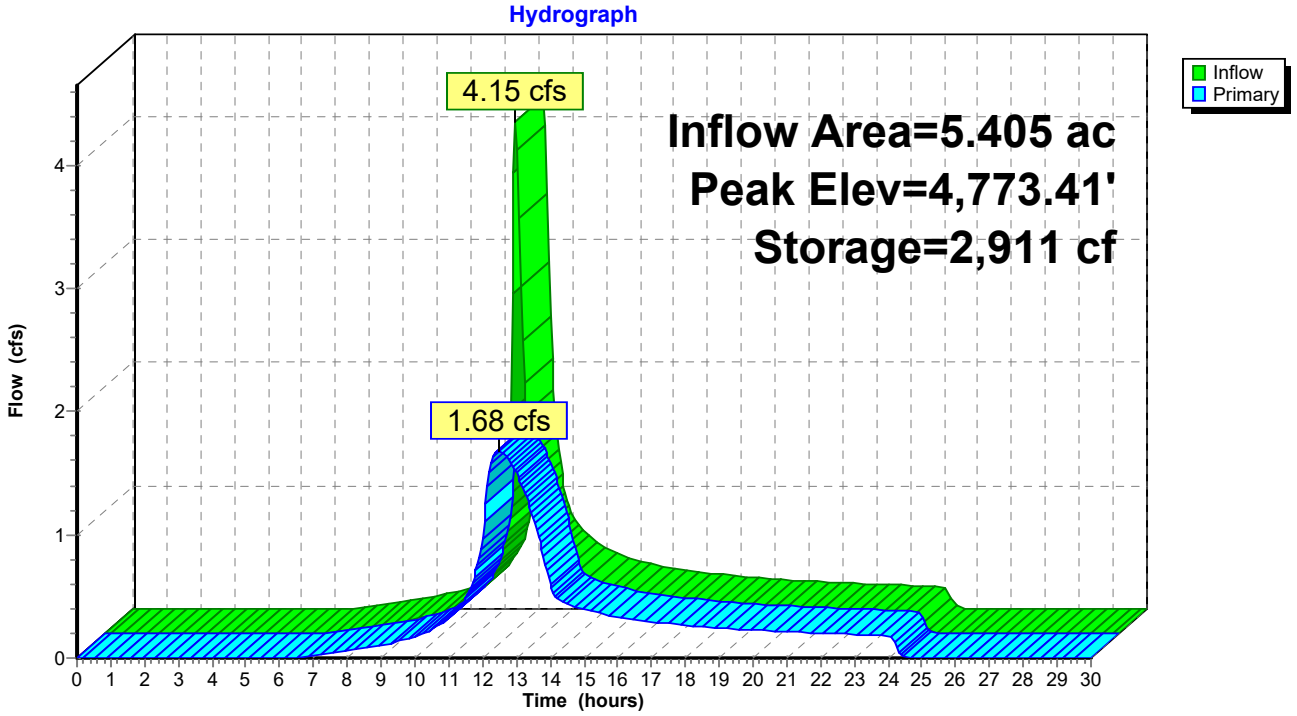
Volume	Invert	Avail.Storage	Storage Description
#1	4,770.00'	100,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4,770.00	0	0	0
4,790.00	10,000	100,000	100,000

Device	Routing	Invert	Outlet Devices
#1	Primary	4,770.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.68 cfs @ 12.47 hrs HW=4,773.41' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 1.68 cfs @ 8.56 fps)

Pond 7P: Basin



Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: WS-1 Runoff Area=235,442 sf 50.46% Impervious Runoff Depth=2.24"
Flow Length=773' Tc=14.8 min CN=87 Runoff=10.08 cfs 1.007 af

Subcatchment 5S: (new Subcat) Runoff Area=143,280 sf 0.00% Impervious Runoff Depth=0.00"
Flow Length=481' Tc=10.0 min CN=0 Runoff=0.00 cfs 0.000 af

Pond 7P: Basin Peak Elev=4,776.67' Storage=11,127 cf Inflow=10.08 cfs 1.007 af
Outflow=2.40 cfs 1.007 af

Total Runoff Area = 8.694 ac Runoff Volume = 1.007 af Average Runoff Depth = 1.39"
68.63% Pervious = 5.967 ac 31.37% Impervious = 2.727 ac

