City of Carson City
Agenda Report

Date Submitted: July 3, 2014

Agenda Date Requested: July 17, 2014
Time Requested: 45 minutes

To: Mayor and Supervisors

From: Community Development – Planning Division

Subject Title: For Possible Action: To approve a request from Schulz Investments, LLC for a Tentative Subdivision Map for six single-family residential lots ranging in size from 5.13 acres to 5.87 acres on property zoned Single Family Five Acre (SF5A), located on Old Clear Creek Road, APN 007-051-72. (TSM-14-022) (Susan Dorr Pansky)

Summary: Approval of this request would result in six single-family residential units on approximately 32.68 acres on property zoned Single Family Five Acre (SF5A). The proposed lot sizes range from 5.13 acres to 5.87 acres and meet the minimum requirements of the Single Family Five Acre zoning district.

Type of Action Requested:

- ☐ Resolution
- ☒ Formal Action/Motion
- ☐ Ordinance
- ☐ Other (No Action)

Does This Action Require a Business Impact Statement: ☐ Yes ☒ No

Planning Commission Action: Recommended approval at the June 25, 2014 meeting by a vote of 7 Ayes and 0 Nays.

Recommended Board Action: I move to approve a request from Schulz Investments, LLC for a Tentative Subdivision Map for six single-family residential lots ranging in size from 5.13 acres to 5.87 acres on property zoned Single Family Five Acre, located on Old Clear Creek Road, APN 007-051-72.

Explanation for Recommended Board Action: With the recommended conditions of approval, the tentative subdivision meets the requirements of the Subdivision Ordinance. Therefore, the Planning Commission and staff recommend that the Board of Supervisors approve the Tentative Subdivision Map. Please see the attached Planning Commission Case Record and Staff Report for additional information.

Applicable Statute, Code, Policy, Rule or Regulation: CCMC 17.05 (Tentative Maps), CCMC 18.02.050 (Review)

Fiscal Impact: N/A
Explanation of Impact: N/A
Funding Source: N/A

Alternatives:

1. Refer the request back to staff and the Planning Commission for further review.
2. Deny the request.

Supporting Material:

1. Planning Commission Case Record
2. Planning Commission Staff Report

Prepared By: Susan Dorr Pansky, Planning Manager

Reviewed By: _____ Date: 7.8.14
(Community Development Director)

_____ Date: 7/8/14
(District Attorney's Office)

_____ Date: 7/8/14
(Finance Director)

_____ Date: 7/8/14
(City Manager)

Board Action Taken:

Motion: _____ 1) _____ Aye/Nay
2) _____

_____
(Vote Recorded By)

CARSON CITY PLANNING COMMISSION

CASE RECORD

MEETING DATE: June 25, 2014 **AGENDA ITEM NO.: F-5**

APPLICANT(s) NAME: Schulz Investments, LLC **FILE NO.** TSM-14-022
PROPERTY OWNER(s): Schulz Investments, LLC

ASSESSOR PARCEL NO(s): 007-051-72
ADDRESS: Clear Creek Road

APPLICANT'S REQUEST: For Possible Action: To make a recommendation to the Board of Supervisors regarding a Tentative Subdivision Map application to create six parcels on property zoned Single Family 5 Acre (SF5A).

COMMISSIONERS PRESENT: [X] KIMBROUGH [X] ESSWEIN [X] SATTLER
[X] DHAMI [X] STEELE [X] OWEN [X] WENDELL

STAFF REPORT PRESENTED BY: Susan Dorr Pansky [X] REPORT ATTACHED
STAFF RECOMMENDATION: [X] CONDITIONAL APPROVAL
APPLICANT REPRESENTED BY: Chris Baker, Ken Anderson

_X_ APPLICANT/AGENT WAS PRESENT AND SPOKE

APPLICANT/AGENT INDICATED THAT HE/SHE HAS READ THE STAFF REPORT, AGREES AND UNDERSTANDS THE FINDINGS, RECOMMENDATIONS, AND CONDITIONS, AND AGREES TO CONFORM TO THE REQUIREMENTS THEREOF.

No persons spoke in favor or in opposition of the proposal.

DISCUSSION, NOTES, COMMENTS FOR THE RECORD:

Kent Steele- NDOT access is emergency only?
Dan Wheeler- Adjacent property owner- Road access concerns have been addressed by the recommended conditions. Steep incline in area above subdivision access and during winter is a problem. Possible liability. Can the City clarify Clear Creek Road easement?
James Tarr- Adjacent property owner. Existing roads are steep. Water quantity should be evaluated. Power is questionable in the area.

MOTION WAS MADE TO RECOMMEND APPROVAL WITH THE FINDINGS AND CONDITIONS AS ENUMERATED ON THE STAFF REPORT

MOVED: Kimbrough **SECOND:** Owens **PASSED:** 7/AYE 0/NO 0/ABSTAIN 0/ABSENT

SCHEDULED FOR THE BOARD OF SUPERVISORS **DATE:** July 17, 2014

STAFF REPORT FOR THE PLANNING COMMISSION MEETING OF JUNE 25, 2014

FILE NO: **TSM-14-022** **AGENDA ITEM: F-5**

STAFF AUTHOR: Susan Dorr Pansky, Planning Manager

REQUEST: Request for a Tentative Subdivision Map for six single-family residential lots ranging in size from 5.13 acres to 5.87 acres on property zoned Single Family Five Acre (SF5A), located on Old Clear Creek Road, APN 007-051-72.

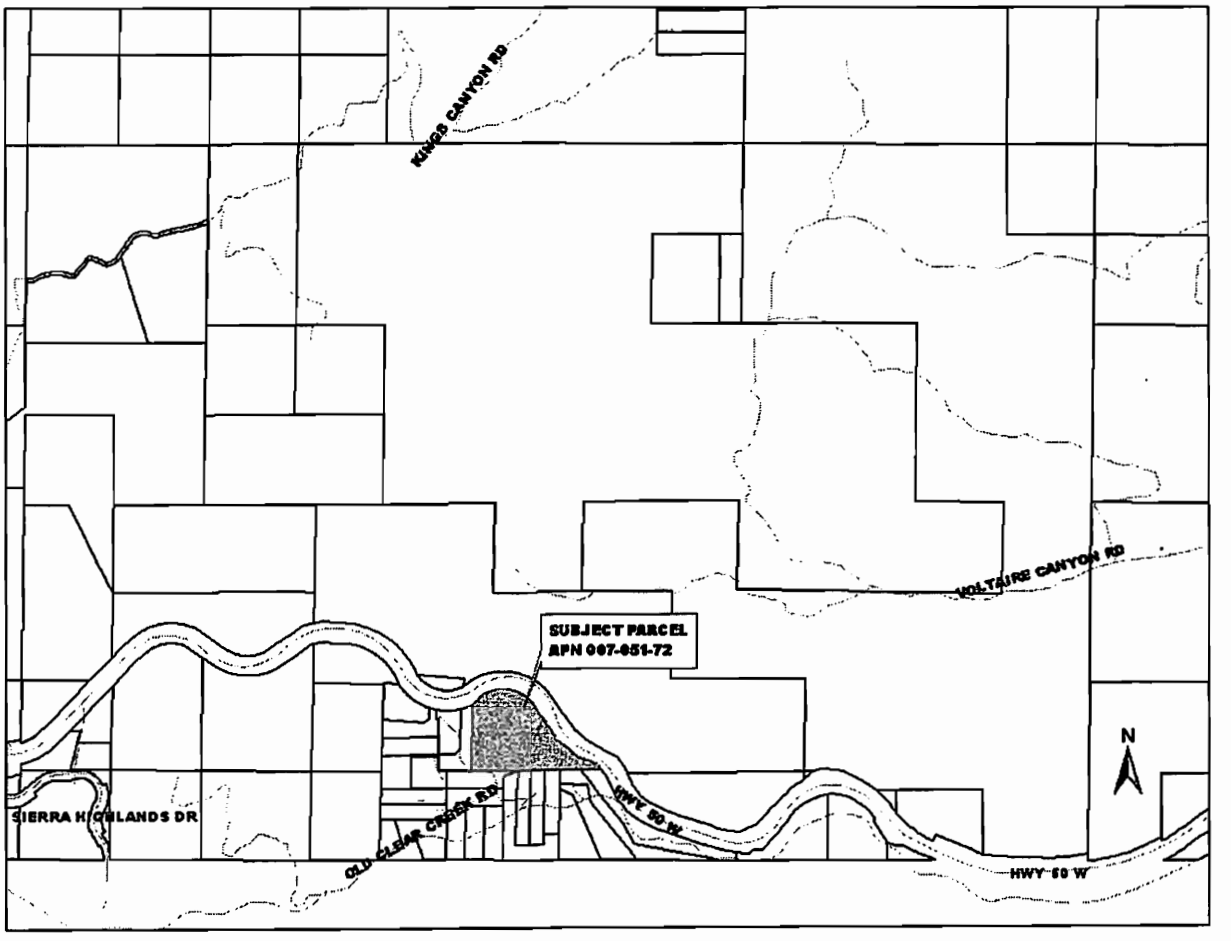
APPLICANT: Schulz Investments, LLC

OWNER: Schulz Investments, LLC

LOCATION: Old Clear Creek Road, Portion of Section 35, T 15 N, R 19 E

APN(s): 007-051-72

RECOMMENDED MOTION: "I move to recommend to the Board of Supervisors approval of TSM-14-022, a Tentative Subdivision Map known as Schulz Investments, consisting of six single family residential lots on property zoned Single Family Five Acre (SF5A), located on Old Clear Creek Road, APN 007-051-72 based on required findings and subject to the recommended conditions of approval outlined in the staff report."



TENTATIVE SUBDIVISION MAP RECOMMENDED CONDITIONS OF APPROVAL

The following are general conditions of approval:

1. The applicant must sign and return the Notice of Decision including conditions of approval within 10 days of receipt of notification. If the Notice of Decision is not signed and returned within 10 days, the item may be rescheduled for the next Planning Commission meeting for further consideration.

2. Prior to submittal of the any Parcel Map or preferably Final Map, the Engineering Division shall approve all on-site and off-site improvements. The applicant shall provide construction plans to the Engineering Division for all required on-site and off-site improvements, prior to any submittals for approval of a Final Map. The plan must adhere to the recommendations contained in the project soils and geotechnical report.

3. Individual homes will require application for a Building Permit, issued through the Carson City Building Division. This will necessitate a complete review of the project to verify compliance with all adopted construction codes and municipal ordinances applicable to the scope of the project.

4. All lot areas and lot widths shall meet the zoning requirements approved as part of this Tentative Map with the submittal of any Parcel Map or preferably Final Map.

5. A Site Improvement Permit will be required for all roadway and drainage improvements intended to serve the entire site.

6. Hours of construction will be limited to 7:00 a.m. to 7:00 p.m., Monday through Friday, and 7:00 a.m. to 5:00 p.m. on Saturday and Sunday. If the hours of construction are not adhered to, the Carson City Building Division will issue a warning for the first violation, and upon a second violation, will have the ability to cause work at the site to cease immediately.

7. A Final Map, prepared in accordance with the Tentative Map, for the entire area for which the Tentative Map has been approved or the first of a series of Final Maps covering a portion of the approved Tentative Map must be approved by the Board for recording within four years after the approval of a Tentative Map unless a longer time is provided for in an approved development agreement with the City. If the subdivider elects to present a successive map in a series of phased Final Maps, the successive Final Map must be approved by the Board within two years of the recording of the preceding Final Map. The Board may grant an extension of not more than two years for any successive Final Map after the two-year period for presenting a successive Final Map has expired.

8. Prior to the recordation of the Final Map for any phase of the project, the improvements associated with said phase must either be constructed and approved by the City, or the specific performance of said work secured by providing the City with a proper surety in the amount of one hundred fifty percent (150 %) of the engineer's estimate. In either case, upon acceptance of the improvements by the City, the developer shall provide the City with a proper surety in the amount of ten percent (10 %) of the engineer's estimate to secure the Developers obligation to repair defects in workmanship and materials

which may appear in the work within one year of acceptance by the City.

9. Snow removal within the Schulz Investments Subdivision will be the responsibility of the residents and will not be performed by Carson City.

10. All development shall be in compliance with Carson City Development Standards Division 7, Hillside Development, as the average slope of the area to be developed is in excess of 15%.

11. The maximum number of residential lots shall be six for the Schulz Investments subdivision.

12. Lots not planned for immediate development shall be left undisturbed and no mass grading and clearing of natural vegetation shall be allowed. Any and all grading shall comply with City standards. A grading permit from the Nevada Division of Environmental Protection shall be obtained prior to any grading. Noncompliance with this provision shall cause a cease and desist order to halt all grading work.

The following shall be included in the design of the Improvement Plans:

13. The applicant shall adhere to all City standards and requirements for water and sewer systems, grading and drainage, and street improvements.

14. The primary access road must meet all Carson City Standards and Details. (This comment is specific to the access road within the subdivision).

15. Roadway drainage facilities need to provide erosion control structures. Sediment run off is a major concern in this area.

16. In accordance with Carson City Development Standards 12.10 and 12.11.10, pavement sections shall be based on subgrade strength values determined by Resistance (R) Value or California Bearing Ratio (CBR) as shown in the Soils Engineering Report. Refer to Carson City Development Standards, Division 17 for soils report requirements. In no case shall the proposed pavement section be less than the minimum section prescribed in standard drawing C-1.12.

17. Storm drainage facility improvements shall be design in accordance with Carson City Development Standards Division 14. A Technical Drainage Study is required with submittal of Improvement Plans in accordance with Carson City Development Standards 14.9 through 14.10.

18. An emergency egress road shall be constructed as shown on the tentative grading plan to provide secondary access from Highway 50 West. The emergency access road shall be constructed and maintained as an all-weather surface having width and slope as directed by the Fire Department. The applicant shall obtain appropriate easements.

19. Provide a detail showing how the emergency access road will connect to U.S. Highway 50 and whether there will be any gates.

20. The subdivision needs to provide for yearly maintenance of all private facilities. Provide the Planning and Engineering Divisions with documentation of the mechanism by which this maintenance will be accomplished for review and approval.

21. Appropriate erosion control measure such as waddles, tarps, etc. shall be utilized during all construction activities associated with general site improvements and until vegetation stabilizes the soil.

22. The access road from Old Clear Creek Road to the subject property shall be widened to a minimum surface width of 20 feet. Due to the unique circumstances of the project residential area and low traffic impacts, full depth reconstruction will not be required. Final access improvements shall be reviewed and approved by the City Engineering and Fire Department prior to Final Map approval.

The following shall be conditions to be completed prior to obtaining a Construction Permit or Final Map:

23. Final improvement plans for the development shall be prepared in accordance with CCDS Division 19 and the Standard Specifications and Details for Public Works Construction, as adopted by Carson City.

24. The applicant shall obtain dust control and stormwater pollution prevention permits from the Nevada Division of Environmental Protection (NDEP). The site grading must incorporate proper dust and erosion control measures.

25. Update the map to include proposed domestic well locations for each lot with a 100 foot radius around each well. Due to slope and site restrictions, domestic wells must be proposed in an area that would feasibly permit access by a well driller (i.e., within the building envelope). Each lot must meet setback requirements addressed in NAC 444.792.

26. Address detention basin and culvert maintenance responsibility. Carson City will not provide maintenance for these facilities.

27. Provide the Planning and Engineering Divisions with documentation of legal access to U.S. Highway 50. If legal access does not currently exist, provide a copy of the new NDOT encroachment permit for access.

28. Prior to any grading adjacent to the NDOT right-of-way, a Drainage Report, including a grading plan, and a Drainage form must be submitted to the Permit office. Please contact the NDOT Permit Office at (775) 834-8330 for more information.

29. NDOT requires an occupancy permit for any work performed within the State's right-of-way.

30. NDOT requires the use of only legal, permitted accesses onto State roadways. All driveway accesses to the state highway system will be required to comply with the NDOT access management guidelines at the time of application. Some applicants are required to provide cross access easements to adjacent parcels in order to provide adequate access for development while meeting the NDOT access management requirements. Public improvements, like turn lanes and medians, may be required to mitigate proposed access points. The applicant may be required to provide a Traffic Study to determine the impacts of any new driveways to the state highway system and any required mitigation strategies. A change or an increase in the function of the property served by an existing access or street may require a new right-of-way encroachment permit.

31. It is the applicant's responsibility to perform title research and identify if NDOT has purchased access and abutters rights for the parcel where an access is proposed. Any break in the access control will need to be processed through the state surplus property committee. This process can be quite lengthy and success is not guaranteed.

32. Apply for a Timberland Conversion Certificate (NRS 528.0820). This process can be completed in two weeks.

33. Submit a forest fire prevention and suppression plan with the State Forester/Firewarden if any logging or equipment work will occur during the fire season.

The following must be submitted or included with the Final Map:

34. All Final Maps shall be in substantial conformance with the approved Tentative Map.

35. The following notes shall be added to the Final Map:

    A. "These parcels are subject to Carson City's Growth Management Ordinance and all property owners shall comply with provisions of said ordinance."

    B. "All development shall be in accordance with the Schulz Investments Tentative Map (TSM-14-022)."

    C. "The parcels created with this Final Map are subject to the Residential Construction Tax payable at the issuance of Building Permits for residential units."

    D. "Old Clear Creek Road, the primary means of access, is not located in a public right-of-way and is not owned and operated by Carson City. As Carson City does not control access on the road, Carson City cannot guarantee that public access will be perpetuated on this road."

36. A copy of the signed Notice of Decision shall be provided with the submission of any Final Map.

37. With the submittal of any Parcel Map or preferably Final Map, the applicant shall provide evidence to the Planning Division indicating the all agencies' concerns or requirements have been satisfied and that all conditions of approval have been met. Said correspondence shall be included in the Final Map submittal package.

38. Information regarding water quality shall be provided with the Final Map submittal. Engineering will accept water quality results in the representative form approved by the Nevada Division of Environmental Protection for their Final Map signature.

39. All streets within the boundary of the Schulz Investments subdivision shall be named in accordance with Carson City Development Standards, Division 22 – Street Naming and Address Assignment. Street names shall be reviewed and approved by Carson City GIS and shall be shown on the Final Map.

40. The District Attorney shall approve any CC&Rs prior to recordation of the first Final Map.

The following are applicable to Building Permit Submittal for Individual Lots:

41. Provide a copy of the signed Notice of Decision with any Building Permit application.

42. Each residential lot is subject to the Residential Construction Tax.

43. A Vegetation Management Plan may be required for each individual lot. A site visit by Fire Department personnel during the Building Permit process will determine necessity and level of vegetation management required.

44. Each lot will require an approved adequate water supply for fire protection purposes as follows:

    A. Single family homes having a fire flow calculation area not exceeding 3,600 square feet shall be 1,000 gallons per minute for a minimum duration of 30 minutes;

    B. Single family homes having a fire flow calculation area exceeding 3,600 square feet shall be 1,500 gallons per minute for a minimum duration of 30 minutes.

45. Appropriate erosion control measure such as waddles, tarps, etc. shall be utilized during all construction activities associated with individual lot improvements and until vegetation stabilizes the soil.

46. With the Building Permit submittal for each individual lot, two percolation tests as described in NAC 444.796 – 444.7968 will be required for proposed septic system design/construction. The percolation tests submitted with the Tentative Map will not be accepted to meet this requirement.

47. Individual domestic wells shall meet State and City regulations and code requirements and have a city permit issued prior to drilling.

48. Future development of the individual lots is subject to the Hillside Development requirements within Division 7 of the Carson City Development Standards. Development on slopes steeper than 15% will require engineered grading, drainage, erosion control and revegetation plans prior to individual lot development. Maximum allowable driveway slope will be 12%.

49. Before a Certificate of Occupancy may be issued for any structure, the project engineer shall certify in writing that the improvements as building are in compliance with the regulations of Carson City Municipal Code, Section 18.08 – Hillside Development.

50. Driveways which exceed 150 feet in length will require approved turnarounds. Driveways exceeding 200 feet in length will require approved turnouts.

51. Each home site needs to infiltrate a two year storm event on the subject property.

52. Apply for a Timberland Conversion Certificate (NRS 528.0820). This process can be completed in two weeks.

53. Submit a forest fire prevention and suppression plan with the State Forester/Firewarden if any logging or equipment work will occur during the fire season.

LEGAL REQUIREMENTS: CCMC 17.05 (Tentative Maps); CCMC 17.07 (Findings); NRS 278.330; CCMC 18.02.050 (Review); 18.04.040 (Single Family Five Acre District); and 18.04.190 (Residential Districts Intensity and Dimensional Standards)

MASTER PLAN DESIGNATION: Rural Residential

ZONING DISTRICT: Single Family Five Acre (SF5A)

KEY ISSUES: Does the proposal meet the Tentative Map requirements and other applicable requirements?

SURROUNDING ZONING AND LAND USE INFORMATION

NORTH: U.S. Highway 50 and Single Family Five Acre (SF5A)/Vacant
SOUTH: Single Family Five Acre (SF5A)/Residential
WEST: Single Family Five Acre (SF5A)/Residential
EAST: U.S. Highway 50 and Single Family Five Acre (SF5A)/Vacant

ENVIRONMENTAL INFORMATION:

FLOOD ZONE: Zone D (An area where flood hazards have not been determined).
SLOPE/DRAINAGE: Gentle to moderate slopes exist throughout the site with an average slope of roughly 15%. Two natural drainage channels cross the site.
SOILS: Thin silty sand over shallow bedrock.
SEISMIC ZONE: Zone V – nearest fault approximately two miles away.

SITE DEVELOPMENT INFORMATION:

SUBJECT SITE AREA:	32.68 acres
EXISTING LAND USE:	Vacant Land
TOTAL RESIDENTIAL LOTS:	Six
PROPOSED LOT SIZES:	
Gross:	5.13 acres to 5.87 acres
Net (less roadway):	5.00 acres to 5.68 acres
REQUIRED SETBACKS:	
Front:	100 feet
Side:	50 feet
Rear:	50 feet
PARKING REQUIRED:	Two spaces per dwelling unit
PROJECT PHASING:	Schulz Investments Subdivision will be completed with one Final Map. Lots will then be sold individually for custom built homes.
VARIANCES REQUIRED:	None

SITE HISTORY:

CSM-10-110: Conceptual Subdivision Map Review for Schulz Investments

BACKGROUND:

On December 21, 2010, Manhard Consulting staff participated with city staff in a Conceptual Subdivision Map Review (CSM-10-110) for the proposed Schulz Investments project. The proposal consisted of six single family home sites. Staff's review comments resulting from the Conceptual Subdivision Map Review have been addressed as a part of this Tentative Map application.

DISCUSSION:

The proposed Schulz Investments project is located on Old Clear Creek Road, approximately 2.5 miles west of the Old Clear Creek Road and U.S. Highway 395 intersection, within the southwest portion of Carson City. The subject parcel is located north of Old Clear Creek Road and is bounded by U.S. Highway 50 on the north and east sides.

The applicant is proposing six parcels ranging in size from 5.13 acres to 5.87 acres, which is consistent with the Single Family Five Acre (SF5A) zoning district. It is the intention to create the parcels through the Tentative and Final Map processes and will then proceed to sell lots individually for the construction of custom single family homes. The project's large lot sizes and somewhat remote location lends itself to individual custom home development as the project is not in the vicinity of the public water or sewer system. Private wells and septic systems will be developed with each custom lot and this is more appropriately handled with individual Building Permit applications. Access will, however, be required to the lots via a road that meets Carson City standards and is addressed specifically in this discussion, as well as in comments provided by the Engineering Division. Drainage will also be addressed in part with this application as it relates to improvements associated with the Tentative Map. Lot-specific drainage will be handled with Building Permits for each individual lot.

Hillside Development Standards

Slopes in the proposed project range from relatively flat to quite steep at over 33 percent in some places. As a part of the Conceptual Subdivision Map Review in 2010, staff indicated that the Tentative Map must show the building envelopes for each parcel and that building envelopes shall not include areas of slope greater than 33 percent. The applicant has complied with this requirement and shown building envelopes for each lot, indicating that there is adequate buildable space on slopes less than 33 percent.

The proposed project, including subsequent development of homes on the individual lots, will be required to meet the standards set forth in the Carson City Development Standards, Division 7 – Hillside Development and Carson City Municipal Code, Chapter 18.08 – Hillside Development. These standards and requirement are intended to minimize the potential of hillside development that could cause or contribute to landslides, erosion, sedimentation, deforestation, flooding and/or the aesthetic degradation of the City's natural environment. The subject site is not located in the Carson City Skyline area, but the steep topographic nature of the subject site warrants compliance with Hillside Development standards as noted above.

Access

Primary access to the proposed Schulz Investments project will be provided via a new easement that extends from an existing 60 foot wide access and drainage easement off of Old Clear Creek Road as shown on the Tentative Map. This easement has been obtained from the applicable property owner and was recorded on December 21, 2012 as Document Nos. 429472 and 492473. Staff understands that there is some discussion about whether or not an access easement exists from Old Clear Creek Road through parcels 007-042-03 (property owner: Kehres), 007-042-04 (property owner: Tarr), 007-042-05 (property owner: Buijten) and 007-042-06 (property owner: Arnold) to get to the new easements outlined above and recorded on December 21, 2012. Staff has reviewed the parcel maps listed below and concluded that public access easements were dedicated through the properties in question as a part of those maps.

- Parcel Map No. 1286, Document No. 47631 (Recorded on July 23, 1986): Shows a 60 foot wide public utility, access and drainage easement (current driveway to access site)

and an 80 foot wide public access, utility and drainage easement (Old Clear Creek Road) through parcels 007-042-03 and 007-042-04.

- Parcel Map No. 1583, Document No. 77255 (Recorded on October 13, 1988): Shows a 60 foot wide public utility, access and drainage easement (current driveway to access site) and an 80 foot wide public access, utility and drainage easement (Old Clear Creek Road) through parcels 007-042-03 and 007-042-04.

- Parcel Map No. 1740, Document No. 93472 (Recorded on November 30, 1989): Shows a 50 foot wide roadway and utility easement abandoned and replaced with a 60 foot wide roadway and utility easement along the existing access road through parcels 007-042-05 and 007-042-06.

Staff has determined that the existing access roadway pavement is approximately 11 to 12 feet wide and is not adequate to serve the existing residents plus the new lots proposed with the application. Due to the unique circumstances of the project area and low traffic impacts, full depth reconstruction will not be required. However, it will be required that the access road pavement section be widened to a minimum of 20 feet. The final access improvements will be subject to review and approval by the City Engineering and Fire Department prior to Final Map approval and staff has recommended a condition of approval to address this requirement.

Comments received from the Carson City Transportation Division state that Old Clear Creek Road is owned by several separate entities including private property owners and the Washoe Tribe; therefore Carson City is not able to control or guarantee access. Transportation staff states that it should be made clear to any future property owner of the lots created as a part of this Tentative Map that they would be subject to the same uncertainty related to lack of public right-of-way. The absence of public right-of-way is also of concern as the condition of the road through the various properties is deteriorating due to minimal maintenance for several decades. Staff has recommended a condition of approval to place a note on the final map alerting future property owners of this situation.

Secondary emergency access will be provided with a new 20 foot wide emergency access easement that will exit the property on the north to U.S. Highway 50. Accordingly, depending upon the current status of legal access onto U.S. Highway 50 from the property, a NDOT Encroachment Permit may be necessary. Staff recommends a condition of approval that requires the applicant to provide a copy of an existing encroachment permit or other document confirming legal access (should either of these currently exist), or requires that a NDOT Encroachment Permit be obtained. Staff has also incorporated NDOT's conditions of approval into the recommended conditions of approval for the proposed subdivision.

Comments received from the Carson City Fire and Public Works Departments indicate that, pursuant to Carson City Development Standards, Division 22 – Street Naming and Address Assignment, all access roads to the project site will need to have unique street names assigned to them. Staff has recommended a condition of approval that requires the applicant to provide unique street names for any roadways within the proposed subdivision boundary. Per the Development Standards cited above, it is the responsibility of the City to pursue naming the access road from Old Clear Creek Road to the proposed subdivision through approval by the Board of Supervisors. Staff understands that Public Works will pursue the naming of this access road to ensure that existing and future parcels can be easily located and accessed by public service agencies as necessary.

Water and Sewer

Water and sewer for each lot will be provided with individual private wells and septic systems. Wells and septic systems are allowed on five acre lots in Carson City. Additionally, public water and sewer is not located within 400 feet of the project, making it unfeasible to connect to existing public utilities.

The Carson City Health and Human Services Department has provided comments related to private well placement to ensure that adequate distance between well facilities is achieved per Nevada Administrative Code (NAC). Health and Human Services has also indicated that while the percolation tests submitted with the application show favorable results, these results will not be acceptable for individual septic design and construction. Each individual lot will need to provide results from two percolation tests with the Building Permit submittal.

The Nevada Division of Environmental Protection (NDEP) has made a recommendation to deny of the Tentative Map and has requested additional information related to water quality testing. In addition to the NAC sections on water quality referenced by NDEP in their recommendation for denial, water quality information is also required to be provided to the City per Carson City Municipal Code, Section 17.05.030(18). Staff does not feel that denial of the Tentative Map is necessary, but notes that NDEP is a signing party to Final Maps. Therefore, it is the applicant's responsibility to work with NDEP to address their concerns prior to Final Map approval. Staff will accept water quality results to satisfy City code requirements in the representative form approved by NDEP for their approval of the Final Map and has recommended a condition of approval that addresses this statement.

The Nevada Division of Water Resources has indicated that they do not regulate domestic wells but that the City may require water be relinquished in support of the drilling of domestic wells. They go on to state that until such time as the Office of the State Engineer receives sufficient data concerning existing water rights permits to satisfy the proposed water usage, the Nevada Division of Water Resources is recommending denial of the Tentative Map.

According to Engineering staff, the City does not require water rights to be relinquished in support of drilling domestic wells or when connecting to the public water system, but individual domestic wells are required to meet State and City regulations and code requirements as well as have a city permit issued prior to drilling a domestic well. Again, staff does not feel that denial of the Tentative Map is necessary as regulations for individual domestic wells are required to be met at the Building Permit stage. However, as the Nevada Division of Water Resources is also a signing party of the Final Map, it is the applicant's responsibility to address their concerns to obtain a map signature. Staff has recommended a condition of approval that individual domestic wells shall meet State and City regulations and code requirements and have a city permit issued prior to drilling.

Drainage

A Conceptual Drainage Study prepared by Manhard Consulting and dated April 16, 2014 has been provided supporting the Schulz Investments project. Pre-development drainage conditions include two natural drainage channels crossing the project site. One enters the project site at the western boundary line and the other at the north and eastern boundary lines. Both channels exit the site at the south boundary. These channels convey onsite flows as well as offsite flows from U.S. Highway 50.

According to the Conceptual Drainage Study, the post-development offsite drainage will remain the same as the pre-development conditions. Onsite post-development drainage that will be

altered with the proposed access road will be collected through a system of roadside ditches and culvert crossings. Drainage on the parcels will remain unchanged until the parcels are individually developed and will be further addressed through the Building Permit process.

The application is not clear on the responsibility of detention basin and culvert maintenance. Staff has recommended a condition of approval that requires the applicant to address this maintenance and to ensure that maintenance of private facilities is performed annually.

Fire Mitigation and Fuels Management Plan

The proposed project is located in the Wildland Urban Interface Area. Properties located in these areas typically have development standards that include, at a minimum, fuel management and minimum water requirements. Because the individual lots will be sold for custom built homes after the parcels are created, the Wildland Urban Interface standards will be applied with each separate Building Permit. Specific standards that staff would like to bring to the applicant's attention include:

- A Vegetation Management Plan may be required for each individual lot. A site visit by Fire Department personnel during the Building Permit process will determine necessity and level of vegetation management required.

- Each lot will require an approved adequate water supply for fire protection purposes as follows:

    - Single family homes having a fire flow calculation area not exceeding 3,600 square feet shall be 1,000 gallons per minute for a minimum duration of 30 minutes;

    - Single family homes having a fire flow calculation area exceeding 3,600 square feet shall be 1,500 gallons per minute for a minimum duration of 30 minutes.

Open Space, Parks, Trails and Pathways

Due to the rural nature of the proposed development, dedicated open space, parks, trails or pathways are not proposed. Residential home construction will be subject to the Residential Construction Tax for the benefit of parks, and conditions of approval reflecting this requirement have been recommended by staff.

With the recommended conditions of approval, the findings to grant approval have been met by the applicant. Planning Division staff is in support of this Tentative Map application. It is recommended that the Planning Commission make the recommendation to the Board of Supervisors for approval of TSM-14-022 based on the required findings as outlined in this staff report.

PUBLIC COMMENTS: Public notices were mailed on June 6, 2014 to 32 adjacent property owners within 3,200 feet of the subject site pursuant to the provisions of NRS and CCMC. As of the completion of this staff report, one letter had been submitted in opposition to the proposed development and is included in the attachments to this staff report. Phone calls were received from Ms. Peg Kehres and Mr. Steven Granelli expressing concerns about the proposed development related to access, roadway improvements, drainage, domestic wells and septic systems but as of the writing of this report the phone calls had not been followed by written comments. The applicant's representatives from Manhard Consulting held a neighborhood meeting on Thursday, June 12, 2014 to answer questions and address concerns of property

owners. An email summarizing this meeting has been provided by Manhard Consulting for the record and is included in the attachments to this staff report.

Any comments that are received after this report is completed will be submitted prior to or at the Planning Commission meeting on June 25, 2014, depending on their submittal date to the Planning Division.

OTHER CITY DEPARTMENT OR OUTSIDE AGENCY COMMENTS: Comments were received from various city departments. Recommendations have been incorporated into the recommended conditions of approval, where applicable.

Carson City Engineering Division:

The Engineering Division has considered the elements of NRS 278.349, the Carson City Municipal Code and the Carson City Development Standards in its review of the Tentative Map described above.

This recommendation for 'approval with conditions' from the Engineering Division is based on conceptual level analysis that indicates the development as proposed will currently meet or will meet with concurrent improvements, prior to Final Map approval, Nevada Revised Statutes, the Carson City Municipal Code and the Carson City Development Standards. With the request for final approval of any and all phases, detailed engineering analysis addressing the following issues and recommending system improvements will be submitted to the Engineering Division.

FINDINGS: The Conceptual Findings by the Engineering Division are:

(a) *Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal;*

The development is required to comply with all applicable environmental and health laws concerning water and air pollution and disposal of solid waste. The development will not be served by the Carson City Community Water System, but will have individual wells. The site will not be served by public sanitary sewer, but will instead utilize individual on site sewage disposal systems.

(b) *The availability of water which meets applicable health standards and is sufficient in quantity for the reasonably foreseeable needs of the subdivision;*

Water supplied to the development will meet applicable health standards. Carson City's water supply capability will not be exceeded by final approval of this development.

(c) *The availability and accessibility of utilities;*

All other utilities are available in the area to serve this development.

(d) *General conformity with the governing body's master plan of streets and highways;*

The new access road is acceptable as long as it is paved.

(e) *The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision;*

In general, the development will not cause adverse impacts to the existing street system.

(f) *Physical characteristics of the land such as floodplain, slope and soil.*

The physical characteristics of the area do not preclude the development as proposed. Proposed grading for roadways and house pads will generally occur on flatter areas of the site. Any grading proposed on slopes steeper than 15% will be subject to Hillside Development requirements of Division 7 of the Carson City Development Standards (CCDS).

RECOMMENDATION: If the Tentative Map is approved, the Engineering Division has the following recommended conditions of approval for the project:

Conditions to be included in the Design of the Improvement Plans:

1. The new access road is acceptable as shown, but must meet all other Carson City Standards and Details.

2. Roadway drainage facilities need to provide erosion control structures. Sediment run off is a major concern in this area.

3. In accordance with CCDS 12.10 and 12.11.10, pavement sections shall be based on subgrade strength values determined by Resistance (R) Value or California Bearing Ratio (CBR) as shown in the Soils Engineering Report. Refer to CCDS Division 17 for soils report requirements. In no case shall the proposed pavement section be less than the minimum section prescribed in standard drawing C-1.12.

4. Storm drainage facility improvements shall be designed in accordance with CCDS Division 14. A Technical Drainage Study is required with submittal of Improvement Plans in accordance with CCDS 14.9 through 14.10.

5. An emergency egress road shall be constructed as shown on the tentative grading plan to provide secondary access from Highway 50 West. The emergency access road shall be a paved surface having width and slope as directed by the Fire Department. The applicant shall obtain appropriate easements.

6. Each home site needs to infiltrate a 2 year storm event on the subject property.

7. The subdivision needs to provide for yearly maintenance of the private facilities.

Conditions to be Completed Prior to Submitting for Construction Permit or Final Map:

1. Final improvement plans for the development shall be prepared in accordance with CCDS Division 19 and the Standard Specifications and Details for Public Works Construction, as adopted by Carson City.

2. The applicant shall obtain a dust control and stormwater pollution prevention permit from the Nevada Division of Environmental Protection (NDEP). The site grading must incorporate proper dust control and erosion control measures.

General Conditions:

1. Prior to the recordation of the Final Map for any phase of the project, the improvements

associated with said phase must either be constructed and approved by the City, or the specific performance of said work secured by providing the City with a proper surety in the amount of one hundred fifty percent (150%) of the engineer's estimate. In either case, upon acceptance of the improvements by the City, the developer shall provide the City with a proper surety in the amount of ten percent (10%) of the engineer's estimate to secure the Developers obligation to repair defects in workmanship and materials which may appear in the work within one year of acceptance by the City.

DISCUSSION BULLETS: The following discussion is offered within Engineering Division areas of purview relative to the proposed Tentative Map:

- In the Tentative Map request book the area is being called parts of section 34 and section 35 in the introduction and the drainage report. It appears to be entirely within section 35. Please correct.

- On Page 5, please show that you will be using the 2012 International Fire Code.

- The legal description bearings and distances do not appear to match the map. Please correct.

- On page 5 of the preliminary geotech report, there is a paragraph on Soils and Groundwater that was never finished. Please correct.

- All roads and drainage and erosion control improvements are private and will be privately maintained.

- Access is an issue for this project. The access road crosses private lots, and Clear Creek Rd. itself is private. This must be addressed before the Final Map is signed and the construction permit is issued.

- Future development of the individual lots may be subject to the Hillside Development requirements within Division 7 of the CCDS. Development on slopes steeper than 15% will require engineered grading, drainage, erosion control and revegetation plans prior to individual lot development. Maximum allowable driveway slope will be 12%.

- Please show the section corners and section lines on this map as well as ties to the proper corner in Section 35.

Carson City Parks and Recreation Department:

The site is located approximately 3.5 miles west of the Fuji Park Fairgrounds Park Complex. The park amenities include a tot playground, green space, creek trail, a fishing pond, corrals, arenas and a dog park.

Staff recommends a condition of approval for a note to be drafted in the Final Map indicating the imposition of the Residential Construction Tax at the time of issuance of Building Permits for the residential units.

Old Clear Creek Road has been designated for a proposed shared street multi-purpose facility by the 1996 Unified Pathways Master Plan. However, more recently the Regional Transportation Commission determined that Old Clear Creek Road is not a public facility; therefore, staff does not recommend a condition of approval regarding the use of Old Clear Creek Road as a shared facility.

