Blue Oaks

Tentative Map Application

Prepared For:

Ken Dixon
11720 Campo Rico Ln.
Sparks, NV 89441

Prepared By:

681 Edison Way
Reno, NV 89502
775-771-5554

June, 2019

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Project Requests

This application is for a **Tentative Subdivision Map** for:

A) 10 Single Family Residential lots on 10 acres.

Project Requests

Blue Oaks is located approximately 1000 feet south of the Alamosa/Landmark intersection with Pyramid Highway and is across the street from the Pebble Creek housing development. It will be accessed from the proposed entry road to Harris Ranch at the Northeast corner of the subject property. The project site includes one parcel, APN 534-600-12 and consists of 10± acres, as shown in Figure 1 (below).

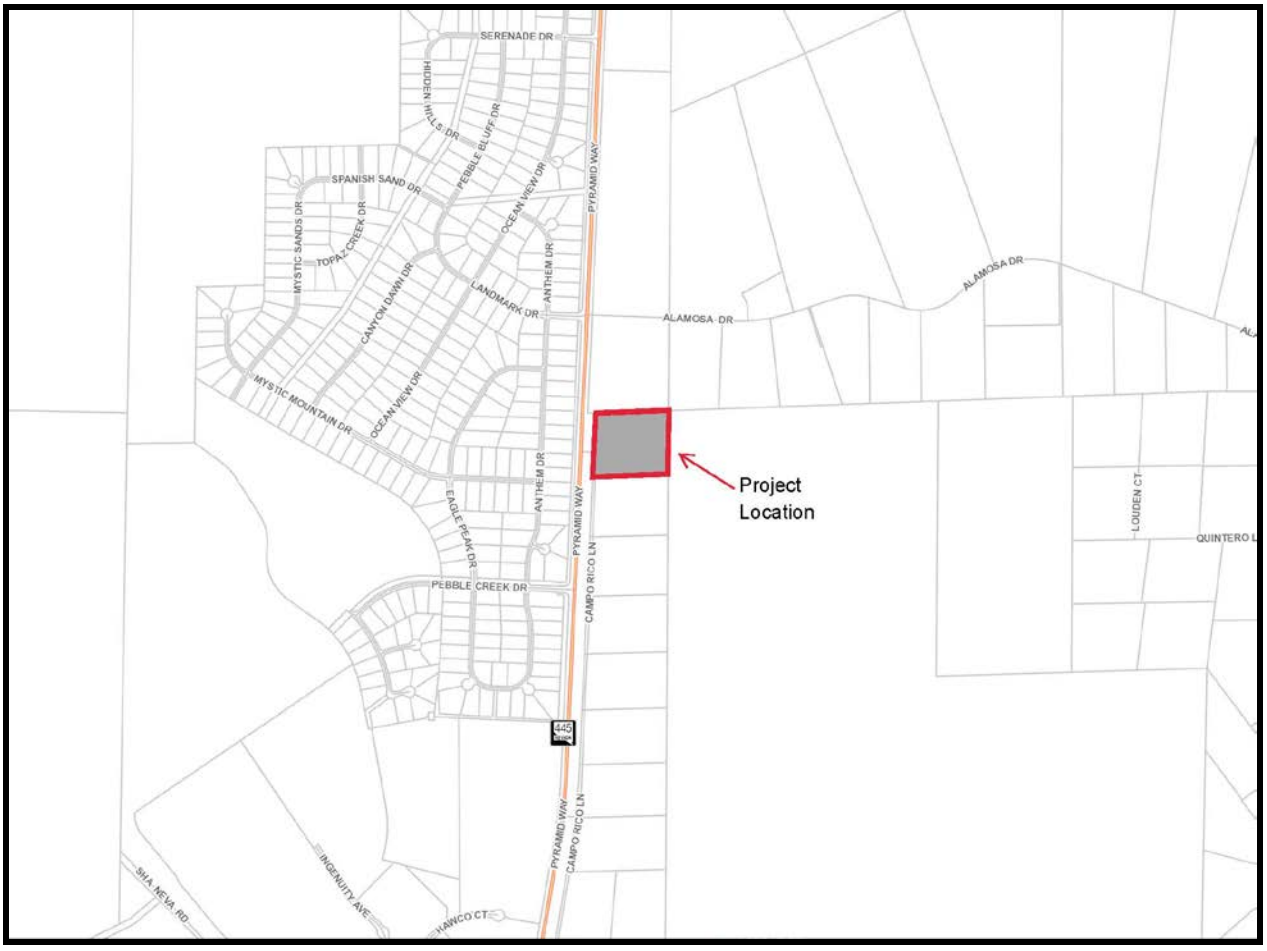


Figure 1 – Vicinity Map

Project History

The subject property is currently a single-family residential lot with one home on it. The existing home was constructed in 1995 by the current owner. His intention is to remain in the existing home which will become lot 4 with recordation of the subdivision map. The remaining portion of the property is undeveloped and covered with native vegetation. There are no known prior development applications associated with the subject property.

Project Description

The proposed project is for a 10 unit single family common open space residential development with lot sizes ranging from 23,920 square feet to 55,102 square feet. The average lot size is 31,640 square feet. The project will include 7.26 acres of residential lots, 0.87 acres of open space, AND 1.76 acres of private roadways and drainage detention/retention areas. The sliver of Harris Ranch roadway encompasses 0.11 acres and will provide gated access to the project site once constructed.

Proposed net density is 0.731 dwelling units per acre and the proposed gross density is 1.00 dwelling units per acre. The proposed layout is shown below.