Summary for Subcatchment 1S: WS-1

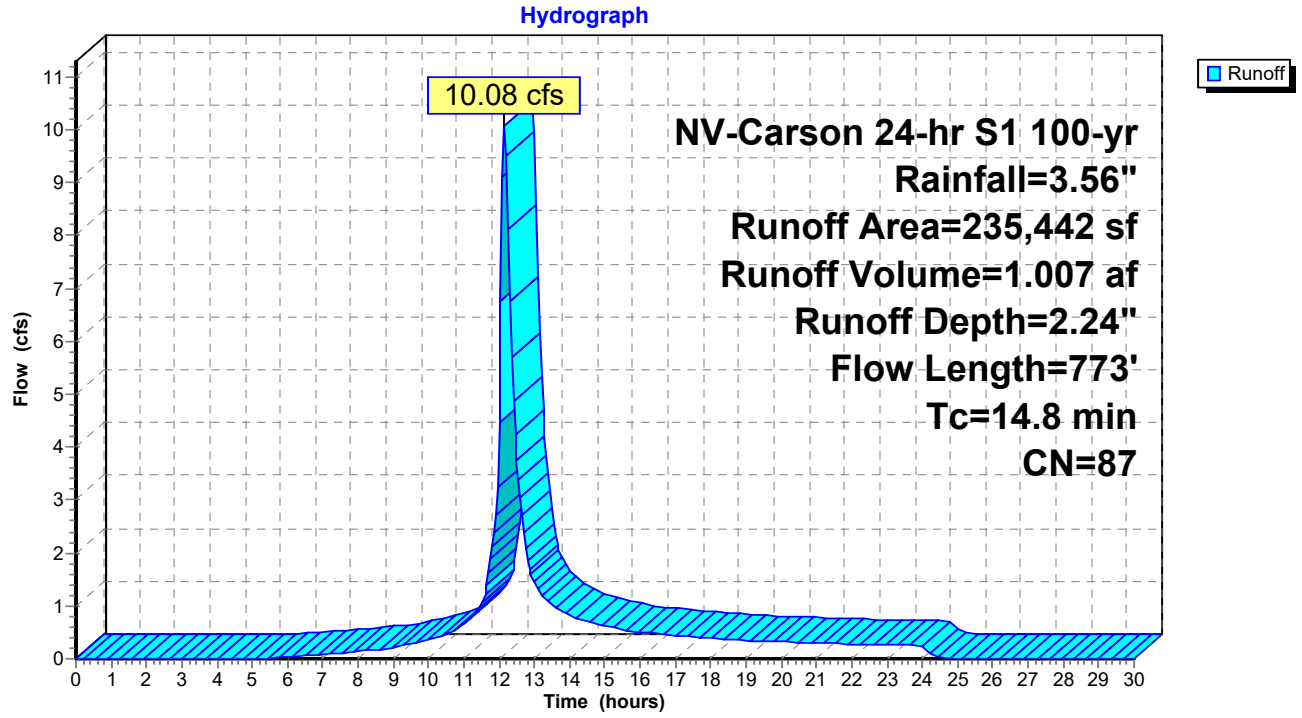
Runoff = 10.08 cfs @ 12.16 hrs, Volume= 1.007 af, Depth= 2.24"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 100-yr Rainfall=3.56"

Area (sf)	CN	Description
116,636	76	Gravel roads, HSG A
118,806	98	Paved parking, HSG A
235,442	87	Weighted Average
116,636		49.54% Pervious Area
118,806		50.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.4	300	0.0268	0.40		**Sheet Flow, Sheet Flow** Fallow n= 0.050 P2= 1.59"
0.6	100	0.0268	2.64		**Shallow Concentrated Flow, Shallow Concentrated** Unpaved Kv= 16.1 fps
1.8	373	0.0080	3.37	30.34	**Trap/Vee/Rect Channel Flow, Swale** Bot.W=0.00' D=3.00' Z= 1.0 '/' Top.W=6.00' n= 0.041
14.8	773	Total			

Subcatchment 1S: WS-1



Summary for Subcatchment 5S: (new Subcat)

[40] Hint: Not Described (CN=0)

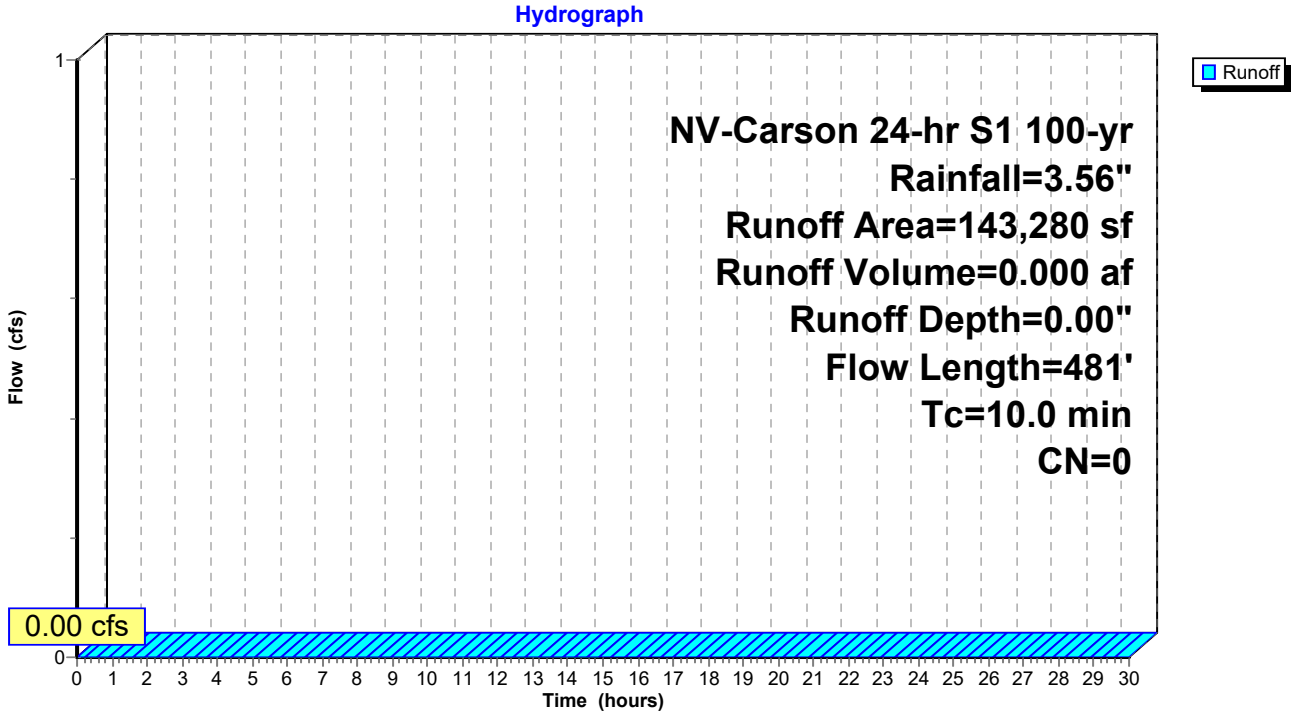
Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
NV-Carson 24-hr S1 100-yr Rainfall=3.56"