The Open Space Master Plan identifies the site as undeveloped land with desirable open space attributes; and, therefore, within the Hillside Open Space Priority Area. Staff and the land owner engaged in conversations many years ago about the City's interest in preserving the land as open space. Those conversations did not advance into coordination for an open space project. At the present time, the Board of Supervisors has directed the Open Space Program to concentrate on managing acquired lands as opposed to pursuing new acquisitions.

Carson City Transportation Division:

The applicant indicated an emergency access road easement to US 50. I expect they already have a permit in-hand from NDOT for the access to US 50, but good to make sure.

As the primary access to the properties is via Old Clear Creek Road, we need to be very clear that Old Clear Creek Road is owned by various entities (including private property owners and the Washoe Tribe) and that continued access for vehicles to the various properties in the future is questionable and out of the control of the City. No need to get into the details here, but the D.A.'s office has previously indicated to us that as it is a private facility, we (the City) do not control access or guarantee access. Should a development proceed, it should be clear that anyone acquiring a property would enter the same status of other property owners along that road – there is uncertainty due to the lack of a public right-of-way (not to mention the deteriorating condition of a substandard roadway which has been maintained very little in decades).

It may very well be that there won't be any access issues in the future, but I don't believe the City can guarantee that. Please provide a note on the Final Map as follows:

"Old Clear Creek Road, the primary means of access, is not located in a public right-of-way and is not owned and operated by Carson City. As Carson City does not control access on the road, Carson City cannot guarantee that public access will be perpetuated on this road."

Carson City School District:

No comments.

Carson City Fire Department:

1. Codes have changed since the CSM submittal. The project is now under the 2012 International Fire Code and 2012 International Wildland Urban Interface Code (IWUIC) with Northern Nevada Amendments.

2. The City has adopted an addressing ordinance since the CSM submittal. The project must conform to the Carson City Title 18 Division 22 addressing ordinance. This will require naming the streets serving the six parcels from Old Clear Creek Road.

3. Please provide a detail showing how the emergency access road will connect with U.S. Highway 50. Will there be any gates?

4. IWUIC Section 402.1.2 requires a water supply for new subdivisions. Please advise how this will be met.

5. The emergency access road must be maintained as an all-weather surface.

6. Driveways which exceed 150 feet in length will require approved turnarounds. Driveways

exceeding 200 feet in length will require approved turnouts.

Carson City Health and Human Services:

1. Update the map to include proposed domestic well locations for each lot with a 100 foot radius around each well. Due to slope and site restrictions, domestic wells must be proposed in an area that would feasibly permit access by a well driller (i.e., within the building envelope). Please note that each lot must meet setback requirements addressed in NAC 444.792.

2. Percolation tests conducted to prepare the Tentative Map report show favorable results, but will not be honored for septic system design/construction. Each lot will have to conduct two (2) percolation tests as described in NAC.796 – 444.7968.

3. Address detention basin and culvert maintenance responsibility.

Carson City Environmental Control Authority:

No comments.

Carson City Building Division:

No comments.

Nevada Department of Transportation:

1. Prior to any grading adjacent to the Nevada Department of Transportation (NDOT) right-of-way, a Drainage Report, including a grading plan, and a Drainage Form must be submitted to the Permit office.

2. NDOT will require an occupancy permit for any work performed within the State's right-of-way.

3. The Department required the use of only legal, permitted accesses onto State roadways. All driveway accesses to the state highway system will be required to comply with the NDOT access management guidelines current at the time of application. Some applicants are required to provide cross access easements to adjacent parcels in order to provide adequate access for development while meeting the NDOT access management requirements. Public improvements, like turn lanes and medians, may be required to mitigate proposed access points. Applicant may be required to provide a Traffic Study to determine the impacts of any new driveways to the state highway system and any required mitigation strategies. A change or an increase in the function of the property served by an existing access or street may require a new right-of-way encroachment permit.

4. It is the permit applicant's responsibility to perform title research and identify if the state has purchased access and abutters rights for the parcel where an access is proposed. Any break in the access control will need to be processed through the state surplus property committee. This process can be quite lengthy and success is not guaranteed.

5. The state defers to municipal government for land use development decisions. Public involvement for development related improvements within the NDOT right-of-way should be considered during the municipal land use development public involvement process.

Significant public improvements within the NDOT right-of-way developed after the municipal land use development public involvement process may require additional public involvement. It is the responsibility of the permit applicant to perform such additional public involvement. We would encourage such public involvement to be part of a municipal land use development process.

Nevada Division of Forestry:

1. Apply for a Timberland Conservation Certificate (NRS 528.0820). This process can be completed in two weeks.

2. Submit a forest fire prevention and suppression plan with the State Forester/Firewarden if any logging or equipment work will occur during the fire season (NRS 582.080).

Nevada Division of Environmental Protection:

The Division of Environmental Protection has reviewed the Schulz Investments Tentative Map and hereby recommends denial of said subdivision with respect to sewage disposal, water pollution, water quality and water supply facilities until the following issues have been resolved:

1. Unless water for the subdivision is to be supplied from a public water system, submit a report of the analyses of four samples taken in or adjacent to the subdivision from different representative wells. The analyses must show that the water meets the standards prescribed in NAC 445A.450 to 445A.492, inclusive. The samples may be composited by a State-certified laboratory.

2. Where individual sewage disposal systems are proposed, refer to http://ndep.nv.gov/bwpc/docs/septic_review_sheet.pdf to see the additional requirements for a subdivision proposing to use individual sewage disposal systems.

Nevada Division of Water Resources:

Domestic wells are not regulated by the Division of Water Resources; however, the county may require water be relinquished in support of the drilling of the domestic wells.

Until such time that the Office of the State Engineer receives sufficient data concerning existing water right permits to satisfy water usage for the proposed subdivision or required by the county for relinquishment in support of the drilling of the domestic wells for the proposed subdivision, this office is recommending disapproval as to water quality for Schulz Investments.

Nevada Department of Wildlife:

We are concerned that sedimentation of Clear Creek may occur due to construction activities. Clear Creek flows into Bailey Pond, which is an important urban fishery in Carson City. To prevent excess sedimentation moving into Clear Creek and subsequently Bailey Pond, we recommend that appropriate erosion control features (e.g. waddles, tarps, etc.) be utilized during construction activities and until vegetation stabilizes the soil.

TENTATIVE MAP FINDINGS:

Staff recommends approval of the Tentative Subdivision Map based on the findings below and in the information contained in the attached reports and documents, pursuant to CCMC 17.05 (Tentative Maps); 17.07 (Findings) and NRS 278.349, subject to the recommended conditions

of approval, and further substantiated by the applicant's written justification. This development was reviewed under the guidelines of CCMC Title 17, specifically Section 17.01.010. The design, improvement and maps of subdivisions are governed by the Planning and Zoning Act (Chapter 278 and 278A of Nevada Revised Statutes, hereinafter referred to as "NRS"), NRS 116, so far as is applicable, and the provisions of this title. The purposes of this title are to safeguard the public health, safety and general welfare by establishing certain additional standards of design, improvement, survey and development of subdivisions hereafter platted in Carson City in order to provide and insure the orderly and proper growth and development thereof.

1. **The project complies with applicable environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, water supply, and sewage disposal.**

   The development is required to comply with all applicable environmental and health laws concerning water and air pollution and disposal of solid waste. The development will be served individual wells and septic systems due to its rural location and the large size of the proposed lots.

2. **Adequate water that meets applicable health standards is available in sufficient quantity to serve the subdivision.**

   Each parcel will be served by an individual well. This is acceptable for the proposed size of the parcels at a minimum of five acres each.

3. **Adequate utilities are available and accessible to serve the subdivision.**

   Each individual parcel will have a private well and septic system. Power is available and accessible to serve the subdivision. Natural gas is not available in the area, but all surrounding developed properties are on propane. Staff is unsure whether cable exists in the area.

4. **Adequate public services such as schools, police protection, transportation, recreation and parks are available and accessible to serve the subdivision, including adequate availability and accessibility of water and services for the prevention and containment of fires.**

   The proposed development is zoned for Bordewich-Bray Elementary School, Carson Middle School and Carson High School and all will be able to accommodate any new students resulting from this project. Due to the rural nature of the project, public transportation and recreation are not located within walking distance of the project, but are located within two miles. Adequate police protection is available, although response time will be longer due to the project's location.

   The project is located in the Wildland Urban Interface Area and vegetation management plans may be required with the development of each individual lot. This determination will be made as a part of each Building Permit. Additionally, parcels within the Wildland Urban Interface require access to an adequate water supply for fire suppression purposes. This will be required with the development of each individual lot and is addressed elsewhere in this staff report.

5. Adequate access to public lands is provided where the proposed subdivision is adjacent to public lands.

The proposed subdivision is not located adjacent to public lands.

6. The subdivision conforms with the zoning ordinance and master plan.

The proposed development conforms with the Single Family Five Acre (SF5A) zoning district. All parcels meet or exceed the five acre minimum requirement for the zoning district. The proposal is in conformance with the Rural Residential Master Plan designation and is consistent with a number of goals and policies that support a diverse community with multiple opportunities for housing.

7. The subdivision generally conforms with the City's Streets and Transportation Element.

Prior to submittal of any Final Map, the Engineering Division shall approve all on-site improvements which are to be in conformance with the City's Streets and Transportation Element of the City's Master Plan.

8. The subdivision will have little or no detrimental effect on vehicular or pedestrian traffic and adequate public streets are provided to serve the subdivision.

In general, because of the small size of the proposed development, project will not cause adverse impacts to the existing street system.

As noted previously in the staff report the Transportation Division has indicated that Old Clear Creek Road is owned by several separate entities including private property owners and the Washoe Tribe; therefore Carson City is not able to control or guarantee access. The absence of public right-of-way is also of concern as the condition of the road through the various properties is deteriorating due to minimal maintenance for several decades. Carson City does not have the legal authority to maintain Old Clear Creek Road beyond approximately 800 feet west of the Old Clear Creek Road/Vista Grande Boulevard intersection and public streets are not available beyond this point. Provided that future buyers are aware of that they will be subject to future uncertainty of legal access and road maintenance, staff has no concern that this finding cannot be met.

9. The subdivision will have little or no detrimental effect on physical characteristics of the land such as flood plain, earthquake faults, slope, and soil.

The subdivision improvements will have little detrimental effect on the physical characteristics of the land as improvements will include roadway and drainage facilities. Individual lot development for custom homes will be addressed at the Building Permit submittal level and will be required to adhere to all applicable City and State regulations.

10. The recommendations of applicable State agencies and the School District have been incorporated into the conditions of approval.

Recommendations from all reviewing agencies that provided comments have been incorporated into the conditions of approval where applicable.

11. Existing and/or proposed recreation and trail easements are adequate to serve the proposed development.

The location of the development does not lend itself to public recreation, and a recreation/trail easement would not be useful as the property is surrounded by existing development to the west and south, and bounded by U.S. Highway 50 to the north and east.

12. All codes and regulations requirements of the Carson City Fire Department.

All codes and regulation requirements of the Fire Department have been included in the recommended condition of approval for this development.

Attachments

Site Aerial
City and State Agency Comments
Public Comments
Application (TSM-14-022)

Schulz Investments Tentative Map—Project Area

MEMORANDUM

DATE: May 9, 2014

TO: Susan Pansky – Planning

FROM: Rory Hogen – Engineering

RE: TSM 14-022 Schulz Investments Tentative Subdivision
Engineering Text for Planning Commission Staff Report

The following text is offered for inclusion in the Planning Commission staff report for the above referenced land use proposal:

GENERAL: The Engineering Division has considered the elements of NRS 278.349, the Carson City Municipal Code and the Carson City Development Standards in its review of the tentative map described above.

This recommendation for 'approval with conditions' from the Engineering Division is based on conceptual level analysis that indicates the development as proposed will currently meet or will meet with concurrent improvements, prior to final map approval, Nevada Revised Statutes, the Carson City Municipal Code and the Carson City Development Standards. With the request for final approval of any and all phases, detailed engineering analysis addressing the following issues and recommending system improvements will be submitted to the Engineering Division.

FINDINGS: The Conceptual Findings by the Engineering Division are:

(a) *Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal;*
The development is required to comply with all applicable environmental and health laws concerning water and air pollution and disposal of solid waste. The development will not be served by the Carson City Community Water System, but will have individual wells. The site will not be served by public sanitary sewer, but will instead utilize individual on site sewage disposal systems.

(b) *The availability of water which meets applicable health standards and is sufficient in quantity for the reasonably foreseeable needs of the subdivision;*
Water supplied to the development will meet applicable health standards. Carson City's water supply capability will not be exceeded by final approval of this development.

(c) *The availability and accessibility of utilities;*
All other utilities are available in the area to serve this development.

(d) *General conformity with the governing body's master plan of streets and highways;*
The new access road is acceptable as long as it is paved.

(e) *The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision;*
In general, the development will not cause adverse impacts to the existing street system.

(f) *Physical characteristics of the land such as floodplain, slope and soil.*
The physical characteristics of the area do not preclude the development as proposed. Proposed grading for roadways and house pads will generally occur on flatter areas of the site. Any grading proposed on slopes steeper than 15% will be subject to Hillside Development requirements of Division 7 of the Carson City Development Standards (CCDS).

RECOMMENDATION: If the tentative map is approved, the Engineering Division has the following recommended conditions of approval for the project:

A. Specific Conditions to be included in the Design of the Improvement Plans:

1. The new access road is acceptable as shown, but must meet all other Carson City Standards and Details.
2. Roadway drainage facilities need to provide erosion control structures. Sediment run off is a major concern in this area.
3. In accordance with CCDS 12.10 and 12.11.10, pavement sections shall be based on subgrade strength values determined by Resistance (R) Value or California Bearing Ratio (CBR) as shown in the Soils Engineering Report. Refer to CCDS Division 17 for soils report requirements. In no case shall the proposed pavement section be less than the minimum section prescribed in standard drawing C-1.12.
4. Storm drainage facility improvements shall be designed in accordance with CCDS Division 14. A Technical Drainage Study is required with submittal of Improvement Plans in accordance with CCDS 14.9 through 14.10.
5. An emergency egress road shall be constructed as shown on the tentative grading plan to provide secondary access from Highway 50 West. The emergency access road shall be a paved surface having width and slope as directed by the Fire Department. The applicant shall obtain appropriate easements.
6. Each home site needs to infiltrate a 2 year storm event on the subject property.
7. The subdivision needs to provide for yearly maintenance of the private facilities.

B. Conditions to be Completed Prior to Submitting for Construction Permit or Final Map

1. Final improvement plans for the development shall be prepared in accordance with CCDS Division 19 and the Standard Specifications and Details for Public Works Construction, as adopted by Carson City.
2. The applicant shall obtain a dust control and stormwater pollution prevention permit from the Nevada Division of Environmental Protection (NDEP). The site grading must incorporate proper dust control and erosion control measures.

C. General Conditions

1. Prior to the recordation of the final map for any phase of the project, the improvements associated with said phase must either be constructed and approved by the City, or the specific performance of said work secured by providing the City with a proper surety in the amount of one hundred fifty percent (150 %) of the engineer's estimate. In either case, upon acceptance of the improvements by the City, the developer shall provide the City with a proper surety in the amount of ten percent (10 %) of the engineer's estimate to secure the Developers obligation to repair defects in workmanship and materials which may appear in the work within one year of acceptance by the City.

DISCUSSION BULLETS: The following discussion is offered within Engineering Division areas of purview relative to the proposed Tentative Map:

- In the Tentative Map request book the area is being called parts of section 34 and section 35 in the introduction and the drainage report. It appears to be entirely within section 35. Please correct.
- On Page 5, please show that you will be using the 2012 International Fire Code.
- The legal description bearings and distances do not appear to match the map. Please correct.
- On page 5 of the preliminary geotech report, there is a paragraph on Soils and Groundwater that was never finished. Please correct.
- All roads and drainage and erosion control improvements are private and will be privately maintained.
- Access is an issue for this project. The access road crosses private lots, and Clear Creek Rd. itself is private. This must be addressed before the final map is signed and the construction permit is issued.
- Future development of the individual lots may be subject to the Hillside Development requirements within Division 7 of the CCDS. Development on slopes steeper than 15% will require engineered grading, drainage, erosion control and revegetation plans prior to individual lot development. Maximum allowable driveway slope will be 12%.

- Please show the section corners and section lines on this map as well as ties to the proper corner in Section 35.

Susan Dorr Pansky

To: Susan Dorr Pansky (spansky@carson.org)
Subject: FW: Schulz investments tentative map conditions

From: Daniel Rotter
Sent: Tuesday, June 17, 2014 9:58 AM
To: Susan Dorr Pansky
Cc: Rory Hogen; Darren Schulz; Dave Ruben
Subject: RE: Schulz investments tentative map conditions

I discussed with Dave yesterday and 10-12' (our estimate based on pictometry and in line with the existing property owner's comment) wide is inadequate for development access. Perpetuating the "extended combined driveway" is not something we should allow. It was missed on the conceptual, but needs to be addressed now.

Here are areas of code I see support this, followed by my **condition of approval**.
Based on the main access off Old Clear Creek Road being a street and not a driveway (as seen by our previous naming comments),

12.1 General.

All streets will be improved and conform to the requirements of this division.

12.4 Access.

At least two (2) means of ingress and egress to city standards will be provided to serve a subdivision or development, with the exception of a single cul-de-sac subdivision. A single cul-de-sac subdivision may be approved with only one (1) means of access and egress. An emergency access easement or fire access easement is not a secondary means of access and cannot be used to waive or modify the requirements of this section unless approved by the city engineer.

The private access is the primary permanent access with emergency access off Hwy 50.

12.5 Off-site improvements.

Streets or access adjacent to or necessary to serve a development which are not within the boundaries of the development, but are dedicated public right-of-ways, will be improved with development to standards promoting public access, safety and welfare.

While this says ***public*** right-of-ways and ***public*** access, I believe the intent of this section is to address deficiencies in access to serve the development. Safety and welfare are main concerns especially related to emergencies up there. Again, remember our street naming discussions. 12' is inadequate for passing if cars were headed out and fire truck in.

12.6 Right-of-way and easements.

All necessary right-of-way or easement acquisition outside the boundaries of a subdivision or development, including agreements as to access, ownership and maintenance, will be completed at the time of submittal of application for a development permit. Right-of-way widths will not be less than shown in Table 12.1.

In areas of possible fire hazards, at the urban interface, unobstructed fire protection equipment access easements not less than twenty feet (20') wide will be dedicated from the public street to the subdivision or development boundary as determined by the fire chief. Permanent emergency access will be designed and constructed to comply with the requirements of Section 12.12.13 Emergency Access Streets.

Project is in wild land / urban interface.

12.7 Streets along property boundaries.

Streets must not be located along property boundaries unless required by a city adopted street plan. A proposed access street lying along a boundary, which is within the development or off-site but within an easement already dedicated to the city, must be dedicated and constructed to city standards. A proposed street lying along the boundary of a development or subdivision, which is within the development or is off-site within an easement dedicated to the city, **that is impacted by that subdivision or development**, must be dedicated and constructed by that subdivision or development. If the proposed street, which is in the development or subdivision, does not offset any of the traffic of the development but is shown on the master plan or city adopted street pattern, the street must be dedicated.

This references proposed access and streets being dedicated, but the intent I see is again related to access to the development and impacts thereof.

12.11.9

Private Streets. Private streets will be designed to meet city standards for local streets, including street lights, storm drain systems, water systems, sanitary sewer systems, and paving structural section.

12.11.13

Emergency Access Streets. Permanent and temporary emergency access streets will have a minimum surface width of twenty feet (20'). Grades will not exceed the maximum street grades. Access to street at each entrance will be controlled by an "Emergency Access Control Gate," and will be posted "For Emergency Access Only."

Access off Old Clear Creek Road to "Schulz Investments" cul-de-sac subdivision shall be widened to a minimum surface width of twenty feet (20'). Due to the unique circumstances of the project residential area and low traffic impacts, full depth reconstruction will not be required. Final access improvements to be reviewed and approved by the City Engineer and Fire Department prior to final map approval.

Susan Dorr Pansky

From: Daniel Rotter
Sent: Monday, June 16, 2014 11:54 AM
To: Susan Dorr Pansky
Cc: Rory Hogen; Darren Schulz
Subject: Schulz investments tentative map conditions

Susan-
Per our discussion Friday, here are the two conditions of approval for Schulz investments related to the water quality and water quantity. Please review and let me know if you agree with the wording.

Water quality: CCMC 17.05.030.18 requires domestic water quality information. Engineering will accept water quality results in the representative form approved for Nevada Division of Environmental Protection's map signature, prior to final map approval.

Water quantity (this one pending response from DWR if they have anything to say): Individual domestic wells shall meet State/City regulations/code requirements and have a city permit issued prior to drilling.

Thanks,
Danny

CARSON CITY, NEVADA

CONSOLIDATED MUNICIPALITY AND STATE CAPITAL

MEMORANDUM

TO: Susan Dorr Pansky, Planning Manager

FROM: Roger Moellendorf, Parks & Recreation Director

SUBJECT: Tentative Map for Schulz Investments (APN 07-051-72)

DATE: May 13, 2014

Thank you for the opportunity to submit comments on this tentative map.

The site is located approximately 3.5 miles west of the Fuji Park Fairgrounds Park Complex. The park amenities include a tot playground, green space, creek trail, a fishing pond, corrals, arenas, and a dog park.

Staff recommends a condition of approval for a note to be drafted in the final map indicating the imposition of the residential construction tax at the time of residential issuance of building permits for the residential units.

Old Clear Creek Road has been designated for a proposed shared street multi-purpose facility by the 1996 Unified Pathways Master Plan. However, more recently the Regional Transportation Commission determined that Old Clear Creek Road is not a public facility; therefore, staff does not recommend a condition of approval regarding the use of Old Clear Creek Road as a shared facility.

The Open Space Master Plan identifies the site as undeveloped land with desirable open space attributes; and, therefore, within the Hillside Open Space Priority Area. Staff and the land owner engaged in conversations many years ago about the City's interest in preserving the land as open space. Those conversations did not advance into coordination for an open space project. At the present time, the Board of Supervisors has directed the Open Space Program to concentrate in managing acquired lands as opposed to pursuing new acquisitions.

Please do not hesitate to contact our Park Planner Vern Krahn at 775-887-2262 or at VKrahn@carson.org with any questions you may have.

Susan Dorr Pansky

From: Patrick Pittenger
Sent: Thursday, May 08, 2014 4:40 PM
To: Susan Dorr Pansky; Lee Plemel
Cc: Darren Schulz; Daniel Doenges; Daniel Rotter
Subject: RE: Tentative Map Comments - Schulz Investments on Old Clear Creek road.

Follow Up Flag: Follow up
Flag Status: Flagged

Susan-

I think that a note would be advisable. Here's a try at one:

"Old Clear Creek Road – the primary means of access - is not located in a public right-of-way and is not owned and operated by Carson City. As Carson City does not control access on the road, Carson City cannot guarantee that public access will be perpetuated on this road.

I think that gets the point across. However, I'm totally open to suggestions if anyone has them. Thanks.

Patrick Pittenger, AICP, PTP
Transportation Manager, Carson City Public Works
3505 Butti Way, Carson City, NV, 89701
775-283-7396
ppittenger@carson.org

From: Susan Dorr Pansky
Sent: Thursday, May 08, 2014 10:03 AM
To: Patrick Pittenger; Lee Plemel
Cc: Darren Schulz; Daniel Doenges; Daniel Rotter
Subject: RE: Tentative Map Comments - Schulz Investments on Old Clear Creek road.

Hi Patrick - do you want a condition of approval to place a note on the final map about Carson City not guaranteeing access? If so, please provide the language you'd like the final map to have. Thanks.

Susan Dorr Pansky
Planning Manager
Phone 775.283.7076

From: Patrick Pittenger
Sent: Monday, April 21, 2014 7:40 PM
To: Lee Plemel; Susan Dorr Pansky
Cc: Darren Schulz; Daniel Doenges
Subject: Tentative Map Comments - Schulz Investments on Old Clear Creek road.

Susan and Lee-

I received the tentative map for the creation of six lots for Schulz Investments.

They indicated an emergency access road easement to US 50. I expect they already have a permit in-hand from NDOT for the access to US 50, but good to make sure.

As the primary access to the properties is via Old Clear Creek Road, we need to be very clear that Old Clear Creek Road is owned by various entities (including private property owners and the Washoe Tribe) and that continued access for vehicles to the various properties in the future is questionable and out of the control of the City. No need to get into the details here, but the D.A.'s office has previously indicated to us that as it is a private facility, we (the City) do not control access or guarantee access. Should a development proceed, it should be clear that anyone acquiring a property would enter the same status of other property owners along that road – there is uncertainty due to the lack of a public right-of-way (not to mention the deteriorating condition of a substandard roadway which has been maintained very little in decades).

It may very well be that there won't be any access issues in the future, but I don't believe the City can guarantee that. Thanks.

Patrick Pittenger, AICP, PTP
Transportation Manager, Carson City Public Works
3505 Butti Way, Carson City, NV, 89701
775-283-7396
ppittenger@carson.org

Susan Dorr Pansky

From: Dave Ruben
Sent: Tuesday, April 22, 2014 12:17 PM
To: Susan Dorr Pansky
Subject: TSM 14-022

We have reviewed the application for TSM 14-022 and have the following comments:

1. Codes have changed since the CSM submittal. The project is now under the 2012 International Fire Code and 2012 International Wildland Urban Interface Code (IWUIC) with Northern Nevada Amendments.
2. The City has adopted an addressing ordinance since the CSM submittal. The project must conform to the Carson City Title 18 Division 22 addressing ordinance. This will require naming the streets serving the 6 parcels from Old Clear Creek Road.
3. Please provide a detail showing how the emergency access road will connect with US Highway 50. Will there be any gates?
4. IWUIC section 402.1.2 requires a water supply for new subdivisions. Please advise how this will be met.
5. All previous comments remain in force.

Dave Ruben
Captain – Fire Prevention
Carson City Fire Department
777 S. Stewart Street
Carson City, NV 89701

Direct 775-283-7153
Main 775-887-2210
FAX 775-887-2209

CCHHS - Comments/concerns for TSM 14-022:

1. Update map to include proposed domestic well locations for each lot with a 100' radius around each well. Due to slope and site restrictions, domestic wells must be proposed in an area that would feasibly permit access by a well driller (i.e., within the building envelope). Please note that each lot must meet setback requirements addressed in NAC 444.792.
2. Percolation tests conducted to prepare the Tentative Map report show favorable results, but will not be honored for septic system design/construction. Each lot will have to conduct two (2) percolation tests as described in NAC 444.796 – 444.7968.
3. Address detention basin and culvert maintenance responsibility.

STATE OF NEVADA
DEPARTMENT OF TRANSPORTATION
District II
310 Galletti Way
Sparks, Nevada 89431
(775) 834-8300 FAX (775) 834-8390

BRIAN SANDOVAL, *Governor*

RUDY MALFABON, P.E., *Director*

April 28, 2014

Carson City Planning Division
108 E. Proctor Street
Carson City, Nevada 89701

file # TSM-14-022
Schulz Investments

US50 & Clear Creek Rd

Dear Sir:

I have reviewed the above-referenced application to construct six lots including an emergency access road adjacent to US 50 and Clear Creek Road. We have the following comments:

1. Prior to any grading adjacent to the Nevada Department of Transportation (NDOT) right-of-way, a Drainage Report, including a grading plan, and a Drainage Form must be submitted to the Permit office. A Drainage Information Form is attached. Please contact the Permit Office at (775) 834-8330 for more information.

2. NDOT will require an occupancy permit for any work performed within the State's right-of-way. Please contact the Permit Office at (775) 834-8330 for more information regarding the occupancy permit.

3. The Department requires the use of only legal, permitted accesses onto State roadways. All driveway accesses to the state highway system will be required to comply with the NDOT access management guidelines current at the time of application. Some applicants are required to provide cross access easements to adjacent parcels in order to provide adequate access for development while meeting the NDOT access management requirements. Public improvements, like turn lanes and medians, may be required to mitigate proposed access points. Applicant may be required to provide a Traffic Study to determine the impacts of any new driveways to the state highway system and any required mitigation strategies. A change or an increase in the function of the property served by an existing access or street may require a new right-of-way encroachment permit.

4. It is the permit applicant's responsibility to perform title research and identify if the state has purchased access and abutters rights for the parcel where an access is proposed. Any break in the access control will need to be processed through the state surplus property committee. This process can be quite lengthy and success is not guaranteed.

5. The state defers to municipal government for land use development decisions. Public involvement for Development related improvements within the NDOT right-of-way should be considered during the municipal land use development public involvement process. Significant public improvements within the NDOT right-of-way developed after the municipal land use development public involvement process may require additional public involvement. It is the responsibility of the permit applicant to perform such additional public involvement. We would encourage such public involvement to be part of a municipal land use development process.

Thank you for the opportunity to review this development proposal. The Department reserves the right to incorporate further changes and/or comments as the design review advances. We look forward to working with you and your team, and completing a successful project. Please feel free to contact me at 775-834-8320, if you have any further questions or comments.

Sincerely,

Anita R. Lyday, P.E.
Urban Traffic Engineer

File

Z:\TRAFFIC\Anita's 2010 -2014\Development Reviews 2013\Carson City Schulz Investments.doc

Susan Dorr Pansky

From: Carl M. Klug <mklug@forestry.nv.gov>
Sent: Friday, May 09, 2014 12:11 PM
To: Susan Dorr Pansky
Subject: FW: Clear Creek Development

Michael Klug
Northern Regional Forester
775-684-2522 Office
775-721-6378 Cell
2478 Fairview Drive
Carson City, NV 89701

From: Carl M. Klug
Sent: Friday, May 09, 2014 12:09 PM
To: 'spanskly@carson.org'
Cc: Ryan S. Shane; John Christopherson
Subject: Clear Creek Development

Susan,

Here are the relevant NRS in regards to the Clear Creek property:

NRS 528.082 Timberland conversion certificate: Required for conversion of timber lands to other use; application.
1. Any person, firm, partnership, association or corporation owning timberland which is to be devoted to any use other than the growing of timber shall file an application for a timberland conversion certificate with the State Forester Firewarden.
2. Such application shall be on a form prescribed by the State Forester Firewarden and shall include the following information:
(a) The name of the timberland owner of record, and his or her address.
(b) The legal description of the land to be converted.
(c) The approximate number of acres to be converted.
(Added to NRS by 1971, 1447)

NRS 528.070 Required practices to prevent and suppress fire. The fire prevention and suppression practices of every timber owner or operator conducting logging operations in this State shall conform to the following:
1. All such owners or operators shall fell all snags over 20 feet in height which are 16 inches d.b.h. or larger concurrently with the felling of live merchantable timber on forest lands in this State. However, in salvaging fire-killed or insect-killed timber where the average number of snags, after logging, will be greater than four per acre, the owner or operator shall dispose of only an average of four snags per acre.
2. All limbs from unutilized portions of trees and reproduction, felled or knocked down by logging or construction, within 100 feet of the traveled surface of any public road and main logging roads shall be lopped and scattered currently in the course of operations. In

areas where a timber owner or operator chooses to pile and burn lopped slash, the slash shall be piled and burned where the burning will not damage residual trees or reproduction. The piled slash shall be burned at a safe time as determined by the State Forester Firewarden. Piles that fail to burn clean shall be repiled and burned. All reasonable precautions shall be taken to confine such burning to the piled slash.
[7:355:1955]

For more information you can contact Ryan Shane, Western Region Resource Management Officer at 849-2500 x237 or rshane@forestry.nv.gov

Regards,

Michael Klug
Northern Regional Forester
775-684-2522 Office
775-721-6378 Cell
2478 Fairview Drive
Carson City, NV 89701

ndep
NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
protecting the future for generations

STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION

Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
Colleen Cripps, Ph.D., Administrator

05/12/2014

Ms. Susan Pansky
Carson City Community Development
Planning Division
108 East Proctor Street
Carson City, NV 89701

Dear Ms. Pansky:

Re: Schulz Investments - Tentative Map
6 lots in Carson City County

The Division of Environmental Protection has reviewed the above referenced subdivision and herby recommends denial of said subdivision with respect to sewage disposal, water pollution, water quality and water supply facilities until the following issues have been resolved: Please submit documentation to meet the following submission requirements

- 14. Unless water for the subdivision is to be supplied from a public water system, submit a report of the analyses of four samples taken in or adjacent to the subdivision from different representative wells. The analyses must show that the water meets the standards prescribed in NAC 445A.450 to 445A.492, inclusive. The samples may be composited by a State-certified laboratory.
- 17. Where individual sewage disposal systems are proposed, refer to http://ndep.nv.gov/bwpc/docs/septic_review_sheet.pdf to see the additional requirements for a subdivision proposing to use individual sewage disposal systems.

If there are any questions concerning this letter, please give me a call at 687-9431.

Sincerely,

Nicholas Brothers, E.I.
Technical Services Branch
Bureau of Water Pollution Control

cc:
Kenneth Anderson P.E., Manhard Consulting LTD, 9850 Double R Blvd #101, Reno, NV 89521

S9820

BRIAN SANDOVAL
Governor

STATE OF NEVADA

LEO DROZDOFF
Director

JASON KING, P.E.
State Engineer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES
901 South Stewart Street, Suite 2002
Carson City, Nevada 89701-5250
(775) 684-2800 • Fax (775) 684-2811
http://water.nv.gov

June 6, 2014

Subdivision **Review No. 20810T**

To: Carson City Planning Division
108 E. Proctor Street
Carson City, Nevada 89701

Name: ***Schulz Investments***

County: Carson-US HWY 50 and Old Clear Creek Road

Location: Portion of the S½ of Section 35, Township 15 North, Range 19 East, MDB&M.

Plat: Tentative map and review fee received April 28, 2014. Map shows 6 residential lots.

Owner/ Developer: Schulz Investments
207 N. Iris St.
Carson City, Nevada 89703

Engineer: Manhard Consulting LTD
9850 Double R Blvd, Ste. 101
Reno, Nevada 89521

Water Supply: Individual domestic wells

General: Domestic wells are not regulated by the Division of Water Resources; however, the county may require water be relinquished in support of the drilling of the domestic wells.

Action: Until such time that the Office of the State Engineer receives sufficient data concerning existing water right permits to satisfy water usage for the proposed

Susan Dorr Pansky

From: Mark Freese <markfreese@ndow.org>
Sent: Thursday, May 22, 2014 9:43 AM
To: Susan Dorr Pansky
Subject: FW: Schulz Investments Hwy 50 Housing Development Project
Attachments: SWRC45214050910340.pdf

Ms. Pansky,
I am writing to provide you with our preliminary concerns and recommendations regarding the Shultz Investment property. We are concerned that sedimentation of Clear Creek may occur due to construction activities. Clear Creek flows into Bailey Pond, which is an important urban fishery in Carson City. To prevent excess sedimentation from moving into Clear Creek and subsequently Bailey Pond, we recommend that appropriate erosion control features (e.g. waddles, tarps, etc.) be utilized during construction activities and until vegetation stabilizes the soil.

Please let us know if you have any questions. Thank you,

Mark Freese
Western Region Supervising Habitat Biologist
Nevada Department of Wildlife
1100 Valley Road
Reno, NV 89512
P: (775) 688-1145
F: (775) 688-1889

"...I feel that the high tension at which the average man has been living is wrecking entirely too many nervous systems. Hunting and fishing is the best nerve tonic I know, and I believe that a greater opportunity for the average citizen to engage in this type of outdoor recreation would greatly promote both the health and happiness of our people." A. Willis Robertson

---

From: Mark Freese
Sent: Friday, May 09, 2014 11:46 AM
To: Carl Lackey; Mark Enders; Travis Hawks
Cc: Kim Tisdale; Mike Dobel; David Catalano
Subject: Schulz Investments Hwy 50 Housing Development Project

All,
The Carson City Planning Division will be hearing comments at their May 28 meeting regarding the Schulz Investments Hwy 50 Housing Development Project. It looks like six lots will be created. Please see attached letter and maps for more details. Please let me know by **5/20** if you have any concerns, issues or recommendations.

Thanks

Mark Freese
Western Region Supervising Habitat Biologist
Nevada Department of Wildlife
1100 Valley Road
Reno, NV 89512

Susan Dorr Pansky

From: Chris Baker <CBaker@manhard.com>
Sent: Tuesday, June 17, 2014 4:12 PM
To: Susan Dorr Pansky
Subject: Schulz Investments TM

Susan:

As a follow up to our phone conversation earlier today;

On Thursday June 12, 2014, Manhard Consulting attended a meeting of concerned property owners regarding the proposed Schulz Investments Tentative Map. The informal meeting began with Manhard Consulting providing a basic property overview including the current master plan and zoning designations and the property's allowed uses. Next we explained the Tentative Map process. The meeting concluded with us, Manhard Consulting, doing our best to answer specific questions relating to the tentative map and addressing any concerns of the property owners in attendance.

If you have any questions, or would like any additional information relating to the neighborhood meeting, please feel free to contact me.

Thanks,
CB

Christopher Baker
Planning Manager
cbaker@manhard.com
O:775.746.3500 ex.4861
C:775.745.4033

Manhard
CONSULTING LTD
9850 Double R Boulevard
Suite 101
Reno, NV 89521
p: 775.746.3500 f: 775.746.3520

Comments Relative to the Matter of Tentative Subdivision Map,

File No. TSM-14-022

After a meeting on 6/12/14 with the Consultant for Schulz Investments (Schulz), the owner of the subject property and representatives of Manhard Consulting Ltd.(Consultant), retained by Schulz to plan the subdivision and several of the adjacent property owners , there are several issues that appear need to be resolved before this subdivision can proceed or be rejected. They are as follows:

1. There seems to be a discrepancy between the Consultant and the attending neighbors regarding the existence of an easement for the driveway used in common by the neighborhood and to which the Schulz property proposes to connect. The Consultant claims that an easement has been filed, yet, no neighbor has this easement represented in any way on their property title. Until this issue is resolved by an independent party, not the Consultant who has a vested interest in the outcome of this issue, I believe this subdivision should not proceed.

2. The Consultant claimed that a hydrology report had been prepared but did not offer to present it. Several neighbors and I believe that adding six houses to the water table that we would all share could put a great deal of stress on the water availability here now and in the future, especially if draught conditions continue. The Consultant's response was that there is "plenty of water". I believe more work needs to be done on this issue.

3. There was no evidence presented by the Consultant that any subdivision or road arrangement was considered than the one presented. This arrangement is most disruptive to the existing neighborhood and will be even more so if and when any building commences in the proposed subdivision. I know there are other ways to access this property because there has been heavy equipment working on the property periodically over the past year and it has been neither put there nor removed through our neighborhood. I believe no action should be taken on this subdivision proposal until other methods of accessing the subject property are evaluated that are less disruptive to the existing neighborhood, both now and in the future.

4. The Consultant's point of view is that no issue needs to be considered unless it is absolutely essential to the mapping of the property. THIS IS NOT PLANNING! This is an attempt to cram the subdivision through and have the ultimate future owner/builders "worry about everything else". Additional issues that should be considered at this time include, but are not limited to:

    a. The aforementioned stress on the water table.
    b. The passage of construction and supply vehicles through the neighborhood if they cannot negotiate the "emergency exit road" that enters US Hwy 50. This will cause noise and damage to the existing driveway for which no provision of repair/replacement has been made. In addition this driveway is not wide enough for a truck and a car to pass one another going in opposite directions.
    c. The unsafe conditions created by construction and supply vehicles entering from US Hwy 50 and exiting onto US Hwy 50 from the future construction site. This is an accident waiting to happen.
    d. Additional stress our already unreliable electrical service. No concern was expressed for this potential problem.