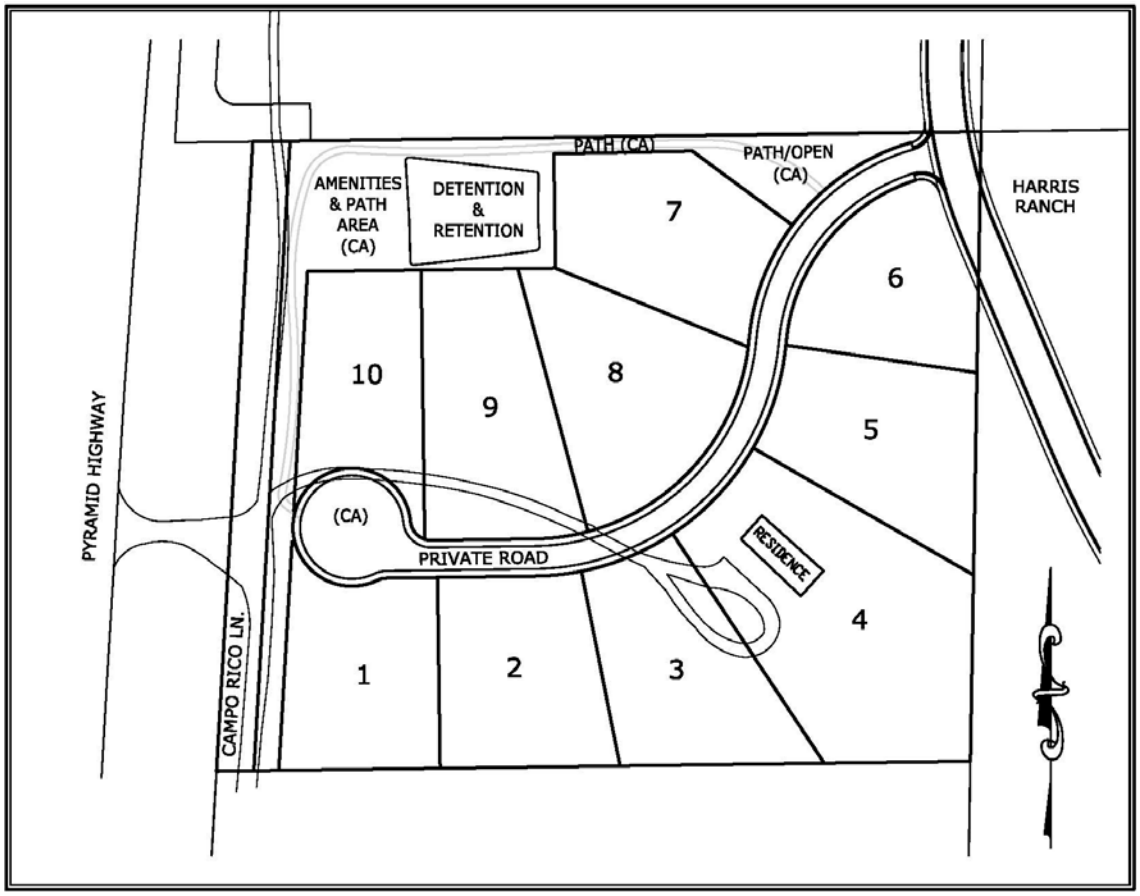


Figure 2 - Site Plan

Tentative Map Findings

When considering a Tentative Subdivision Map the Washoe County development code requires that the Planning Commission determine if the proposal is in compliance with the required findings. The considered findings are as follows:

1) Plan Consistency – Determine that the proposed map is consistent with the Master Plan and any specific plan.

   Response: The proposed map is in conformance with all of the goals and policies of the Spanish Springs Area Plan. There are no specific plans associated with this request.

2) Design or Improvement – Determine that the design or improvement of the proposed subdivision is consistent with the Master Plan and any specific plan.

   Response: The subdivision design complies with the policies of the Spanish Springs Area Plan all the elements of the Washoe County Master Plan.

3) Type of Development – Determine that the project site is physically suited for the type of development proposed.

   Response: The proposed subdivision is located in an area with similar subdivisions to the east and west. The property to the west is the Pebble Creek residential development zoned LDS. East of the proposed project is the Harris Ranch Property (TM16-007) with proposed lot sizes averaging just under 15,000 square feet, also zoned LDS. Property to the north is currently vacant and the southerly property contains a single family home. Both northerly and southerly properties are zoned LDS. The proposed project is a suitable fit.

4) Availability of Service – That the subdivision will meet the requirements of article 702, Adequate Public Facilities Management System.

   Response: Adequate facilities exist to accommodate the proposed development. Any determined deficiencies and/or required infrastructure to connect to existing facilities will be borne by the developer.

5) Fish or Wildlife – Determine that neither the design of the subdivision nor any proposed improvements is likely to cause substantial environmental damage, or substantial and avoidable injury to any endangered plant, wildlife or their habitat.

   Response: There are no identified endangered plants or wildlife on the subject property.

6) Public Health – Determine that the design of the subdivision or type of improvement is not likely to cause significant public health problems.

   Response: The proposed subdivision is similar to other residential subdivisions in the surrounding area and the design is not likely to cause significant health problems.

7) Easements – Determine that the design of the subdivision or the type of improvements will not conflict with easements acquired by the public at large for access through, or use of property within, the proposed subdivision.

Response: The design of the maintains the current existing access easement currently in-place on the property.

8) Access – Determine that the design of the subdivision provides any necessary access to surrounding, adjacent lands and provides appropriate secondary access for emergency vehicles.

Response: Access to and from the site will be via a public road constructed with the Harris Ranch project. Access to Pyramid Highway and adjacent residential properties will not be provided. Secondary emergency access is not required for developments of less than 30 lots per IFC Appendix D, section D107.

9) Dedications – Determine that any land or improvements to be dedicated to Washoe County is consistent with the Master Plan.

Response: No lands are planned to be dedicated to Washoe County with this development. Should any land need to be dedicated to Washoe County they will be consistent with the Master Plan.

10) Energy – Determine that the design of the subdivision provides, to the extent feasible, for future passive or natural heating or cooling opportunities in the subdivision.

Response: Adequate opportunities shall be provided for future passive or natural heating or cooling to the extent feasible.

Site Analysis per WC 110.408.30

Location Map: Reference the attached vicinity map and site plan.

Land Use: Current is residential, one residence is existing. Proposed use is 10 custom residential lots (1 du/ac gross).

Adjacent Zoning/Uses:

North: LDS, Vacant, Proposed 610 lot single family detached, common open space subdivision on 610 Acres (three parcels) – Harris Ranch – area proposed as portion of open space.

South: LDS, One existing residence on 10 Acres

East: LDS, Vacant, Proposed 610 lot single family detached, common open space subdivision on 610 Acres (three parcels) – Harris Ranch – area proposed as clustered 14,866 sf average lots.

West: Pyramid Highway, facing Pebble Creek Subdivision (LDS, 35,000 sf min lots)

Existing Structures: There is one existing single family residence on the site, currently occupied by the owner of the property. This home and appurtenances are proposed to remain within one of the proposed subdivision lots.