	Area (sf)	CN	Description
*	116,636	0	Gravel
*	26,644	0	Asphalt
	143,280	0	Weighted Average
	143,280		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	100	0.0268	1.09		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 1.59"
1.5	304	0.0268	3.32		**Shallow Concentrated Flow, Shallow Concentrated** Paved Kv= 20.3 fps
0.2	77	0.0260	6.08	54.70	**Trap/Vee/Rect Channel Flow, Swale** Bot.W=0.00' D=3.00' Z= 1.0 '/' Top.W=6.00' n= 0.041 Riprap, 2-inch
3.2	481	Total, Increased to minimum Tc = 10.0 min			

Subcatchment 5S: (new Subcat)



Summary for Pond 7P: Basin

Inflow Area = 5.405 ac, 50.46% Impervious, Inflow Depth = 2.24" for 100-yr event
Inflow = 10.08 cfs @ 12.16 hrs, Volume= 1.007 af
Outflow = 2.40 cfs @ 12.70 hrs, Volume= 1.007 af, Atten= 76%, Lag= 32.5 min
Primary = 2.40 cfs @ 12.70 hrs, Volume= 1.007 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Peak Elev= 4,776.67' @ 12.70 hrs Surf.Area= 3,336 sf Storage= 11,127 cf

Plug-Flow detention time= 32.0 min calculated for 1.006 af (100% of inflow)
Center-of-Mass det. time= 32.0 min (872.8 - 840.9)

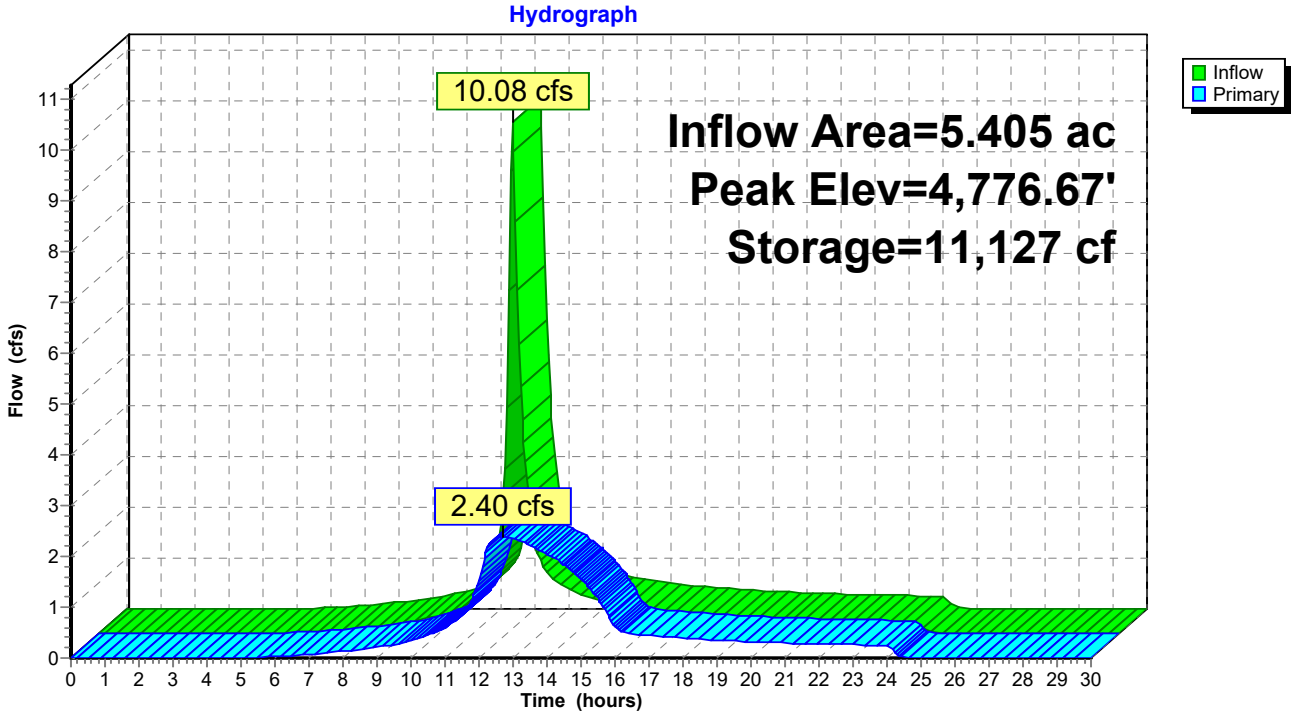
Volume	Invert	Avail.Storage	Storage Description
#1	4,770.00'	100,000 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
4,770.00	0	0	0
4,790.00	10,000	100,000	100,000

Device	Routing	Invert	Outlet Devices
#1	Primary	4,770.00'	**6.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.40 cfs @ 12.70 hrs HW=4,776.67' (Free Discharge)
↑—**1=Orifice/Grate** (Orifice Controls 2.40 cfs @ 12.20 fps)

Pond 7P: Basin



Appendix B: Exhibits

Soil Resource Report and Map
FEMA FIRMette
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

June 8, 2022

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.