I would like to thank the Carson City Planning Commission and Carson City Planning Division for their consideration of these issues. I know I can count on you to give a reasoned and through analysis of these issues.

If you have any questions or comments regarding this letter I am,

James D. Tarr

4664 Old Clear Creek Road

Carson City, NV 89705

775.291.9877

tarrjim@yahoo.com

Tentative Map Request
For
Schulz Investments
APN: 007-051-72

Carson City, Nevada

Prepared for:

Schulz Investments
207 N. Iris Street
Carson City, NV 89703

Prepared by:

Manhard Consulting Ltd.
9850 Double R Boulevard, Suite 101
Reno, Nevada 89521

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Introduction

The following report information is provided to assist Carson City staff in evaluating the Tentative Map application for the proposed Schulz Investments Project located in southwest Carson City, Nevada. Information submitted in association with the Tentative Map is pursuant to Carson City Municipal Code (CCMC) 18.04.135, the Nevada Revised Statutes (NRS) Section 278.349 and the Nevada Administrative Code (NAC) Section 445A.

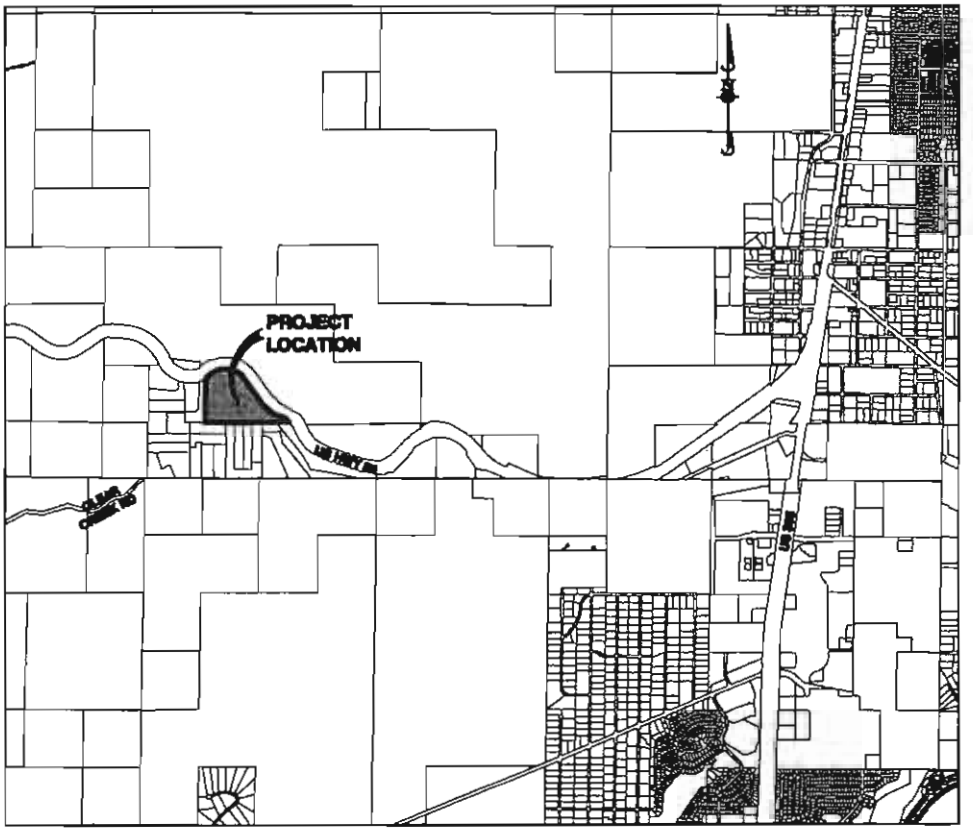
On December 21, 2010, Manhard Consulting staff participated in a Conceptual Review (CSM-10-110) meeting for the proposed Schulz Investments Project. Comments from Carson City Planning and Community Development Staff were received from the initial Conceptual Review on December 29, 2010. Recommendations and comments received from the Conceptual Review have been taken into consideration and incorporated into the project proposal.

Project Location

The Schulz Investments Project, located in A.P.N. 007-051-72 has a total area of approximately 32.7 acres. The parcel is located south of US Highway 50, and west of Highway 395, in Carson City, Nevada. The parcel is a portion of Sections 34 and 35, Township 15 North, Range 19 East, Mount Diablo Meridian.

The adjacent land uses include Highway 50 to the north and east, residential and undeveloped parcels to the west and Clear Creek to the south.

Figure 1: Vicinity Map



Land Use Designations

The Schulz Investments parcel has a Master Plan designation of Rural Residential and a Zoning designation of SF5A.

The Rural Residential Master Plan designation provides a setting for large lot single family residential on the urban fridge with lot sizes ranging from of 5-20 acres in size. The purpose of the SF5A zoning district is to provide for low-density residential units located on large lots and conveying a rural environment. The proposed subdivision will result in densities consistent with the land use designations and the surrounding development pattern.

Table 1: Land Use

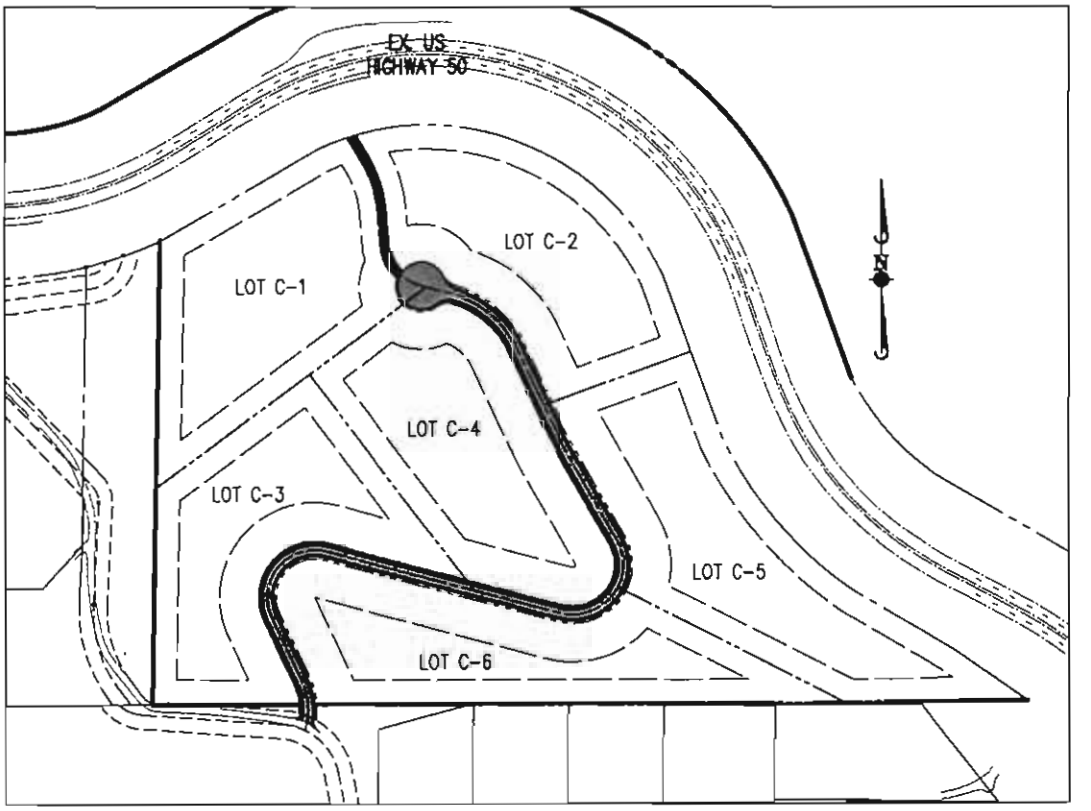
Master Plan	Zoning	Acres	# of Lots	*Ave. Lot Size
Rural Residential	SF5A	32.68 ac	6	5.45 ac

*includes access easements

Project Description

The Schulz Investments Tentative Map is proposed to consist of five (5) lots with an average lot size of 5.45 acres.

Figure 2: Site Plan



Primary access is proposed utilizing an existing access easement off Old Clear Creek Road, with secondary emergency access to be provided to Highway 50. The main and emergency access roads will be developed first and the lots will be individually developed by the respective lot owners.

The proposed setbacks are 100 feet front, 50 feet side, and 50 feet rear, to comply with the requirements of the SF5A zoning district.

Master Plan Policy Analysis

Table 2: Master Plan Land Use Category

LAND USE CATEGORY	RANGE OF DENSITY/SIZE	USES	CHARACTERISTICS	ZONE DISTRICTS
RESIDENTIAL				
Rural Residential (RR)	5-20 acres per dwelling unit.	*Primary:* Large-lot single-family residences *Secondary:* Accessory farm structures, animal keeping.	▪ Typically found in rural settings on the urban fringe. ▪ Lot size and layout varies. ▪ Typically not served by urban utilities, but may be depending on location. ▪ *Relationship to previous Master Plan:* Rural Residential is an established land use category.	SF5, A

The Rural Residential Master Plan designation provides a setting for large lot single family residential on the urban fridge with lot sizes ranging from of 5-20 acres in size. The proposed subdivision will result in densities, uses and characteristics consistent with the land use category. The proposed subdivision is consistent with the following applicable themes of the Carson City Master Plan:

Chapter 3: A Balanced Land Use Pattern:

- ✓ *Consistent with the Master Plan Land Use Map in location and density.*
- ✓ *Provides for levels of service (i.e. water, sewer, road improvements, sidewalks, etc.) consistent with the Land Use designation and adequate for the proposed development (Land Use table descriptions).*

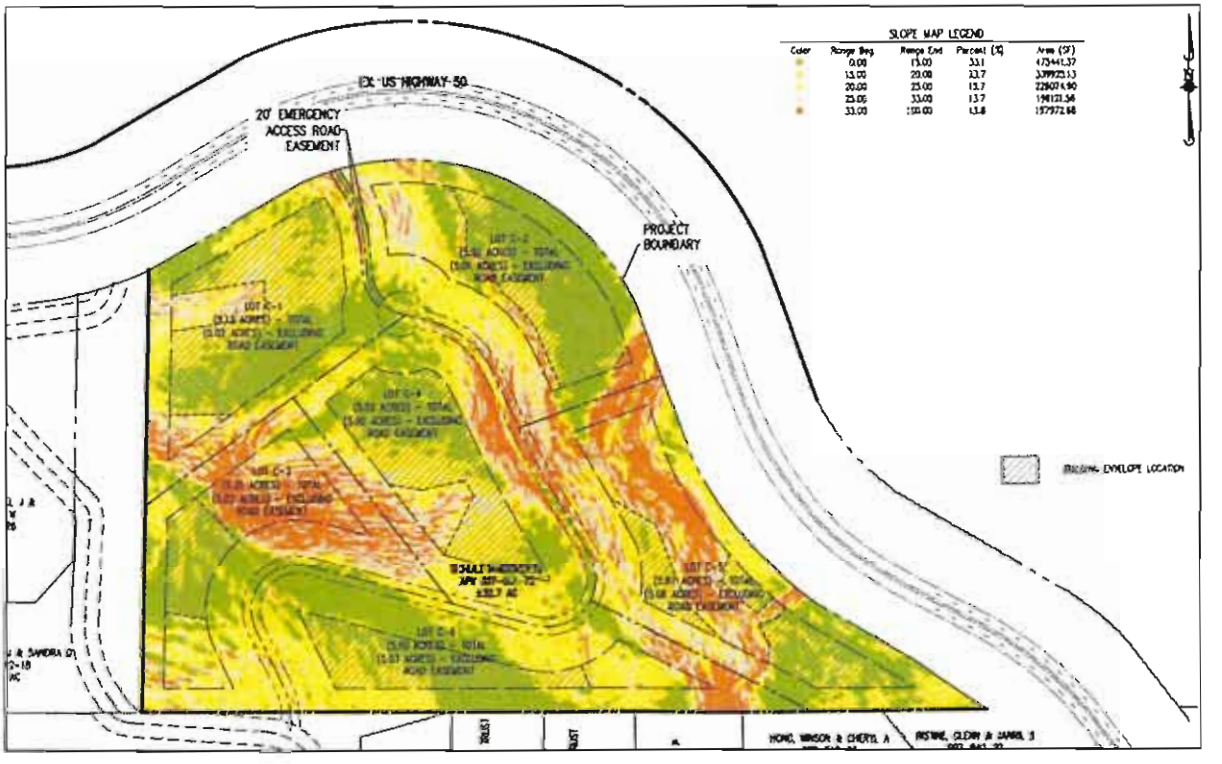
Hillside Development

Hillsides provide spectacular opportunities for home sites, but they also present special challenges in designing developments that are safe and economical while maintaining the qualities of hillsides that contribute to their natural beauty. They contain many natural features and aesthetic values, which need to be protected.

The Conceptual Review comments section 18.08.030 (Special Use Permit Requires) states, in part, that a Special Use Permit will not be required for the proposed development. Procedures and accepted engineering practices for hillside development, erosion control and slope stabilization procedures and recommendations contained in the geotechnical and hydrology reports have been incorporated to minimize potential impacts.

The Schulz Investments Subdivision addresses potential hillside environmental and aesthetic impacts through project design. Schulz Investments, through collaboration between Carson City staff, and Manhard Consulting, has addressed and will continue to address community concerns regarding safety, preservation of scenic views, watershed protection, soil stabilization and erosion control, protection of cultural sites and cumulative environmental effects. A key goal is protecting the natural environment, the views and natural features that resident's and guests to Carson City value (See attached responses addressing the applicable sections of the CCMC 18.16 Hillside Development and Development Standards 7, Hillside Development).

Figure 3: Constraints Map



Fire Protection

Fire protection for the proposed Schulz Investments project will be provided by the Carson City Fire Protection District. Station 3 covers the southern portion of the City and Highway 50 West to Spooner Summit.

The Schulz Investments project is within the boundary of the urban/ wildland interface. All structures within the interface area will comply with the requirements under the International Fire Code 2006 edition, as well as the Carson City Municipal code Title 14. During construction activities, spark arresters will be required on mechanical powered equipment. Specific building materials will be permitted with the development of each individual lot.

The proposed road design provides a main access point along with and emergency access road connecting the subdivision to Highway 50. This will ensure continuous access/egress to an area if one point becomes unavailable and also permits the staging of emergency vehicles, such as fire engines, along one access point while local residents leave an area via other point(s) of access. Roadway designs within the development do not exceed 10% maximum. Emergency road access and egress includes all-weather surfaces which meet minimum design criteria for width and slope steepness. Easements will be dedicated for this specific purpose upon final map recordation.

Water & Sewer

Division 15 (Water, Sewer, Reclaimed Water Standards) of the Carson City Code requires that water and sewer mains shall be extended for developments which are within four hundred feet (400') of an existing main. The Schulz Investments project is not within 400' of a water or sewer main; therefore, individual wells and on-site disposal systems are proposed for each lot. The wells and on-site disposal systems will be the responsibility of each property owner.

Hydrology

Drainage on the site will be conveyed through storm drain piping and surface improvements. Improvements will consist of inlets and storm drains, culverts, detention areas and other drainage facilities required to convey design storm runoff to the point of discharge. Drainage facilities will be constructed in accordance with Carson City standards. Pre-development runoff flow levels will be maintained. A storm water discharge permit will be obtained from Nevada Department of Environmental Protection prior to the start of construction for the project.

Storm water impacts will be minimized and storm drainage will not adversely affect downstream beneficial uses. Storm water drainage improvements in the design and construction phase of this project will be integrated to mitigate storm water impacts. Water quality and erosion control practices, in accordance with the Nevada "Handbook of Best Management Practices" and accepted engineering practice will be an integral component the design and all construction phases. Other feasible techniques will be employed to mitigate water quality impacts including reducing imperviousness surfaces, conserving natural resources and ecosystems, maintaining natural drainage courses and minimizing clearing and grading.

Access

Primary access to the proposed Schulz Investments development will be provided off of the Old Clear Creek Road, via an access easement through APN 007-042-06. In conjunction with the development of the proposed subdivision, improvements will be developed and include a 38 foot PUE and access easement.

NRS 278.349 (3)

The governing body, or planning commission if it is authorized to take final action on a tentative map, shall consider:

(a) Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal;

Environmental health laws and regulations concerning water and air pollution, disposal of solid waste, and individual water and sewage disposal systems are currently are or will be addressed.

(b) The availability of water which meets applicable health standards and is sufficient in quantity for the reasonably foresee able needs of the subdivision;

Do to the subdivisions rural nature, each individual lot will be serviced utilizing a well which will be the responsibility of each homeowner.

(c) The availability and accessibility of utilities;

Utilities are available and accessible for the proposed development through the following utility companies: Sierra Pacific Power, Southwest Gas, AT & T and Charter Communications.

(d) The availability and accessibility of public services such as schools, police protection, transportation, recreation and parks;

Because of the small size of the proposed subdivision, availability and accessibility of public services such as schools, police protection, transportation, recreation and parks are currently in place to serve the proposed development.

(e) Conformity with the zoning ordinances and master plan, except that if any existing zoning ordinance is inconsistent with the master plan, the zoning ordinance takes precedence;

The proposed subdivision conforms with the existing zoning ordinances and Carson City master plan designation.

(f) General conformity with the governing body's master plan of streets and highways;

The proposed subdivision conforms with the Carson City master plan of streets and highways.

(g) The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision;

Primary access to the proposed Schulz Investments development will be provided off of the Old Clear Creek Road, via an access easement through APN 007-042-06. In conjunction with the development of the proposed subdivision, improvements will be developed and include a 38 foot PUE and access easement. It is not anticipated that any additional new streets or highways outside of the proposed development will be required to serve the subdivision.

(h) Physical characteristics of the land such as floodplain, slope and soil;

Physical characteristics of the land such as floodplain, slope and soil have been considered with the design of the proposed tentative map. (See the included geotechnical analysis constraints map and hydrology analysis).

(i) The recommendations and comments of those entities and persons reviewing the tentative map pursuant to NRS 278.330 to 278.3485, inclusive; and

The recommendations and comments made by City staff have been, and will continue to be, taken into consideration and addressed through the development of this tentative map.

(j) The availability and accessibility of fire protection, including, but not limited to, the availability and accessibility of water and services for the prevention and containment of fires, including fires in wild lands.

The applicant will continue to work with city staff to ensure that fire protection will be available to serve the proposed development.

Appendix

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:

TENTATIVE MAP FOR A SUBDIVISION

TSM - 14 -

STATE FEES: See checklist. Submit the two state checks at the time of initial application submittal.

FEE: $3,500.00+ noticing fee + CD containing all application data (to be submitted when application is deemed complete by staff)

SUBMITTAL PACKET
See checklist (fill out checklist and return to staff with the application packet)

Application Reviewed and Received By:

Schulz Investments, LLC	775.297.1655
APPLICANT	PHONE #
207 North Iris St. Carson City, NV 89703	
MAILING ADDRESS, CITY, STATE, ZIP	
Manhard Consulting, Ltd.	775.746.3500
ENGINEER	PHONE #
9850 Double R Blvd Ste 101 Reno, NV 89521	
MAILING ADDRESS, CITY, STATE, ZIP	
cbaker@manhard.com	
E-MAIL ADDRESS	
No site address, port sec 35 15/19	
PROPERTY ADDRESS, CITY, STATE, ZIP	
SF5A	007-051-72
PRESENT ZONING	APN(S)

REQUEST: In accordance with the provisions of Title 17 of the Carson City Municipal Code, application is hereby made for a Planned Unit Development on property situated at:

The application is requesting a six (6) lot tentative subdivision map

The required modifications to Carson City's Land Use Regulations are as follows:

N/A

N/A

N/A

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

William E. Schulz — Applicant's Signature

4/8/14 — Date

PROPERTY OWNER'S AFFIDAVIT

I, WILLIAM E. SCHULZ, 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.

William E. Schulz — Signature

207 N. IRIS ST, CARSON CITY, NV 89703 — Address

4/8/14 — Date

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

STATE OF NEVADA)
COUNTY carson city)

On April 8, 2014, personally appeared before me, a notary public, William E. Schulz personally known (or proved) to me to be the person whose [illegible] and who acknowledged to me that he/she executed the foregoing document.

Linda McKenzie — Notary Public

LINDA MCKENZIE
NOTARY PUBLIC
STATE OF NEVADA
No.02-78898-3 My Appt. Exp. Aug. 1, 2014

NOTE: In order to avoid unnecessary time delays in processing your develop project, it is important that it be as complete as possible when submitted. A checklist is available to assist you and your engineer. If you have further questions regarding your application, please call the Planning Division at 775-887-2180.

Tentative Subdivision Submittal Checklist

Yes	No		
X	___	1.	Conceptual Map conference held previous to submittal of subdivision application.
X	___	2.	21 copies of Tentative Map (1Orignial + 20 Copies) (folded 8-1/2 X 11).
X	___	3.	10 copies of Informational Booklet.
X	___	4.	State fee payment (2 checks).
X	___	5.	Application form completed.
X	___	6.	3 wet stamped maps for State offices and Engineering Division.

Note: Digital data is required on a CD after the application is deemed complete by staff.

The tentative submittal packet must include all of the following information. Packets which do not contain this information or information requested at the conceptual may not be scheduled on the next available Planning Commission agenda. It is up to the applicant to ensure that all required information is submitted in order for staff and the Planning Commission to make a proper recommendation. In addition to the brief description of your project and proposed use, provide additional page(s) to show a more detailed summary of your project and proposal.

Yes	No		
X	___	1.	The location and size of the site, the lot layout and the lot lines of the proposed development, including a legal description of the land and the owners interest in the land proposed to be developed, by an affidavit of ownership.
X	___	2.	The density of land use to be allocated to parts of the site to be developed; a tabulation of the total land area and the percentage designed for the various uses.
___	n/a	3.	The location, size of any park land or open space, and the form of organization proposed to own and maintain any common open space, and amount of recreational improvements. Provide two copies of proposed C.C.&R.'s.
X	___	4.	The subdivision name, and name and address of the developer and engineer and date of map.
X	___	5.	The proposed circulation pattern including the design of all public and private streets, name and width of streets and the location of adjoining streets, sidewalks and bikeways.
X	___	6.	Provide a street grading plan.
X	___	7.	Adjacent subdivision, land uses, zoning, and ownership abutting the project.
X	___	8.	Number, size, square footage and use of proposed parcels. Blocks and parcels are to be numbered consecutively and the dimension of all parcels are to be shown.
X	___	9.	A proposed grading plan meeting department of public works standards and requirements showing all cuts and retaining walls to be designated.
___	X	10.	Provide a landscape plan for the development.
X	___	11.	Topographic map with contour intervals of two and one-half feet for slopes of less than 10% and five feet for slopes of greater than 10%.
X	___	12.	A note indicating location of all utility easements proposed and existing.
X	___	13.	The layout of water, sewer, and storm drainage systems.
X	___	14.	A soils report including soil types, seasonal high water table, and percolation rates (if on septic).
X	___	15.	North arrow and scale, all sheets to be numbered.
___	n/a	16.	Location of existing buildings.
X	___	17.	Building setbacks to be noted on plat. If applying to Planning Commission for staggered setback approvals, separate set of 12 plans to be submitted.
___	X	18.	Areas not a part of the subdivision to be designated as "not a part".
X	___	19.	Provide a conceptual drainage study meeting the standards and requirements of the Carson City Development Standards Division 14.8.
X	___	20.	An indication of the type of water system to be used, its water sources and engineering data on fire flows.

X	___	21.	Location of all natural drainage features shown. Yes No
X	___	22.	An erosion control plan including stream protection, road drainage, erosion prevention, prevention of untreated discharge to streams, if applicable.
___	n/a	23.	Solid waste provision.
___	n/a	24.	Height, size, location and use of all structures, fences and walls are to be shown.
X	___	25.	An indication of method of sewage disposal to be used and area of disposal.
X	___	26.	A map showing a 100 year flood plan, as determined by recognized methods, for those areas subject to flooding; show earthquake fault lines through the proposed development with building setbacks from fault line as recommended by a geotechnical study.
X	___	27.	The development shall be described by 40 acre subdivision, section, township and range.
X	___	28.	Indicate master plan designation for the project.
___	n/a	29.	A master plan for potential development of the property under the ownership or control of the developer in the area of the proposed development.
___	n/a	30.	Location, dimensions of all vehicle parking and/or boat/RV storage areas, if applicable.
___	n/a	31.	In the case of plans which call for development over a period of years, a schedule showing proposed time within which applications for final approval of all sections of the development are intended to be filed.
X	___	32.	Shall prove that no tax is delinquent by placing a certificate signed by the city treasurer to this effect (NRS.278.349(5)) on the plat.
___	n/a	33.	Traffic study stating average daily trips generated from the project.
X	___	34.	A written document indicating the benefits of the development to Carson City, any adverse impacts which may arise from the development and the mitigation programs, and how the proposed development will enhance or benefit the surrounding areas and stating how dust will be controlled. Address how your project complies with the attached NRS278.349(3); addressing each section item by item.
X	___	35.	A written document addressing the Master Plan Policy Checklist for a Conceptual Map for a Planned Unit Development of the five items that appear in the Carson City Master Plan. Each theme looks at how a proposed development can help achieve the goals of the Carson City Master Plan. Address each theme; a check indicates that the proposed development meets the applicable Master Plan Policy. In your own words provide written support of the policy statement. You may want to acquire a free CD or purchase a paper copy of the Master Plan from the Planning Division, or review the copy in the Planning Office or in the reference section of the Ormsby Public Library on Roop Street, or use our website at www.carson.org.
X	___	36.	Application complete_____ Date_____

The State Division of Environmental Protection will now require fees for the review of subdivision and planned unit development applications. This fee is in addition to the fees required by State Water Resources. They also require wet stamped original maps.

To assure the necessary reviews are completed, the Planning Division will require payment of the State fees at the time of the City application submittal. This can be handled by submitting two checks to this office: one payable to NDEP for $400 per map plus $3.00 per lot AND $100 per map plus $1.00 per lot; the second check payable to STATE WATER RESOURCES in the amount of $150 per map plus $1.00 per lot. The checks will be routed to the State offices with their copy of the application packet. The alternative method is to pay the State offices directly and submit the receipts with your City application.

The State Division of Environmental Protection will also require a non-refundable fee of $50 for each review of final subdivision and planned unit development maps.

NOTE: Fees are subject to change. It is applicant's responsibility to ensure their checks are submitted for current required fees.

Master Plan Policy Checklist

Conceptual & Tentative Subdivisions, PUD's & Parcel Maps

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 subdivisions of property. This checklist is designed for developers, staff, and decision-makers and is intended to be used as a guide only.

Development Name: Schulz Investments Tentative Map for APN: 007-051-72

Reviewed By: _____

Date of Review: _____

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:

- ✔ Consistent with the Master Plan Land Use Map in location and density?
- ☐ Meet the provisions of the Growth Management Ordinance (1.1d, Municipal Code 18.12)?
- ☐ Encourage the use of sustainable building materials and construction techniques to promote water and energy conservation (1.1e, f)?
- ☐ Located in a priority infill development area (1.2a)?

- ☐ Provide pathway connections and easements consistent with the adopted Unified Pathways Master Plan and maintain access to adjacent public lands (1.4a)?
- ☐ Encourage cluster development techniques, particularly at the urban interface with surrounding public lands, as appropriate, and protect distinctive site features (1.4b, c, 3.2a)?
- ☐ At adjacent county boundaries, coordinated with adjacent existing or planned development with regards to compatibility, access and amenities (1.5a)?
- ☐ Located to be adequately served by city services including fire and sheriff services, and coordinated with the School District to ensure the adequate provision of schools (1.5d)?
- ☐ 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)?
- ☐ Provide a variety of housing models and densities within the urbanized area appropriate to the development size, location and surrounding neighborhood context (2.2a, 9.1a)?
- ☐ Protect environmentally sensitive areas through proper setbacks, dedication, or other mechanisms (3.1b)?
- ☐ If at the urban interface, provide multiple access points, maintain defensible space (for fires) and are constructed of fire resistant materials (3.3b)?
- ☐ Sited outside the primary floodplain and away from geologic hazard areas or follow the required setbacks or other mitigation measures (3.3d, e)?
- ✔ 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)?
- ☐ If located within an identified Specific Plan Area (SPA), meet the applicable policies of that SPA (Land Use Map, Chapter 8)?

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

CHAPTER 5: ECONOMIC VITALITY

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

Is or does the proposed development:

- ☐ Incorporating public facilities and amenities that will improve residents' quality of life (5.5e)?
- ☐ Promote revitalization of the Downtown core (5.6a)?
- ☐ Incorporate additional housing in and around Downtown, including lofts, condominiums, duplexes, live-work units (5.6c)?

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:

- ☐ Promote variety and visual interest through the incorporation of varied lot sizes, building styles and colors, garage orientation and other features (6.1b)?
- ☐ 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)?
- ☐ 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)?
- ☐ 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)?
- ☐ If located Downtown:
  - o Integrate an appropriate mix and density of uses (8.1a, e)?
  - o Include buildings at the appropriate scale for the applicable Downtown Character Area (8.1b)?
  - o Incorporate appropriate public spaces, plazas and other amenities (8.1d)?

CHAPTER 7: A CONNECTED CITY

The Carson City Master Plan seeks 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)?
- ☐ Maintain and enhance roadway connections and networks consistent with the Transportation Master Plan (11.2c)?
- ☐ 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)?

A parcel of land located within the Northeast one-quarter of the Southwest one-quarter and the Northwest one-quarter of the Southeast one-quarter of Section 35, Township 15 North, Range 19 East, MDM, Carson City, Nevada, being more particularly described as follows:

BEGINNING at a point, which bears N. 01°03'16" E., 1308.31 feet from the South one-quarter corner of said Sections 35;

thence N. 89°54'11" W., along the Southerly line of said Northeast one-quarter of the Southwest one-quarter, 1310.96 feet to the southwest one-sixteenth corner of said Section 35;

thence N. 01°15'11" E., along the Westerly line of said Northeast one-quarter of the Southwest one-quarter, 969.20 feet to a point on the Southerly right-of-way line of U.S. Highway 50;

thence along said Southerly right-of-way line the following eight courses:

1. N. 60°25'02" E., 210.82 feet;
2. N. 60°23'36" E., 180.79 feet;
3. 834.25 feet along the arc of a curve to the right having a central angle of 86°54'25" and a radius of 550.00 feet, (chord bears S. 70°14'50" E., 756.54 feet);
4. S. 19°38'37" E., 195.89 feet;
5. S 19°12'18" E., 174.54 feet;
6. 449.34 feet along the arc of a curve to the left having a central angle of 30°17'07" and a radius of 850.09 feet, (chord bears S. 40°24'59" E., 444.13 feet);
7. S. 59°09'31" E., 204.65 feet;
8. S. 58°28'59" E., 220.00 feet to a point on the South line of the Northwest one-quarter of the Southeast one-quarter of Section 35;

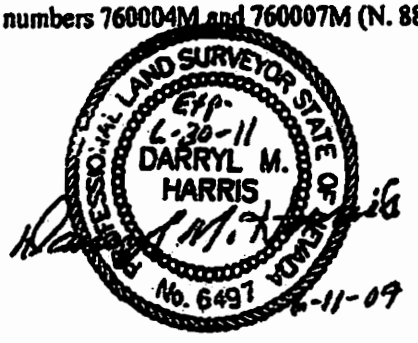
thence S. 89°50'21" W., along said South line, 537.27 feet to the POINT OF BEGINNING.

Containing 32.68 acres, more or less.

Basis of Bearing:

The line between NDOT monument numbers 760004M and 760007M (N. 88°55'58" E.)

PREPARED BY:
Darryl M. Harris, P.L.S. # 6497
Resource Concepts, Inc.
P.O. Box 11796
212 Elks Point Road, Suite 443
Zephyr Cove, NV 89448



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Treasurer Home | Assessor Data Inquiry | Back to Last Page

Secured Tax Inquiry Detail for Parcel # 007-051-72

Property Location: PORTION SEC 35 15/19
Billed to: SCHULZ INVESTMENTS LLC
207 N IRIS ST
CARSON CITY, NV 89703-0000

Roll #: 015145
Tax Year: 2014
District: 2.5
Tax Service:
Land Use Code: 600

Outstanding Taxes

Prior Year	Tax	Penalty/Interest	Total	Amount Paid	Total Due
2011+	2.08		2.08	2.08	
2012	1.13		1.13	1.13	
2013	1.19		1.19	1.19	.00
Current Year					No Taxes Owing
08/19	1.26		1.26	1.26	.00
10/07					
01/06					
03/03					

History

Schulz Investment Subdivision – Conceptual Review CSM-10-110

The following are the original Conceptual Review comments which where appropriate have been incorporated into the Tentative Map submittal, the original comments are in bold followed by our responses in italics:

PLANNING DIVISION

1. **Pursuant to Carson City Municipal Code, Subdivision Ordinance, Title 17.05.005 Application Process: Following consideration of the conceptual plan, an application for tentative approval of a subdivision may be filed on behalf of the land owner. The application and required submittal information must be filed with the Director and accompanied by fees as set by resolution of the Board;**
   The Tentative Map application, along with the required fees, is included with this submittal package.

2. **Address street light treatments if any;**
   No street lights are proposed with this project.

3. **Provide rural mail box locations of the subdivision if any are proposed;**
   No mailboxes are proposed with this project.

4. **Address the proposed fencing material of the residential lots if any;**
   No fencing is proposed with this project.

5. **Provide photo simulation from at least two points are required to be submitted as part of the Tentative map submittal;**
   Two photos simulations of the project site are being provided with this application.

6. **Provide at least two site sections of the proposed project as part of the Tentative Map submittal;**
   Two site cross sections are included in the Tentative Map plans – refer to sheet 4.

7. **The appropriate number of prints shall be submitted on durable paper approximately twenty-four by thirty-two inches (24"x36") in size with a marginal line drawn completely around each sheet, leaving an entirely blank margin of one inch at the top, bottom, and rights edges, and two (2) inches at the left edge along the twenty four inch (24") dimension. Scale must be large enough to show all details clearly. Each sheet must be numbered and the total number of sheets comprising the map must be stated on each of the sheets;**
   Comment noted.

8. **This Hillside Development will be subject to the criteria noted in the CCMC, Chapter 18.16 Hillside Development and Development Standards 7, Hillside Development. Please address in writing the applicable standards with the required Tentative Map submittal. See attached copies.**
   See attached response addressing the applicable sections of the CCMC Chapter 18.16 (Hillside Development) and Development Standards 7 (Hillside Development).

18.08.020 Engineering Reports, Mapping, Grading Plans and Standards Required.

1. **Before beginning any development on a parcel in a hillside area or a skyline area, an application supplied to the City must be submitted and approved with the requirements of CCMC 18.08 Hillside Development.**
   Comment noted.

2. **Before a certificate of occupancy may be issued for any structure on s parcel covered by this Section, the project engineer shall certify in writing that the improvements as built are in compliance with regulation of CCMC 18.08 Hillside Development.**
   Comment noted.

18.08.030 Special Use Permit Required.

1. **Development of any portion of any parcel with an average slope of thirty-tree percent (33%) or more requires compliance with this Chapter and the prior issuance of a Special Use Permit. If the property is being developed through subdivision and a tentative subdivision map das been submitted and approved, no Special Use Permit is required. The proposed project will be developed through a tentative subdivision map; a Special Use Permit will not be required for the proposed development.**
   Comment noted.

7.2 Applicability

1. **Any parcels or development sites exhibiting and average fifteen percent (15%) or more are subject to the standards and requirements of Development Standards Division 7, Hillside Development.**
   Comment noted.

2. **Please address in writing the applicable standards of Division &, Hillside Development with the required Tentative Map submittal.**
   See response to the Planning Division comment #8 above.

3. **All development in hillside areas must comply with provisions contained in the pamphlet entitled "Wildfire Protection for Homeowners and Developers" prepared by the Sierra Front Wildfire Cooperators, which has been replaced with the following:**
   - **Living with Fire – A Guide for the Homeowner;**
   - **Safer From the Start – A Guide to Firewise-Friendly Developments.**

   We have attached copies of the above noted publications.
   Comment noted.

4. **This development is within the designated "wildland urban interface" and must comply with all codes and ordinances applicable to the development. CCMC Title 14 defines conditions for compliance such as access, water supply, fire sprinkler system, ignition resistant building construction, fuel modification and defensible space, spark arresters and storage and use of LPG and fuel materials.**
   The individual lots will not be developed as part of this project. Lot development will be the responsibility of each lot owner.

5. **The Tentative Map must reflect a building envelope per each residential parcel and must include all dimensions and square footage of building envelopes. The building envelopes shall not include area of a slope greater than 33%.**
   Building envelopes and square footages are shown on sheet 2 of the Tentative Map.

ENGINEERING DIVISION

1. **The Tentative Map submittal should include a preliminary grading plan/profile for the primary access road and the emergency access road(s), with particular emphasis on the area adjacent to where the access will connect to Highway 50W.**
   The Tentative Map includes a grading plan and profile for the primary access road including the emergency access road – see sheets 3 and 4.

2. **The area is clearly steep enough to be included in the Hillside Ordinance. All pertinent requirements of Section & of Carson City Development Standards (CCDS) must be met.**
   See response to the Planning Division comment #8 above.

3. **If there is a connection to City sewer, a sewer capacity study will be needed to determine if the 6" sewer main in Old Clear Creek Rd. can carry the added flows from this subdivision. Please see section 15 of the CCDS.**
   There is no sewer connection proposed for this project, septic tanks will be used.

4. **Any variance from Caron City standards for the private roadways will require adequate justification and approval of the Board of Supervisors.**
   According to the Hillside Ordinance Sections:
   7.9.5) Roads must be designed to create the minimum feasible amount of land coverage and the minimum feasible disturbance to the soil.
   7.9.8) Variations by the City Engineer in road design and road construction are permitted in order to keep grading and cut-fill slopes to a minimum.

   Therefore, due to the steepness of the terrain at the project site, a private road with reduced speed limits and a narrower section (20 feet wide plus a 4 foot shoulder on each side) is proposed for the site. The narrower road section will reduce cuts and fills, and avoid excessive disturbance to the existing soil. The proposed road section has been deemed adequate based on previous meetings with both the City Engineer and the Fire Department.

5. **Roadway and driveway access must meet the minimum requirements of the Carson City Fire Department and the Hillside Ordinance and be shown on the tentative map.**
   No driveways are being proposed with this project. Individual driveways will be constructed by each lot owner.

   The proposed access roads section has been deemed adequate based on previous meeting with the City Engineer and the Fire Department. The road, as shown on sheet 3 of the Tentative Map, has been graded according to the Carson City Development Standards and the Hillside Ordinance requirements.

6. **A Conceptual Drainage Study must accompany submittals for tentative map approval. Please see section 14 of CCSD.**

A Conceptual Drainage Study is being included with this submittal.

7. **Sight distance must be addressed where the emergency outlet intersects Hwy 50 w. NDOT will have requirements on this.**
   The Highway 50 secondary access has been administratively approved by NDOT and the full permit is in process.

8. **Two access ways will be required. The emergency access must be approved by NDOT as well as Carson City.**
   Two access roads are proposed for the project, a primary access road which connects to the an existing road leading into the Old Clear Creek Rd., and an emergency access connection the project site to Highway 50. The Highway 50 secondary access has been administratively approved by NDOT and the full permit is in process.