Existing vegetation: The majority of the property is currently covered by sagebrush and sparse understory grasses and shrubs. The ground cover is typical of the natural vegetation in the area. The areas not covered by this vegetation are limited to the existing access roads (Campo Rico Lane and the private driveway), the residence and the area immediately surrounding the residence.

Prevailing winds: The prevailing winds in the region are, for most of the year, mostly from the south and northwest alternately, at average speeds of 7.5 to 9 mph.

Topography: The existing ground slopes from east to west toward Pyramid Highway at a slope that varies from 3% to 5%. Please reference the existing topography as indicated on the grading plan.

Soil: Reference the attached preliminary geotechnical report.

Natural Drainageway: There is an existing drainageway that crosses the far southeast corner of the site. The drainageway crosses less than 100' from the property corner and carries only intermittent or ephemeral flow. The drainageway is not proposed to be affected by the proposed improvements.

Wetlands/Water Bodies: There are no existing or potential wetlands or water bodies on the site.

Development Opportunities:

The development of Harris Ranch will result in the main access road traversing the northeast corner of the subject property, allowing for continuous improved paved access from the site to Pyramid Highway, without any additional construction, NDOT permitting, or offsite improvements such as the upgrading of Campo Rico Lane to a paved access. Additionally the current economic climate makes

it feasible for a small private gated subdivision to be improved and marketed.

On site, the topography lends itself to a gently sloping central access road from the proposed Harris Ranch Road, adjoined by custom home sites. The subject property is largely unimproved in any way allowing for responsible and environmentally conscious home site design, especially with the gently sloping existing ground.

Site Constraints:

There are three main constraints present on the property.

First, the owner/developer intends to retain and continue to occupy the current residence.

Second, the west 60' of the property is currently occupied by an access easement within which Campo Rico Lane lies. This road is currently used by the owner and adjacent land owners for access from Pyramid Highway, via an existing dirt road access. It is unclear whether or not this access is a permitted encroachment by NDOT. We propose to petition Washoe County to abandon the east 24' of the access easement, to match the 36' width of the access easement that continues on the parcel to the north.

Third, Washoe County has issued the Boneyard Flat Closed Basin Interim Drainage Policy, which requires all projects within the basin to mitigate the increased stormwater volume resulting from development based on the 100-year, 10-day storm event. This mitigation must be onsite via retention ponds, infiltration galleries, or similar improvements, or via volumetric mitigation within the Boneyard Flat expected flood pool.

For the scope of this proposed project, the most appropriate mitigation is an onsite retention pond. The pond must be designed to hold approximately 0.4 acre-feet, or 17,500 cubic feet. To infiltrate the stored volume within 7 days to conform to Washoe County Health Department Vector Control regulations, the pond must have a minimum bottom area of 2,500 square feet. To control the depth of the pond at a reasonable value, the area must be increased even further. Our estimate for the area for the retention pond is 18,408 square feet, including side slopes.

To ensure proper future maintenance and upkeep on this pond in perpetuity the pond should be located either on a separate parcel to be conveyed to Washoe County as a public improvement, or on a common area parcel owned and maintained by an association of the custom lot owners. In this case, it is appropriate for the pond to remain a private improvement owned and maintained by the HOA. This will inherently drive the creation of a large quantity of common area, which forms the basis of the design concept of a common open space development for this parcel. The required area for the drainage facilities required by Washoe County policy becomes a constraint or hardship for the owner in achieving the zoning density allowed by Washoe County Code.

Conclusion:

In accordance with Washoe County Code Section 110.408.00, the proposed project achieved the following:

Preserve or provide open space: The development proposes to preserve/provide 1.3 acres of

common area upon which nothing will be constructed, including 0.86 acres of usable common open space.

Protect natural and scenic resources: The development proposes to preserve, to the extent possible, the existing condition within the proposed common area/open space, and to provide a buffer/setback from Pyramid Highway consisting of existing vegetation, to preserve the suburban/rural transition that currently exists in this area.

Achieve a more efficient use of land, minimize road building, and encourage a sense of community: The development proposes to minimize the improved area through concentration of the proposed lots in the east portion of the property, and through the use of the proposed Harris Ranch road as primary access, minimizing the required improved access necessary and avoiding an improved access on to Pyramid Highway. The sense of community will be achieved through the creation of a clustered gated small subdivision which includes amenities within the open space for the site residents.

The proposed lot sizes and associated open space will provide a buffer from the 35,000 square foot Pebble Creek lots to the west to the 14,866 square foot average lots in Harris Ranch, proposed to the east.

APPENDIX "A"

DEVELOPMENT APPLICATION

Axion ENGINEERING
Civil Engineering • Land Development

Washoe County Development Application

Your entire application is a public record. If you have a concern about releasing personal information, please contact Planning and Building staff at 775.328.6100.

Project Information	**Staff Assigned Case No.:**
Project Name: Blue Oaks	
Project Description: 10 lot single family residential subdivision	
Project Address: 11720 Campo Rico Lane	
Project Area (acres or square feet): 10 acres	
Project Location (with point of reference to major cross streets **AND** area locator): Spanish Springs Valley. The parcel is about 1000 feet south of the Alamosa/Pyramid hwy intersection	

Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No.(s):	Parcel Acreage:
534-600-12	10		

Indicate any previous Washoe County approvals associated with this application:
Case No.(s).

Applicant Information (attach additional sheets if necessary)

Property Owner:		**Professional Consultant:**	
Name: Ken Dixon		Name: Axion Engineering	
Address: 11720 Campo Rico Lane		Address: 681 Edison Way	
Sparks, NV	Zip: 89441	Reno, NV	Zip: 89502
Phone: 775-348-1816	Fax:	Phone: 775-771-5554	Fax:
Email: kkd@scadatec.com		Email: gary@axionengineering.net	
Cell: 775-745-0937	Other:	Cell:	Other:
Contact Person: Ken Dixon		Contact Person:	
Applicant/Developer:		**Other Persons to be Contacted:**	
Name: Same		Name:	
Address:		Address:	
	Zip:		Zip:
Phone:	Fax:	Phone:	Fax:
Email:		Email:	
Cell:	Other:	Cell:	Other:
Contact Person:		Contact Person:	

For Office Use Only

Date Received:	Initial:	Planning Area:
County Commission District:		Master Plan Designation(s):
CAB(s):		Regulatory Zoning(s):

Property Owner Affidavit

Applicant Name: KEN DIXON

The receipt of this application at the time of submittal does not guarantee the application complies with all requirements of the Washoe County Development Code, the Washoe County Master Plan or the applicable area plan, the applicable regulatory zoning, or that the application is deemed complete and will be processed.