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Contents

How Soil Surveys Are Made

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

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

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

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

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

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

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

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

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

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

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

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

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

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,200 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 30 60 120 180

Feet
0 100 200 400 600

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 16, Sep 9, 2021

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

Date(s) aerial images were photographed: Jun 1, 2018—Jun 30, 2018

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
6719	Surpass gravelly sandy loam, 0 to 2 percent slopes	7.7	56.3%
6721	Surpass sandy loam, 8 to 15 percent slopes	6.0	43.7%
Totals for Area of Interest		**13.7**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however,

onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Carson City Area, Nevada

6719—Surpass gravelly sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w4bz
Elevation: 4,430 to 5,580 feet
Mean annual precipitation: 8 to 14 inches
Mean annual air temperature: 46 to 52 degrees F
Frost-free period: 90 to 110 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: gravelly sandy loam
Bw - 14 to 26 inches: gravelly sandy loam
C - 26 to 66 inches: gravelly loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
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 content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R026XY016NV - LOAMY 8-10 P.Z.
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: R026XY010NV - LOAMY 10-12 P.Z.
Hydric soil rating: No

Mottsville

Percent of map unit: 4 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: R026XY008NV - GRANITIC FAN 10-12 P.Z.
Hydric soil rating: No

Greenbrae

Percent of map unit: 3 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: R026XY016NV - LOAMY 8-10 P.Z.
Hydric soil rating: No

Indian creek

Percent of map unit: 2 percent
Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R026XY025NV - CLAYPAN 8-10 P.Z.
Hydric soil rating: No

Incy

Percent of map unit: 1 percent
Landform: Dunes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R026XY020NV - SANDY 8-10 P.Z.
Hydric soil rating: No

6721—Surpass sandy loam, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2w4dl
Elevation: 4,590 to 5,740 feet
Mean annual precipitation: 10 to 14 inches
Mean annual air temperature: 47 to 51 degrees F
Frost-free period: 90 to 130 days
Farmland classification: Not prime farmland

Map Unit Composition

Surpass and similar soils: 90 percent
Minor components: 10 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: sandy loam
Bw - 14 to 26 inches: gravelly sandy loam
C - 26 to 66 inches: gravelly loamy sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches
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: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 5.5 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Ecological site: R026XY010NV - LOAMY 10-12 P.Z.
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: R026XY010NV - LOAMY 10-12 P.Z.
Hydric soil rating: No

Mottsville

Percent of map unit: 4 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: R026XY008NV - GRANITIC FAN 10-12 P.Z.
Hydric soil rating: No

Incy

Percent of map unit: 1 percent
Landform: Dunes
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R026XY020NV - SANDY 8-10 P.Z.
Hydric soil rating: No

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

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

FEMA FIRMette

National Flood Hazard Layer FIRMette

FEMA

119°46'46"W 39°7'19"N

119°46'9"W 39°6'51"N

Feet

0 250 500 1,000 1,500 2,000

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- 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 *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 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

N

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 6/10/2022 at 11:20 AM 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.