9. **Old Clear Creek Rd. in this are is a private road, and there is no public access to this property. Access issues must be addressed with the property owner in question. Please see section 11.12.085 paragraph #2 for more information.**
   Per Parcel Map 1740, the existing 60' access and drainage easement, from the Old Clear Creek Road going north through parcels APN 007-042-03 through 007-042-006, benefits the project parcel. An additional access easement through parcel APN 007-042-006 will be recorded allowing for the proposed access road to connect to an existing road running along the previously mentioned easement. A copy of the recorded easement will be provided to Carson City as soon as it is completed.

10. **Please show information pertaining to the easement road from Old Clear Creek Road to the property boundary.**
    The Tentative Map Site Plan (Sheet 2) shows the location and map references for the existing access easement from Old Clear Creek Road to the property boundary.

11. **Please address permanent and temporary drainage and erosion control with the Tentative Map.**
    Erosions Control requirement notes have been included with the Tentative Map – see Grading and Drainage sheet 3.

12. **Any construction areas with a slope of 33% or greater must have a special use permit. Please see section 7 of the CCDS.**
    According to the Planning Division Comment under section 18.08.030 Special Use Permit Required above, "the proposed project will be developed through a tentative subdivision map; a Special Use Permit will <u>not</u> be required for the proposed development".

FIRE DEPARTMENT

1. **The emergency egress roads must be maintained as an all weather surface.**
   The Tentative Map shows an all weather surface for the emergency egress road, as required.

2. **Driveways, which exceed 150' in length, will be provided with approved turnarounds. Driveways exceeding 200' in length must be provided with approved turnarounds.**

Comment noted. No driveways are proposed to be constructed with this project. Individual driveways will be construction by each lot owner.

3. **10% grade is the maximum allowed by the Hillside Ordinance.**
   Comment noted.

4. **This area is in the wildland urban interface area of Carson City. A fuels management plan must be provided.**
   A fuels management plan will be provided with Final Improvement Plans.

NEVADA DIVISION OF FORESTRY

1. **Apply for a Timberland Conversion Certificate (NRS 528.0820). This process can be completed in two weeks. See attachment.**
   A Timberland Conversion Certificate will be obtained with Final Improvement Plans.

2. **Submit a forest fire prevention and suppression plan with the State Forester/Firewarden, if any logging or equipment work will occur during the fire season (NRS 582.080). See attachment.**
   A forest fire prevention and suppression plan will be submitted with Final Improvement Plans.

3. **Develop a hazardous fuels management plan to reduce the fire danger on the property (NRS 472.120).**
   A hazardous fuels management plan will be prepared with Final Improvement Plans

Chapter 18.08 - HILLSIDE DEVELOPMENT

18.08.020 - Engineering reports, mapping, grading plans and standards required.

1. Before beginning any development on a parcel in a hillside area or a skyline area, an application supplied by the city must be submitted and approved with all of the following requirements met:
    a. A professional Engineer registered in the State of Nevada must prepare and submit to the Director reports on soils, geology and hydrology to be used in determining the effects of development, grading or clearing on a parcel. For the reports required by this Section, the engineer may be permitted to rely on, in part, or refer to existing reports for the subject parcel which have been prepared by another professional engineer or a governmental agency including without limitation the Soil Conservation Service, the U.S. Geological Survey, FEMA, and reports or studies prepared for the subdivision map or parcel map of which the subject parcel is a part;
    N/A
    b. Topographic mapping of the site and surrounding area must be submitted to planning and community development.
    A topographic map is included with the Tentative Map.
    c. A grading plan must be submitted to the director in accordance with Division 13 of the development standards.
    A grading plan for the proposed improvements is included with the Tentative Map.
    d. The proposed development must comply with the standards for drainage improvements. driveways and parking, slope stabilization, revegetation, placement of utilities, buildable area standards, open space, setbacks, fire protection and maintenance of improvements as contained in the manual.
    The proposed improvements were designed according to the applicable standards.

2. Before a certificate of occupancy may be issued for any structure on a parcel covered by this Section, the project engineer shall certify in writing that the improvements as built are in compliance with regulation of this Chapter.
    No structures are proposed for the individual lots as part of these improvements.

18.08.025 - Setback variances.

No setback variances were requested for the proposed project.

18.08.030 - Special use permit required.

According to paragraph one of this section, a Special Use Permit is not required for the proposed project.

Division 7 - HILLSIDE DEVELOPMENT

7.3 - Engineering reports and requirements.

7.3.1 Professional Project Engineer Responsibilities.

a. It is the responsibility of the project engineer to prepare a grading plan; to incorporate into the grading plan all recommendations contained in the soils, geology, and hydrology reports that may be required by the building department; to inspect and certify all grading operations; and to certify that the work was completed in accordance with the approved grading plans upon the completion of the project.
b. Prior to and during grading operations, all necessary reports, compaction data, soils, geology and hydrology recommendations must be submitted by the project engineer to the building department.
c. The project engineer must make an immediate written report, with recommended corrective measures to the building department, if the engineer discovers that the work on a hillside is below the standards required by this ordinance or by the approved final grading plan.
d. If the project engineer, soils engineer, geologist, or hydrologist of record ceases his or her professional services on a hillside project, the grading work must be halted until the replacement engineer has agreed to accept the responsibility for certification of the work.
e. Upon completion of all development related to the development of a single parcel and prior to issuance of a certificate of occupancy, the project engineer shall certify to the building department that all work was performed in accordance with approved plans.
f. The city engineer may approve procedures for securing financial instruments in order to secure improvements not completed prior to occupation.

These items will be address with final improvements plans, as required.


N
50
705
Old Clear Creek
Image U.S. Geological Survey
© 2011 Google
Google
633 ft
Imagery Date: Sep 1, 2009
39°07'04.09" N 119°49'12.12" W elev 5462 ft
Eye alt 5656 ft


N
50
705
Old Clear Creek Rd
873 ft
Image U.S. Geological Survey
© 2011 Google
Google
Imagery Date: Sep 1, 2008
39°07'01.72" N 119°49'07.03" W elev 5420 ft
Eye alt 8757 ft

Manhard CONSULTING LTD

CONCEPTUAL
DRAINAGE STUDY

FOR

APN: 007-051-72
TENTATIVE MAP

CARSON CITY, NEVADA

Prepared for:

Schulz Investments
207 N. Iris Street
Carson City, NV 89703

Prepared by:

Manhard Consulting Ltd.
9850 Double R Boulevard
Suite 101
Reno, Nevada 89521

1 Introduction

1.1 Purpose of Analysis

This conceptual drainage study has been prepared to support the Tentative Map Plans for the proposed development on Assessor Parcel Number 007-051-72.

The objective of this report is to demonstrate the proposed development will not adversely impact downstream properties.

1.2 Project Location and Site Description

The project is located on A.P.N. 007-051-72 and has a total area of approximately 32.7 acres. The parcel is located south of US Highway 50, and west of Highway 395, in Carson City, Nevada. The parcel is a portion of Sections 34 and 35, Township 15 North, Range 19 East, Mount Diablo Meridian (refer to Exhibit 1, Vicinity Map).

The subject parcel is bound by Highway 50 to the north and east, and with residential and undeveloped parcels to the west and south. Old Clear Creek Road is located to the south of the project.

1.3 Project Description

The proposed project consists of 6 residential lots of approximately 5 acres and a private access road running north-south through the property.

2 Master Planning Information

FEMA Floodplain Information

FEMA Map 3200010205E lists the project parcel as Zone D, which is identified as "Areas in which flood hazards are undetermined, but possible. There are no FEMA flood zones within the project boundary. The FEMA map is included in Appendix 3.

3 Methodology and Assumptions

3.1 Hydrologic Analysis Method

The peak storm flows estimated herein were determined using the data and methodologies presented in the Carson City Development Standards – Title 18 Appendix – Division 14 – Storm Drainage, precipitation data from NOAA Atlas 14 (see Appendix 3), and USDA Urban Hydrology for Small Watersheds – TR55.

Per the Carson City Development Standards, the SCS TR-55 method is recommended for watershed areas no larger than 10 square miles. The total tributary area for the proposed project site is well under 10 square miles; therefore, the SCS TR-55 Method was used to estimate storm water runoff for the 100-year storm events. The Hydraflow Hydrograph program was used for all computations. All reference materials (tables, charts, and supporting data) used for the storm water runoff calculations are included in with this report.

Runoff flow path lengths representative of each tributary basin were chosen and flow travel time velocities were determined based on the type of ground cover, and approximate flow path slopes. The time of concentration for each basin was calculated using path length and flow velocity – refer to the TR55 Travel Time Calculations.

The Curve Number (CN) was determined according to the soil type of drainage area – refer to Appendix 3 for reference materials. Where applicable, a composite runoff coefficient was utilized.

4 Pre-Development Drainage Conditions

4.1 Pre-Development Off-Site Drainage

The hydrologic model analyzed the tributary off-site drainage areas (Sub-Basins 1, 2 and 3) and the on-site tributary drainage areas (Sub-Basins 4 and 5) to generate routed hydrographs for selected points of discharge Outflow #1 and Outflow #2.

See Exhibit 2 for the pre-developed watershed map showing all off-site tributary area to the project and its associated flow paths.

4.2 Pre-Development On-Site Drainage

The project site is currently mostly undeveloped, with the exception of an existing narrow access road. The site has an average slope of about 15% with some flatter and steeper sections. The existing ground cover consists of native brushes with some isolated trees. There are two natural drainage channels crossing through the project site. One enters the project site at the western boundary line and the other at the north and eastern boundary lines. Both drainage channels exit the site at the south boundary.

Off-site runoff from the area north of Highway 50 and from Highway 50 itself flows into the site through curb openings and culverts.

Storm water runoff from five clearly identified sub-basins flow generally south into the project site. Sub-basins 1 and 2 currently drain south into an existing culvert located to the north of Highway 50, which then discharges into an existing natural

drainage channel running north-south through the site. Sub-Basin 3 currently drains west and discharges into the same channel as Sub-Basins 1 and 2. Sub-Basins 4 and 5 are a combination of both off-site and on-site flows.

Flow from Sub-Basin 4 currently exits the project parcel at Outflow #1. The combined flow from Sub-Basins 1, 2, 3 and 5 exits the site at Outflow #2. Refer to Appendix 1 for the pre-development drainage map (Exhibit 2) and flow calculations.

Table 1 below summarizes the sub-basin characteristics and peak storm flows for the pre-development conditions.

Table 1. Pre-Development Sub-basin Characteristics and Peak Storm Flows

Sub-basin	Area (acres)	Time of Concentration (min)	Curve Number (CN)	100-Year Peak Flow (cfs)
1	31.3	48.6	60	16.3
2	274.7	59.2	60	125.0
3	21.5	36.4	65	20.3
4	26.5	94.9	61	9.4
5	27.6	66.7	62	13.6

5 Post-Development Drainage Conditions

5.1 Post-Development Off-Site Drainage

The post-development off-site drainage conditions remain the same as the pre-development off-site drainage conditions.

The hydrologic model analyzed the tributary off-site drainage areas (Sub-Basins 1, 2 and 3) and the on-site tributary drainage areas (Sub-Basins 4 and 5) to generate routed hydrographs for selected points of discharge Outflow #1 and Outflow #2.

See Exhibit 3 for the post-developed watershed map showing all off-site tributary area to the project and its associated flow paths.

5.2 Post-Development On-Site Drainage

With the development of the proposed access road, the storm runoff will be collected through a system of roadside ditches and culvert crossings. The proposed drainage system will be designed according to the Carson City Development Standards with Final Improvement Plans.

The off-site flows from Sub-Basins 1, 2 and 3 will remain the same as in the Pre-Development conditions with no improvements proposed for those areas. Flow from

these basins will be perpetuated and will enter and leave the project site at or near its historical location.

With the addition of the proposed access road, the flow path for Sub-Basins 4, and 5 will remain the same but the contributing areas were revised. The flows from Sub-Basins 4 and 5 will be perpetuated and will also enter and leave the project site at or near its historical locations. Refer to Appendix 2 for the post-development drainage map (Exhibit 3) and flow calculations.

No work is being proposed within the FEMA flood area as show on the attached FEMA map.

Table 2 below summarizes the sub-basins characteristics and peak storm flows for the post-development conditions.

Table 2. Post-Development Sub-basin Characteristics and Peak Storm Flows

Sub-basin	Area (acres)	Time of Concentration (min)	Curve Number (CN)	100-Year Peak Flow (cfs)
1	31.3	48.6	60	16.3
2	274.7	59.2	60	125.0
3	21.5	36.4	65	20.3
4	31.5	94.9	62	12.0
5	22.6	66.7	64	12.8

6 Conclusion

The drainage calculations based on the Tentative Map plans, and its supporting data are included in Appendices 1, 2 and 3.

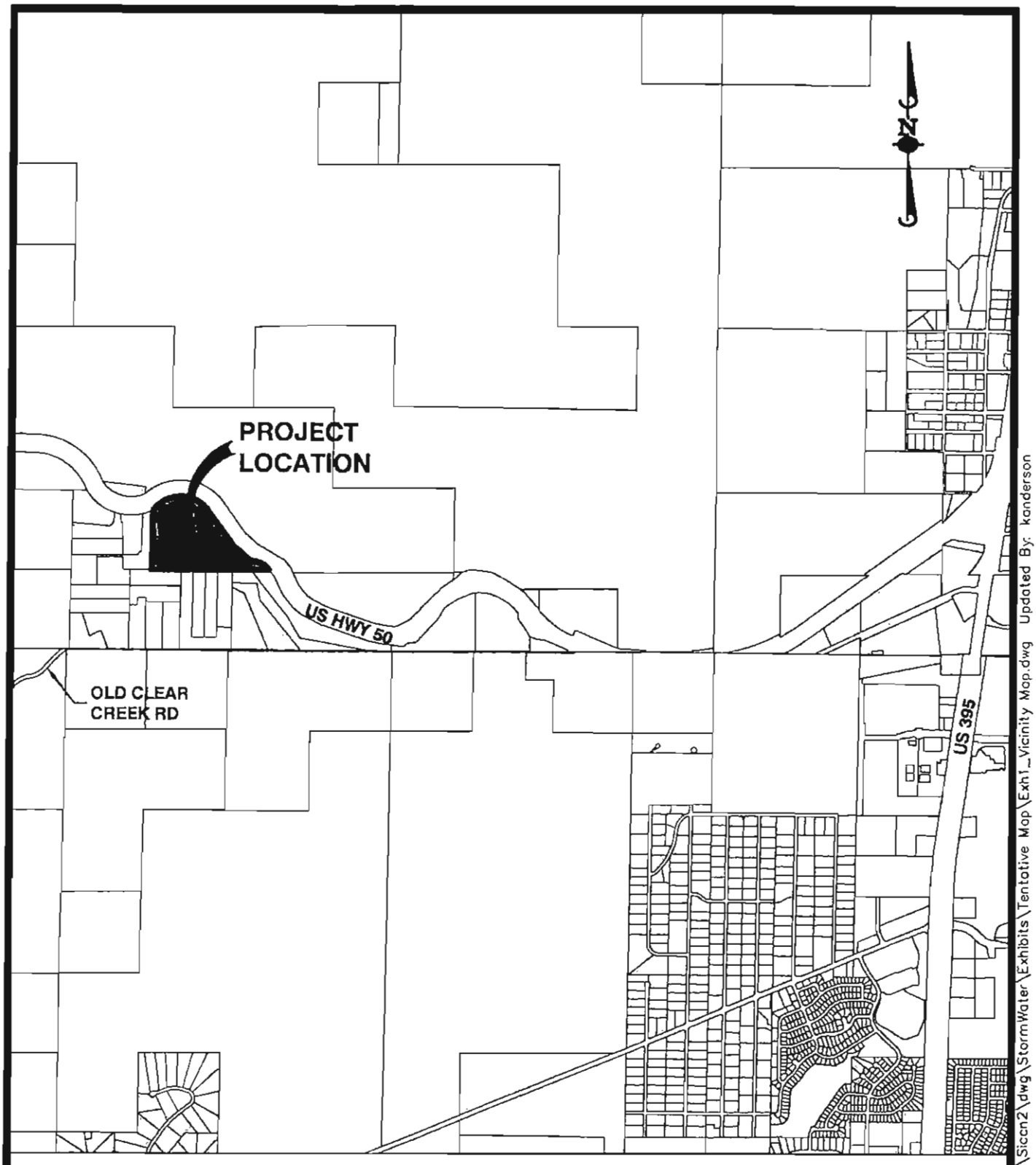
The flows from the off-site tributary areas will continue to be routed through the project at or near existing locations and with adequate protection for the proposed development and the downstream properties as required by Carson City.

The estimated post-development 100-year storm peak flows for Sub-Basins 1, 2 and 3 remains the same as the pre-development flows. The estimated pre and post-development 100-year storm peak flows for Sub-Basins 5 are 13.6 and 12.8, respectively. Therefore, the combined pre-development flow at Outflow #2 will be reduced from a total of 162.8 cfs to a total of 162.4 cfs.

The estimated pre and post-development 100-year storm peak flows for Sub-Basin 4 (Outflow #1) are 9.4 and 12.0 cfs, respectively. The net increase in flows can be reduced through the proposed detention basin as shown on Exhibit 3. Sizing of all

storm drain facilities, including the proposed detention basin, will be included with Final Improvement Plans and it will be done according to the Carson City Development Standards.

The proposed development's drainage facilities, including roadside ditches and culvert crossings, will be design to safely and adequately handle the peak flows from the development and its surrounding tributary areas without adversely impacting the existing drainage conditions.



Manhard CONSULTING LTD
9850 Double R Blvd. Suite 101, Reno, NV 89521 tel: (775) 746-3500 fax: (775) 746-3520 www.manhard.com
Civil Engineers · Surveyors · Water Resources Engineers · Water & Wastewater Engineers
Construction Managers · Environmental Scientists · Landscape Architects · Planners

APN: 007-051-72

CARSON CITY, NEVADA

EXHIBIT 1 - VICINITY MAP

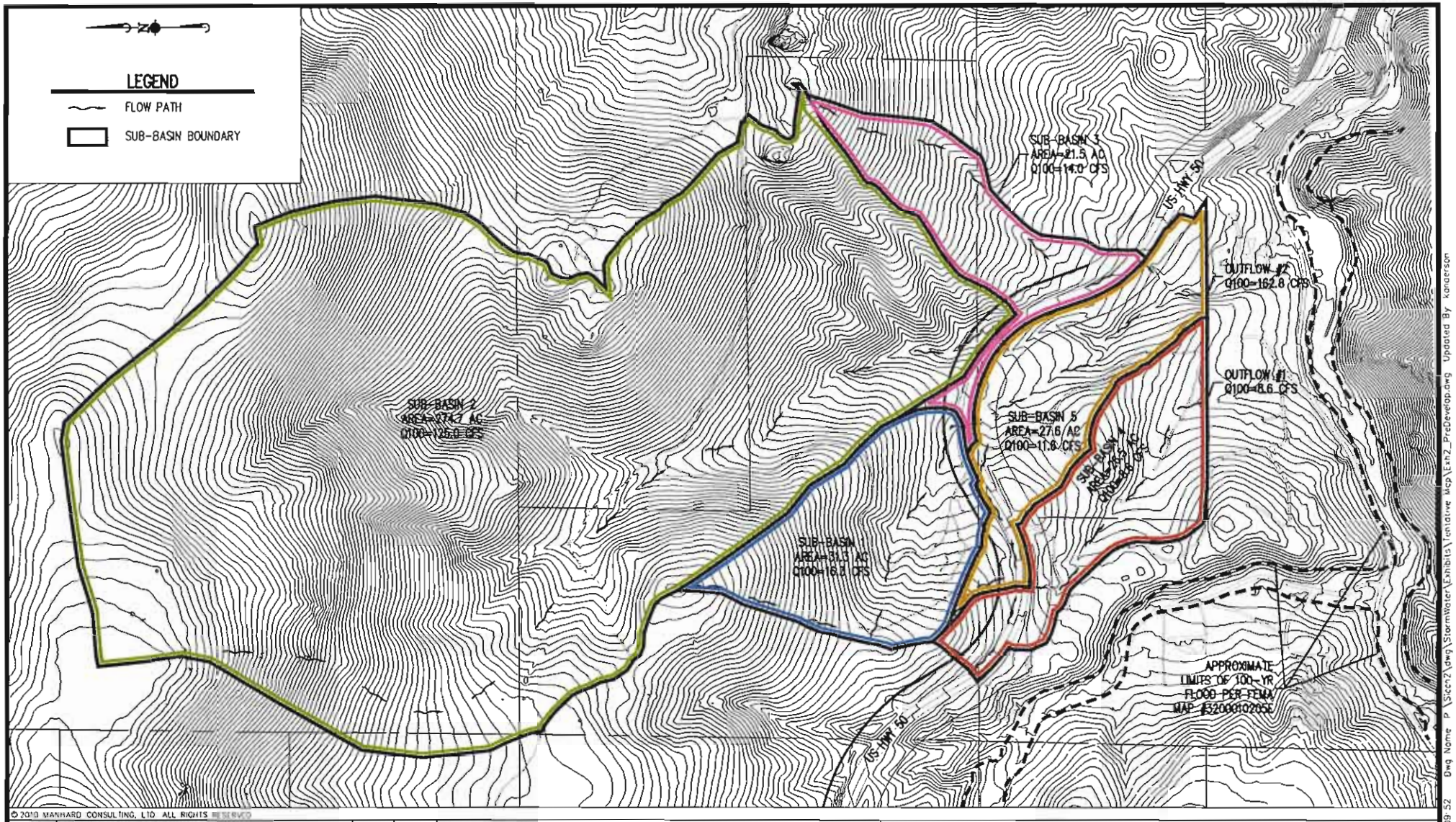
PROJ. MGR.:	KWA
DRAWN BY:	CMS
DATE:	4/16/14
SCALE:	NO SCALE

SHEET 1 OF 1

SICCN2 100235

Dwg Name: P:\Siccn2\dwg\StormWater\Exhibits\Tentative Map\Exh1_Vicinity Map.dwg Updated By: kanderson 12:00

APPENDIX 1



DATE	REVISION	DRAWN BY	CHECK BY

Manhard CONSULTING LTD
Civil Engineers · Surveyors · Water Resources Engineers · Water & Wastewater Engineers
Construction Managers · Environmental Scientists · Landscape Architects · Planners

APN: 007-051-72 (CONCEPTUAL DRAINAGE MAP)
CARSON CITY, NEVADA
EXHIBIT 2 - PRE-DEVELOPMENT SUB-BASINS

DRAWN BY:	DATE:	SCALE:	CODE:	PROJECT:
CMS	4/16/14	1"=500'	SICCN2	100235

April 16, 2014 - 09:52 Dwg Name P:\SICCN2\dwg\StormWater\Exhibits\Tentative Map\Exh2_PreDevelop.dwg Updated By kanderson

Hydrograph Report

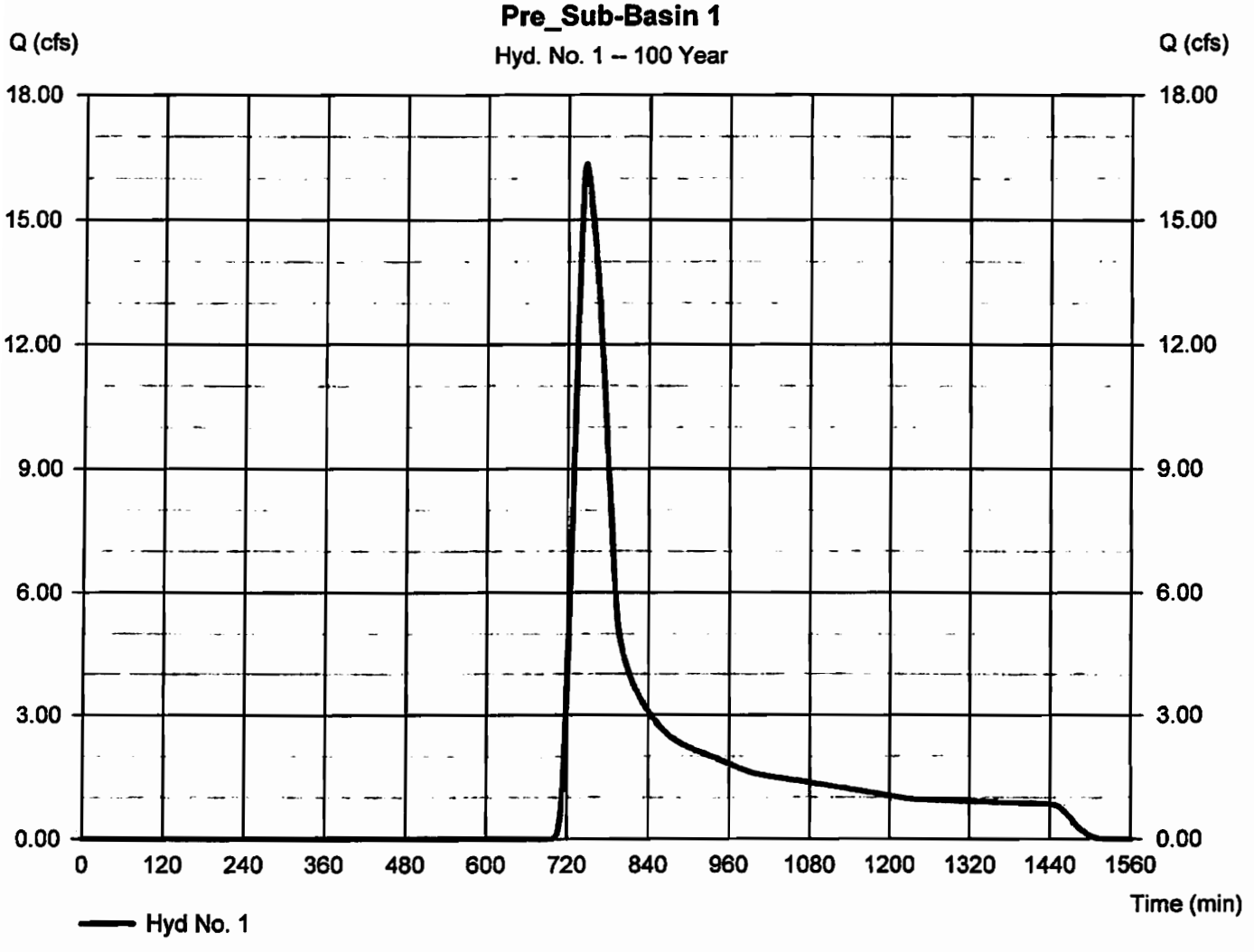
Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 1

Pre_Sub-Basin 1

Hydrograph type	= SCS Runoff	Peak discharge	= 16.33 cfs
Storm frequency	= 100 yrs	Time to peak	= 746 min
Time interval	= 2 min	Hyd. volume	= 114,027 cuft
Drainage area	= 31.300 ac	Curve number	= 60*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 48.60 min
Total precip.	= 4.47 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(31.000 x 60) + (0.300 x 98)] / 31.300



TR55 Tc Worksheet

Hyd. No. 1

Pre_Sub-Basin 1

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.600		0.011		0.011		
Flow length (ft)	= 300.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 1.99		0.00		0.00		
Land slope (%)	= 12.70		0.00		0.00		
Travel Time (min)	**= 43.30**	**+**	**0.00**	**+**	**0.00**	**=**	**43.30**
Shallow Concentrated Flow							
Flow length (ft)	= 2212.00		0.00		0.00		
Watercourse slope (%)	= 18.35		0.00		0.00		
Surface description	= Unpaved		Paved		Paved		
Average velocity (ft/s)	= 6.91		0.00		0.00		
Travel Time (min)	**= 5.33**	**+**	**0.00**	**+**	**0.00**	**=**	**5.33**
Channel Flow							
X sectional flow area (sqft)	= 0.00		0.00		0.00		
Wetted perimeter (ft)	= 0.00		0.00		0.00		
Channel slope (%)	= 0.00		0.00		0.00		
Manning's n-value	= 0.015		0.015		0.015		
Velocity (ft/s)	= 0.00		0.00		0.00		
Flow length (ft)	= 0.0		0.0		0.0		
Travel Time (min)	**= 0.00**	**+**	**0.00**	**+**	**0.00**	**=**	**0.00**

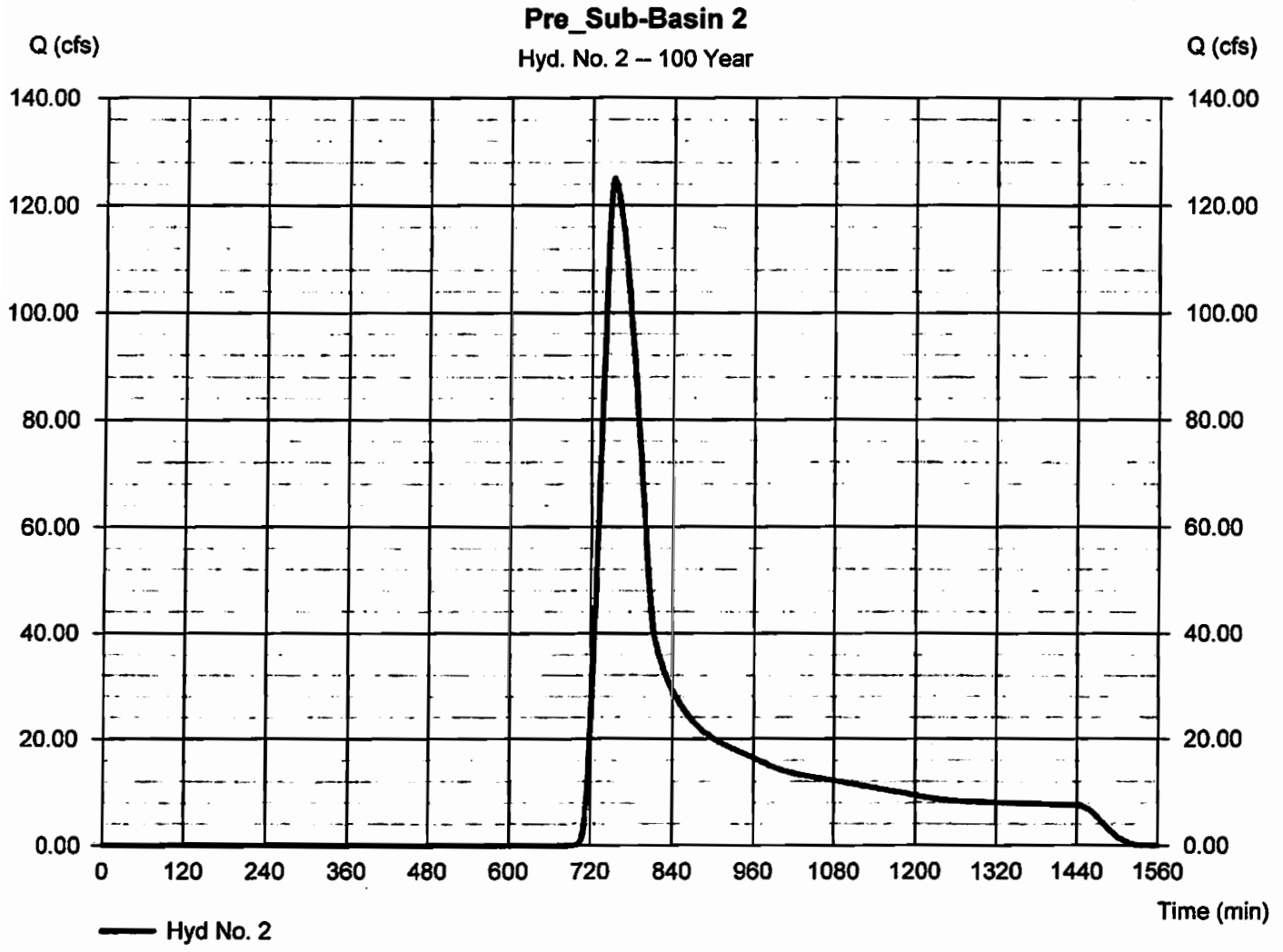
Total Travel Time, Tc ..... 48.60 min

Hydrograph Report

Hyd. No. 2

Pre_Sub-Basin 2

Hydrograph type	= SCS Runoff	Peak discharge	= 125.01 cfs
Storm frequency	= 100 yrs	Time to peak	= 752 min
Time interval	= 2 min	Hyd. volume	= 1,000,744 cuft
Drainage area	= 274.700 ac	Curve number	= 60
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 59.20 min
Total precip.	= 4.47 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



TR55 Tc Worksheet

Hyd. No. 2

Pre_Sub-Basin 2

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.600		0.011		0.011		
Flow length (ft)	= 300.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 1.99		0.00		0.00		
Land slope (%)	= 16.70		0.00		0.00		
Travel Time (min)	**= 38.81**	**+**	**0.00**	**+**	**0.00**	**=**	**38.81**
Shallow Concentrated Flow							
Flow length (ft)	= 4121.00		0.00		0.00		
Watercourse slope (%)	= 21.50		0.00		0.00		
Surface description	= Unpaved		Unpaved		Paved		
Average velocity (ft/s)	= 7.48		0.00		0.00		
Travel Time (min)	**= 9.18**	**+**	**0.00**	**+**	**0.00**	**=**	**9.18**
Channel Flow							
X sectional flow area (sqft)	= 283.00		0.00		0.00		
Wetted perimeter (ft)	= 60.00		0.00		0.00		
Channel slope (%)	= 11.40		0.00		0.00		
Manning's n-value	= 0.600		0.015		0.015		
Velocity (ft/s)	= 2.37		0.00		0.00		
Flow length (ft)	= 1596.0		0.0		0.0		
Travel Time (min)	**= 11.22**	**+**	**0.00**	**+**	**0.00**	**=**	**11.22**

Total Travel Time, Tc ..... 59.20 min

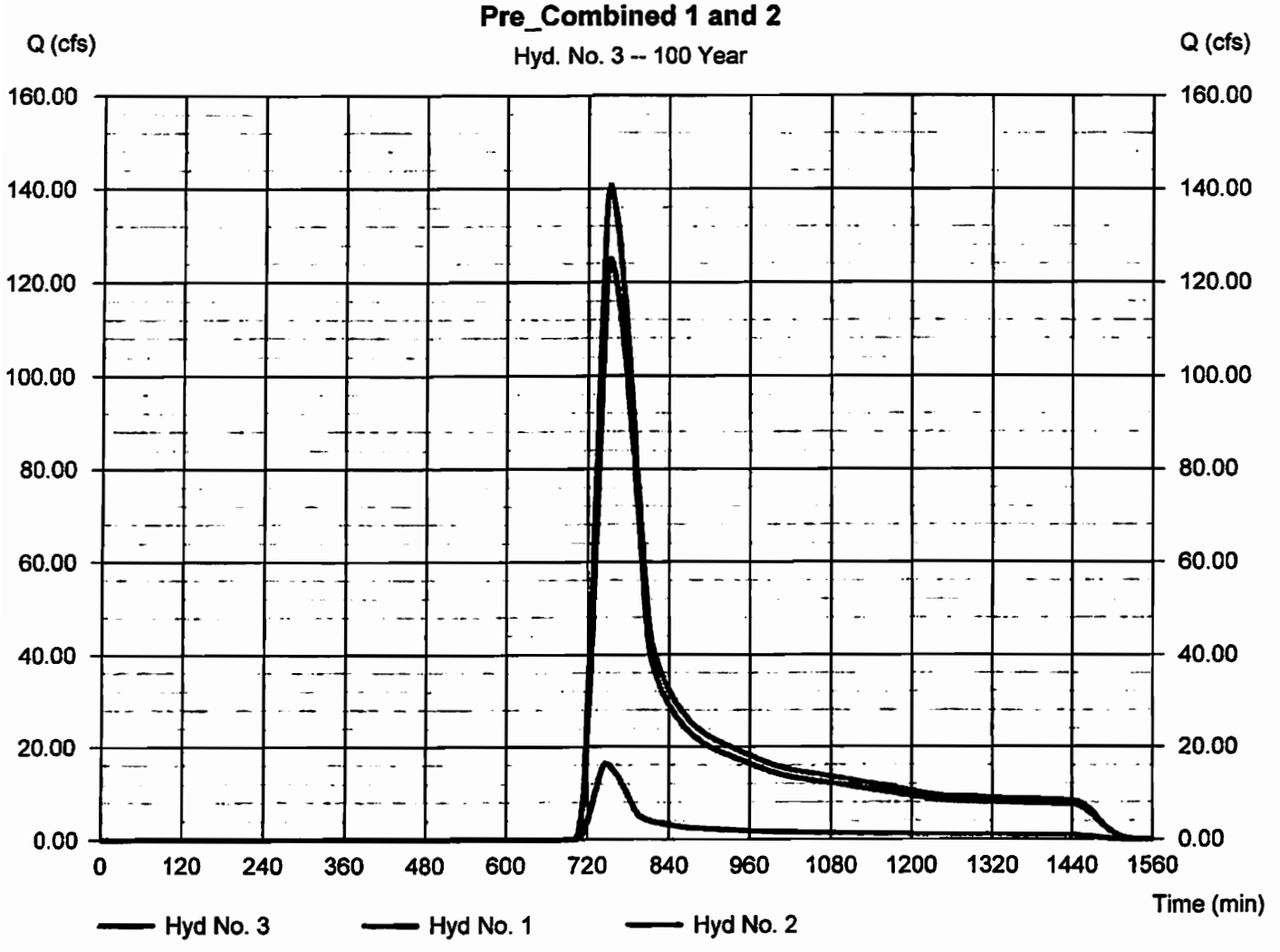
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 3

Pre_Combined 1 and 2

Hydrograph type	= Combine	Peak discharge	= 140.73 cfs
Storm frequency	= 100 yrs	Time to peak	= 752 min
Time interval	= 2 min	Hyd. volume	= 1,114,771 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 306.000 ac