STATE OF NEVADA)
)
COUNTY OF WASHOE)

I, KENNETH K. DIXON,
(please print name)

being duly sworn, depose and say that I am the owner* of the property or properties involved in this application as listed below and that the foregoing statements and answers herein contained and the information herewith submitted are in all respects complete, true, and correct to the best of my knowledge and belief. I understand that no assurance or guarantee can be given by members of Planning and Building.

(A separate Affidavit must be provided by each property owner named in the title report.)

Assessor Parcel Number(s): 534-600-12

Printed Name KENNETH K. DIXON

Signed

Address 11720 Campo Rico Lane

Subscribed and sworn to before me this 6 day of APRIL, 2018.

Notary Public in and for said county and state

My commission expires: 8/20/2018

(Notary Stamp)

RICHARD SAHLBERG
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 10-2342-2 - Expires August 20, 2018

*Owner refers to the following: (Please mark appropriate box.)

- ☒ Owner
- ☐ Corporate Officer/Partner (Provide copy of record document indicating authority to sign.)
- ☐ Power of Attorney (Provide copy of Power of Attorney.)
- ☐ Owner Agent (Provide notarized letter from property owner giving legal authority to agent.)
- ☐ Property Agent (Provide copy of record document indicating authority to sign.)
- ☐ Letter from Government Agency with Stewardship

Original

Property Owner Affidavit

Applicant Name: SURINDER DIXON

The receipt of this application at the time of submittal does not guarantee the application complies with all requirements of the Washoe County Development Code, the Washoe County Master Plan or the applicable area plan, the applicable regulatory zoning, or that the application is deemed complete and will be processed.

STATE OF NEVADA)
)
COUNTY OF WASHOE)

I, SURINDER A. DIXON,
(please print name)

being duly sworn, depose and say that I am the owner* of the property or properties involved in this application as listed below and that the foregoing statements and answers herein contained and the information herewith submitted are in all respects complete, true, and correct to the best of my knowledge and belief. I understand that no assurance or guarantee can be given by members of Planning and Building.

(A separate Affidavit must be provided by each property owner named in the title report.)

Assessor Parcel Number(s): 534-600-12.

Printed Name SURINDER A. DIXON

Signed

Address 11720 CAMPO RICO LANE

SPARKS, NV 89441

Subscribed and sworn to before me this 20th day of May, 2019.

(Notary Stamp)

Washoe County, State of Nevada
Notary Public in and for said county and state

DANA L. WALTON
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 18-3554-2 - Expires Aug. 10, 2022

My commission expires: 8/10/2022

Dana L. Walton

*Owner refers to the following: (Please mark appropriate box.)

- ☐ Owner
- ☐ Corporate Officer/Partner (Provide copy of record document indicating authority to sign.)
- ☐ Power of Attorney (Provide copy of Power of Attorney.)
- ☐ Owner Agent (Provide notarized letter from property owner giving legal authority to agent.)
- ☐ Property Agent (Provide copy of record document indicating authority to sign.)
- ☐ Letter from Government Agency with Stewardship

Tentative Subdivision Map Application
Supplemental Information

(All required information may be separately attached)

1. What is the location (address or distance and direction from nearest intersection)?

11720 Campo Rico in the Spanish Springs Valley. The parcel is about 1000 feet south of the Alamosa/Pyramid Highway intersection on the east side.

2. What is the subdivision name (proposed name must not duplicate the name of any existing subdivision)?

Blue Oaks

3. Density and lot design:

a. Acreage of project site	10 Acres
b. Total number of lots	10
c. Dwelling units per acre	1
d. Minimum and maximum area of proposed lots	23,920 - 55,102
e. Minimum width of proposed lots	120'
f. Average lot size	31,640

4. What utility company or organization will provide services to the development:

a. Sewer Service	Washoe County Utilities
b. Electrical Service	NV Energy
c. Telephone Service	AT&T
d. LPG or Natural Gas Service	NV Energy
e. Solid Waste Disposal Service	Waste Management of Nevada
f. Cable Television Service	Charter
g. Water Service	TMWA

5. For common open space subdivisions (Article 408), please answer the following:

   a. Acreage of common open space:

0.87 acres

   b. What development constraints are within the development and how many acres are designated slope, wetlands, faults, springs, and/or ridgelines:

See site analysis, page 5 of application. No wetlands/faults/springs/ridgeline/slope.

   c. Range of lot sizes (include minimum and maximum lot size):

23,920 sf min; 55,102 sf max.

d. Proposed yard setbacks if different from standard:

Setbacks to meet LDS zoning standards (30 F/R, 12 side)

e. Justification for setback reduction or increase, if requested:

N/A

f. Identify all proposed non-residential uses:

None

g. Improvements proposed for the common open space:

Undisturbed and amenities, including path, dog park area, seating area.

h. Describe or show on the tentative map any public or private trail systems within common open space of the development:

Shown on sheet C-2, site plan, and L1, landscape plan.

i. Describe the connectivity of the proposed trail system with existing trails or open space adjacent to or near the property:

There are no existing or adjacent trails currently, on site trail can connect to the south with future offsite development.

j. If there are ridgelines on the property, how are they protected from development?

Not applicable.

k. Will fencing be allowed on lot lines or restricted? If so, how?

Fencing is anticipated to follow typical single family residential guidelines and Washoe County code.

l. Identify the party responsible for maintenance of the common open space:

A maintenance association will be created to take care of the common open space, roadway, and detention/retention basin. Fees will be supported by homeowner dues.

6. Is the project adjacent to public lands or impacted by "Presumed Public Roads" as shown on the adopted April 27, 1999 Presumed Public Roads (see Washoe County Engineering website at http://www.washoecounty.us/pubworks/engineering.htm). If so, how is access to those features provided?

Not applicable.

7. Is the parcel within the Truckee Meadows Service Area?

■ Yes	❑ No

8. Is the parcel within the Cooperative Planning Area as defined by the Regional Plan?

❑ Yes	■ No	If yes, within what city?