Precipitation Frequency Data

NOAA Atlas 14, Volume 1, Version 5
Location name: Carson City, Nevada, USA*
Latitude: 39.1181°, Longitude: -119.7743°
Elevation: 4786.55 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	**0.097** (0.084-0.114)	**0.121** (0.105-0.143)	**0.161** (0.139-0.191)	**0.200** (0.171-0.236)	**0.263** (0.218-0.311)	**0.320** (0.257-0.381)	**0.389** (0.302-0.468)	**0.471** (0.351-0.577)	**0.602** (0.423-0.752)	**0.721** (0.482-0.917)
10-min	**0.148** (0.128-0.174)	**0.184** (0.161-0.218)	**0.246** (0.212-0.290)	**0.304** (0.260-0.360)	**0.400** (0.331-0.473)	**0.488** (0.391-0.580)	**0.593** (0.460-0.712)	**0.718** (0.534-0.878)	**0.917** (0.644-1.15)	**1.10** (0.733-1.40)
15-min	**0.184** (0.159-0.216)	**0.229** (0.199-0.271)	**0.305** (0.263-0.360)	**0.377** (0.323-0.446)	**0.496** (0.411-0.587)	**0.605** (0.486-0.720)	**0.735** (0.570-0.883)	**0.890** (0.662-1.09)	**1.14** (0.798-1.42)	**1.36** (0.909-1.73)
30-min	**0.247** (0.214-0.291)	**0.308** (0.268-0.364)	**0.410** (0.354-0.485)	**0.509** (0.435-0.600)	**0.668** (0.554-0.790)	**0.814** (0.654-0.969)	**0.989** (0.768-1.19)	**1.20** (0.892-1.47)	**1.53** (1.08-1.91)	**1.83** (1.23-2.33)
60-min	**0.306** (0.265-0.360)	**0.382** (0.332-0.451)	**0.508** (0.438-0.600)	**0.629** (0.538-0.743)	**0.827** (0.685-0.978)	**1.01** (0.809-1.20)	**1.23** (0.950-1.47)	**1.48** (1.10-1.81)	**1.90** (1.33-2.37)	**2.27** (1.52-2.89)
2-hr	**0.418** (0.374-0.477)	**0.518** (0.463-0.591)	**0.658** (0.583-0.749)	**0.783** (0.687-0.891)	**0.971** (0.829-1.11)	**1.14** (0.950-1.32)	**1.33** (1.08-1.55)	**1.56** (1.22-1.84)	**1.94** (1.46-2.39)	**2.31** (1.68-2.91)
3-hr	**0.505** (0.455-0.565)	**0.627** (0.568-0.705)	**0.785** (0.704-0.880)	**0.912** (0.812-1.02)	**1.10** (0.959-1.23)	**1.25** (1.07-1.42)	**1.42** (1.20-1.63)	**1.64** (1.35-1.92)	**2.00** (1.60-2.41)	**2.35** (1.83-2.94)
6-hr	**0.710** (0.641-0.791)	**0.885** (0.799-0.988)	**1.10** (0.983-1.22)	**1.26** (1.13-1.40)	**1.49** (1.31-1.66)	**1.66** (1.44-1.87)	**1.84** (1.57-2.09)	**2.04** (1.71-2.35)	**2.33** (1.90-2.74)	**2.59** (2.07-3.09)
12-hr	**0.958** (0.857-1.07)	**1.20** (1.08-1.35)	**1.51** (1.34-1.69)	**1.75** (1.55-1.96)	**2.07** (1.81-2.34)	**2.32** (2.01-2.64)	**2.57** (2.19-2.95)	**2.83** (2.37-3.29)	**3.18** (2.59-3.77)	**3.45** (2.75-4.15)
24-hr	**1.27** (1.15-1.40)	**1.59** (1.44-1.76)	**2.01** (1.82-2.22)	**2.34** (2.11-2.59)	**2.81** (2.52-3.11)	**3.18** (2.83-3.51)	**3.56** (3.15-3.95)	**3.96** (3.47-4.41)	**4.51** (3.90-5.06)	**4.94** (4.22-5.59)
2-day	**1.54** (1.37-1.73)	**1.93** (1.73-2.17)	**2.46** (2.20-2.77)	**2.90** (2.58-3.26)	**3.50** (3.10-3.95)	**3.99** (3.51-4.51)	**4.50** (3.93-5.11)	**5.04** (4.35-5.77)	**5.80** (4.92-6.68)	**6.40** (5.36-7.45)
3-day	**1.70** (1.51-1.92)	**2.14** (1.91-2.42)	**2.75** (2.44-3.11)	**3.25** (2.87-3.67)	**3.95** (3.47-4.47)	**4.51** (3.93-5.12)	**5.11** (4.42-5.82)	**5.74** (4.91-6.58)	**6.63** (5.57-7.65)	**7.34** (6.09-8.56)
4-day	**1.86** (1.65-2.11)	**2.35** (2.08-2.67)	**3.03** (2.68-3.45)	**3.60** (3.17-4.08)	**4.39** (3.83-5.00)	**5.03** (4.36-5.74)	**5.71** (4.90-6.53)	**6.43** (5.47-7.38)	**7.46** (6.23-8.63)	**8.28** (6.82-9.67)
7-day	**2.16** (1.92-2.45)	**2.74** (2.43-3.10)	**3.56** (3.15-4.03)	**4.21** (3.72-4.77)	**5.12** (4.50-5.82)	**5.85** (5.10-6.66)	**6.62** (5.72-7.56)	**7.43** (6.36-8.51)	**8.56** (7.22-9.88)	**9.46** (7.87-11.0)
10-day	**2.41** (2.13-2.72)	**3.07** (2.72-3.47)	**3.98** (3.52-4.50)	**4.70** (4.14-5.31)	**5.69** (4.98-6.43)	**6.46** (5.62-7.32)	**7.26** (6.27-8.24)	**8.09** (6.93-9.21)	**9.22** (7.80-10.6)	**10.1** (8.46-11.7)
20-day	**3.01** (2.68-3.37)	**3.82** (3.41-4.29)	**4.95** (4.41-5.53)	**5.79** (5.15-6.48)	**6.93** (6.12-7.76)	**7.79** (6.84-8.73)	**8.67** (7.56-9.76)	**9.55** (8.27-10.8)	**10.7** (9.19-12.2)	**11.6** (9.84-13.3)
30-day	**3.44** (3.08-3.85)	**4.38** (3.91-4.89)	**5.65** (5.05-6.31)	**6.61** (5.89-7.37)	**7.89** (6.99-8.80)	**8.87** (7.80-9.91)	**9.85** (8.62-11.0)	**10.8** (9.40-12.2)	**12.1** (10.4-13.8)	**13.1** (11.2-15.0)
45-day	**4.08** (3.66-4.55)	**5.20** (4.66-5.78)	**6.70** (6.01-7.45)	**7.82** (6.99-8.69)	**9.26** (8.24-10.3)	**10.3** (9.15-11.5)	**11.4** (10.0-12.7)	**12.4** (10.9-13.9)	**13.7** (11.9-15.5)	**14.7** (12.7-16.7)
60-day	**4.70** (4.20-5.24)	**6.00** (5.37-6.70)	**7.73** (6.91-8.61)	**8.95** (7.99-9.97)	**10.5** (9.35-11.7)	**11.6** (10.3-13.0)	**12.7** (11.2-14.2)	**13.7** (12.1-15.4)	**14.9** (13.1-16.8)	**15.8** (13.8-17.9)

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

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

Please refer to NOAA Atlas 14 document for more information.