Hydrograph Report

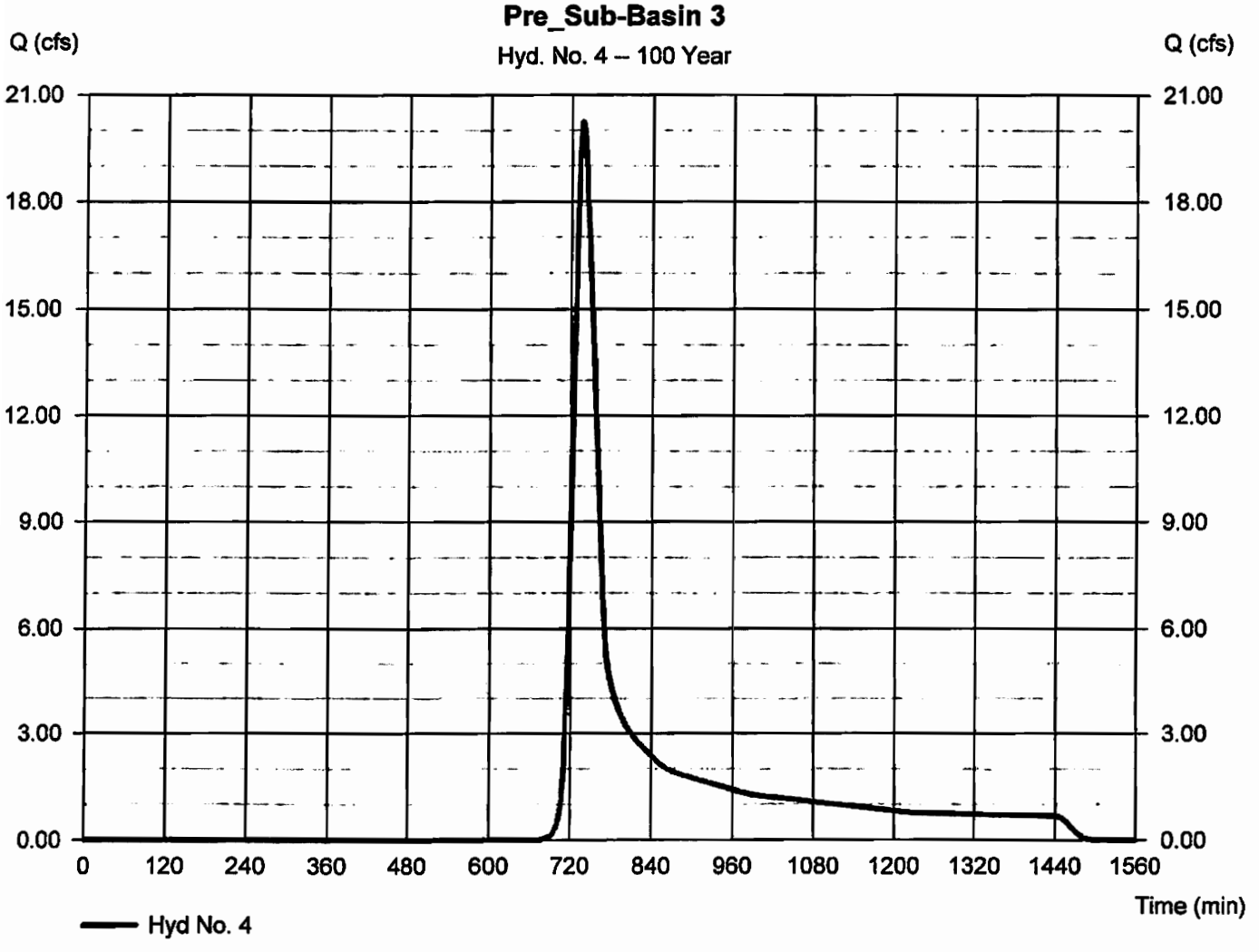
Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 4

Pre_Sub-Basin 3

Hydrograph type	= SCS Runoff	Peak discharge	= 20.25 cfs
Storm frequency	= 100 yrs	Time to peak	= 736 min
Time interval	= 2 min	Hyd. volume	= 101,108 cuft
Drainage area	= 21.480 ac	Curve number	= 65*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 36.40 min
Total precip.	= 4.47 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(18.740 x 60) + (2.740 x 98)] / 21.480



TR55 Tc Worksheet

Hyd. No. 4

Pre_Sub-Basin 3

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.600	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.99	0.00	0.00	
Land slope (%)	= 30.00	0.00	0.00	
Travel Time (min)	**= 30.70 +**	**0.00 +**	**0.00 =**	**30.70**
Shallow Concentrated Flow				
Flow length (ft)	= 1685.00	513.00	0.00	
Watercourse slope (%)	= 23.00	4.30	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 7.74	4.22	0.00	
Travel Time (min)	**= 3.63 +**	**2.03 +**	**0.00 =**	**5.66**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00 +**	**0.00 +**	**0.00 =**	**0.00**

Total Travel Time, Tc ..... 36.40 min

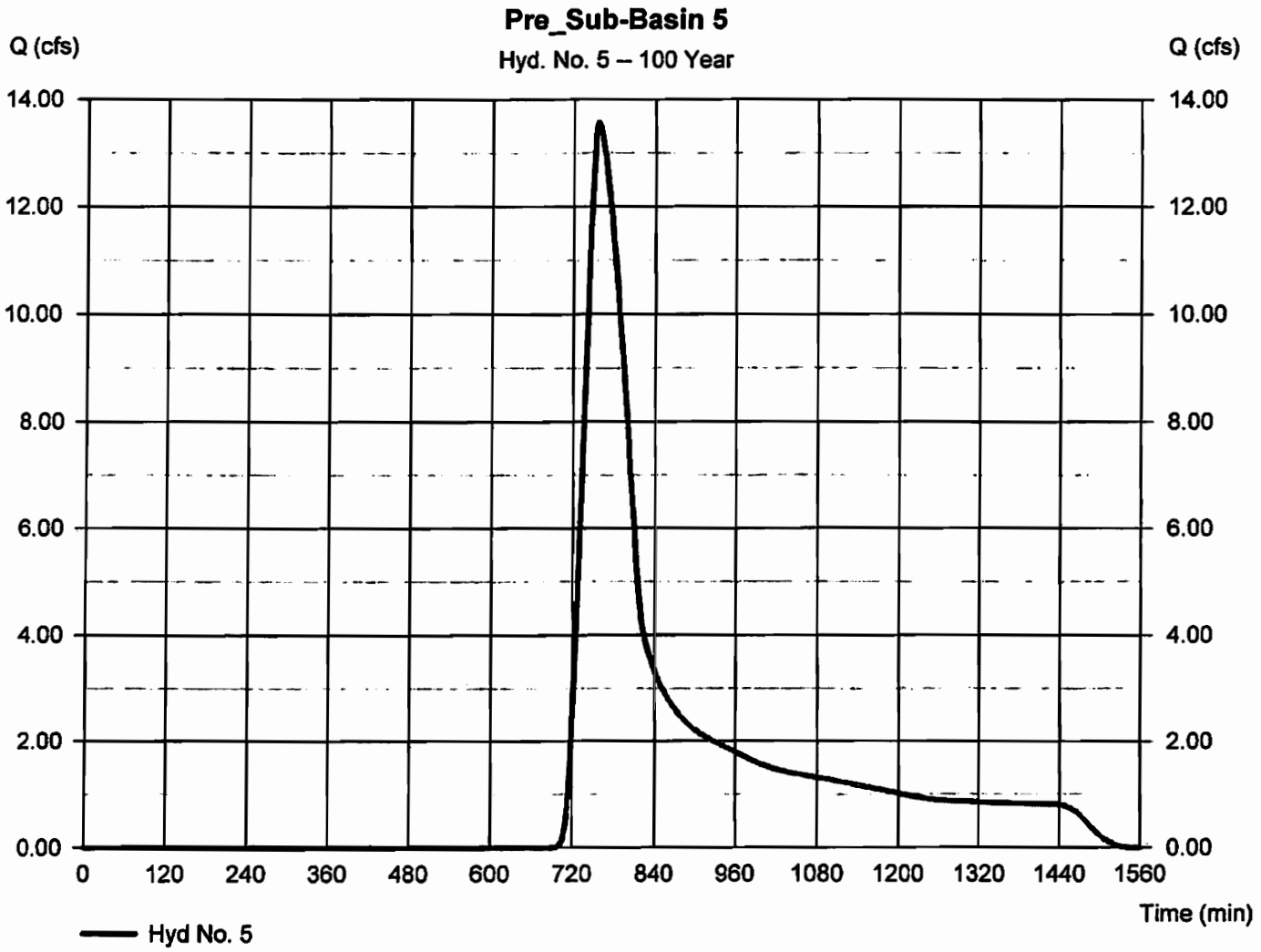
Hydrograph Report

Hyd. No. 5

Pre_Sub-Basin 5

Hydrograph type	= SCS Runoff	Peak discharge	= 13.57 cfs
Storm frequency	= 100 yrs	Time to peak	= 756 min
Time interval	= 2 min	Hyd. volume	= 111,793 cuft
Drainage area	= 27.600 ac	Curve number	= 62*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 66.70 min
Total precip.	= 4.47 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(26.170 x 60) + (1.430 x 98)] / 27.600



TR55 Tc Worksheet

Hyd. No. 5

Pre_Sub-Basin 5

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.600	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.99	0.00	0.00	
Land slope (%)	= 18.00	0.00	0.00	
Travel Time (min)	**= 37.66 +**	**0.00 +**	**0.00 =**	**37.66**
Shallow Concentrated Flow				
Flow length (ft)	= 196.00	837.00	125.00	
Watercourse slope (%)	= 21.40	5.50	19.20	
Surface description	= Unpaved	Paved	Unpaved	
Average velocity (ft/s)	= 7.46	4.77	7.07	
Travel Time (min)	**= 0.44 +**	**2.93 +**	**0.29 =**	**3.66**
Channel Flow				
X sectional flow area (sqft)	= 74.00	0.00	0.00	
Wetted perimeter (ft)	= 40.00	0.00	0.00	
Channel slope (%)	= 7.90	0.00	0.00	
Manning's n-value	= 0.600	0.015	0.015	
Velocity (ft/s)	= 1.05	0.00	0.00	
Flow length (ft)	= 1602.0	0.0	0.0	
Travel Time (min)	**= 25.33 +**	**0.00 +**	**0.00 =**	**25.33**

Total Travel Time, Tc ..... 66.70 min

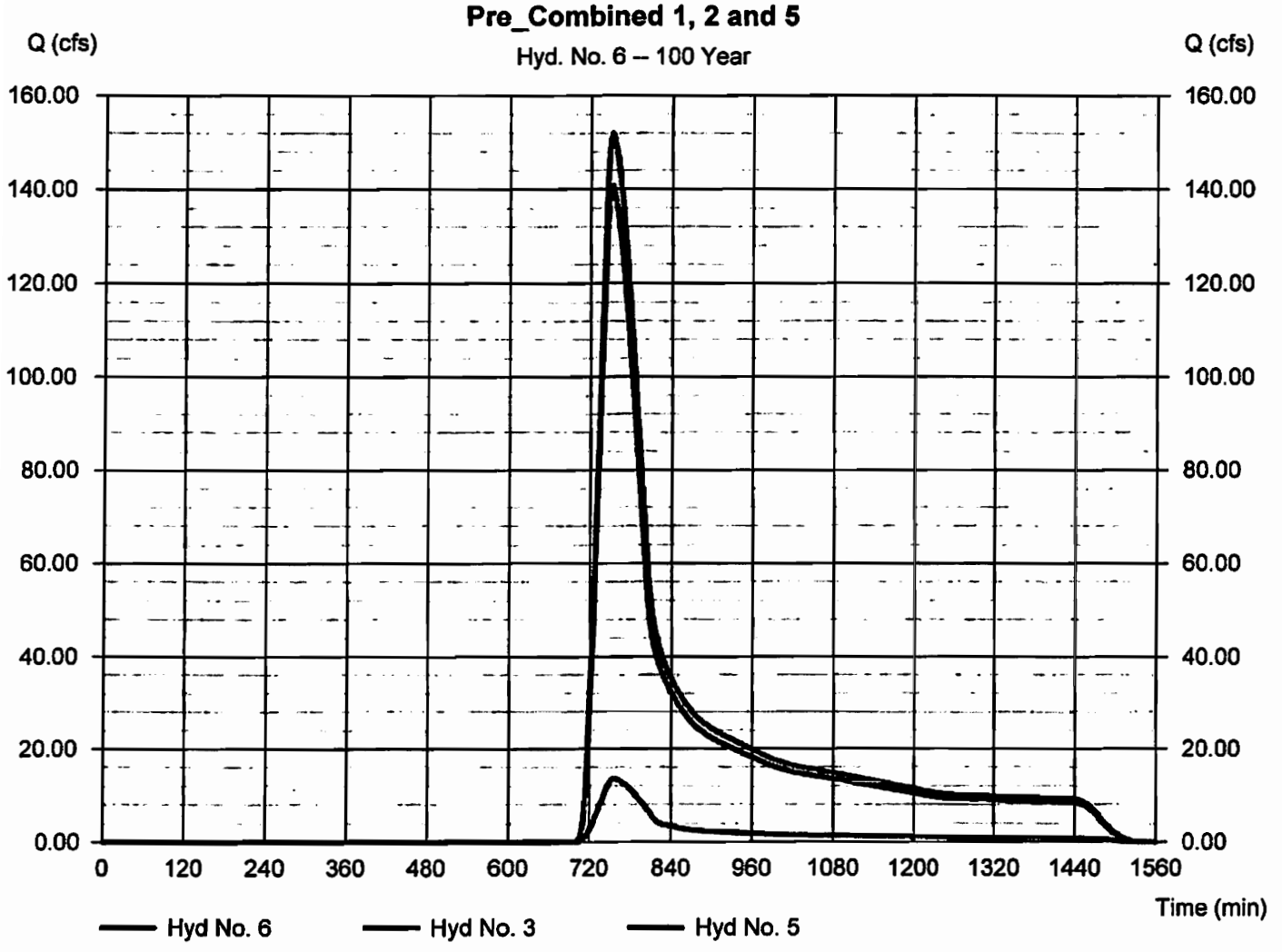
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 6

Pre_Combined 1, 2 and 5

Hydrograph type	= Combine	Peak discharge	= 151.99 cfs
Storm frequency	= 100 yrs	Time to peak	= 752 min
Time interval	= 2 min	Hyd. volume	= 1,214,690 cuft
Inflow hyds.	= 3, 5	Contrib. drain. area	= 27.600 ac

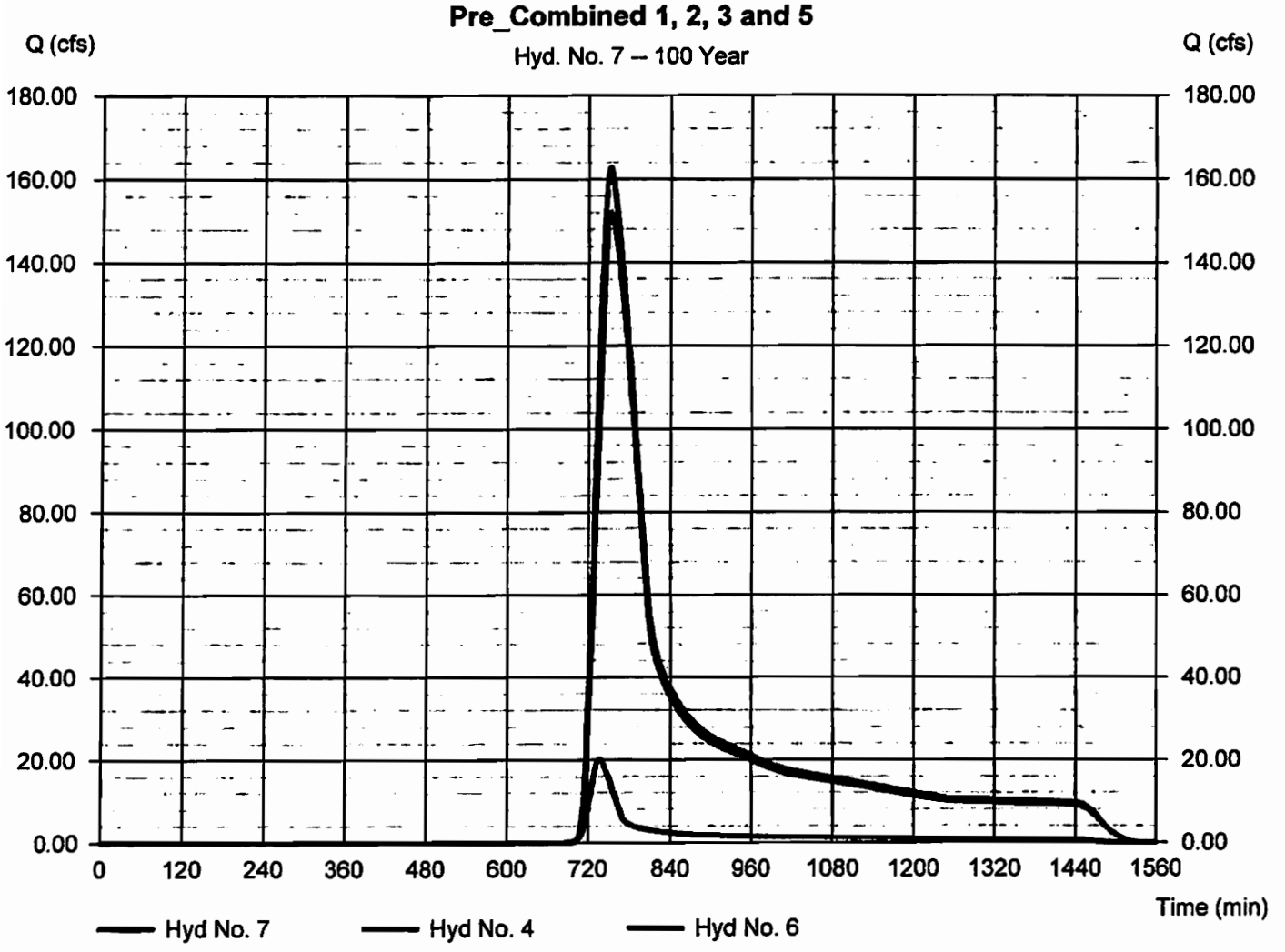


Hydrograph Report

Hyd. No. 7

Pre_Combined 1, 2, 3 and 5

Hydrograph type	= Combine	Peak discharge	= 162.75 cfs
Storm frequency	= 100 yrs	Time to peak	= 752 min
Time interval	= 2 min	Hyd. volume	= 1,292,055 cuft
Inflow hyds.	= 4, 6	Contrib. drain. area	= 21.480 ac



Hydrograph Report

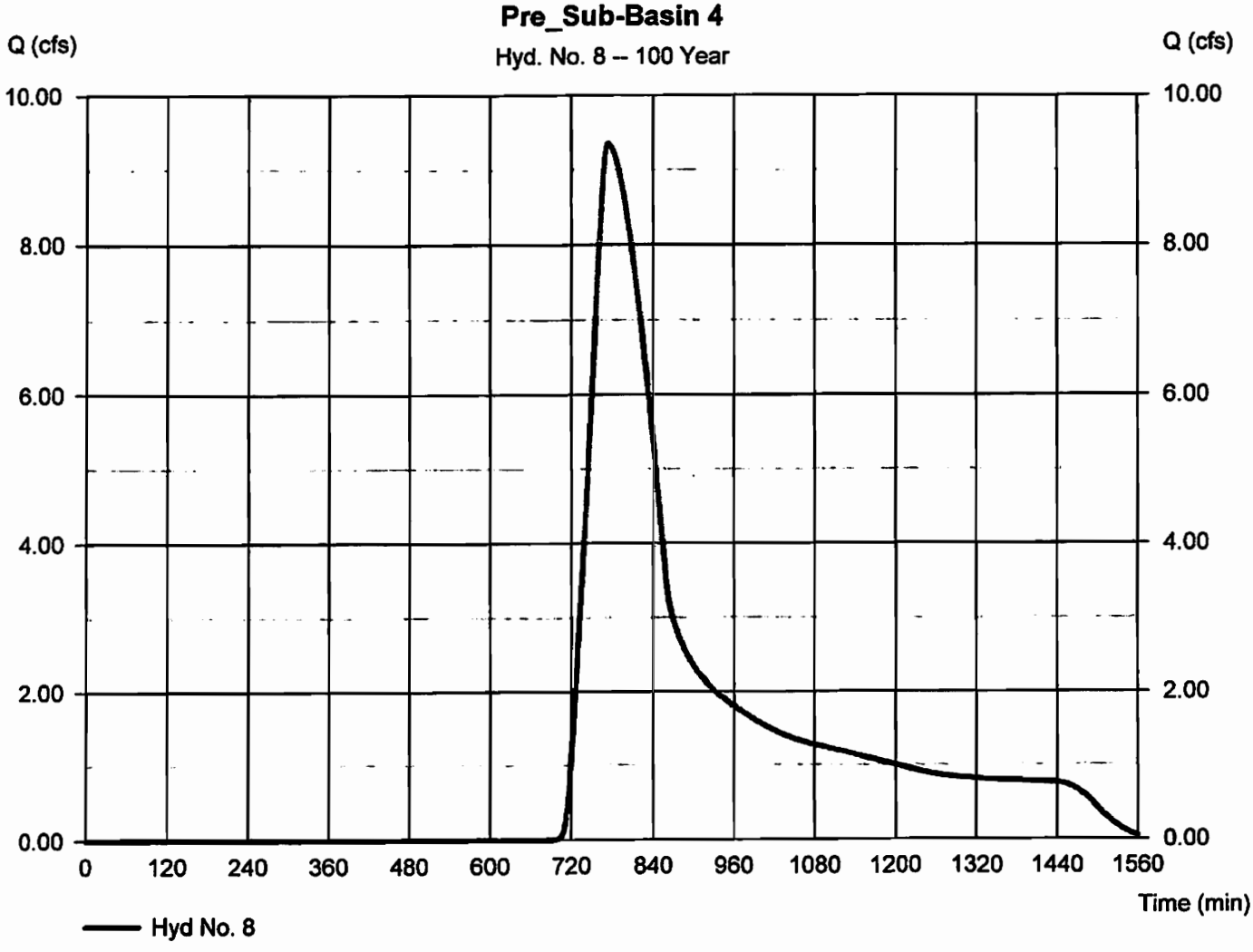
Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 8

Pre_Sub-Basin 4

Hydrograph type	= SCS Runoff	Peak discharge	= 9.351 cfs
Storm frequency	= 100 yrs	Time to peak	= 774 min
Time interval	= 2 min	Hyd. volume	= 102,669 cuft
Drainage area	= 26.500 ac	Curve number	= 61*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 94.90 min
Total precip.	= 4.47 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(25.530 x 60) + (0.970 x 98)] / 26.500



TR55 Tc Worksheet

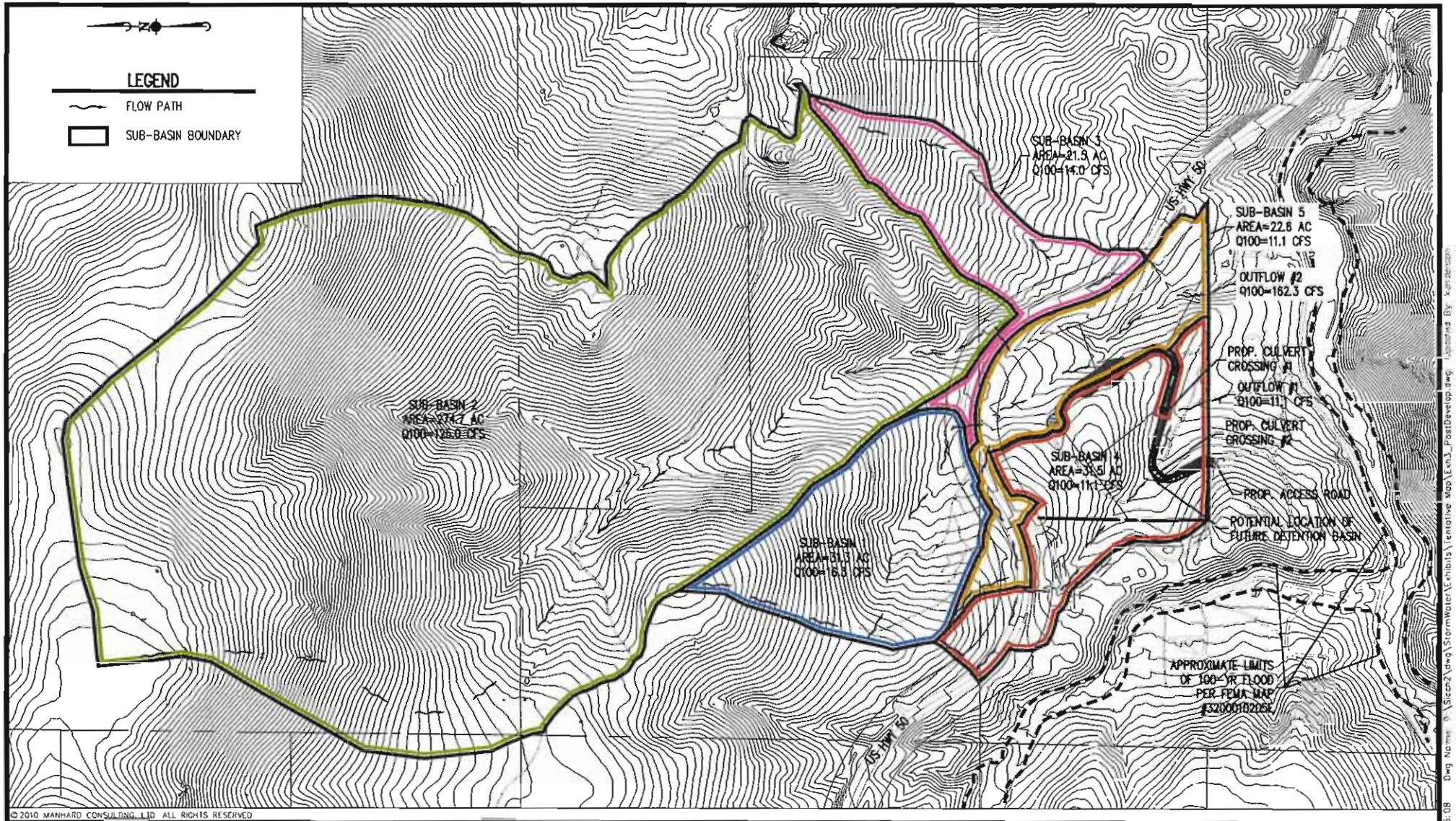
Hyd. No. 8

Pre_Sub-Basin 4

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.600	0.011	0.011	
Flow length (ft)	= 287.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.99	0.00	0.00	
Land slope (%)	= 27.30	0.00	0.00	
Travel Time (min)	**= 30.77**	**+ 0.00**	**+ 0.00**	**= 30.77**
Shallow Concentrated Flow				
Flow length (ft)	= 661.20	0.00	0.00	
Watercourse slope (%)	= 7.90	0.00	0.00	
Surface description	= Paved	Paved	Paved	
Average velocity (ft/s)	= 5.71	0.00	0.00	
Travel Time (min)	**= 1.93**	**+ 0.00**	**+ 0.00**	**= 1.93**
Channel Flow				
X sectional flow area (sqft)	= 2.30	0.00	0.00	
Wetted perimeter (ft)	= 5.00	0.00	0.00	
Channel slope (%)	= 8.70	0.00	0.00	
Manning's n-value	= 0.600	0.015	0.015	
Velocity (ft/s)	= 0.44	0.00	0.00	
Flow length (ft)	= 1625.0	0.0	0.0	
Travel Time (min)	**= 62.21**	**+ 0.00**	**+ 0.00**	**= 62.21**

Total Travel Time, Tc ..... 94.90 min

APPENDIX 2



DATE	REVISIONS	DRAWN BY	CHECK BY

Manhard CONSULTING LTD

APN: 007-051-72 (CONCEPTUAL DRAINAGE MAP)

CARSON CITY, NEVADA

EXHIBIT 3 - POST-DEVELOPMENT SUB-BASINS

DRAWN BY:	DATE:	SCALE:	CODE:	PROJECT:
CMS	4/16/14	1"=500'	SICCN2	100235

April 15, 2014 - 16:08 Dwg Name: P:\Sicon2\dwg\StormWater\Exhibits\Tentative Map\Exh3_PostDevelop.dwg Updated By: Kari Pierson

Hydrograph Report

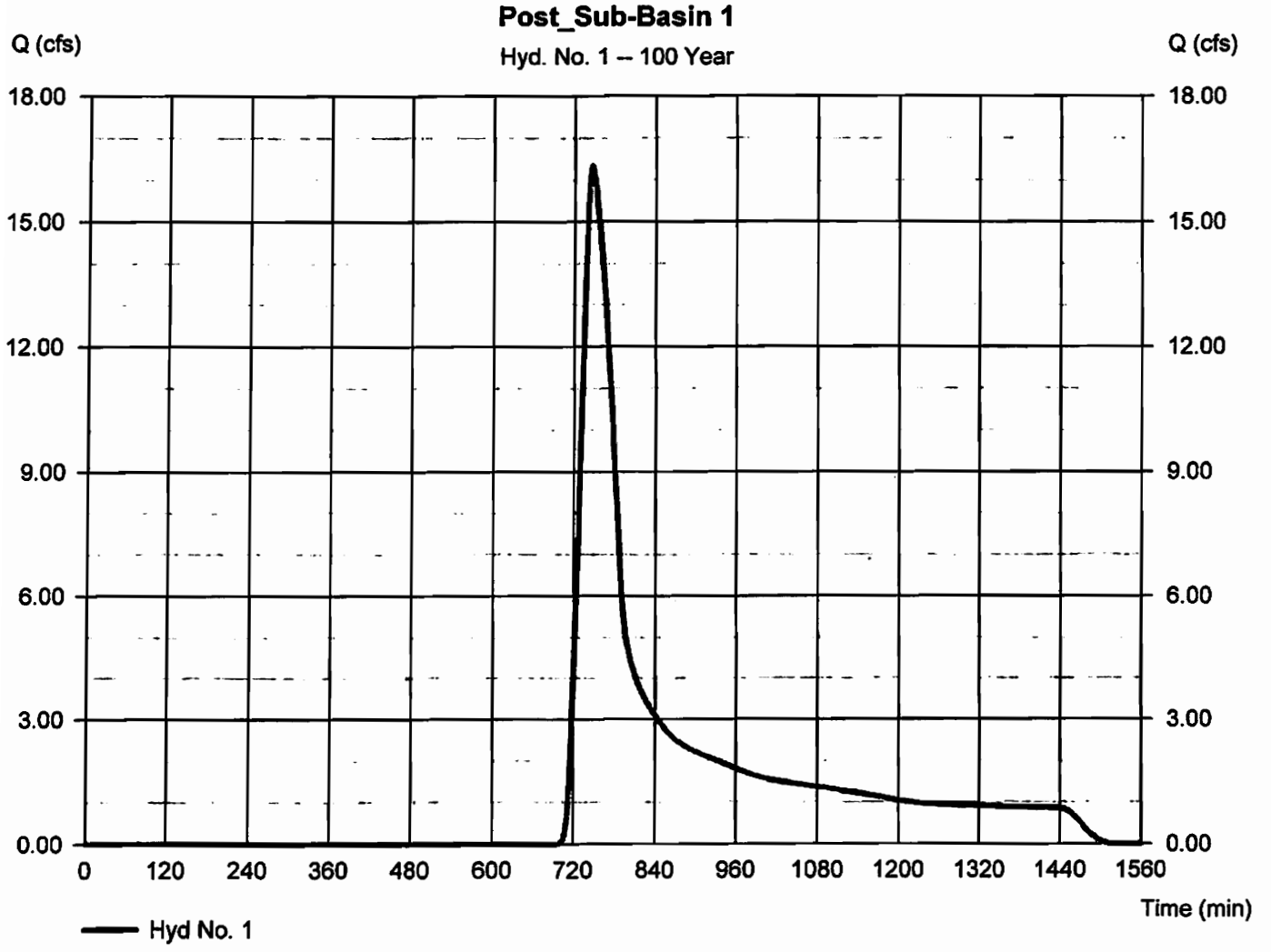
Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 1

Post_Sub-Basin 1

Hydrograph type	= SCS Runoff	Peak discharge	= 16.33 cfs
Storm frequency	= 100 yrs	Time to peak	= 746 min
Time interval	= 2 min	Hyd. volume	= 114,027 cuft
Drainage area	= 31.300 ac	Curve number	= 60*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 48.60 min
Total precip.	= 4.47 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(31.000 x 60) + (0.300 x 98)] / 31.300



TR55 Tc Worksheet

Hydraflow Hydrographs by Intelisolve v9.22

Hyd. No. 1

Post_Sub-Basin 1

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.600	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.99	0.00	0.00	
Land slope (%)	= 12.70	0.00	0.00	
Travel Time (min)	**= 43.30** +	**0.00** +	**0.00** =	**43.30**
Shallow Concentrated Flow				
Flow length (ft)	= 2212.00	0.00	0.00	
Watercourse slope (%)	= 18.35	0.00	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 6.91	0.00	0.00	
Travel Time (min)	**= 5.33** +	**0.00** +	**0.00** =	**5.33**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00** +	**0.00** +	**0.00** =	**0.00**

Total Travel Time, Tc ..... **48.60 min**

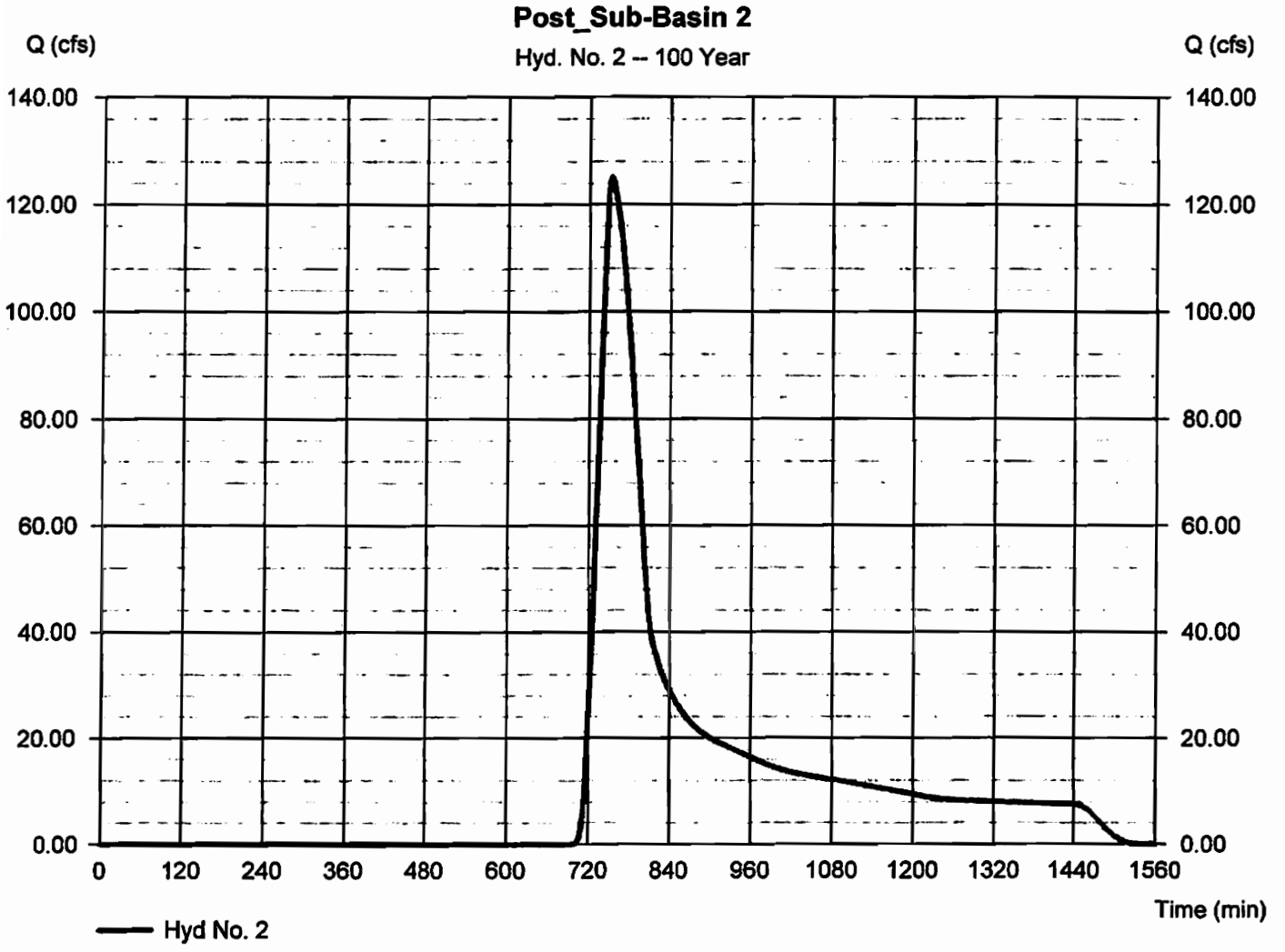
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 2

Post_Sub-Basin 2

Hydrograph type	= SCS Runoff	Peak discharge	= 125.01 cfs
Storm frequency	= 100 yrs	Time to peak	= 752 min
Time interval	= 2 min	Hyd. volume	= 1,000,744 cuft
Drainage area	= 274.700 ac	Curve number	= 60
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 59.20 min
Total precip.	= 4.47 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484



TR55 Tc Worksheet

Hyd. No. 2

Post_Sub-Basin 2

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.600	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.99	0.00	0.00	
Land slope (%)	= 16.70	0.00	0.00	
Travel Time (min)	**= 38.81**	**+ 0.00**	**+ 0.00**	**= 38.81**
Shallow Concentrated Flow				
Flow length (ft)	= 4121.00	0.00	0.00	
Watercourse slope (%)	= 21.50	0.00	0.00	
Surface description	= Unpaved	Unpaved	Paved	
Average velocity (ft/s)	= 7.48	0.00	0.00	
Travel Time (min)	**= 9.18**	**+ 0.00**	**+ 0.00**	**= 9.18**
Channel Flow				
X sectional flow area (sqft)	= 283.00	0.00	0.00	
Wetted perimeter (ft)	= 60.00	0.00	0.00	
Channel slope (%)	= 11.40	0.00	0.00	
Manning's n-value	= 0.600	0.015	0.015	
Velocity (ft/s)	= 2.37	0.00	0.00	
Flow length (ft)	= 1596.0	0.0	0.0	
Travel Time (min)	**= 11.22**	**+ 0.00**	**+ 0.00**	**= 11.22**

Total Travel Time, Tc ..... 59.20 min

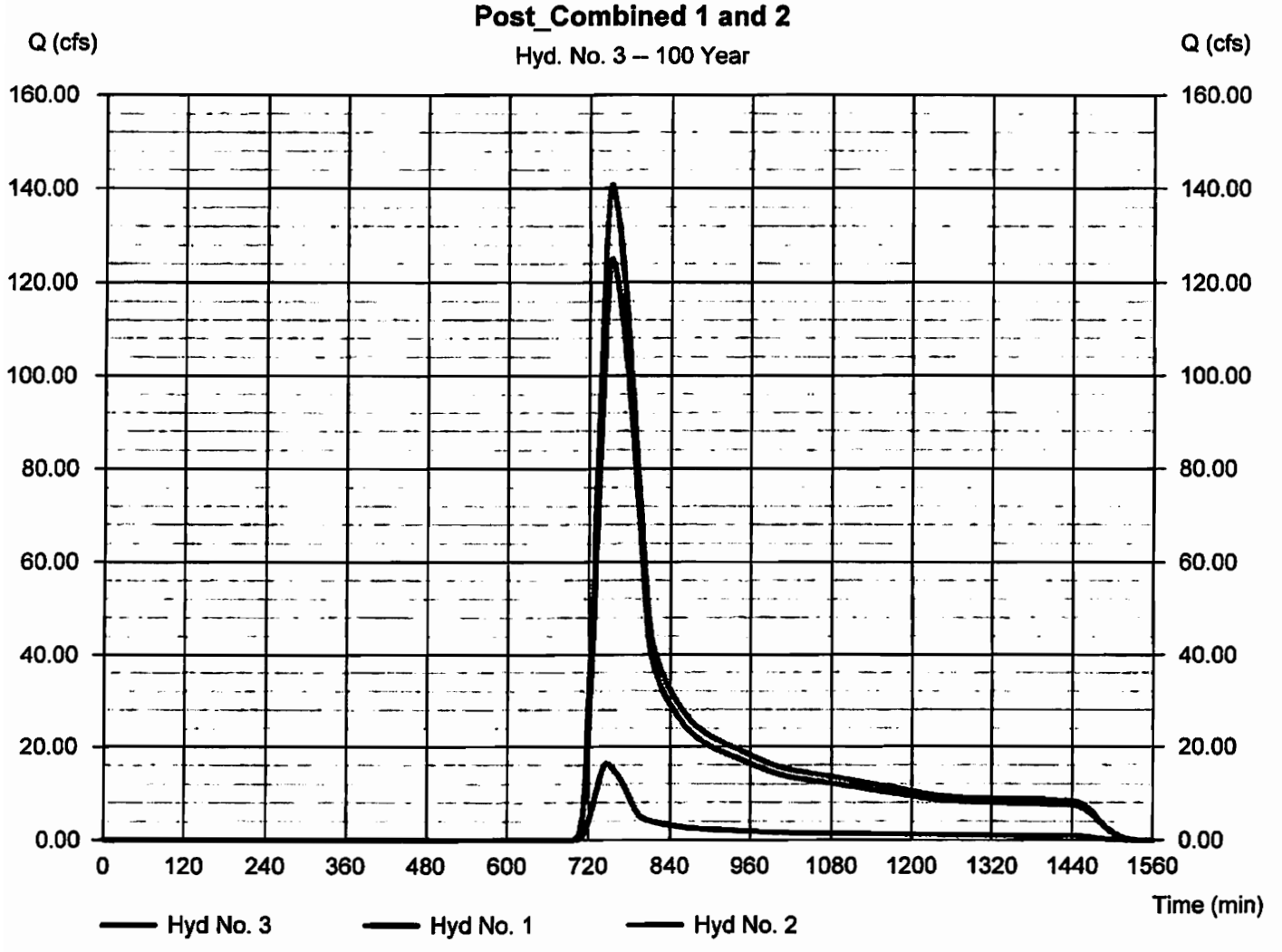
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 3