9. Has an archeological survey been reviewed and approved by SHPO on the property? If yes, what were the findings?

No

10. Indicate the type and quantity of water rights the application has or proposes to have available:

a. Permit #	76469 & 76715	acre-feet per year	4.26 Total
b. Certificate #		acre-feet per year	
c. Surface Claim #		acre-feet per year	
d. Other #		acre-feet per year	

a. Title of those rights (as filed with the State Engineer in the Division of Water Resources of the Department of Conservation and Natural Resources):

Ken Dixon

11. Describe the aspects of the tentative subdivision that contribute to energy conservation:

By use of energy efficient building materials: windows, doors, insulation & structure wraps per current ICC's/IECC energy codes. Energy efficient appliances & water efficient faucets, shower heads & toilets will be used.

12. Is the subject property in an area identified by Planning and Building as potentially containing rare or endangered plants and/or animals, critical breeding habitat, migration routes or winter range? If so, please list the species and describe what mitigation measures will be taken to prevent adverse impacts to the species:

iPac report shows none

13. If private roads are proposed, will the community be gated? If so, is a public trail system easement provided through the subdivision?

Private gated road is proposed. No through trails are proposed

14. Are there any applicable policies of the adopted area plan in which the project is located that require compliance? If so, which policies and how does the project comply?

The project will comply with the applicable policies of the adopted Spanish Springs Area Plan.

15. Are there any applicable area plan modifiers in the Development Code in which the project is located that require compliance? If so, which modifiers and how does the project comply?

No, there are no plan modifiers for this area.

16. Will the project be completed in one phase or is phasing planned? If so, please provide that phasing plan:

Improvements will be installed in one phase. Custom homes are proposed and timing for each is dependent on the market.

17. Is the project subject to Article 424, Hillside Development? If yes, please address all requirements of the Hillside Ordinance in a separate set of attachments and maps.

❑ Yes	■ No	If yes, include a separate set of attachments and maps.

18. Is the project subject to Article 418, Significant Hydrologic Resources? If yes, please address Special Review Considerations within Section 110.418.30 in a separate attachment.

❑ Yes	■ No	If yes, include separate attachments.

Grading

Please complete the following additional questions if the project anticipates grading that involves: (1) Disturbed area exceeding twenty-five thousand (25,000) square feet not covered by streets, buildings and landscaping; (2) More than one thousand (1,000) cubic yards of earth to be imported and placed as fill in a special flood hazard area; (3) More than five thousand (5,000) cubic yards of earth to be imported and placed as fill; (4) More than one thousand (1,000) cubic yards to be excavated, whether or not the earth will be exported from the property; or (5) If a permanent earthen structure will be established over four and one-half (4.5) feet high:

19. How many cubic yards of material are you proposing to excavate on site?

9,600 cy

20. How many cubic yards of material are you exporting or importing? If exporting of material is anticipated, where will the material be sent? If the disposal site is within unincorporated Washoe County, what measures will be taken for erosion control and revegetation at the site? If none, how are you balancing the work on-site?

The project is designed to balance as a whole. Since this is a custom home project, import or export may be needed based upon individual home permitting.

21. Can the disturbed area be seen from off-site? If yes, from which directions, and which properties or roadways? What measures will be taken to mitigate their impacts?

Disturbed areas are minimal. Mitigation will be through landscaping, home construction and fencing.

22. What is the slope (Horizontal/Vertical) of the cut and fill areas proposed to be? What methods will be used to prevent erosion until the revegetation is established?

Small 3:1 slopes are anticipated

23. Are you planning any berms and, if so, how tall is the berm at its highest? How will it be stabilized and/or revegetated?

No berms are planned.

24. Are retaining walls going to be required? If so, how high will the walls be, will there be multiple walls with intervening terracing, and what is the wall construction (i.e. rockery, concrete, timber, manufactured block)? How will the visual impacts be mitigated?

No retaining walls are planned, however small landscape walls may be used upon final design.

25. Will the grading proposed require removal of any trees? If so, what species, how many, and of what size?

No trees currently exist except around the existing residential home.

26. What type of revegetation seed mix are you planning to use and how many pounds per acre do you intend to broadcast? Will you use mulch and, if so, what type?

The revegetation seed blend will be a native/naturalized blend applied at rate of 31 pounds per acre. A wood fiber mulch will be included in the hydroseed slurry.

27. How are you providing temporary irrigation to the disturbed area?

Temporary irrigation will be provided through connection to installed water meters.

28. Have you reviewed the revegetation plan with the Washoe Storey Conservation District? If yes, have you incorporated their suggestions?

No

Request to Reserve New Street Name(s)

The Applicant is responsible for all sign costs.

Applicant Information

Name: Ken Dixon

Address: 11720 Campo Rico Lane

11720 Campo Rico in the Spanish Springs Valley. The parcel is about 1000 feet south of the Alamosa/Pyramid Highway intersection on the east side.

Phone : _____ Fax: _____

‰ Private Citizen ‰ Agency/Organization

Street Name Requests

(No more than 14 letters or 15 if there is an "**i**" in the name. Attach extra sheet if necessary.)

Campo Rico Court	(Adjacent to existing Campo Rico Lane)
Sunny Stone	
Dusty Shadow	
Big Oak	

If final recordation has not occurred within one (1) year, it is necessary to submit a written request for extension to the coordinator prior to the expiration date of the original

Location

Project Name: Blue Oaks

‰ Reno ‰ Sparks ‰ Washoe County

Parcel Numbers: 534-600-12

‰ Subdivision ‰ Parcelization ‰ Private Street

Please attach maps, petitions and supplementary information.

Approved: _____ Date: _____

Regional Street Naming Coordinator

‰ Except where noted

Denied: _____ Date: _____

Regional Street Naming Coordinator

Washoe County Geographic Information Services

1001 E. Ninth Street

Reno, NV 89512-2845

Phone: (775) 328-2325 - Fax: (775) 328-6133

PROPERTY TAX INFORMATION

Axion
ENGINEERING
Civil Engineering • Land Development

Washoe County Treasurer
P.O. Box 30039, Reno, NV 89520-3039
ph: (775) 328-2510 fax: (775) 328-2500
Email: tax@washoecounty.us

Washoe County Treasurer
Tammi Davis

Account Detail

Back to Account Detail | Change of Address | Print this Page

CollectionCart

Collection Cart	Items	Total	
	0	$0.00	Checkout View

Pay Online

Washoe County Parcel Information

Parcel ID	Status	Last Update
53460012	Active	4/25/2019 2:07:11 AM

Current Owner:
DIXON, KENNETH K & SURINDER A

11720 CAMPO RICO LN
SPARKS, NV 89441

SITUS:
11720 CAMPO RICO LN
WCTY NV

Taxing District
4000

Geo CD:

Legal Description
Section Range 20 Lot 1 SubdivisionName _UNSPECIFIED Township 21 Block

Tax Bill (Click on desired tax year for due dates and further details)

Tax Year	Net Tax	Total Paid	Penalty/Fees	Interest	Balance Due
2018	$2,194.87	$2,194.87	$0.00	$0.00	$0.00
2017	$2,131.10	$2,131.10	$0.00	$0.00	$0.00
2016	$2,076.96	$2,076.96	$0.00	$0.00	$0.00
2015	$2,072.65	$2,072.65	$0.00	$0.00	$0.00
2014	$2,008.38	$2,008.38	$0.00	$0.00	$0.00
				Total	$0.00

Disclaimer

- ALERTS: If your real property taxes are delinquent, the search results displayed may not reflect the correct amount owing. Please contact our office for the current amount due.
- For your convenience, online payment is available on this site. E-check payments are accepted without a fee. However, a service fee does apply for online credit card payments. See Payment Information for details.

Pay By Check

Please make checks payable to:
WASHOE COUNTY TREASURER

Mailing Address:
P.O. Box 30039
Reno, NV 89520-3039

Overnight Address:
1001 E. Ninth St., Ste D140
Reno, NV 89512-2845

Payment Information

Special Assessment District

Installment Date Information

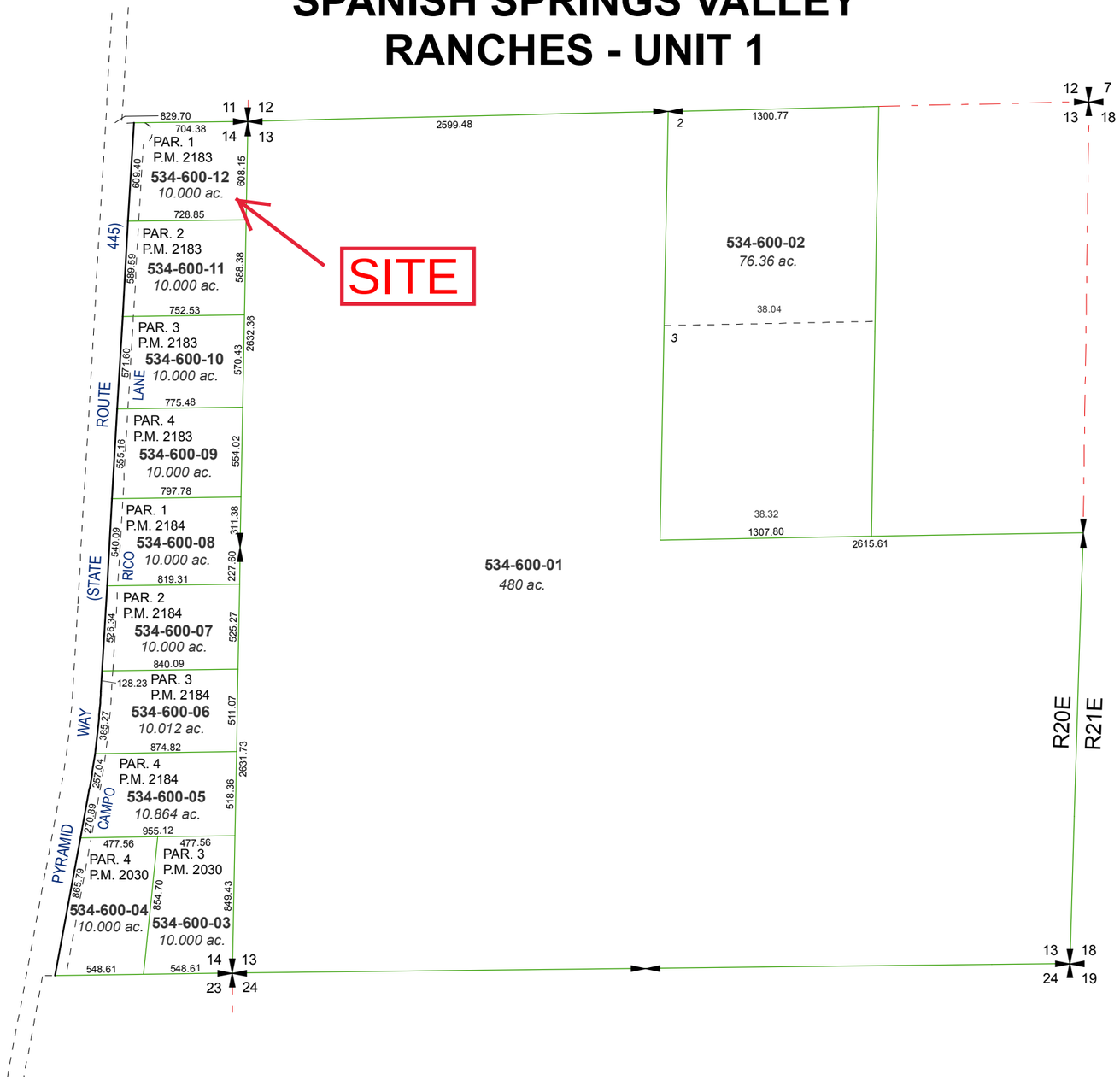
Assessment Information

ASSESSOR'S MAP

Axion
ENGINEERING
Civil Engineering • Land Development

MAP OF DIVISION INTO LARGE PARCELS # 20

SPANISH SPRINGS VALLEY RANCHES - UNIT 1



Assessor's Map Number

534-60

STATE OF NEVADA

WASHOE COUNTY

ASSESSOR'S OFFICE

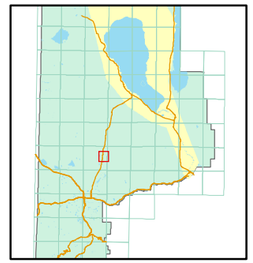
Joshua G. Wilson, Assessor

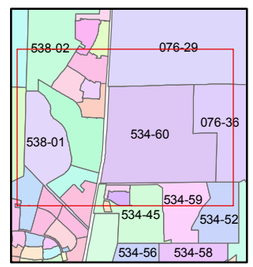
1001 East Ninth Street
Building D
Reno, Nevada 89512
(775) 328-2231

Feet

0 200 400 600 800

1 inch = 800 feet





created by: TWT 9/14/2011

last updated:

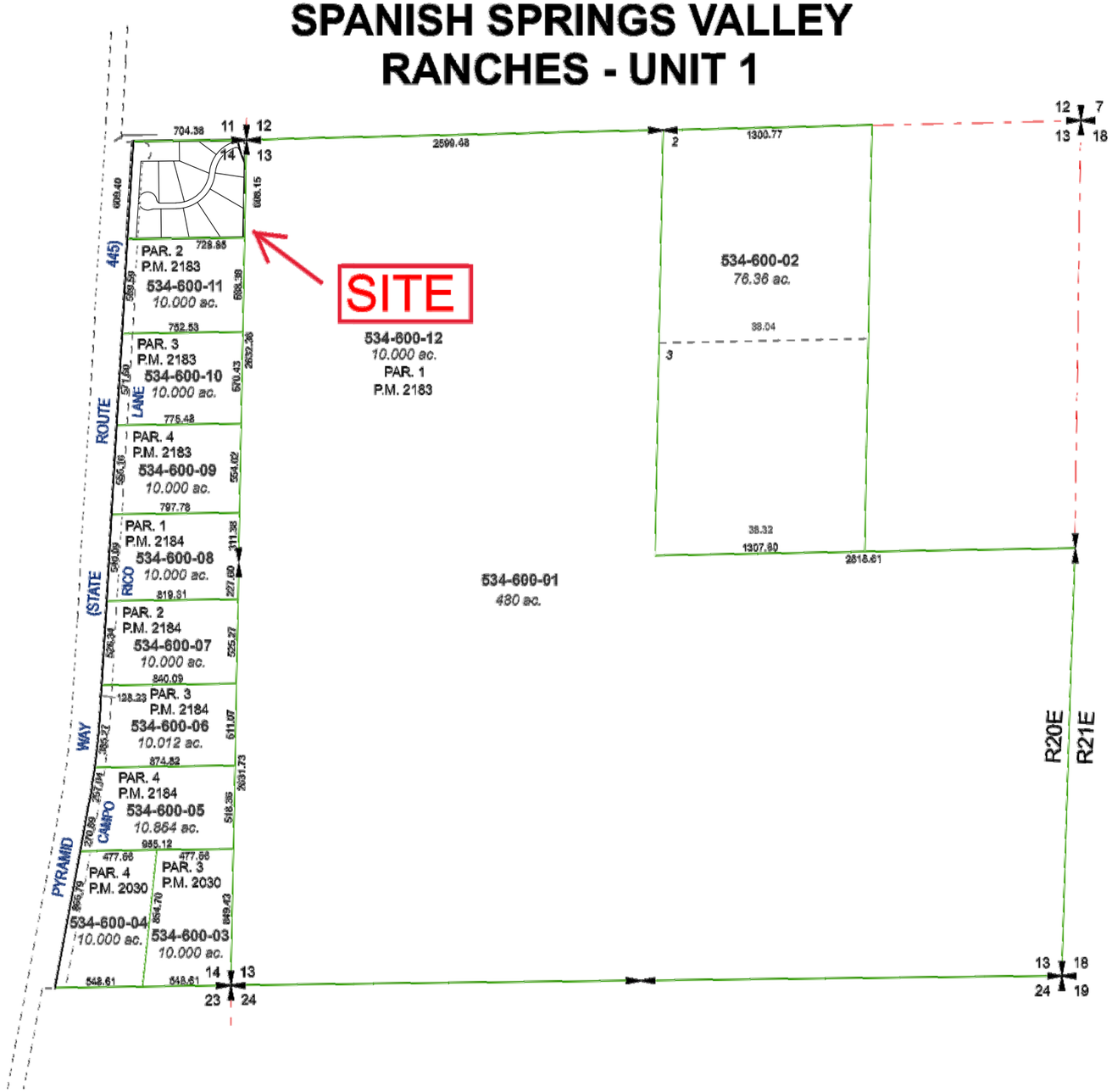
area previously shown on map(s)

076-36

NOTE: This map was prepared for the use of the Washoe County Assessor for assessment and illustrative purposes only. It does not represent a survey of the premises. No liability is assumed as to the sufficiency or accuracy of the data delineated hereon.

MAP OF DIVISION INTO LARGE PARCELS # 20

SPANISH SPRINGS VALLEY RANCHES - UNIT 1



Assessor's Map Number

534-60

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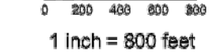
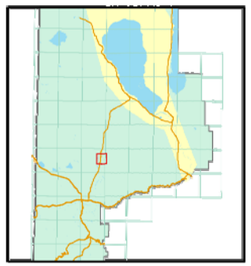
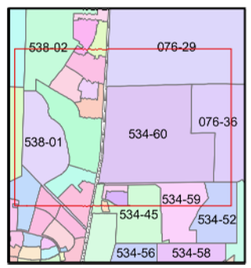


1 inch = 800 feet





created by: TWT 9/14/2011

last updated: _____

area previously shown on map(s)

076-36

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WATER RIGHTS

TRUCKEE MEADOWS WATER AUTHORITY

Quality. Delivered.

Date: April 16, 2018

To: Karen Meyer

From: David Nelson DN

RE: 18-6141, Dixon 10 Lot Subdivision Discovery, (APN 534-600-12)

The New Business/Water Resource team will answer the following assumptions on each new discovery:

- Is the property within Truckee Meadows Water Authority's water service territory?
- Does the property have Truckee River water rights appurtenant to the property, groundwater or resource credits associated with the property?
  - If yes, what is the status of the water right: Agricultural or Municipal and Domestic use?
- Estimated water demand for residential and or commercial projects.
- Any special conditions, or issues, that are a concern to TMWA or the customer.

The following information is provided to complete the Discovery as requested:

- This subject parcel (APN 534-600-12) is not within Truckee Meadows Water Authority's (TMWA's) service territory. An annexation is required.

- There are no additional resource credits or Truckee River decreed water rights appurtenant to this property; however, the applicant received and domestic well credit (DWC) and has owned surface water rights to dedicate. The developer will be required to follow TMWA's current rules, specifically Rule 7, and pay all fees for water rights needed in order to obtain a will serve commitment letter.