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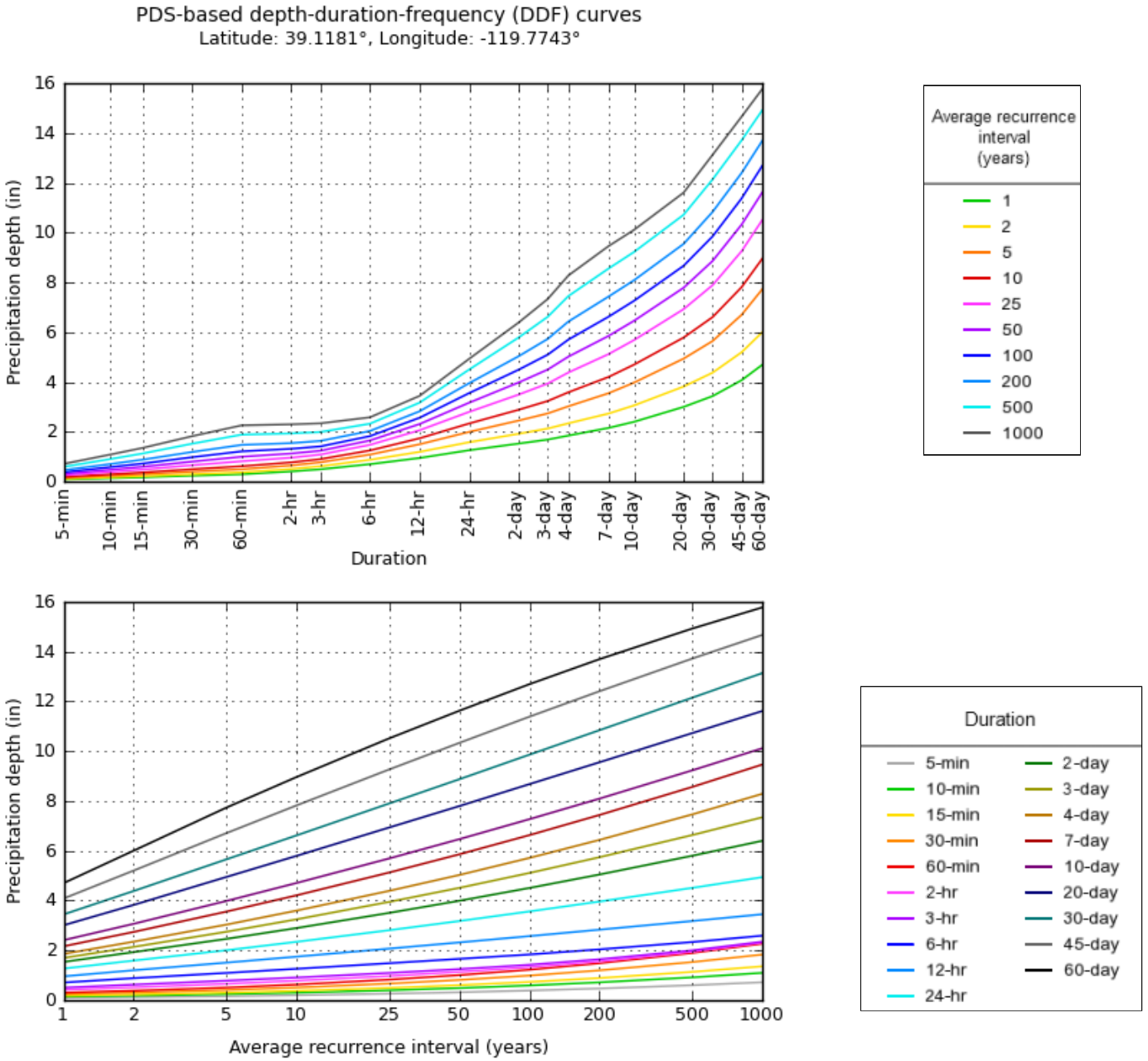
PF graphical



NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Sat Jun 11 02:21:33 2022

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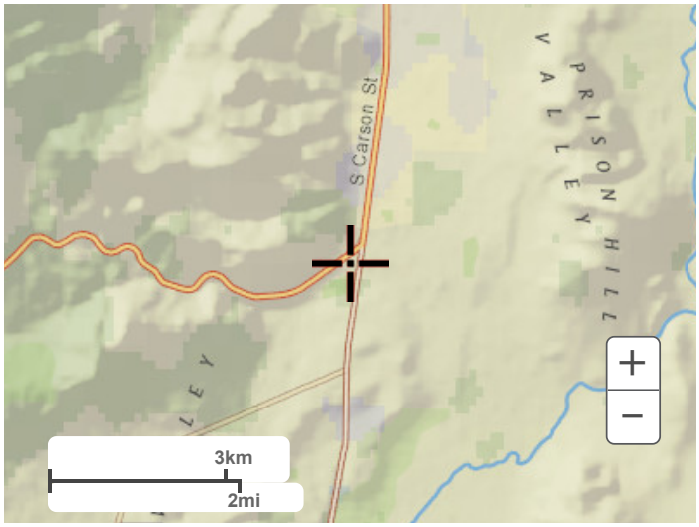
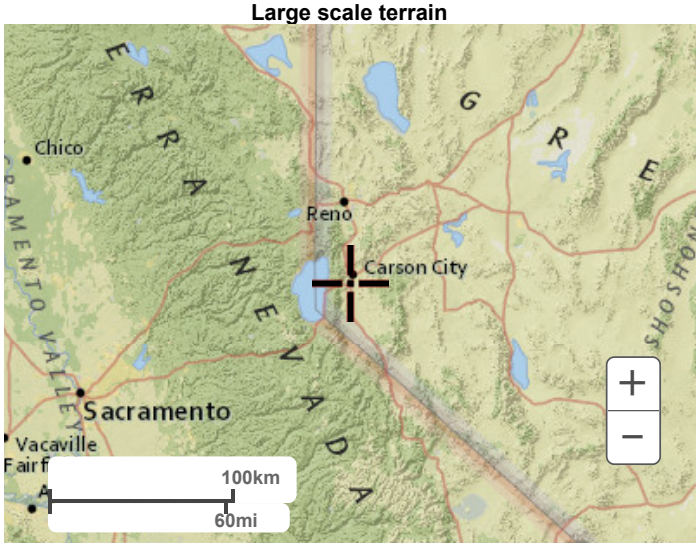
Maps & aerials

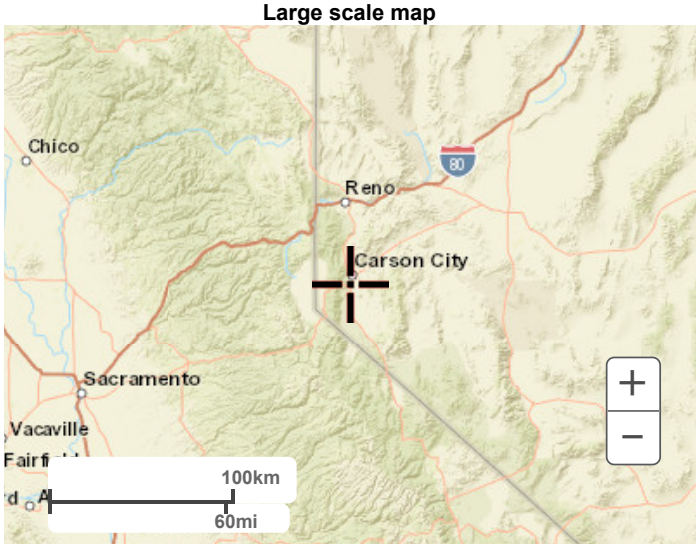
Small scale terrain



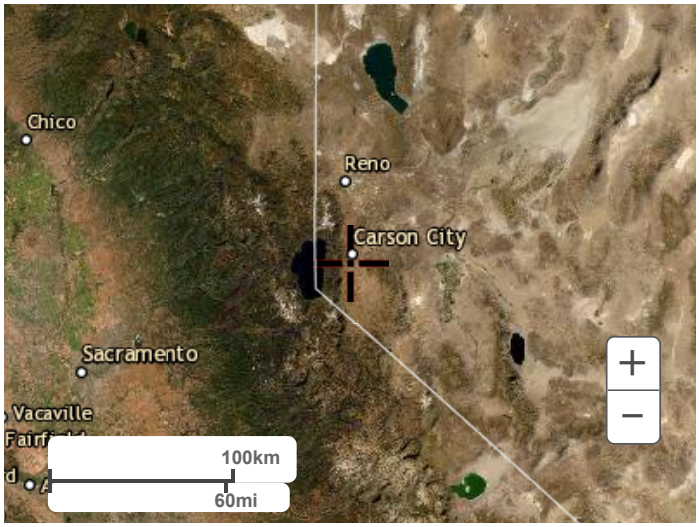
Large scale terrain



Large scale map



Large scale aerial



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

Disclaimer

Existing Drainage Map

N

0 30 60

SCALE:1"=30'

U.S. ROUTE 50

RIGHT-OF-WAY VARIES PER REFERENCE NO. 4

ACCESS RIGHTS ALONG PARCEL 2A RELINQUISHED PER BOOK 77, PAGE 214 [EXCEPTION 14]

ACCESS RIGHTS ALONG PARCEL 1 RELINQUISHED PER DOCUMENT NO. 249950 [EXCEPTION 17]

ACCESS RIGHTS ALONG PARCEL 2D RELINQUISHED PER DOCUMENT NO. 470248 [EXCEPTION 23]