Post_Combined 1 and 2

Hydrograph type	= Combine	Peak discharge	= 140.73 cfs
Storm frequency	= 100 yrs	Time to peak	= 752 min
Time interval	= 2 min	Hyd. volume	= 1,114,771 cuft
Inflow hyds.	= 1, 2	Contrib. drain. area	= 306.000 ac



Hydrograph Report

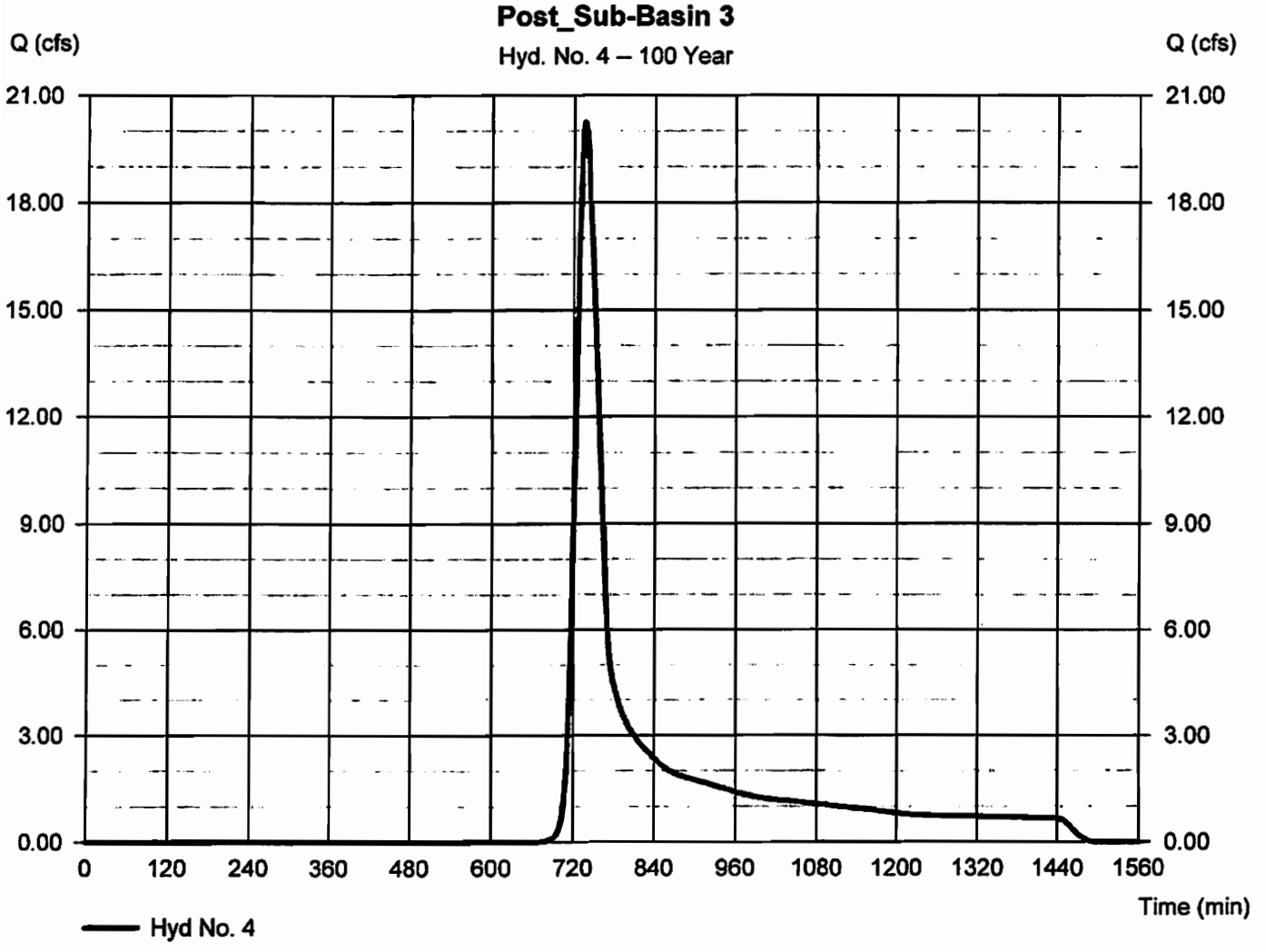
Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 4

Post_Sub-Basin 3

Hydrograph type	= SCS Runoff	Peak discharge	= 20.25 cfs
Storm frequency	= 100 yrs	Time to peak	= 736 min
Time interval	= 2 min	Hyd. volume	= 101,108 cuft
Drainage area	= 21.480 ac	Curve number	= 65*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 36.40 min
Total precip.	= 4.47 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(18.740 x 60) + (2.740 x 98)] / 21.480



TR55 Tc Worksheet

Hyd. No. 4

Post_Sub-Basin 3

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.600	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.99	0.00	0.00	
Land slope (%)	= 30.00	0.00	0.00	
Travel Time (min)	**= 30.70**	**+ 0.00**	**+ 0.00**	**= 30.70**
Shallow Concentrated Flow				
Flow length (ft)	= 1685.00	513.00	0.00	
Watercourse slope (%)	= 23.00	4.30	0.00	
Surface description	= Unpaved	Paved	Paved	
Average velocity (ft/s)	= 7.74	4.22	0.00	
Travel Time (min)	**= 3.63**	**+ 2.03**	**+ 0.00**	**= 5.66**
Channel Flow				
X sectional flow area (sqft)	= 0.00	0.00	0.00	
Wetted perimeter (ft)	= 0.00	0.00	0.00	
Channel slope (%)	= 0.00	0.00	0.00	
Manning's n-value	= 0.015	0.015	0.015	
Velocity (ft/s)	= 0.00	0.00	0.00	
Flow length (ft)	= 0.0	0.0	0.0	
Travel Time (min)	**= 0.00**	**+ 0.00**	**+ 0.00**	**= 0.00**

Total Travel Time, Tc ..... 36.40 min

Hydrograph Report

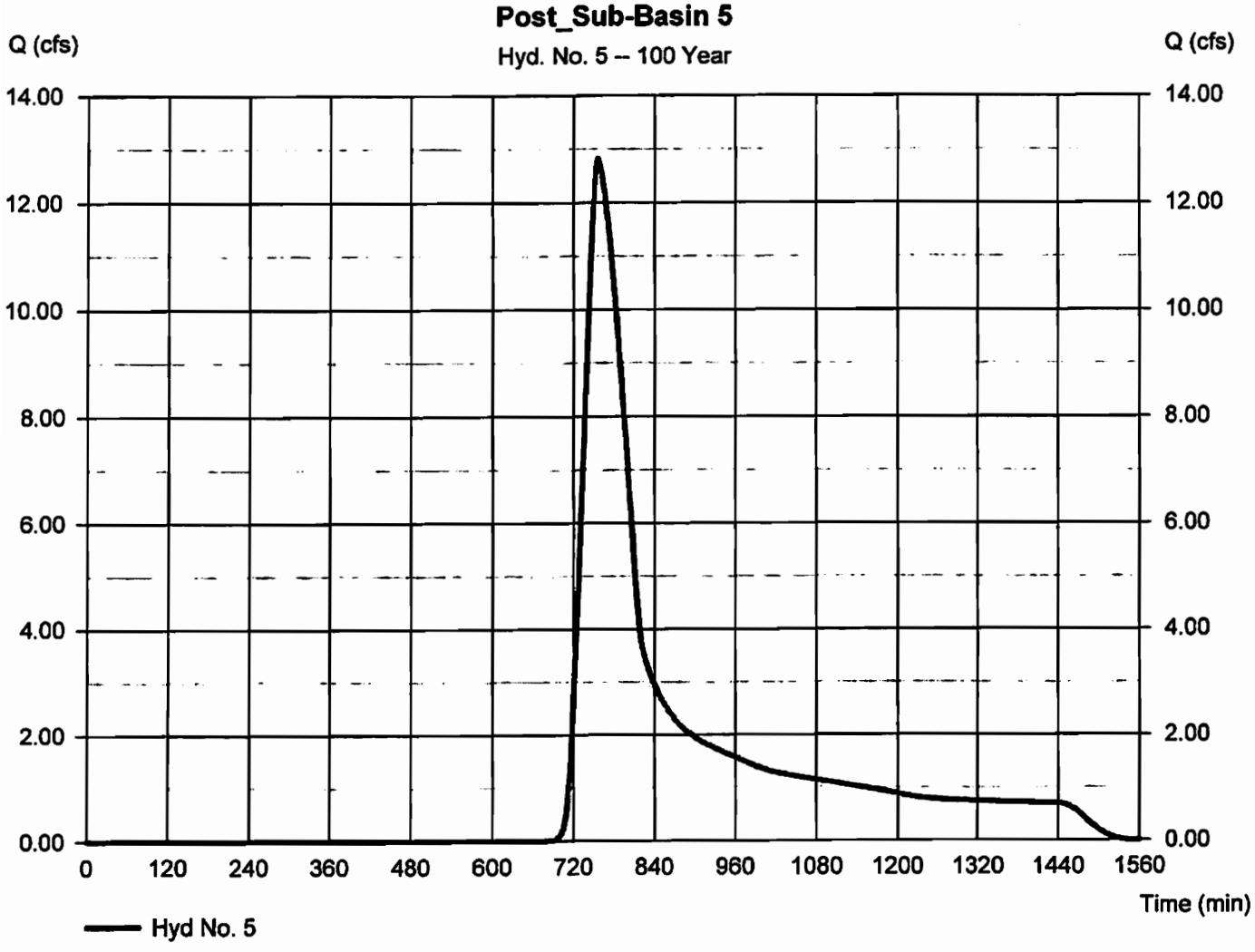
Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 5

Post_Sub-Basin 5

Hydrograph type	= SCS Runoff	Peak discharge	= 12.82 cfs
Storm frequency	= 100 yrs	Time to peak	= 756 min
Time interval	= 2 min	Hyd. volume	= 101,693 cuft
Drainage area	= 22.600 ac	Curve number	= 64*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 66.70 min
Total precip.	= 4.47 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(20.140 x 60) + (2.460 x 98)] / 22.600



TR55 Tc Worksheet

Hyd. No. 5

Post_Sub-Basin 5

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.600	0.011	0.011	
Flow length (ft)	= 300.0	0.0	0.0	
Two-year 24-hr precip. (in)	= 1.99	0.00	0.00	
Land slope (%)	= 18.00	0.00	0.00	
Travel Time (min)	**= 37.66**	**+ 0.00**	**+ 0.00**	**= 37.66**
Shallow Concentrated Flow				
Flow length (ft)	= 196.00	837.00	125.00	
Watercourse slope (%)	= 21.40	5.50	19.20	
Surface description	= Unpaved	Paved	Unpaved	
Average velocity (ft/s)	= 7.46	4.77	7.07	
Travel Time (min)	**= 0.44**	**+ 2.93**	**+ 0.29**	**= 3.66**
Channel Flow				
X sectional flow area (sqft)	= 74.00	0.00	0.00	
Wetted perimeter (ft)	= 40.00	0.00	0.00	
Channel slope (%)	= 7.90	0.00	0.00	
Manning's n-value	= 0.600	0.015	0.015	
Velocity (ft/s)	= 1.05	0.00	0.00	
Flow length (ft)	= 1602.0	0.0	0.0	
Travel Time (min)	**= 25.33**	**+ 0.00**	**+ 0.00**	**= 25.33**

Total Travel Time, Tc ..... 66.70 min

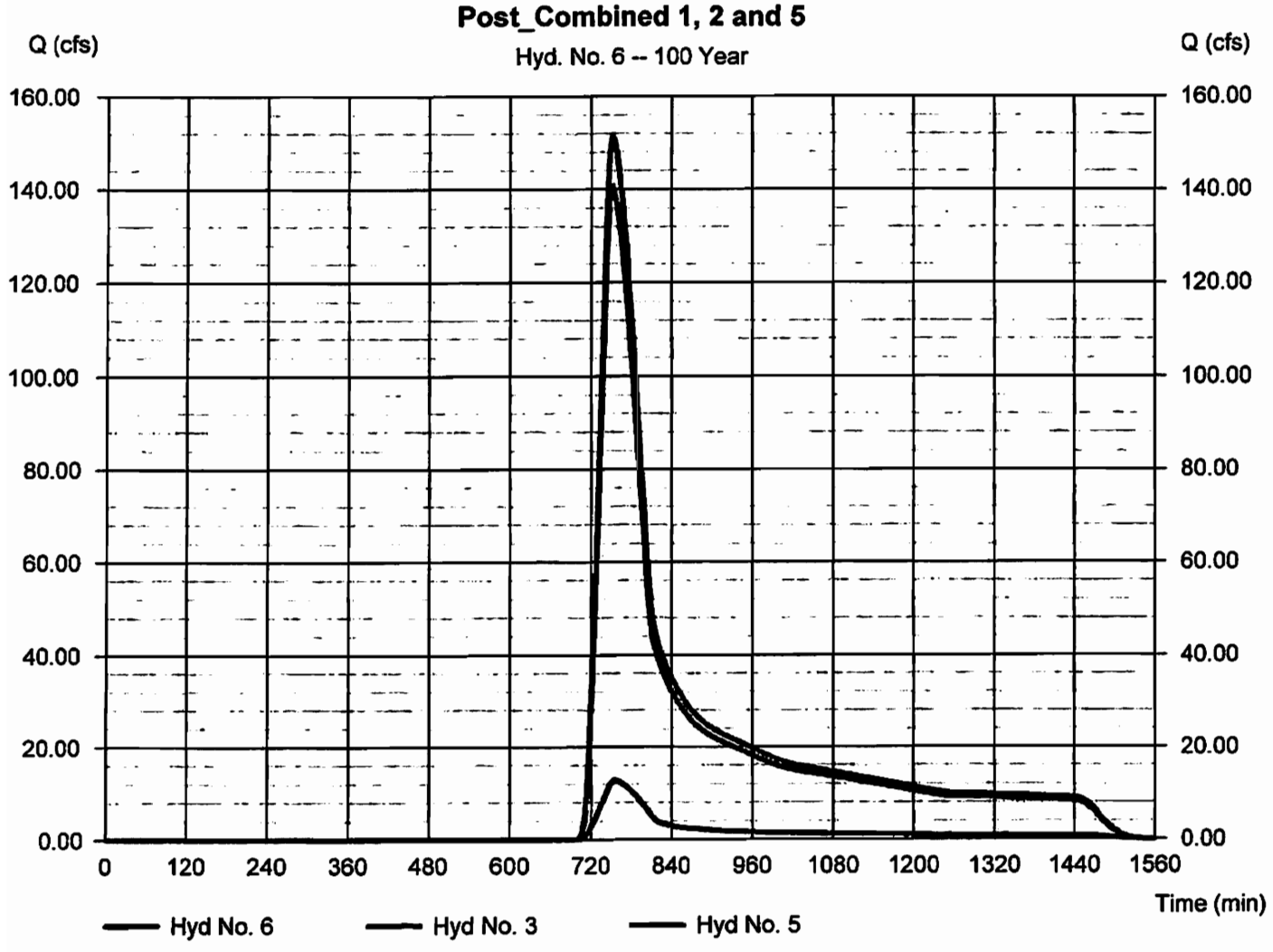
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 6

Post_Combined 1, 2 and 5

Hydrograph type	= Combine	Peak discharge	= 151.58 cfs
Storm frequency	= 100 yrs	Time to peak	= 752 min
Time interval	= 2 min	Hyd. volume	= 1,206,311 cuft
Inflow hyds.	= 3, 5	Contrib. drain. area	= 22.600 ac



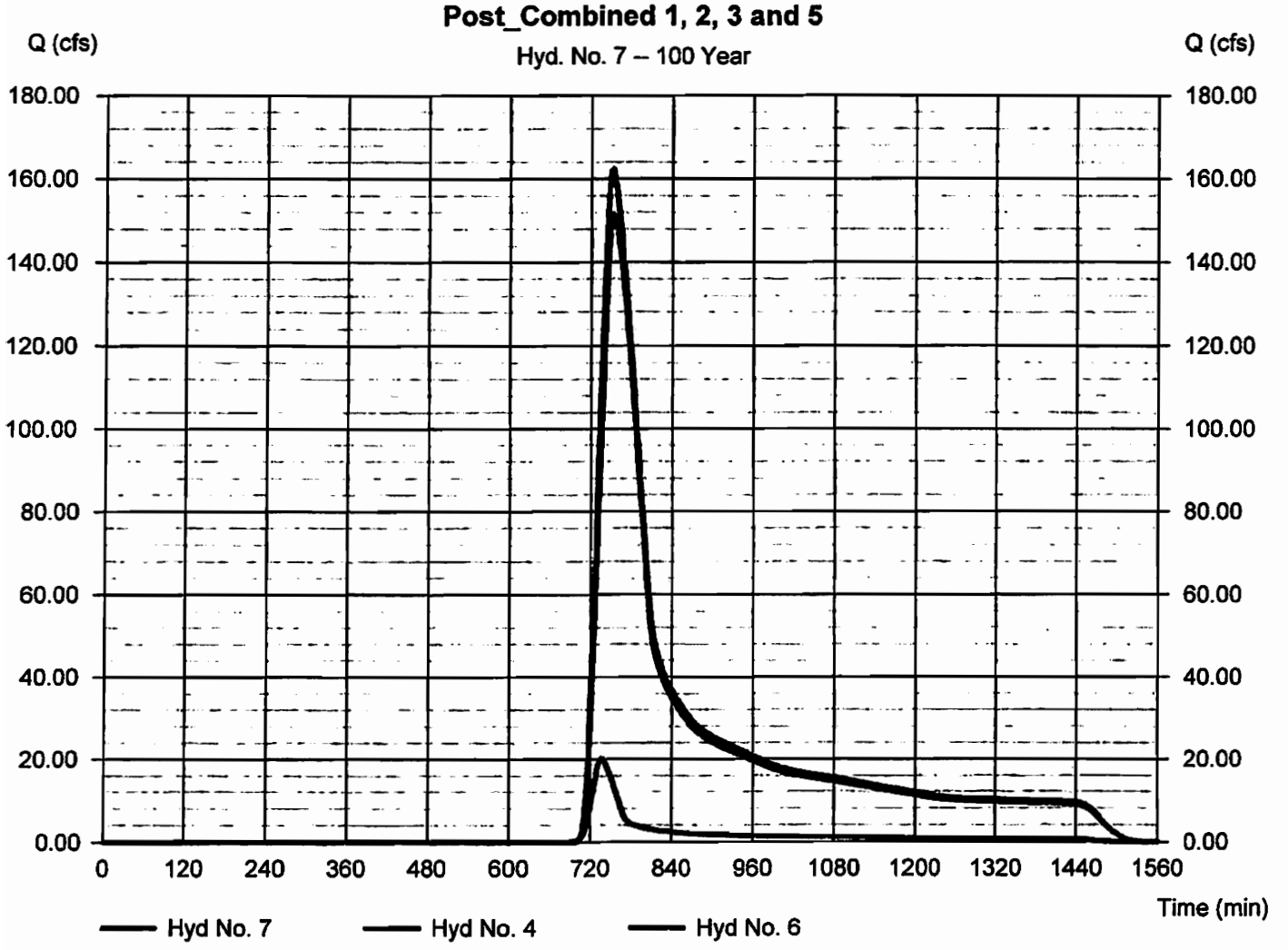
Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.22 — Monday, May 2, 2011

Hyd. No. 7

Post_Combined 1, 2, 3 and 5

Hydrograph type	= Combine	Peak discharge	= 162.35 cfs
Storm frequency	= 100 yrs	Time to peak	= 752 min
Time interval	= 2 min	Hyd. volume	= 1,283,674 cuft
Inflow hyds.	= 4, 6	Contrib. drain. area	= 21.480 ac



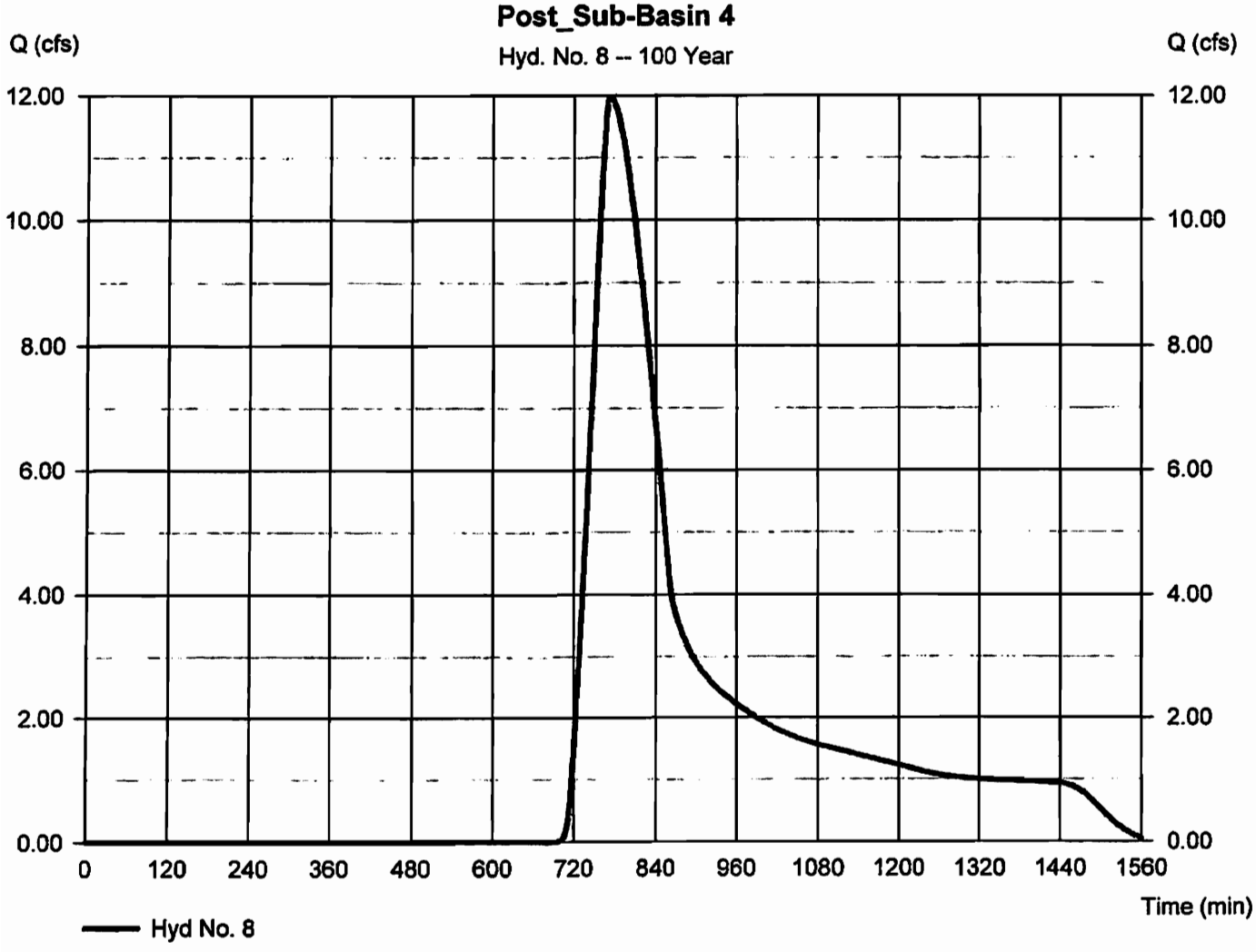
Hydrograph Report

Hyd. No. 8

Post_Sub-Basin 4

Hydrograph type	= SCS Runoff	Peak discharge	= 11.99 cfs
Storm frequency	= 100 yrs	Time to peak	= 774 min
Time interval	= 2 min	Hyd. volume	= 128,966 cuft
Drainage area	= 31.500 ac	Curve number	= 62*
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= TR55	Time of conc. (Tc)	= 94.90 min
Total precip.	= 4.47 in	Distribution	= Type II
Storm duration	= 24 hrs	Shape factor	= 484

* Composite (Area/CN) = [(30.090 x 60) + (1.410 x 98)] / 31.500



TR55 Tc Worksheet

Hyd. No. 8

Post_Sub-Basin 4

Description	A		B		C		Totals
Sheet Flow							
Manning's n-value	= 0.600		0.011		0.011		
Flow length (ft)	= 287.0		0.0		0.0		
Two-year 24-hr precip. (in)	= 1.99		0.00		0.00		
Land slope (%)	= 27.30		0.00		0.00		
Travel Time (min)	**= 30.77**	**+**	**0.00**	**+**	**0.00**	**=**	**30.77**
Shallow Concentrated Flow							
Flow length (ft)	= 661.20		0.00		0.00		
Watercourse slope (%)	= 7.90		0.00		0.00		
Surface description	= Paved		Paved		Paved		
Average velocity (ft/s)	= 5.71		0.00		0.00		
Travel Time (min)	**= 1.93**	**+**	**0.00**	**+**	**0.00**	**=**	**1.93**
Channel Flow							
X sectional flow area (sqft)	= 2.30		0.00		0.00		
Wetted perimeter (ft)	= 5.00		0.00		0.00		
Channel slope (%)	= 8.70		0.00		0.00		
Manning's n-value	= 0.600		0.015		0.015		
Velocity (ft/s)	= 0.44		0.00		0.00		
Flow length (ft)	= 1625.0		0.0		0.0		
Travel Time (min)	**= 62.21**	**+**	**0.00**	**+**	**0.00**	**=**	**62.21**

Total Travel Time, Tc ..... 94.90 min

APPENDIX 3

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

ZONE AE Base Flood Elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0205E

FIRM

FLOOD INSURANCE RATE MAP

CARSON CITY, NEVADA

INDEPENDENT CITY

PANEL 205 OF 275

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CARSON CITY	[illegible]	[illegible]	E

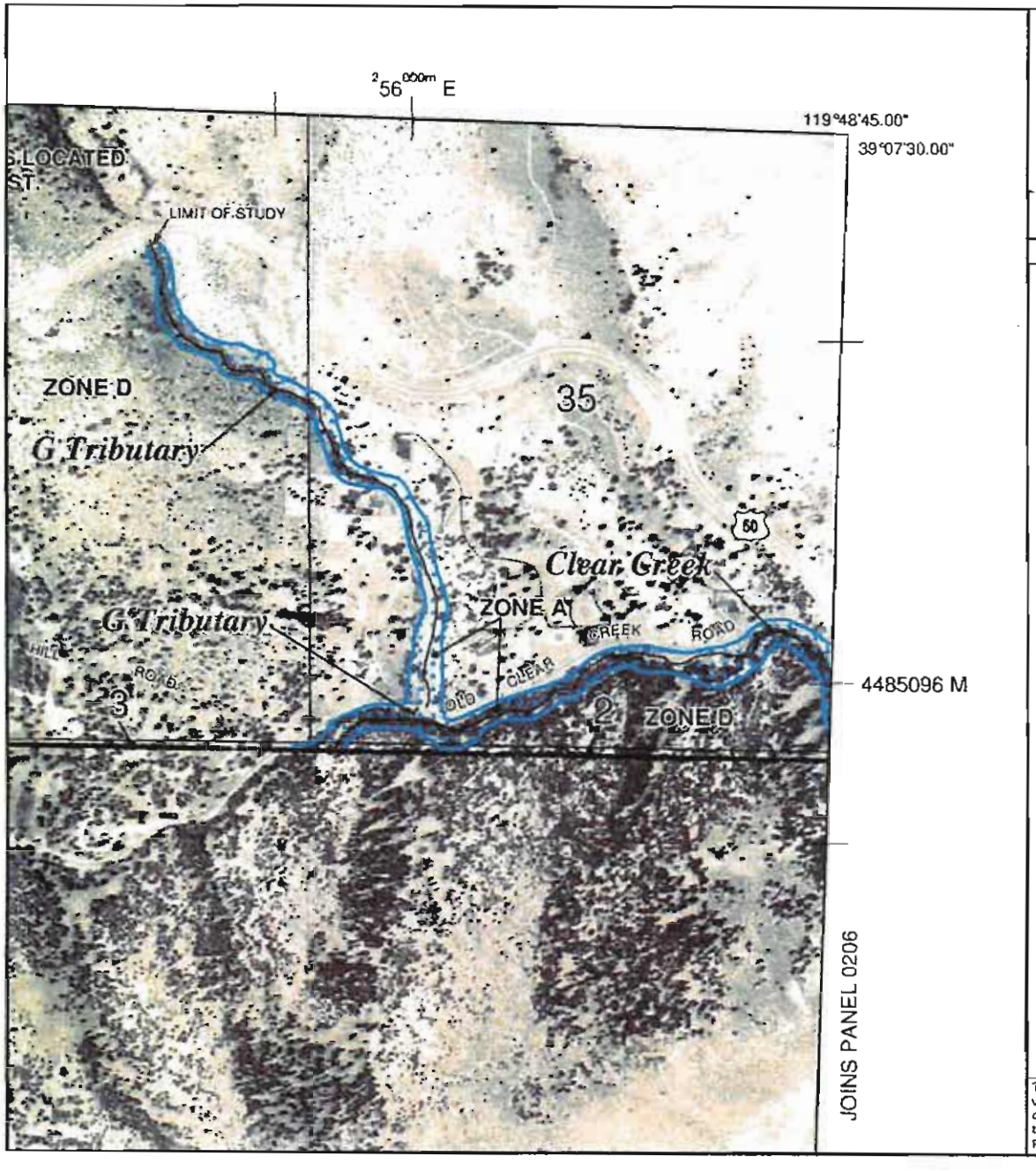
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.

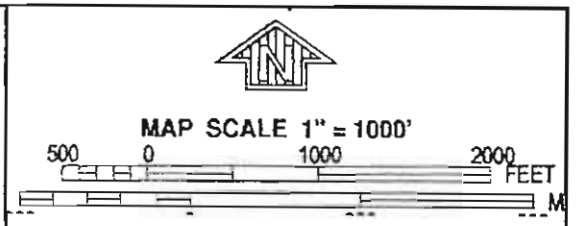
MAP NUMBER
3200010205E

MAP REVISED
JANUARY 16, 2009

Federal Emergency Management Agency

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





NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0205E

FIRM

FLOOD INSURANCE RATE MAP

CARSON CITY, NEVADA

INDEPENDENT CITY

PANEL 205 OF 275

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CARSON CITY	320001	0205	E

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

MAP NUMBER
3200010205E

MAP REVISED
JANUARY 16, 2009

Federal Emergency Management Agency

POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14

Nevada 39.1216 N 119.8271 W 5672 feet

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 1, Version 4
G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2006

Extracted: Mon Apr 25 2011

Confidence Limits | Seasonality | Related Info | GIS data | Maps | Docs | Return to State Map

Precipitation Frequency Estimates (inches)

ARI* (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.11	0.17	0.20	0.28	0.34	0.47	0.57	0.84	1.17	1.59	1.99	2.46	2.94	3.36	4.38	5.17	6.24	7.24
2	0.14	0.21	0.26	0.34	0.43	0.58	0.71	1.04	1.47	1.99	2.51	3.13	3.75	4.30	5.60	6.62	8.00	9.32
5	0.18	0.27	0.34	0.45	0.56	0.73	0.88	1.28	1.83	2.51	3.22	4.09	4.93	5.65	7.31	8.64	10.43	12.15
10	0.22	0.33	0.41	0.56	0.69	0.86	1.02	1.46	2.12	2.93	3.80	4.88	5.88	6.72	8.61	10.18	12.25	14.18
25	0.29	0.44	0.54	0.73	0.90	1.06	1.22	1.71	2.50	3.52	4.63	6.01	7.23	8.20	10.37	12.25	14.64	16.76
50	0.35	0.53	0.66	0.88	1.09	1.24	1.39	1.90	2.79	3.98	5.30	6.93	8.32	9.38	11.72	13.84	16.45	18.66
100	0.42	0.64	0.79	1.07	1.32	1.44	1.57	2.10	3.10	4.47	6.02	7.92	9.47	10.60	13.12	15.47	18.28	20.51
200	0.51	0.77	0.96	1.29	1.60	1.69	1.81	2.32	3.40	4.97	6.78	8.98	10.70	11.89	14.53	17.12	20.11	22.31
500	0.65	0.98	1.22	1.64	2.04	2.11	2.19	2.63	3.80	5.66	7.85	10.49	12.43	13.67	16.44	19.35	22.53	24.60
1000	0.78	1.18	1.46	1.97	2.44	2.51	2.58	2.90	4.11	6.21	8.71	11.72	13.83	15.08	17.91	21.06	24.37	26.28

* These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval.
Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting forces estimates near zero to appear as zero.

* Upper bound of the 90% confidence interval Precipitation Frequency Estimates (inches)

ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.13	0.19	0.24	0.32	0.40	0.53	0.64	0.93	1.31	1.77	2.26	2.83	3.37	3.84	4.95	5.83	7.01	8.16
2	0.16	0.24	0.30	0.41	0.50	0.66	0.79	1.16	1.64	2.22	2.85	3.60	4.30	4.91	6.34	7.47	8.99	10.53
5	0.21	0.32	0.40	0.54	0.66	0.83	0.98	1.42	2.05	2.80	3.65	4.71	5.66	6.46	8.27	9.74	11.72	13.71
10	0.26	0.39	0.49	0.66	0.81	0.98	1.14	1.62	2.37	3.26	4.31	5.61	6.75	7.68	9.73	11.47	13.76	16.00
25	0.34	0.51	0.64	0.86	1.06	1.21	1.36	1.91	2.82	3.92	5.27	6.91	8.31	9.38	11.73	13.82	16.48	18.92
50	0.41	0.63	0.78	1.05	1.30	1.43	1.57	2.14	3.17	4.43	6.04	7.98	9.57	10.73	13.28	15.64	18.56	21.12
100	0.50	0.77	0.95	1.28	1.58	1.68	1.79	2.38	3.55	4.99	6.88	9.14	10.93	12.17	14.91	17.55	20.68	23.28
200	0.62	0.94	1.17	1.57	1.95	2.00	2.10	2.66	3.94	5.58	7.80	10.39	12.38	13.68	16.57	19.50	22.84	25.38
500	0.81	1.23	1.52	2.05	2.53	2.56	2.60	3.06	4.49	6.40	9.11	12.23	14.50	15.88	18.90	22.22	25.75	28.12
1000	0.98	1.50	1.86	2.50	3.10	3.10	3.10	3.44	4.93	7.07	10.21	13.78	16.25	17.63	20.76	24.34	28.04	30.22

* The upper bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are greater than.
** These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval.

Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

* Lower bound of the 90% confidence interval Precipitation Frequency Estimates (inches)

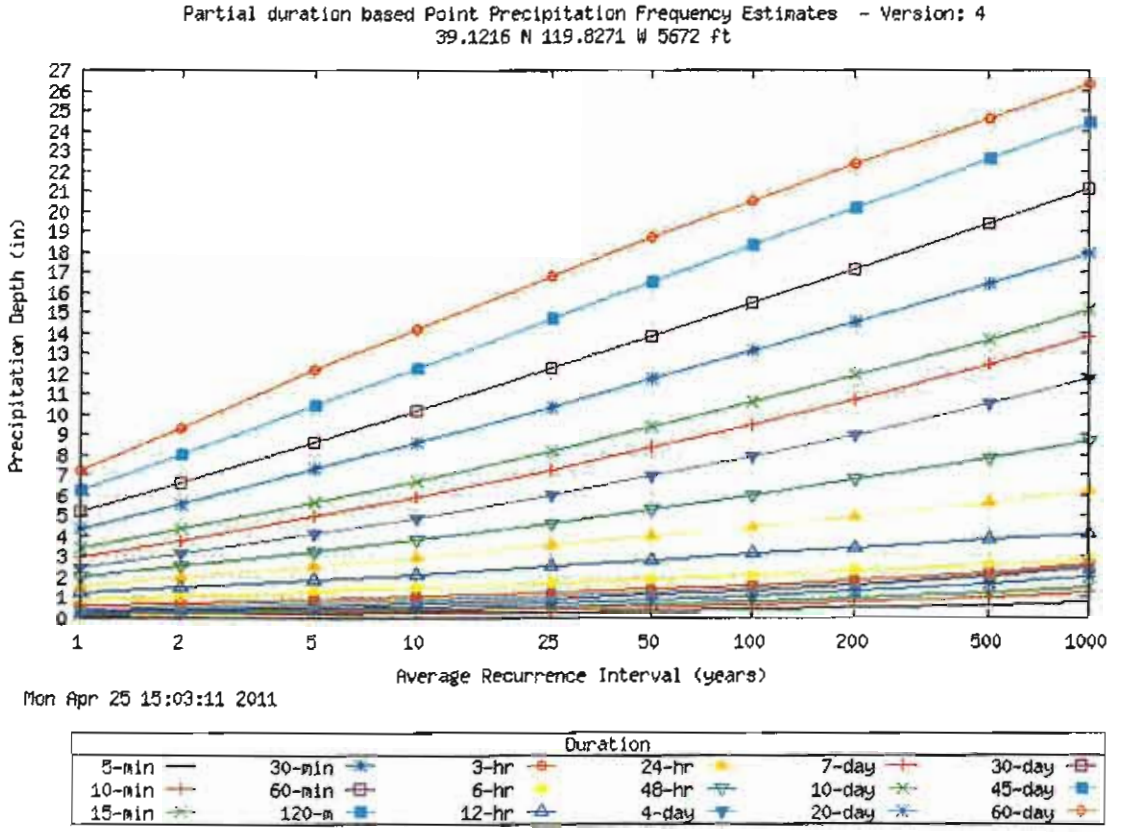
ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	0.09	0.14	0.18	0.24	0.30	0.42	0.52	0.76	1.05	1.43	1.77	2.15	2.58	2.94	3.86	4.57	5.52	6.38
2	0.12	0.18	0.22	0.30	0.37	0.52	0.65	0.95	1.32	1.79	2.23	2.74	3.29	3.76	4.94	5.84	7.08	8.22
5	0.15	0.23	0.29	0.39	0.49	0.65	0.79	1.15	1.64	2.25	2.86	3.56	4.32	4.93	6.43	7.62	9.22	10.70
10	0.19	0.29	0.36	0.48	0.59	0.76	0.91	1.31	1.88	2.62	3.36	4.24	5.13	5.85	7.56	8.95	10.79	12.47
25	0.24	0.36	0.45	0.61	0.75	0.91	1.07	1.52	2.19	3.13	4.06	5.17	6.28	7.09	9.05	10.71	12.83	14.69

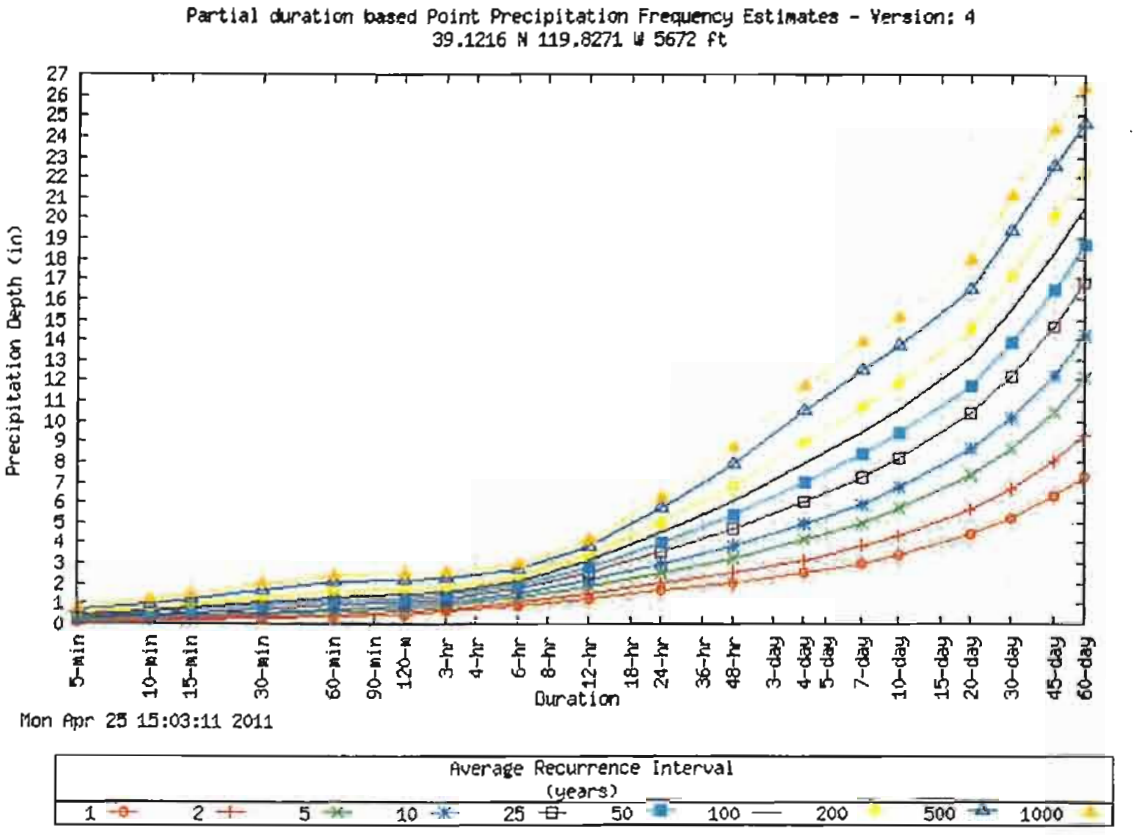
50	0.28	0.43	0.53	0.71	0.88	1.04	1.20	1.67	2.42	3.52	4.61	5.93	7.17	8.06	10.17	12.03	14.36	16.29
100	0.33	0.50	0.62	0.83	1.03	1.18	1.33	1.81	2.64	3.91	5.19	6.71	8.08	9.04	11.29	13.36	15.87	17.83
200	0.38	0.58	0.72	0.96	1.19	1.34	1.50	1.96	2.85	4.32	5.79	7.53	9.05	10.05	12.42	14.66	17.36	19.31
500	0.46	0.69	0.86	1.16	1.44	1.60	1.77	2.17	3.11	4.85	6.58	8.65	10.35	11.41	13.89	16.39	19.21	21.13
1000	0.52	0.79	0.98	1.32	1.64	1.84	2.03	2.35	3.30	5.25	7.21	9.53	11.36	12.45	14.97	17.68	20.61	22.45

* The lower bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are less than.
** These precipitation frequency estimates are based on a partial duration maxima series. ARI is the Average Recurrence Interval.

Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

Text version of tables





Related Information

Maps & Aerials

Click here to see topographic maps and aerial photographs available for this location from Microsoft Research Maps

Watershed/Streamflow Information

Click here to see watershed and streamflow information available for this location from the U.S. Environmental Protection Agency's site

Climate Data Sources

National Climatic Data Center (NCDC) database

Locate NCDC climate stations within:

+/-30 minutes or +/-1 degree of this location. Digital ASCII data can be obtained directly from NCDC.

Note: Precipitation frequency results are based on analysis of precipitation data from a variety of sources, but largely NCDC. The following links provide general information about observing sites in the area, regardless of if their data was used in this study. For detailed information about the stations used in this study, please refer to the matching documentation available at the PF Document page

Natural Resources Conservation Service's (NRCS) SNOTEL dataset

At present, there are more than 700 SNOTEL sites typically located in the mountainous regions of the Western U.S. that report daily and/or hourly precipitation, air temperture, snow water equivalent and snow depth data.

US Department of Commerce
National Oceanic and Atmospheric Administration

National Weather Service
Office of Hydrologic Development
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

POINT PRECIPITATION FREQUENCY ESTIMATES FROM NOAA ATLAS 14

Nevada 39.1216 N 119.8271 W 5672 feet

from "Precipitation-Frequency Atlas of the United States" NOAA Atlas 14, Volume 1, Version 4
G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley
NOAA, National Weather Service, Silver Spring, Maryland, 2006

Extracted: Mon Apr 25 2011

Confidence Limits | Seasonality | Related Info | GIS data | Maps | Docs | Return to State Map

Precipitation Intensity Estimates (in/hr)

ARI* (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	1.30	0.99	0.82	0.55	0.34	0.23	0.19	0.14	0.10	0.07	0.04	0.03	0.02	0.01	0.01	0.01	0.01	0.01
2	1.62	1.24	1.02	0.69	0.43	0.29	0.24	0.17	0.12	0.08	0.05	0.03	0.02	0.02	0.01	0.01	0.01	0.01
5	2.15	1.63	1.35	0.91	0.56	0.36	0.29	0.21	0.15	0.10	0.07	0.04	0.03	0.02	0.02	0.01	0.01	0.01
10	2.64	2.00	1.66	1.12	0.69	0.43	0.34	0.24	0.18	0.12	0.08	0.05	0.04	0.03	0.02	0.01	0.01	0.01
25	3.44	2.62	2.17	1.46	0.90	0.53	0.41	0.29	0.21	0.15	0.10	0.06	0.04	0.03	0.02	0.02	0.01	0.01
50	4.18	3.17	2.62	1.77	1.09	0.62	0.46	0.32	0.23	0.17	0.11	0.07	0.05	0.04	0.02	0.02	0.02	0.01
100	5.05	3.84	3.18	2.14	1.32	0.72	0.52	0.35	0.26	0.19	0.13	0.08	0.06	0.04	0.03	0.02	0.02	0.01
200	6.10	4.64	3.83	2.58	1.60	0.84	0.60	0.39	0.28	0.21	0.14	0.09	0.06	0.05	0.03	0.02	0.02	0.02
500	7.76	5.91	4.88	3.29	2.04	1.06	0.73	0.44	0.32	0.24	0.16	0.11	0.07	0.06	0.03	0.03	0.02	0.02
1000	9.30	7.08	5.85	3.94	2.44	1.25	0.86	0.48	0.34	0.26	0.18	0.12	0.08	0.06	0.04	0.03	0.02	0.02

* These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval
Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting forces estimates near zero to appear as zero.

* Upper bound of the 90% confidence interval Precipitation Intensity Estimates (in/hr)

ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	1.52	1.16	0.96	0.65	0.40	0.27	0.21	0.16	0.11	0.07	0.05	0.03	0.02	0.02	0.01	0.01	0.01	0.01
2	1.92	1.46	1.20	0.81	0.50	0.33	0.26	0.19	0.14	0.09	0.06	0.04	0.03	0.02	0.01	0.01	0.01	0.01
5	2.53	1.92	1.59	1.07	0.66	0.41	0.33	0.24	0.17	0.12	0.08	0.05	0.03	0.03	0.02	0.01	0.01	0.01
10	3.11	2.36	1.95	1.32	0.81	0.49	0.38	0.27	0.20	0.14	0.09	0.06	0.04	0.03	0.02	0.02	0.01	0.01
25	4.06	3.08	2.55	1.72	1.06	0.61	0.45	0.32	0.23	0.16	0.11	0.07	0.05	0.04	0.02	0.02	0.02	0.01
50	4.94	3.77	3.11	2.10	1.30	0.71	0.52	0.36	0.26	0.18	0.13	0.08	0.06	0.04	0.03	0.02	0.02	0.01
100	6.05	4.60	3.80	2.56	1.58	0.84	0.60	0.40	0.29	0.21	0.14	0.10	0.07	0.05	0.03	0.02	0.02	0.02
200	7.43	5.65	4.67	3.14	1.95	1.00	0.70	0.44	0.33	0.23	0.16	0.11	0.07	0.06	0.03	0.03	0.02	0.02
500	9.67	7.36	6.08	4.09	2.53	1.28	0.86	0.51	0.37	0.27	0.19	0.13	0.09	0.07	0.04	0.03	0.02	0.02
1000	11.82	8.99	7.44	5.01	3.10	1.55	1.03	0.57	0.41	0.29	0.21	0.14	0.10	0.07	0.04	0.03	0.03	0.02

* The upper bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are greater than.
** These precipitation frequency estimates are based on a partial duration series. ARI is the Average Recurrence Interval.

Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

* Lower bound of the 90% confidence interval Precipitation Intensity Estimates (in/hr)

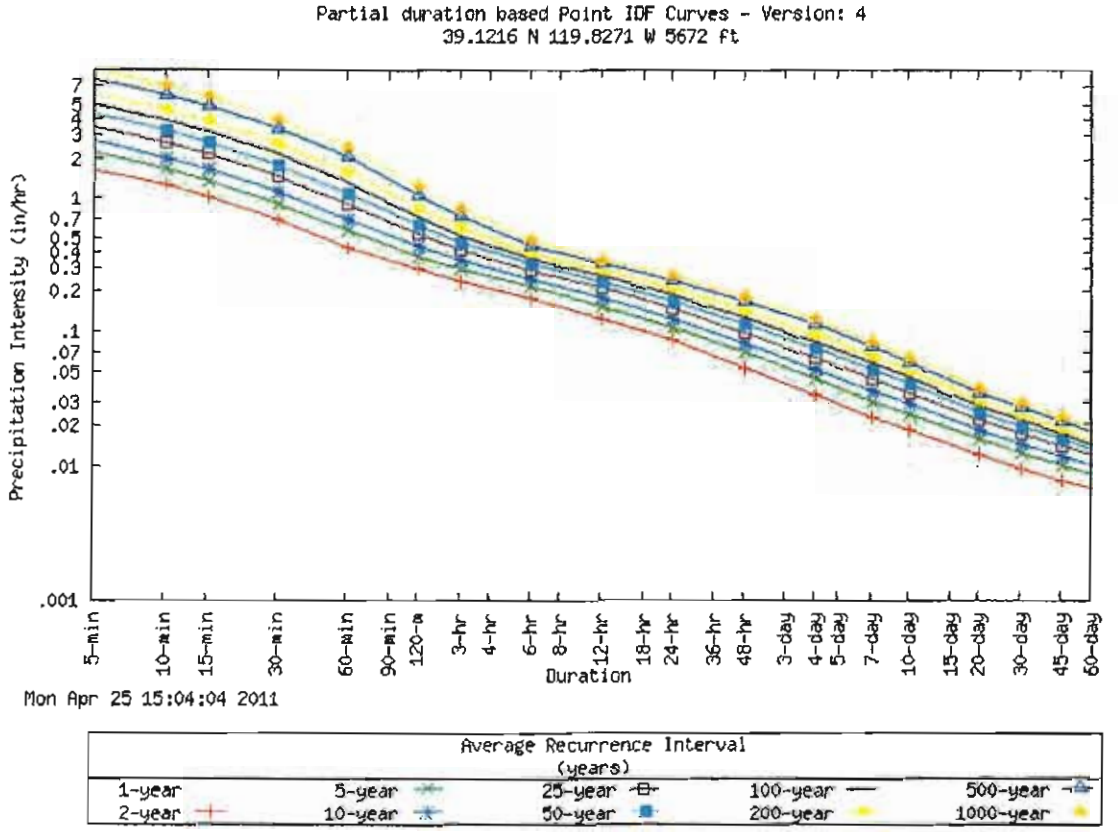
ARI** (years)	5 min	10 min	15 min	30 min	60 min	120 min	3 hr	6 hr	12 hr	24 hr	48 hr	4 day	7 day	10 day	20 day	30 day	45 day	60 day
1	1.13	0.86	0.71	0.48	0.30	0.21	0.17	0.13	0.09	0.06	0.04	0.02	0.02	0.01	0.01	0.01	0.01	0.00
2	1.42	1.08	0.89	0.60	0.37	0.26	0.22	0.16	0.11	0.07	0.05	0.03	0.02	0.02	0.01	0.01	0.01	0.01
5	1.86	1.41	1.17	0.79	0.49	0.33	0.26	0.19	0.14	0.09	0.06	0.04	0.03	0.02	0.01	0.01	0.01	0.01
10	2.27	1.72	1.42	0.96	0.59	0.38	0.30	0.22	0.16	0.11	0.07	0.04	0.03	0.02	0.02	0.01	0.01	0.01
25	2.87	2.18	1.80	1.21	0.75	0.46	0.36	0.25	0.18	0.13	0.08	0.05	0.04	0.03	0.02	0.01	0.01	0.01

50	3.36	2.56	2.12	1.43	0.88	0.52	0.40	0.28	0.20	0.15	0.10	0.06	0.04	0.03	0.02	0.02	0.01	0.01
100	3.94	2.99	2.48	1.67	1.03	0.59	0.44	0.30	0.22	0.16	0.11	0.07	0.05	0.04	0.02	0.02	0.01	0.01
200	4.56	3.47	2.86	1.93	1.19	0.67	0.50	0.33	0.24	0.18	0.12	0.08	0.05	0.04	0.03	0.02	0.02	0.01
500	5.47	4.17	3.44	2.32	1.44	0.80	0.59	0.36	0.26	0.20	0.14	0.09	0.06	0.05	0.03	0.02	0.02	0.01
1000	6.24	4.75	3.92	2.64	1.64	0.92	0.68	0.39	0.27	0.22	0.15	0.10	0.07	0.05	0.03	0.02	0.02	0.02

* The lower bound of the confidence interval at 90% confidence level is the value which 5% of the simulated quantile values for a given frequency are less than.
** These precipitation frequency estimates are based on a partial duration maxima series. ARI is the Average Recurrence Interval.

Please refer to NOAA Atlas 14 Document for more information. NOTE: Formatting prevents estimates near zero to appear as zero.

Text version of tables



Related Information

Maps & Aerials

Click here to see topographic maps and aerial photographs available for this location from Microsoft Research Maps

Watershed/Streamflow Information

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Climate Data Sources

National Climatic Data Center (NCDC) database

Locate NCDC climate stations within:

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

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

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

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

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

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

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

Table 2-2c Runoff curve numbers for other agricultural lands [1]

Cover description		Curve numbers for hydrologic soil group			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range—continuous forage for grazing. [2]	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element. [3]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	30 [4]	48	65	73
Woods—grass combination (orchard or tree farm). [5]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods. [6]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	30 [4]	55	70	77
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

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

2 *Poor:* <50%) ground cover or heavily grazed with no mulch.
Fair: 50 to 75% ground cover and not heavily grazed.
Good: > 75% ground cover and lightly or only occasionally grazed.

3 *Poor:* <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.

4 Actual curve number is less than 30; use CN = 30 for runoff computations.

5 CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

6 *Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
Fair: Woods are grazed but not burned, and some forest litter covers the soil.
Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

Sheet flow

Sheet flow is flow over plane surfaces. It usually occurs in the headwater of streams. With sheet flow, the friction value (Manning's n) is an effective roughness coefficient that includes the effect of raindrop impact; drag over the plane surface; obstacles such as litter, crop ridges, and rocks; and erosion and transportation of sediment. These n values are for very shallow flow depths of about 0.1 foot or so. Table 3-1 gives Manning's n values for sheet flow for various surface conditions.

Table 3-1 Roughness coefficients (Manning's n) for sheet flow

Surface description	n [1]
Smooth surfaces (concrete, asphalt, gravel, or bare soil)	0.011
Fallow (no residue)	0.05
Cultivated soils:	
Residue cover ≤20%	0.06
Residue cover >20%	0.17
Grass:	
Short grass prairie	0.15
Dense grasses [2]	0.24
Bermudagrass	0.41
Range (natural)	0.13
Woods: [3]	
Light underbrush	0.40
Dense underbrush	0.80

[1] The n values are a composite of information compiled by Engman (1986).
[2] Includes species such as weeping lovegrass, bluegrass, buffalo grass, blue grama grass, and native grass mixtures.
[3] When selecting n, consider cover to a height of about 0.1 ft. This is the only part of the plant cover that will obstruct sheet flow.

For sheet flow of less than 300 feet, use Manning's kinematic solution (Overtop and Meadows 1976) to compute T_t:

$$T_t = \frac{0.007(nL)^{0.8}}{(P_2)^{0.5} s^{0.4}} \qquad \text{[eq. 3-3]}$$

where:

T_t = travel time (hr),
n = Manning's roughness coefficient (table 3-1)
L = flow length (ft)
P_2 = 2-year, 24-hour rainfall (in)
s = slope of hydraulic grade line (land slope, ft/ft)

This simplified form of the Manning's kinematic solution is based on the following: (1) shallow steady uniform flow, (2) constant intensity of rainfall excess (that part of a rain available for runoff), (3) rainfall duration of 24 hours, and (4) minor effect of infiltration on travel time. Rainfall depth can be obtained from appendix B.

Shallow concentrated flow

After a maximum of 300 feet, sheet flow usually becomes shallow concentrated flow. The average velocity for this flow can be determined from figure 3-1, in which average velocity is a function of watercourse slope and type of channel. For slopes less than 0.005 ft/ft, use equations given in appendix F for figure 3-1. Tillage can affect the direction of shallow concentrated flow. Flow may not always be directly down the watershed slope if tillage runs across the slope.

After determining average velocity in figure 3-1, use equation 3-1 to estimate travel time for the shallow concentrated flow segment.

Open channels

Open channels are assumed to begin where surveyed cross section information has been obtained, where channels are visible on aerial photographs, or where blue lines (indicating streams) appear on United States Geological Survey (USGS) quadrangle sheets. Manning's equation or water surface profile information can be used to estimate average flow velocity. Average flow velocity is usually determined for bankfull elevation.

Resource Concepts Inc

April 17, 2014

Mr. Bill Schulz
SCHULZ INVESTMENTS
1627 Rankin Drive
Carson City, Nevada 89701

RE: **Archery Range Parcel – APN 7-051-72**
Preliminary Geologic and Geotechnical Review Report
for Tentative Map Submittal

Dear Mr. Schulz:

At your request, Resource Concepts, Inc. (RCI) is pleased to provide you with our Geologic and Geotechnical Review Report in support of the proposed tentative map submittal for your property referred to as the "Archery Range" (APN 7-051-72). The property is suitable for the proposed use as residential development with attention to proper site planning and implementation of mitigations for potential geologic and geotechnical constraints as described herein.

INTRODUCTION

The following report presents the results of Resource Concept, Inc. (RCI) preliminary geologic and geotechnical review for the Archery Range property, located on the south side of US Highway 50 in the area of Carson City, Nevada. The area of Carson City in which the property is located is locally referred to as Clear Creek as shown on the Vicinity Map, Figure 1.

PROJECT DESCRIPTION

The Archery Range parcel is approximately 32.72 acres in size and currently is zoned single-family 5-acre minimum. It is our understanding that the intention is to divide the property into six five-acre parcels as shown on the Site Plan, Figure 2. Future plans will include construction of single family residences. Other planned improvements will include underground utility infrastructure, local streets, driveways, concrete sidewalk, curb, gutter and landscaping.

Archery Range Parcel – APN 7-051-72
Preliminary Geologic and Geotechnical Review Report
for Tentative Map Submittal

The purpose of RCI's review was to generally characterize the soil and geologic conditions, provide preliminary conclusions regarding any geologic hazards or adverse soil conditions; demonstrate the feasibility of individual sanitary septic installation and to provide general guidelines for road and structure earthwork.

Conclusions presented herein are based on the following:

- Observations of site conditions during excavation of seven test pits and related percolation tests,
- Tentative map drawings by Manhard Consulting, LTD.,
- Published soils data, geologic maps, fault maps and flood plain maps.

This report is intended to serve only in support of the tentative map process and should be used only for general feasibility master planning, cost estimates, and preliminary site design. It is not intended for construction or to take the place of a thorough site specific geotechnical design level investigation for each proposed structure, utilities and roadways. No environmental investigations or liquefaction studies have been requested or performed for the project.

To aid in preparing this report, we discussed the project with our client and reviewed the following documents:

- *Tentative Map for Schulz Investments, Carson City, Nevada*, Manhard Engineering, Ltd., dated January 2011 Sheets 1-4.
- *Web Soil Survey* http://websoilsurvey.nrcs.usda.gov/app/, Natural Resources Conservation Service accessed April 16, 2014
- *Geologic Map of the Genoa Quadrangle Douglas County, Nevada*, Nevada Bureau of Mines and Geology, 1979
- *Genoa Quadrangle Earthquake Hazards Map*, Nevada Bureau of Mines and Geology, 1979
- *FEMA Flood Insurance Rate Map (FIRM), Map No. 3200010205E:* January 16, 2009
- Nevada Department of Water Resources well log data base
- *USGS Fault and Fold Database:* *http://earthquake.usgs.gov/hazards/qfaults/google.php*, Accessed April 16, 2014

Archery Range Parcel – APN 7-051-72
Preliminary Geologic and Geotechnical Review Report
for Tentative Map Submittal

Our professional services have been performed in accordance with engineering principles and practices generally accepted in the profession for Northern Nevada at the time of preparation of this report.

SITE CONDITIONS

The project site is located in a moderately forested area and with adjacent single family homes on the south and west sides of the project. The site is bounded to the north and northeast by US Highway 50. Intermittent drainages cross the site at several locations. Two drainages on the easterly side of the site which emanate from culverts that cross under US Highway 50 have been rip-rapped through the site. An additional drainage traverses the site from west to east through the southwest portion of the property. The drainages reach Clear Creek approximately 1,000 feet south of the project site.

No utilities are known to be present on the site. Sewer is located in Clear Creek Road (Nevada State Route 705, the "Lincoln Highway"). Residences surrounding the site are served by power but rely on on-site wells for water and individual septic systems for sewage disposal.

Topography of the site consists of moderate to gentle slopes that generally are down to the south. Slopes vary from this along the drainages. The easterly drainage channels are incised such that the slopes face east and west for the most part.

The site is located at elevations that range from approximately 5,550 feet to approximately 5,380 feet above mean sea level. Based on FEMA Flood Insurance Rate Maps for the site vicinity, the site is designated as Zone D. Zone D is defined as areas where flood depths have not been determined but flooding is possible (Figure 3). It is our interpretation that based on topography that flooding is possible along the intermittent channels and the lowermost portion of the site but the potential extent has not been determined by RCI.

Archery Range Parcel – APN 7-051-72
Preliminary Geologic and Geotechnical Review Report
for Tentative Map Submittal

Site Geology and Faulting

The site is located in the foothill area of the Sierra Nevada Mountains Geomorphic Province. Eagle and Carson valleys to the west are part of the Great Basin Geomorphic Province which is characterized by large fault-bounded valleys that are separated by mountain ranges. The Carson Valley is a sedimentary basin bounded by the Sierra Nevada to the west and the Pine Nut Mountains to the east. Geologic mapping of the site is published on the Nevada Bureau of Mines and Geology Geologic Map of the Genoa Quadrangle, Douglas County, Nevada, 1979. Based on the map, the site is located on an area of outcropping to shallow Hornblende-biotite granodiorite. Quaternary alluvium deposits are present especially along the intermittent stream channels. Colluvial deposits of sands derived from weathering of the granodiorite are present at the base of steeper slopes.

The site is located near active faults which are considered capable of producing significant ground motions due to seismic events. Based on the Genoa Quadrangle Earthquake Hazards Map, Nevada Bureau of Mines and Geology, 1979; and the US Geological Survey Fault and Fold web site, Holocene-aged (less than 12,000 years, locally less than several hundred years) range-front faulting has been mapped approximately two (2) miles west of the site. According to the Genoa Earthquake Hazards Map, faulting may be less than 300 years old. Based on the results of our site investigation and review of geologic maps and reports, the site is not located on any known active or potentially active fault traces. The Quaternary Fault Map of the site is presented as Figure 4.

Ground shaking intensities for design considerations should be governed by seismic events occurring on the Genoa Fault which follows the base of the Carson Range west of the site. Faulting along the Carson Range has been evaluated by the Nevada Bureau of Mines and Geology to be capable of producing earthquake Richter Magnitudes on the order of 7.0 with peak ground accelerations as high as 1.5g. These values are equivalent to Modified Mercalli Intensities of X or greater.

The seismic risk at the site is not considered significantly greater than that of the surrounding developments and the Carson City area in general. We recommend that

seismic design of the structures be performed in accordance with the latest version of the International Residential Code (IRC) or International Building Code (IBC) as appropriate.

Soils and Groundwater

According to the Soil Survey of Carson City Area, Nevada, (US Department of Agriculture, 1984), the site soil is characterized by a single soil unit Toiyabe- rock outcrop complex consisting of thin silty sand (SM) soil layers typically less than one foot thick over shallow bedrock.

Based on our observations during test pit excavation activities at the site, although the site soils are described by NRCS as overlying shallow bedrock, our test pits identified weathered soil transitions (regolith) areas with deeper alluvial and colluvial soils on lower areas of the site. We speciffically

Groundwater was encountered at depths between 2.7 and 7.0 feet below ground surface (bgs) in test pits excavated on March 13, 2007. Based on regional groundwater information and depth to water reported in wells within 1 mile of the site (Nevada Department of Water Resources), average depth to groundwater in the vicinity of the site is generally less than 15 feet bgs. Fluctuations in the level of groundwater may occur due to variations in rainfall, temperature, and other factors.

PERCOLATION TESTING

Percolation testing was performed at seven (7) locations at the site on April 9-10, 2014. The tests were located to generally characterize the entire site and each of the proposed five-acre parcels (Figure 2). Test locations were determined both on the lot locations but also on the most logical flat lying topographic areas of the site. Percolation tests were conducted in substantial accordance with Nevada Administrative Code requirements (NAC 444.796.1 and 444.796.2 inclusive). The tests were performed from eighteen inches to 30 inches below the existing grade. Test pits were excavated by the use of a rubber-tire backhoe with a 18-inch wide bucket. The soil conditions encountered in test pits were visually examined, classified, and logged in general accordance with the Unified Soil

Classification System. Shallow bedrock conditions at the site limited the depth of a few tests to within 18-inches of the ground surface.

Percolation rates reported for the site ranged from approximately 90 seconds per inch to 13.7 minutes per inch. Percolation test pit logs and associated percolation test results are presented in Appendix A. Photographs with co-ordinates of the test pit locations and data are presented in Appendix B.

CONCLUSIONS AND RECOMMENDATIONS

The intention of the following recommendations is to provide general specifications for clearing, grubbing and mass grading of the site. It is not intended to be used in lieu of a site specific geotechnical report for specific structures. A final geotechnical report should be prepared for each proposed structure addressing allowable bearing capacity, estimated settlement under design loads, foundation grading criteria, slope design, erosion control criteria and other site specific or specialized geotechnical information as needed.

It is anticipated that the majority of grading activities will require only conventional equipment capable of operating on moderate slopes and excavation of loose to medium dense soils and in some cases dense granodiorite bedrock. The need for blasting for deeper slope excavations or structure foundations should be planned for.

Anticipated Construction Difficulties

Three geotechnical constraints have been identified on the site that may impact the construction process. The three constraints are shallow bedrock, highly permeable soils and moderate to steep slopes. However, these constraints should not prohibit or limit development on the site when properly mitigated and planned for. Specific mitigations and material handling recommendations should be provided in the design level geotechnical report.

Large rubber tire or tracked vehicles will be necessary during stripping and initial grading on steeper slopes or where cuts encounter bedrock. Utility installations will also require

additional effort in areas of shallow bedrock. During wet seasons and especially during spring runoff periods, some portions of the site are likely to have near surface saturation or perched water over the bedrock. Pot holing of the site is recommended to determine if wet trench conditions are present and therefore mitigations are necessary.

Road section design will likely result in minimum pavement sections due to the typically strong soils associated with granitic near source derived material.

The use of septic systems is limited to flatter areas of the site. Based on percolation rates, engineered systems may be required on some areas of the site. It is extremely important that Septic areas are identified prior to any well drilling to ensure wells do not conflict with the most appropriate septic field locations. The locations of adjacent wells and septic systems should also be identified to enhance the planning of on-site facility locations.

General Grading

Vegetation, stockpiled soil, undocumented fills and all debris should be removed from construction areas prior to commencement of general site mass grading. The depth of clearing and grubbing is estimated to be three to six inches across the site. Where significant root structure is encountered especially around large pine trees, the depth should be extended as necessary. Removed vegetation should be disposed of offsite or mulched and utilized on-site in landscape areas only. It should be noted that in any areas of soil stockpiles, undocumented fill (if any) it is recommended that the grading be monitored by the engineer to ensure the complete removal of the offensive materials.

Trench support methods where soils are comprised of Silty Sand (SM), Poorly Graded Sand (SP) should be consistent with OSHA Type C soils. Where weathered bedrock is encountered as determined by a competent person in trench safety Type B soils may apply.

In areas of the site to receive fill or in areas that will proceed directly on native granular soils, the native soils should be scarified at least 8 inches, moisture conditioned to near optimum moisture and compacted to a minimum of 90% of maximum dry density (MDD) with all references to ASTM D1557.

Archery Range Parcel – APN 7-051-72
Preliminary Geologic and Geotechnical Review Report
for Tentative Map Submittal

Structural fill is defined herein as all fill used beneath or within five feet of buildings or directly beneath roads. Where structure foundations are to rest on structural fills, the structural fill should extend a minimum of one footing width each side of the footing.

Pumping or yielding may occur during periods of high precipitation or if excessive runoff or where construction water is allowed to permeate the native soils. The offensive soils must be allowed to dry or be removed and replaced to a depth as determined in the design level geotechnical investigation.

All fill used on the project should be clean granular material, free of organic materials, trash or other objectionable material. It is anticipated that the vast majority of fill will need to be imported to the site. Areas to receive fill should be scarified at least eight inches and compacted as appropriate for the type of soil. Clayey soils (SC, CL, CH) should be compacted to 85% of MDD at within 2% optimum moisture. Granular soils (SM, SW, SP) should be compacted to 90% of MDD. Fill should be placed on compacted subgrade soils or on stabilized cobble rock fill (if necessary). All fill should be placed in lifts not exceeding 8-inches in loose thickness and be compacted to a minimum of 90% of MDD.

Structural fill should meet the following specifications:

STRUCTURAL FILL

Sieve Size	Percent Passing
4 inch	100
¾ inch	70-100
No. 40	15-70
No. 200	5-25

Structural fill should have a liquid limit of no more than 40 and a plasticity index of no more than 12 when tested by ASTM D 4318. Structural fill used beneath concrete slabs should be 100% passing the 1" Sieve.

Archery Range Parcel – APN 7-051-72
Preliminary Geologic and Geotechnical Review Report
for Tentative Map Submittal

ADDITIONAL GEOTECHNICAL CONSIDERATIONS

A thorough geotechnical investigation will need to be conducted to support finish grading, final design of pavement sections and to provide building foundation parameters for each proposed parcel. The final report should specifically address:

1. Soil strength for pavement section design. Either R-value or California Bearing Ratio testing of each significant soil type.
2. Weak or saturated soil stabilization alternatives.
3. Erosion control and slope stability recommendations as appropriate.
4. Seismic design parameters for buildings and related structures.
5. Earth pressure for retaining structures (if any) and footing design.
6. Slab-on-grade recommendations.

LIMITATIONS

The information contained in this report is based on standards of investigation and design guidelines generally accepted in the Northern Nevada area at the time of this report, and on our understanding of the project scope as outlined herein.

This preliminary report is issued with the understanding that it is the responsibility of the owner, or a designated representative, to ensure that the information and recommendations contained herein are distributed to the design team. This report is intended to support project planning and cost estimating and not to take the place of thorough design level geotechnical investigation. No guarantee as to the continuity of soils or other geologic conditions across the site is implied or intended. No environmental work has been performed in the preparation of this report and is excluded from our scope of services.

The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated

wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of one year.

Please contact us should you have any questions regarding this report, or if we may be of further service.

Sincerely,

RESOURCE CONCEPTS, INC.

Gary Luce, PE
Senior Geotechnical Engineer/Senior Geologist

GL:jm
(3) Addressee

Attachments: Figures 1-5
Appendix A - Percolation Test Results and Logs.
Appendix B - Site Photos

Figures

N

0 1000 2000

SCALE: 1"=3000'

Figure 1
Vicinity Map

Proj. No.: 14-142.1
Prepared: 4/16/14

RCI
Resource Concepts Inc

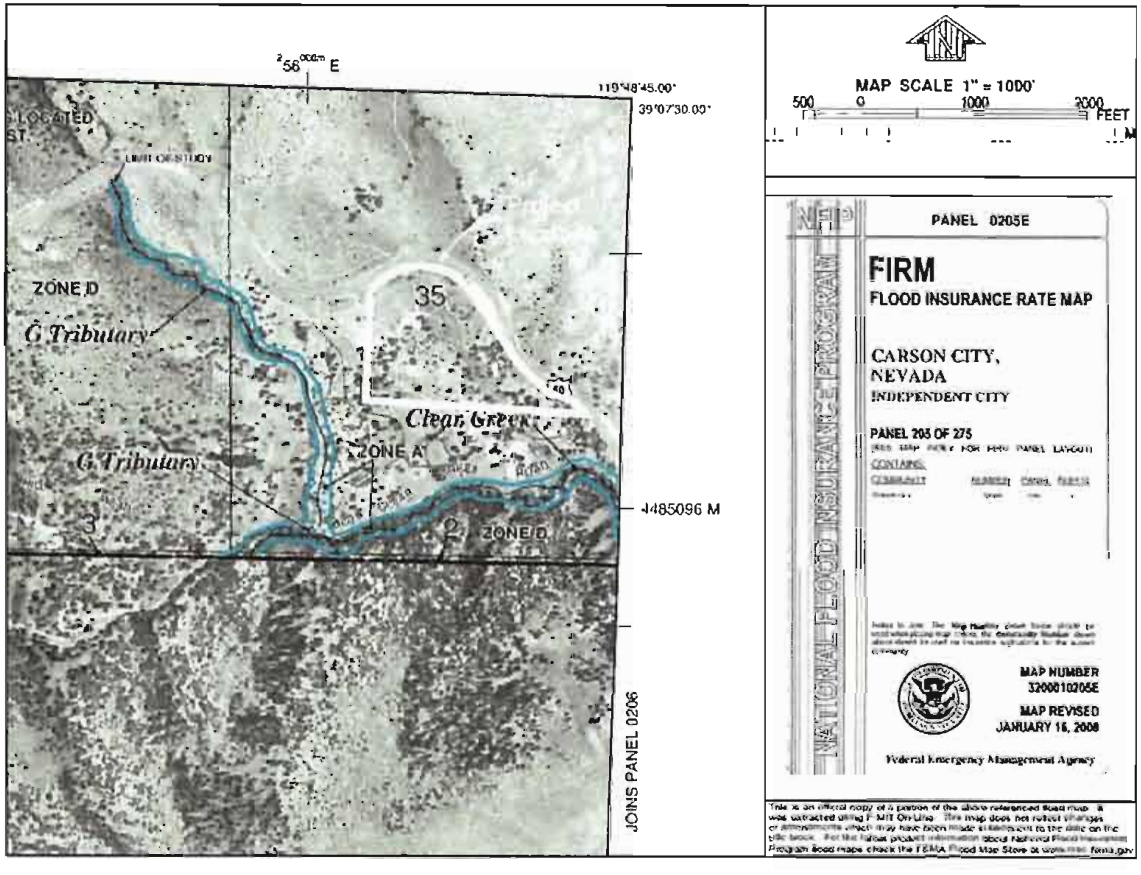
N

NTS

Figure 2
Site Plan

Proj. No.: 14-142.1
Prepared: 4/16/14

Resource Concepts Inc



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A — No Base Flood Elevations determined.

ZONE AE — Base Flood Elevations determined.

ZONE AH — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.

ZONE AO — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.

ZONE AR — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.

ZONE A99 — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.

ZONE V — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.

ZONE VE — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X — Areas determined to be outside the 0.2% annual chance floodplain.

ZONE D — Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

Figure 3
Flood Insurance
Rate Map

Proj. No.: 14-142.1
Prepared: 4/16/14

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-N-

Scale: 1"=10,000'

Proj. No.: 14-142.1
Prepared: 4/16/14

Figure 4
Fault Map

RCI Resource Concepts Inc

SOIL MAP UNIT 68 TOIYABE BEDROCK COMPLEX - SOIL DEPTH <2'
USCS SM SILTY SAND

-N-
NTS

Figure 5
Soils Map

Proj. No.: 14-142.1
Prepared: 4/16/14

RCI
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Appendix A

Percolation Test Results and Logs

Resource Concepts, Inc
340 N. Minnesota Street
Carson City NV 89703
775-883-1600

Resource Concepts Inc

Project:	Schulz CC
Project Number:	14-142.1
Date:	4-9-2014

Soil Percolation Tests

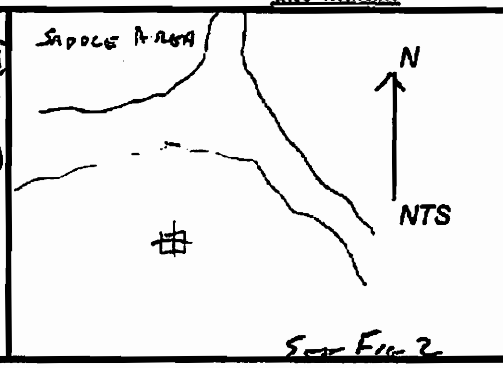
Percolation Tests

Log of Test Pit # T.P.-1

Depth	USCS
0'-1'	Loose Dk Grayish Brown Silty Sand w/Rootlets (SM)
1'-10'	Mod Dense To Dense Lt Gray Silty To Poorly Graded Sand (SM-SP)

1 2 3 4 5 6 7 8 9 10

Site Sketch



Soil Percolation Recorded Measurements

1. Depth to test : 1.5
2. Time of 1st saturation to 12" 9:53 Date : 4-9-14 @ 10:03 7"

If 12" of water drains from hole in 10 mins or less, refill to 12".

3. Time of 2nd saturation :
4. If 2nd filling drains in less than 10 mins, begin 1 hour test with 10 mins or less reading intervals.
5. If either filling exceeds 10 mins to drain from hole, begin a 4-hr pre-soak. Start pre-soak at 10:03

Return between 16 - 24 hrs to start test.

End pre-soak at 2:03

Date of percolation test : 4/10/14

Hole # : 1 Diameter : 8" Depth : 12" Soil Type : SM

Reading	Time Start	Time Finish	Water Level Start	Water Level Finish	Elapsed Time min	Water Fall (in)	
1	9:19	9:49	6"	8 3/16"	30	2 3/16"	Δ = 3/4"
2	9:49	10:19	6"	7 7/16	30	1 7/16"	Δ = 5/16"
3	10:19	10:49	6"	7 3/4"	30	1 3/4"	Δ = 1/16"
4	10:49	11:19	5 3/4"	7 7/16"	30	1 11/16"	Δ = 5/16"
5	11:19	11:49	4 5/8"	6 5/8"	30	2"	Δ = 1/16"
6	11:49	12:19	4 1/4"	6 3/16"	30	1 15/16"	Δ = 3/16
7	12:19	12:49	4"	6 1/16"	30	2 1/16"	Δ = 2/16
	12:49	1:19	3 7/16"	5 3/4"	30	2 3/16	

Stabilized Rate : 13.71 inches/min

Tested by: TED

Checked by : GL

150

RCI Resource Concepts Inc

Resource Concepts, Inc
340 N. Minnesota Street
Carson City NV 89703
775-883-1600

Project: Schulz CC
Project Number: 14-142.1
Date: 4-9-2014

Soil Percolation Tests

Percolation Tests

Log of Test Pit # TP-2

Depth	Log	USCS
1 0'-0.8'		Loose Dk Gray Brn Silty Sand w/ Rootlets (SM)
2 0.8'-10'		Med Dense To Dense Silty To Poorly Graded Sand (SM-SP)
3		
4		
5		
6		Near Bedrock
7		
8		
9		
10		

Site Sketch

See Fig 2

Soil Percolation Recorded Measurements

1. Depth to test : 1.5'
2. Time of 1st saturation to 12" 10:30 Date : 4/9/14 @ 10:40 6 3/4"
If 12" of water drains from hole in 10 mins or less, refill to 12".
3. Time of 2nd saturation :
4. If 2nd filling drains in less than 10 mins, begin 1 hour test with 10 mins or less reading intervals.
5. If either filling exceeds 10 mins to drain from hole, begin a 4-hr pre-soak. Start pre-soak at 10:40
Return between 16 - 24 hrs to start test. End pre-soak at 2:40

Date of percolation test : 4/10/14

Hole # : 1 Diameter : 10" Depth : 12" Soil Type : SM

Reading	Time		Water Level		Elapsed	Water	
	Start	Finish	Start	Finish	Time min	Fall (in)	
1	9:25	9:55	6"	9 5/8"	30	3 5/8"	Δ = 1 3/16"
2	9:55	10:25	6"	8 7/16"	30	2 7/16"	Δ = 3/16"
3	10:25	10:55	6 1/16"	8 9/16"	30	2 5/8"	Δ = 2/16"
4	10:55	11:25	6 1/8"	8 3/4"	30	2 7/8"	Δ = 1/16"
5	11:25	11:55	5 3/4"	8 9/16"	30	2 13/16	Δ = 1/16"
6	11:55	12:25	5 1/4"	8 1/8"	30	2 7/8"	
7							

Stabilized Rate : 0.43 inches/min

Tested by: TED
Checked by: CL

Resource Concepts, Inc
340 N. Minnesota Street
Carson City NV 89703
775-883-1600

Project: Sunset CC
Project Number: 14-142.1
Date: 4/9/2014

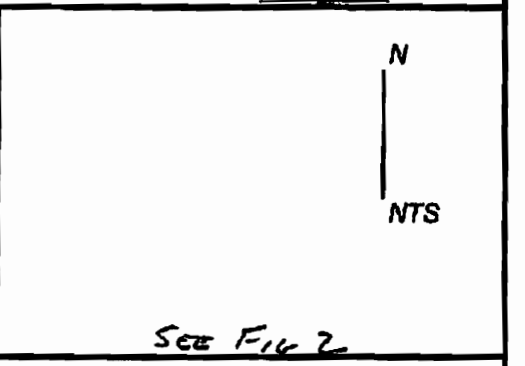
Soil Percolation Tests

Percolation Tests

Log of Test Pit # TP-3

Site Sketch

1	0'-1'	Loose Moist Dk Gray USCS Brn Silty Sand w/Roots (SM)
2	1'-5'	Loose To Med Dense Dk Yellowish Brn Silty Sand (SM)
3		
4		
5		
6	5'-10'	Med Dense Sl Moist Lt Grayish Brn Silty (SM-SP) To Poorly Graded Sand
7		
8		
9		
10		



See Fig 2

Soil Percolation Recorded Measurements

1. Depth to test : 2.5'
2. Time of 1st saturation to 12" 10:57 Date : 4/9/14 @ 11:07 10"
   If 12" of water drains from hole in 10 mins or less, refill to 12".
3. Time of 2nd saturation :
4. If 2nd filling drains in less than 10 mins, begin 1 hour test with 10 mins or less reading intervals.
5. If either filling exceeds 10 mins to drain from hole, begin a 4-hr pre-soak. Start pre-soak at 11:07
   Return between 16 - 24 hrs to start test. End pre-soak at 3:07

Date of percolation test : 4/10

Hole # : 1 Diameter : 8" Depth : 12" Soil Type : SM

Reading	Time Start	Time Finish	Water Level Start	Water Level Finish	Elapsed Time min	Water Fall (in)	
1	1014	1038	12 3/16	8 14/16	20	4 5/16	
2	1042	1102	5 1/16	7 4/16	20	2 3/16	
3	1102	1122	7 4/16	9 12/16	20	2 8/16	
4	1123	1143	5 10/16	8 2/16	20	2 8/16	> 1/16
5	1144	1204	6 10/16	9 1/16	20	2 7/16	> 1/16
6	1205	1225	6 2/16	8 10/16	20	2 8/16	
7							

Stabilized Rate : 8.0 inches/min

Tested by: JK
Checked by : GK

Resource Concepts, Inc
340 N. Minnesota Street
Carson City NV 89703
775-883-1600
Resource Concepts Inc

Project : Schnell Creek
Project Number : 14-142.1
Date : 4/9/2014

Soil Percolation Tests

Percolation Tests

Log of Test Pit # TP-4

0'- 3'		Loose Moist to Granitic Brn Silty Sand (SM) w/ Roots
3'- 10'		Loose to M. Dense Dry to Moist Brn. Silty Sand (SM)

Site Sketch

Soil Percolation Recorded Measurements

1. Depth to test : 2.5'
2. Time of 1st saturation to 12" 11:24 Date : 4/9/14 @ 11:30 EMPTY
   If 12" of water drains from hole in 10 mins or less, refill to 12".
3. Time of 2nd saturation : 11:30 @ 11:37 EMPTY
4. If 2nd filling drains in less than 10 mins, begin 1 hour test with 10 mins or less reading intervals.
5. If either filling exceeds 10 mins to drain from hole, begin a 4-hr pre-soak.

Return between 16 - 24 hrs to start test.

Date of percolation test : _____

Hole # : 1 Diameter : 8" Depth : 12" Soil Type : SM

Reading	Time		Water Level		Elapsed	Water
	Start	Finish	Start	Finish	Time min	Fall (in)
1	1030	1032	6 6/16	8 7/16	2	1 5/16
2	1032	1034	8 7/16	9 15/16	2	1 8/16
3	1045	1047	5 12/16	7 7/16	2	1 11/16
4	1048	1050	6 1/16	7 9/16	2	1 8/16
5	10:50	1052	7 9/16	8 12/16	2	1 2/16
6	1052	1054	5 10/16	6 15/16	2	1 5/16
7	10:54	1056	6 15/16	8 4/16	2	1 5/16

Stabilized Rate : 1.52 inches/min

Tested by: JK
Checked by : CL

Resource Concepts, Inc
340 N. Minnesota Street
Carson City NV 89703
775-883-1600

Project : Summit Creek
Project Number : 14-142.1
Date : 4/9/2014

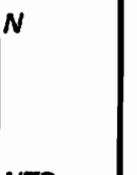
Soil Percolation Tests

Percolation Tests

Log of Test Pit # TP-5

			USCS
1	0'-0.8'		Loose Moist Gray Brn Silty Sand w/Roots (SM)
2	0.8'-7'		Loose Dk Yel Brn Silty Sand w/Roots (SM)
3			
4			
5			
6			
7	7'-8.5'		7'-8.5' Mixed Rubble with Hard to Mod Dense Weathered Bedrock (SP)
8			
9			
10			

Site Sketch



See Fig 2

Soil Percolation Recorded Measurements

1. Depth to test : 3.0'
2. Time of 1st saturation to 12" 11:58 Date : 4/9/14 @ 12:08 1/2"
   If 12" of water drains from hole in 10 mins or less, refill to 12".
3. Time of 2nd saturation : 12:07
4. If 2nd filling drains in less than 10 mins, begin 1 hour test with 10 mins or less reading intervals.
5. If either filling exceeds 10 mins to drain from hole, begin a 4-hr pre-soak. Start pre-soak at 12:08 End pre-soak at 4:08
   Return between 16 - 24 hrs to start test.

Date of percolation test : 4/10/2014

Hole # : 1 Diameter : 8" Depth : 12" Soil Type : SM

Reading	Time		Water Level		Elapsed	Water
	Start	Finish	Start	Finish	Time min	Fall (in)
1	1213	1215	5 8/16	6 14/16	2	1 6/16
2	1215	1217	5 10/16	6 14/16	2	1 4/16
3	1217	1219	6 14/16	7 14/16	2	1 -
4	1230	1232	5 8/16	6 10/16	2	1 2/16
5	1232	1234	6 10/16	7 6/16	2	1 6/16
6	1234	1236	7 6/16	8 2/16	2	1 2/16
7	1237	1239	5 11/16	6 10/16	2	15/16

Stabilized Rate : 2.46 inches/min

Tested by: JK
Checked by : CL

Resource Concepts, Inc
340 N. Minnesota Street
Carson City NV 89703
Resource Concepts Inc 775-883-1600

Project: Schulz
Project Number: 14-142.1
Date: 4/9/2014

Soil Percolation Tests

Percolation Tests

Log of Test Pit # TP-6

0'-1'	Loose Moist Pic Gray Brn. Silty Sand	USCS (SM)
1'-4'	Loose Moist Dk Yor Brn Silty Sand	(SM)
4'-10'	Loose T. Med Dense Moist Of Silty Sand	(SM)

Site Sketch

N

NTS

Soil Percolation Recorded Measurements

1. Depth to test : 2.0'
2. Time of 1st saturation to 12" 12:40 Date : 4/9/14 @ 12:50 2"
If 12" of water drains from hole in 10 mins or less, refill to 12".
3. Time of 2nd saturation :
4. If 2nd filling drains in less than 10 mins, begin 1 hour test with 10 mins or less reading intervals.
5. If either filling exceeds 10 mins to drain from hole, begin a 4-hr pre-soak. Start pre-soak at 12:50
Return between 16 - 24 hrs to start test. End pre-soak at 4:50

Date of percolation test : 4/10/14

Hole # : 1 Diameter : 8" Depth : 12" Soil Type : SM

Reading	Time Start	Time Finish	Water Level Start	Water Level Finish	Elapsed Time min	Water Fall (in)	
1	10:35	11:05	6"	9 9/16"	30	3 9/16"	Δ = 2/16
2	11:05	11:35	5 3/4"	9 5/16"	30	3 11/16	Δ = 3/4"
3	11:35	12:05	5 1/2"	8 7/16"	30	2 15/16"	Δ = 4/16"
4	12:05	12:35	5 5/16"	9"	30	2 11/16"	Δ = 9/16"
5	12:35	1:05	4 7/16"	7 11/16"	30	3 4/16"	
6	1:05	1:20	4 1/8"	6"	15	1 7/8"	Δ = 5/8"
7	1:20	1:35	3 7/8"	5 1/2"	15	1 1/4"	Δ = 3/8"
	1:35	1:50	3 5/8"	5 1/4"	15	1 5/8"	

Stabilized Rate : 13.40 inches/min Tested by: TEO
Checked by: [illegible]

150 2:05 4 0 5 9/16 15 1 9/16

Resource Concepts, Inc
340 N. Minnesota Street
Carson City NV 89703
Resource Concepts Inc 775-883-1600

Project : Schulz Ranch
Project Number : 14-142.1
Date : 4/9/2014

Soil Percolation Tests

Percolation Tests

Log of Test Pit # TP-7

Site Sketch

		USCS
0'-1'		Loose Moist Dk Gray Brn Silty Sand (SM)
1'-6'		Med Dense Moist Dk Olive Brn To Reddish Brn Silty Sand w/ Cobbles & Gravel (SM)
6'-10'		Med Dense Moist Reddish Brn Silty Sand w/ Cobbles 6"-8" (SM)

N

NTS

See Figure 2

Soil Percolation Recorded Measurements

1. Depth to test : 2'
2. Time of 1st saturation to 12" 1:40 Date : 4/9/14 @ 1:46 EMPTY
   If 12" of water drains from hole in 10 mins or less, refill to 12".
3. Time of 2nd saturation : 1:56 @ 1:55 EMPTY
4. If 2nd filling drains in less than 10 mins, begin 1 hour test with 10 mins or less reading intervals.
5. If either filling exceeds 10 mins to drain from hole, begin a 4-hr pre-soak.
   Return between 16 - 24 hrs to start test.

Date of percolation test : 4/10/14

Hole # : 1 Diameter : 8" Depth : 12" Soil Type : SM

Reading	Time		Water Level		Elapsed	Water
	Start	Finish	Start	Finish	Time min	Fall (in)
1	11:45	11:51	6"	0	6 min	6"
2	11:52	12:02	6"	1/4"	10 min	5 3/4"
3	12:03	12:13	6"	1/4	10 min	5 3/4
4	12:13	12:23	6"	1"	10 min	5"
5	12:23	12:32	6"	1 3/8	9 min	3 5/8
6	12:33	12:39	6"	3 1/2	6 min	2 1/2
7	12:39	12:45	6"	3 1/2	6 min	2 1/2

Stabilized Rate : 2.40 Inches/min

Tested by: CL
Checked by : JK

Appendix B

Site Photos

SCHULZ ARCHERY RANGE PERCOLATION TEST PHOTOGRAPHS

PHOTO 1 – Percolation Test Pit TP – 1.

PHOTO 2 – Percolation Test Pit TP-2.

SCHULZ ARCHERY RANGE PERCOLATION TEST PHOTOGRAPHS

PHOTO 3 – Percolation Test Pit TP – 3.

PHOTO 4 – Percolation Test Pit TP - 4

SCHULZ ARCHERY RANGE PERCOLATION TEST PHOTOGRAPHS

No Picture

Lat. 39.117549

Long. -119.817968

PHOTO 5 – Percolation Test Pit TP – 5.

PHOTO 6 – Percolation Test Pit TP - 6

SCHULZ ARCHERY RANGE PERCOLATION TEST PHOTOGRAPHS

PHOTO 7 – Percolation Test Pit TP – 7.

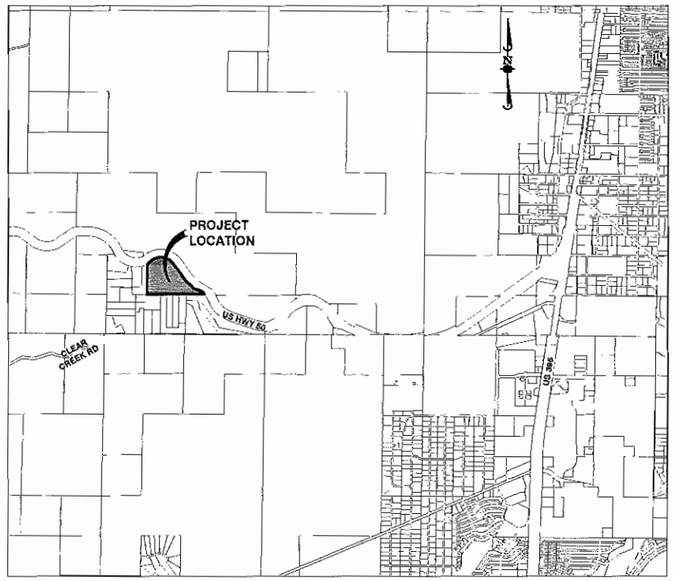
Tentative Map
for
SCHULZ INVESTMENTS
APN: 007-051-72
CARSON CITY, NEVADA

STANDARD SYMBOLS

EXISTING		PROPOSED
	STORM SEWER	
	SANITARY SEWER	
	FORCEMAIN	
	DRAINTILE	
	WATER MAIN	
	ELECTRIC	
	GAS	
	TELEPHONE	
	SANITARY MANHOLE	
	STORM MANHOLE	
	CATCH BASIN	
	STORM INLET	
	CLEANOUT	
	HAY BALES	
	RIP RAP	
	VALVE IN VAULT	
	VALVE IN BOX	
	FIRE HYDRANT	
	BUFFALO BOX	
	FLARED END SECTION	
	STREET LIGHT	
	SUMMIT	
	LOW POINT	
	RIM ELEVATION INVERT ELEVATION	
	DITCH OR SWALE	
	DIRECTION OF FLOW	
	OVERFLOW RELIEF SWALE	
	1 FOOT CONTOURS	
	CURB AND GUTTER	
	DEPRESSED CURB AND GUTTER	
	REVERSE CURB AND GUTTER	
	SIDEWALK	
	H.C. ACCESSIBLE RAMP	
	PROPERTY LINE	
	EASEMENT LINE	
	SETBACK LINE	
	MAIL BOX	
	SIGN	
	TRAFFIC SIGNAL	
	POWER POLE	
	GUY WIRE	
	GAS VALVE	
	HANDHOLE	
	ELECTRICAL EQUIPMENT	
	TELEPHONE EQUIPMENT	
	CHAIN-LINK FENCE	
	SPOT ELEVATION	
	BRUSH/TREE LINE	
	DECIDUOUS TREE WITH TRUNK DIA. IN INCHES (TBR)	
	CONIFEROUS TREE WITH HEIGHT IN FEET (TBR)	
	SILT FENCE	
	RETAINING WALL	
	WETLAND	

ABBREVIATIONS

A.B.	AGGREGATE BASE	FES	FLARED END SECTION	PVT	POINT OF VERTICAL TANGENCY
ADJ	ADJUST	FL	FLOW LINE	P	PAVEMENT
AGG.	AGGREGATE GRAVEL	FM	FORCE MAIN	R	RADIUS
B.A.M.	BIT. AGG. MIXTURE	G	GROUND	R.O.W.	RIGHT-OF-WAY
B-B	BACK TO BACK	GAS	GAS	RCP	REINFORCED CONCRETE PIPE
B/P	BOTTOM OF PIPE	G/F	GRADE AT FOUNDATION	REM	REMOVAL
BW	BOTTOM OF WALL	GB	GRADE BREAK	RR	RAILROAD
B-BOX	BUFFALO BOX	HDWL	HEADWALL	RT	RIGHT
BLDG.	BUILDING	HH	HANDHOLE	SAN	SANITARY SEWER
BM	BENCHMARK	HWL	HIGH WATER LEVEL	SDMH	STORM DRAIN MANHOLE
B.O.	BY OTHERS	HYD.	HYDRANT	SHLD.	SHOULDER
C.E.	COMMERCIAL ENTRANCE	INL	INLET	SL	STREET LIGHT
CB	CATCH BASIN	INV.	INVERT	SMH	SANITARY MANHOLE
CL	CENTERLINE	IP	IRON PIPE	ST	STORM SEWER
CLID	CLOSED LID	MAX.	MAXIMUM	STA.	STATION
CMP	CORRUGATED METAL PIPE	MB	MAILBOX	STD	STANDARD
CNTRL	CONTROL	MH	STORM MANHOLE	SW	SIDEWALK
CONC.	CONCRETE	MIN.	MINIMUM	SY	SQUARE YARDS
CY	CUBIC YARD	NWL	NORMAL WATER LEVEL	TBR	TO BE REMOVED
D	DITCH	OLID	OPEN LID	T	TELEPHONE
DIA.	DIAMETER	P.E.	PRIVATE ENTRANCE	T-A	TYPE A
DIP	DUCTILE IRON PIPE	PC	POINT OF CURVE	TC	TOP OF CURB
DWM	DUCTILE IRON WATER MAIN	PCC	POINT OF COMPOUND CURVE	T/F	TOP OF FOUNDATION
DT	DRAIN TILE	PGL	PROFILE GRADE LINE	T/P	TOP OF PIPE
E	ELECTRIC	PI	POINT OF INTERSECTION	TW	TOP OF WALL
E-E	EDGE TO EDGE	PL	PROPERTY LINE	T/WALK	TOP OF WALK
ELEV.	ELEVATION	PP	POWER POLE	TEMP	TEMPORARY
EP	EDGE OF PAVEMENT	PROP.	PROPOSED	TRANS	TRANSFORMER
EX.	EXISTING	PT	POINT OF TANGENCY	VB	VALVE BOX
F.E.	FIELD ENTRANCE	PVC	POLYVINYL CHLORIDE PIPE	VV	VALVE VAULT
F-F	FACE TO FACE	PVC	POINT OF VERTICAL CURVE	WL	WATER LEVEL
FF	FINISHED FLOOR	PVI	POINT OF VERTICAL INTERSECTION	WM	WATER MAIN



LOCATION MAP
N.T.S.

INDEX OF SHEETS

UTILITIES CONTACT

GAS
SOUTHWEST GAS CORP.
400 EAGLE STATION LANE
CARSON CITY, NV 89702
CONTACT: VINCENT ECHEVERRIA
PHONE: (775) 887-2704

ELECTRIC
NV ENERGY
875 EAST LONG STREET
CARSON CITY, NV 89706
CONTACT: GAIL JACKSON
PHONE: (775) 834-2961

PHONE
AT&T
745 W. MOANA LANE
RENO, NV 89509
CONTACT: DEBBIE CATANIA
PHONE: (775) 448-9225

CABLE T.V.
CHARTER COMMUNICATIONS
9335 PROTOTYPE DRIVE
RENO, NV 89521
CONTACT: ELIAS RUIZ
PHONE: (775) 850-1290

BASIS OF BEARING

THE BASIS OF BEARING FOR THIS PROJECT WAS ESTABLISHED USING THE LINE BETWEEN NEVADA DEPARTMENT OF TRANSPORTATION (NDOT) MONUMENT NUMBERS 760004M AND 760007M (N. 88°55'58" E.)

BASIS OF ELEVATION

THE BASIS OF ELEVATION FOR THIS PROJECT WAS ESTABLISHED USING USGS BENCH MARK M 322, NAVD 88, ELEVATION 4839.85

PROJECT SUMMARY

1. A.P.N.: 007-051-72
2. FLOOD ZONE: ZONE D
3. EXISTING ZONING: SINGLE FAMILY 5 ACRE (SF5A)
4. TOTAL PARCEL AREA: ±32.7 AC
5. TOTAL PROPOSED LOTS: 6
6. MINIMUM LOT SQUARE FOOTAGE: 223,463 SF (5.13 AC)

PROJECT OWNER

SCHULZ INVESTMENTS
207 N. IRIS ST
CARSON CITY, NV 89703

Manhard CONSULTING LTD
9850 Double R Blvd, Suite 101, Reno, NV 89521 tel: (775) 746-3500 fax: (775) 746-3520 www.manhard.com
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SCHULZ INVESTMENTS (APN: 007-051-72)-TENTATIVE MAP
CARSON CITY, NEVADA
TITLE SHEET

PROFESSIONAL ENGINEER - STATE OF NEVADA
KENNETH W. ANDERSON
Exp 12-31-14
CIVIL
No. 15598
4/16/14

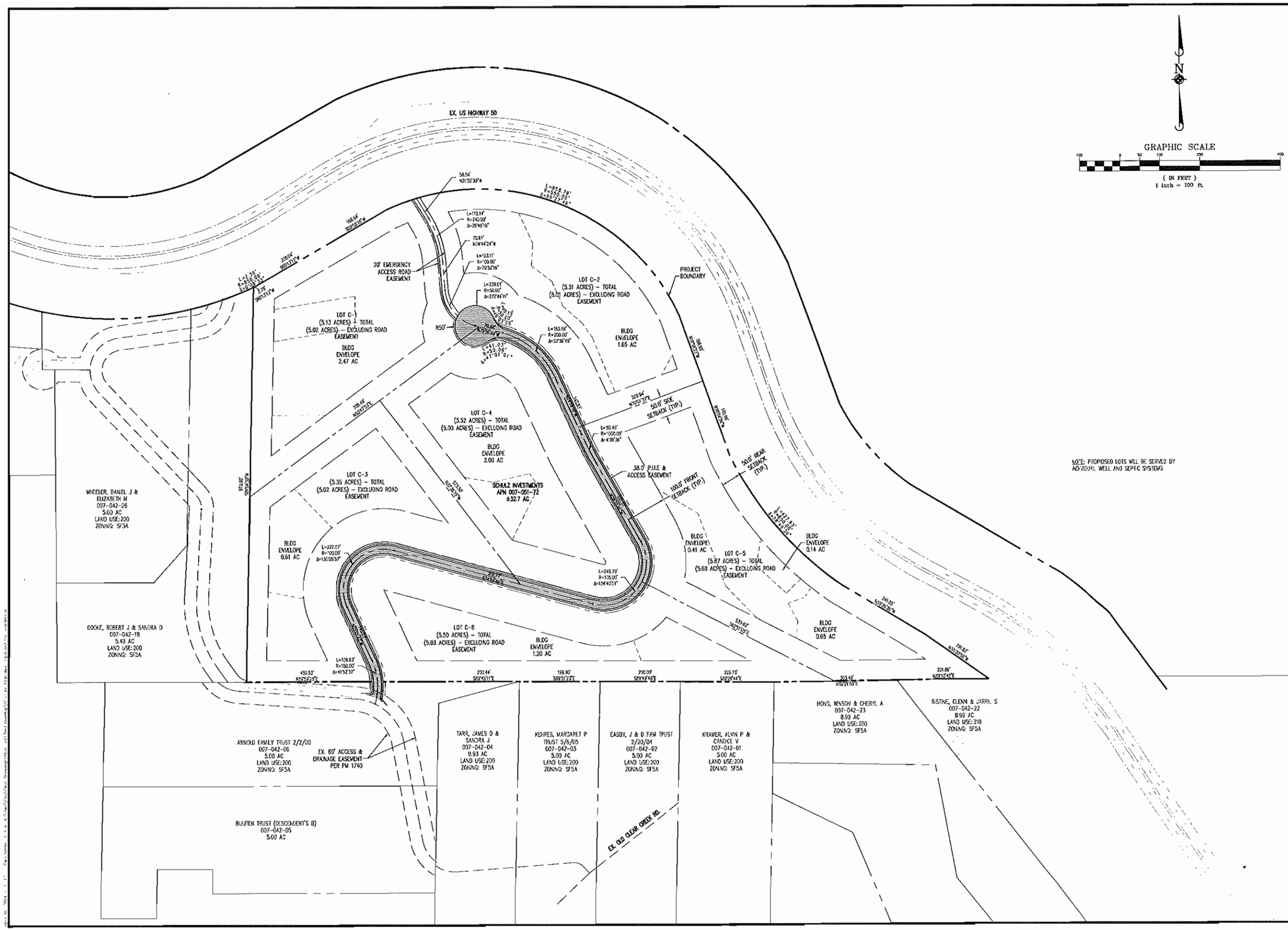
PROJ. MGR.:	MAR
PROJ. ASSOC.:	KWA
DRAWN BY:	CMG
DATE:	04/18/14
SCALE:	1"=100'

SHEET 1 OF 4

SICCN2 100235

TENTATIVE MAP

162



NOTE: PROPOSED LOTS WILL BE SERVED BY INDIVIDUAL WELL AND SEPTIC SYSTEMS

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SCHULZ INVESTMENTS (APN: 007-051-72)-TENTATIVE MAP
CARSON CITY, NEVADA
SITE PLAN

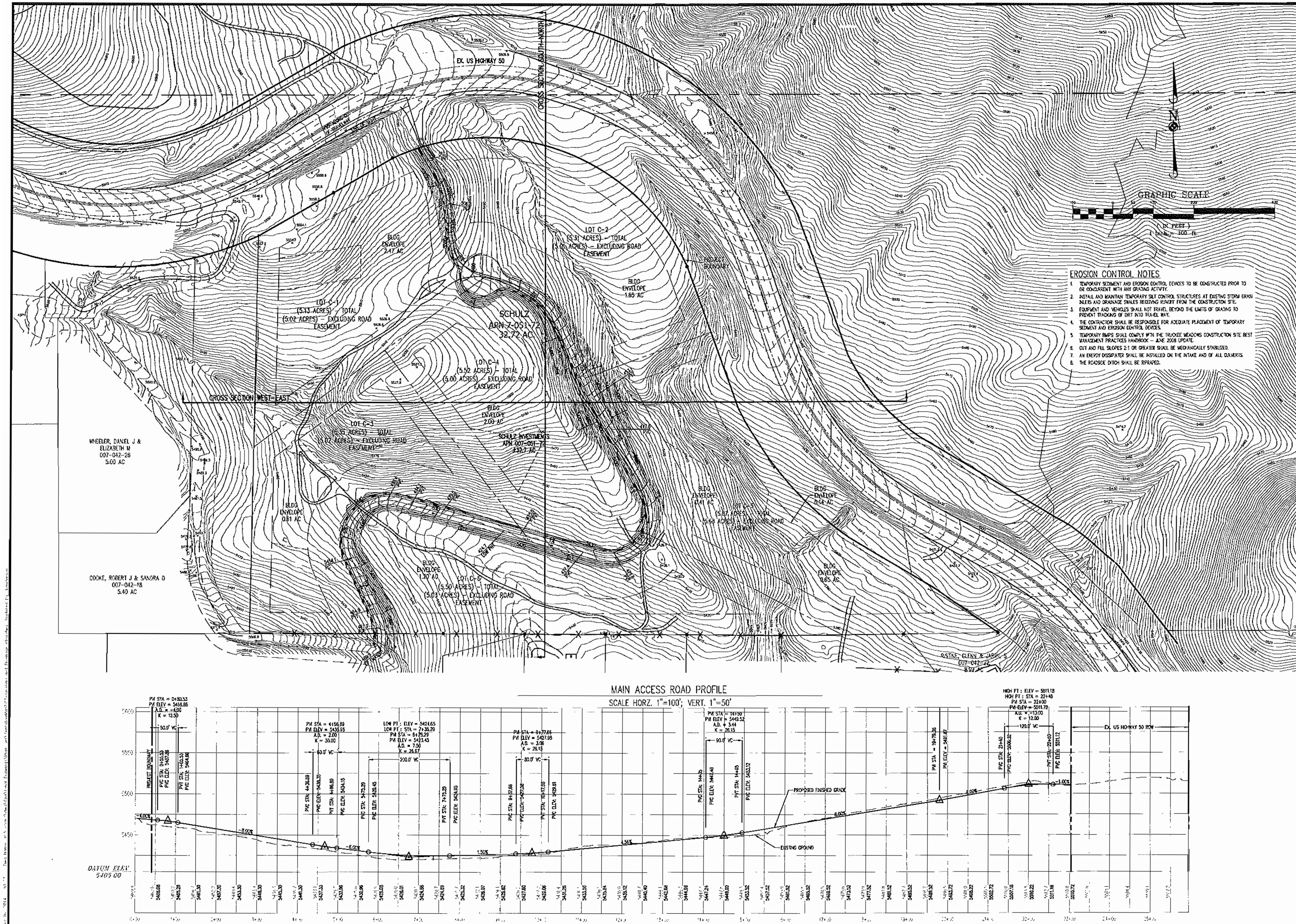
PROFESSIONAL ENGINEER - STATE OF NEVADA
KENNETH W. ANDERSON
Exp 12-31-14
CIVIL
No. 15598
4/16/14

PROJ. MGR.: MAR
PROJ. ASSOC.: KWA
DRAWN BY: CMS
DATE: 04/18/14
SCALE: 1"=100'

SHEET 2 OF 4
SICCN2 100235

TENTATIVE MAP

163



EROSION CONTROL NOTES

1. TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES TO BE CONSTRUCTED PRIOR TO OR CONCURRENT WITH ANY GRADING ACTIVITY.
2. INSTALL AND MAINTAIN TEMPORARY SILT CONTROL STRUCTURES AT EXISTING STORM DRAIN INLETS AND DRAINAGE SWALES RECEIVING RUNOFF FROM THE CONSTRUCTION SITE.
3. EQUIPMENT AND VEHICLES SHALL NOT TRAVEL BEYOND THE LIMITS OF GRADING TO PREVENT TRACKING OF DIRT INTO TRAVEL WAY.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE PLACEMENT OF TEMPORARY SEDIMENT AND EROSION CONTROL DEVICES.
5. TEMPORARY BMPS SHALL COMPLY WITH THE TRUCKEE MEADOWS CONSTRUCTION SITE BEST MANAGEMENT PRACTICES HANDBOOK – JUNE 2008 UPDATE.
6. CUT AND FILL SLOPES 2:1 OR GREATER SHALL BE MECHANICALLY STABILIZED.
7. AN ENERGY DISSIPATER SHALL BE INSTALLED ON THE INTAKE AND OF ALL CULVERTS.
8. THE ROADSIDE DITCH SHALL BE RIPRAPED.

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SCHULZ INVESTMENTS (APN: 007-051-72)-TENTATIVE MAP

CARSON CITY, NEVADA

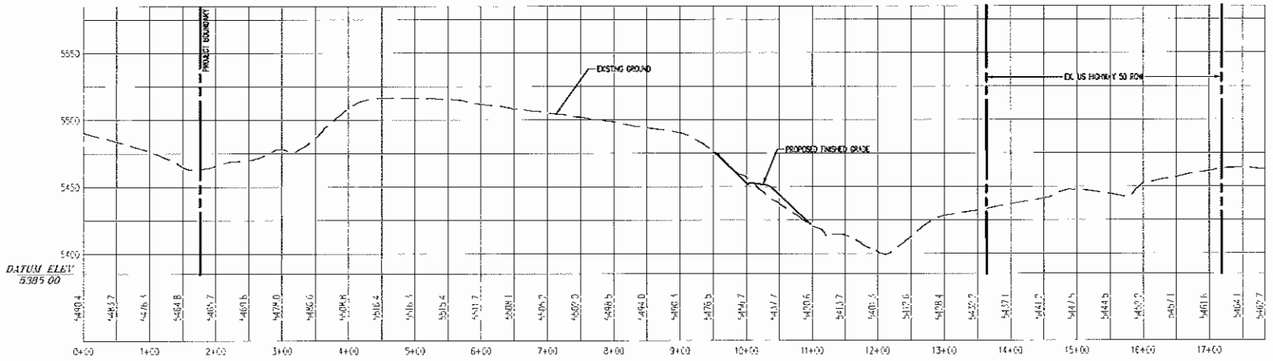
GRADING AND DRAINAGE PLAN

PROFESSIONAL ENGINEER - STATE OF NEVADA
KENNETH W. ANDERSON
Exp: 12-31-14
CIVIL
No. 15598
4/16/14

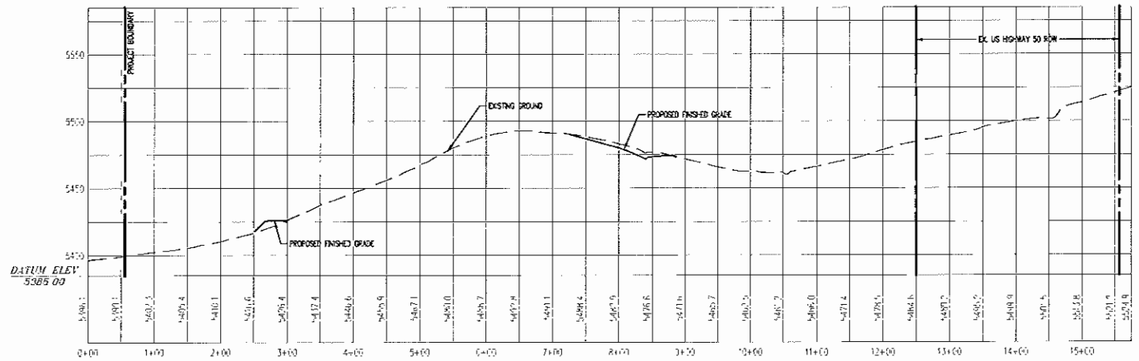
PROJ. MGR.:	MAR
PROJ. ASSOC.:	KWA
DRAWN BY:	CMS
DATE:	04/18/14
SCALE:	1"=100'

SHEET 3 OF 4
SICCN2 100235

TENTATIVE MAP



CROSS SECTION WEST--EAST
H: 1"=100' V: 1"=50'



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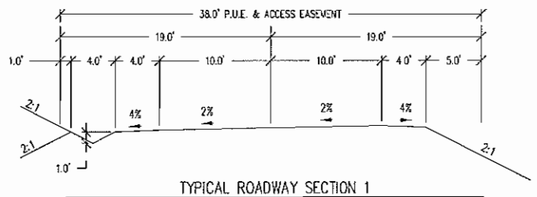

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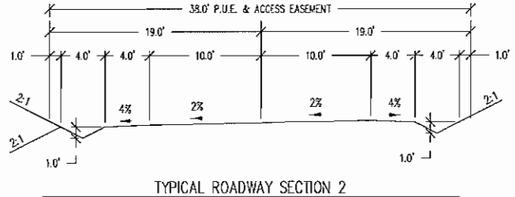

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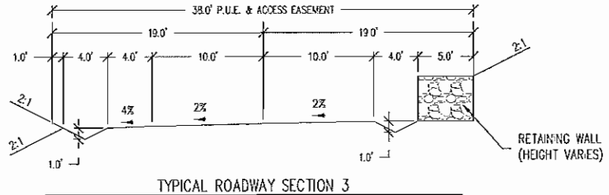

TYPICAL ROADWAY SECTION 3
NO SCALE

DRAWN BY | CHECKED BY

DATE | REVISIONS

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SCHULZ INVESTMENTS (APN: 007-051-72)-TENTATIVE MAP

CARSON CITY, NEVADA

SITE CROSS SECTIONS

PROFESSIONAL ENGINEER - STATE OF NEVADA
KENNETH W. ANDERSON
Exp: 12-31-14
CIVIL
No. 16998
4/15/14

PROJ. MGR.:	MAR
PROJ. ASSOC.:	KWA
DRAWN BY:	CWS
DATE:	04/18/14
SCALE:	1"=100'

SHEET
4 OF 4
SICON2 100235

TENTATIVE MAP