E J & JL LEPIRE 1977 TRUST
APN: 009-302-03
2.81 ACRE PARCEL

121,266 sf

7,842.08 sf REMOVE AND DISPOSE 1,672± SF AC

SAWCUT 20±LF AC

11,760.41 sf

SAWCUT 72±LF AC

9,043.83 sf

INSTALL AND MAINTAIN 470±LF SILT FENCE SEE DETAIL SHEET C5

9,235.53 sf

114,176.2 sf
LEPIRE, EUGENE J & JUDITH L
1977 TR
APN: 009-302-17
10.38 ACRE PARCEL

SAWCUT 38±LF AC

14,334.47 sf

15,514.44 sf
REMOVE AND DISPOSE 40,345± SF AC

TEMPORARY DRAINAGE SWALE

SAWCUT 50±LF AC

CONSTRUCTION ENTRANCE SEE DETAIL SHEET C5

TEMPORARY 20'x50'x1.5' RETENTION POND

PCC WASHOUT BASIN SEE DETAIL SHEET C5

INSTALL AND MAINTAIN 920±LF FIBER ROLLS SEE DETAIL SHEET C5

INSTALL AND MAINTAIN 750±LF SILT FENCE SEE DETAIL SHEET C5

24"ø CONCRETE CULVERT

10"ø PVC PIPE

EASEMENT FOR A DRAINAGE STRUCTURE PER DOCUMENT NO. 424412 [EXCEPTION 21]

EX BLDG

EX BLDG

EX BLDG

SHED

POOL & HOT TUB

10' WIDE UTILITY EASEMENT

APPROXIMATE LOCATION OF 10' WIDE UTILITY EASEMENT

ELECTRIC UTILITY PAD

TRANSFORMER

TRANSFORMER

TRANS

4810 4805 4800 4795 4790 4785 4780 4775

NOTES:
1. ALL DEMO AND NON WALL RELATED WORK TO BE BUILT UNDER SEPARATE PERMIT

811 Know what's **below.** **Call** before you dig.

CONFORMED DRAWINGS

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

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

Carson City
340 N. Minnesota St.
Carson City, NV 89703-4152
775-883-1600

RCI Resource Concepts Inc.

REVISION

DATE

COMSTOCK COUNTRY RV PARK
RELOCATION & IMPROVEMENTS
CARSON CITY, NV 89703

EX SITE, DEMOLITION, & EROSION CONTROL PLAN

REGISTERED PROFESSIONAL ENGINEER STATE OF NEVADA
KEITH R SHAFFER
No. 12106
EXP. 06/30/22
CIVIL

05/25/22

JOB NO.:	22-172
DATE:	05-24-2022
DESIGNED:	DMH
DRAWN :	DMH
CHECKED:	KRS

C3

Proposed Drainage Map

CUT & FILL QUANTITIES
CUT: 10,741 CY
FILL: 2,628 CY
NET CUT: 8,113 CY

N

0 30 60
SCALE:1"=30'

U.S. ROUTE 50
RIGHT-OF-WAY VARIES PER REFERENCE NO. 4
ACCESS RIGHTS ALONG PARCEL 2A RELINQUISHED PER BOOK 71, PAGE 214 [EXCEPTION 14]
ACCESS RIGHTS ALONG PARCEL 1 RELINQUISHED PER DOCUMENT NO. 249560 [EXCEPTION 17]
ACCESS RIGHTS ALONG PARCEL 2D RELINQUISHED PER DOCUMENT NO. 470248 [EXCEPTION 23]

793.32 TW
788.90 FG
791.55 TW
786.87 FG
787.60 TW/FG
790.66 TW/FG
789.43 TW/FG
794.59 TW
790.72 FG
799.38 TW
793.42 FG
802.52 TW
795.03 FG
801.37 TW/FG
794.07 TW/FG
793.33 TW
789.38 FG
790.38 TW
788.49 FG
788.02 TW
787.52 FG

24"ø CONCRETE CULVERT

8" CMU RETAINING WALL W/4' MIN SCREENING WITH FENCE ON TOP (PER DETAILS) CONTRACTOR RESPONSIBLE FOR STEPPING FOOTING IN ACCORDANCE WITH THE DETAILS AND BLOCK LAYOUT

E J & JL LEPIRE 1977 TRUST
APN: 009-302-03
2.84 ACRE PARCEL

LEPIRE, EUGENE J & JUDITH L
1977 TR
APN: 009-302-17
10.38 ACRE PARCEL

MATCH EX GRADES AND SURFACE IMPROVEMENT PLANS TO FOLLOW

EX BLDG
EX BLDG
SHED
POOL & HOT TUB
EX BLDG
TRANSFORMER

10' WIDE UTILITY EASEMENT
APPROXIMATE LOCATION OF 10' WIDE UTILITY EASEMENT

10"ø PVC PIPE

ELECTRIC UTILITY PAD
TRANSFORMER

EASEMENT FOR A DRAINAGE STRUCTURE PER DOCUMENT NO. 424412 [EXCEPTION 21]

NOTES:
1. ADD 4000 TO ALL GRADES
2. PROPOSED MASS GRADING TO BE CONSTRUCTED UNDER SEPARATE SITE IMPROVEMENT PERMIT.

811 Know what's below. Call before you dig.

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Resources • Environmental Services
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276 Kingsbury Grade, Ste. 206
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775-586-7500
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340 N. Minnesota St.
Carson City, NV 89703-4152
775-883-1600
Resource Concepts Inc.

DATE

REVISION

COMSTOCK COUNTRY RV PARK
RELOCATION & IMPROVEMENTS
CARSON CITY, NV 89703

GRADING & RETAINING WALL PLAN

KEITH R SHAFFER
No. 12106
PROFESSIONAL ENGINEER
STATE OF NEVADA
EXP. 06/30/22
CIVIL

05/25/22

JOB NO.:	22-172
DATE:	05-24-2022
DESIGNED:	DMH
DRAWN :	DMH
CHECKED:	KRS

C4