- Based on the information provided by the applicant this project "The Dixon 10 Lot Discovery" is estimated to require a domestic demand of **7.5 acre-feet (AF)**. The applicant has a DWC and municipal surface water rights decreasing the purchase of rule 7 water resources to **3.23 acre-feet (AF).** Landscaping plans were not provided to TMWA; therefore, a demand could not be determined. Please see the attached demand calculation sheet for the **estimated** demand and water resource fees. Once final plans are submitted a more accurate demand will be calculated. *Note: Water rights held or banked by the applicant must be dedicated to a project before any rule 7 water rights are purchased from TMWA. Rule 7 purchase is first come, first serve.*

- Any existing right of ways and public easements would need to be reviewed, and if needed the property owner will need to grant TMWA the proper easements and/or land dedications to provide water service to the subject properties. Property owner will be required, at its sole expense, to provide TMWA with a current preliminary title report for all subject properties. Owner will represent and warrant such property offered for dedication or easements to TMWA shall be free and clear of all liens and encumbrances. Owner is solely responsible for obtaining all appropriate permits, licenses, construction easements, subordination agreements, consents from lenders, and other necessary rights from all necessary parties to dedicate property or easements with title acceptable to TMWA.

DIXON 10 LOT SFR
SURFACE WATER RIGHTS AND METER FUND CONTRIBUTION
CALCULATION WORKSHEET

Line No.	Lot Number	Lot Size	Demand Calculation	
1	1 DWC		0.00	
2	2	1.00	0.75	
3	3	1.00	0.75	
4	4	1.00	0.75	
5	5	1.00	0.75	
6	6	1.00	0.75	
7	7	1.00	0.75	
8	8	1.00	0.75	
9	9	1.00	0.75	
10	10	1.00	0.75	
		10.00	6.75	
	Less: Demand Credits		-3.84	App. rights 3.84 Demand & 0.42AF F-11
	NET PROJECT DEMAND		2.91	
	Water Rights (0.11 AF per AF of total demand)		0.32	
	TOTAL WATER RIGHTS REQUIRED		3.23	

Price of Water Rights per AF	$7,600	$	24,548
Meter Contribution (per AF of Net Project Demand)	$1,830	$	5,325
Will Serve Letter Preparation		$	100
TOTAL TO TRUCKEE MEADOWS WATER AUTHORITY		**$**	**29,973**

SUBMITTED BY: Kenneth & Surinder Dixon PHONE: Kenneth 348-1816

APN: 534-600-12 DATE: 4/13/2018

PROJ NO: 18-6141 CALCED BY: David 834-8021

REMARKS: **PRICE OF WATER RIGHTS SUBJECT TO CHANGE.**

QUOTE IS EFFECTIVE FOR 10 CALENDAR DAYS FROM THE DATE

OF THIS WORKSHEET. PLEASE CALL TO VERIFY CURRENT PRICE.

Applicant has water rights to dedicate totaling 4.26AF. Permits 76469 & 76715

TMWA ANNEXATION
and
WATER SERVICE
ACKNOWLEDGEMENT

Axion
ENGINEERING
Civil Engineering • Land Development

APN: 534-600-12

When Recorded, Return to:
Truckee Meadows Water Authority
Attn: Amanda Duncan, ARWP, Land Agent
P O Box 30013
Reno, NV 89520-3013
TMWA WO: 18-6141

DOC #4908154
05/06/2019 01:52:58 PM
Electronic Recording Requested By
TRUCKEE MEADOWS WATER AUTHORITY
Washoe County Recorder
Kalie M. Work
Fee: $41.00 RPTT: $0
Page 1 of 11

RETAIL WATER SERVICE AREA ANNEXATION AGREEMENT

THIS RETAIL WATER SERVICE AREA ANNEXATION AGREEMENT ("Annexation Agreement"), entered into this 3rd day of May, 2019 ("Effective Date"), by and between **TRUCKEE MEADOWS WATER AUTHORITY** (the "Authority"), a Joint Powers Authority entity created pursuant to a cooperative agreement among the cities of Reno, Nevada, Sparks, Nevada and Washoe County, Nevada pursuant to N.R.S. Chapter 277, and **KENNETH K. DIXON** and **SURINDER A. DIXON**, husband and wife, as joint tenants with right of survivorship, (referred to as "Developer" or "Owner" in this Agreement and exhibits attached hereto, and together with Authority collectively hereinafter referred to as "Parties");

WITNESSETH:

WHEREAS, Owner owns certain real property more particularly described on Exhibit "A" and depicted in Exhibit "A-1" attached hereto incorporated herein by this reference ("Property", or "Owner's Project"), located outside of Authority's current retail water service area.

WHEREAS, Owner desires the Authority to expand its retail water service area to provide water service to the Property.

WHEREAS, on December 31, 2014, Authority acquired the water utility system of the Washoe County Department of Water Resources and the South Truckee Meadows General Improvement District, and as a result, new customers may be eligible to annex into the Authority service area based upon their proximity to existing Authority facilities, availability of water resources, or cost-effectiveness.

WHEREAS, based upon these criteria, Authority has determined it is appropriate that Authority provide service to Owner and accordingly, Owner's property may be annexed into Authority's retail water service area.

WHEREAS, the expansion of Authority's retail water service area may require dedication of certain real property or water system facility improvements to facilitate the efficient management and operation of Authority's system to include the Property in its retail water service area.

WHEREAS, Authority is willing to expand its retail water service area to include water service to the Property and Owner agrees to the expansion of Authority's retail water service area upon the terms and conditions set forth in this Agreement, subject to and on the express condition that Owner fully and completely perform the terms and conditions set forth in this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and conditions herein contained, the Parties agree as follows:

1. Expansion of Water Service Area. Authority agrees to expand its retail water service area as set forth in Exhibits "A" and "A-1" attached hereto to provide water service for the Property; provided, however, that such expansion of the Authority's retail water service area is specifically conditioned upon execution of this Agreement by Owner and the Authority, and the complete and satisfactory performance of the terms and conditions in Section 2 herein by Owner and its permitted successors and assigns, to the extent applicable.

2. Conditions to Annexation. The following conditions must be satisfied within the time frames stipulated below or this Agreement shall automatically terminate, and the Property shall be deemed de-annexed from the Authority retail service area.

2.1 Construction/Dedication of Facility Improvements. The Authority has determined that additions, improvements and/or modifications to its Water System Facilities are required to expand its retail water service area to include the Property. Owner is responsible for all costs related to, and except as otherwise provided herein, shall install and construct the off-site additions, improvements and modifications to the Authority's Water System Facilities as delineated in Exhibit "B" attached hereto and incorporated herein by this reference. Owner shall submit a complete Application for New or Modified Water Service and enter a Water Service Agreement with Authority for the completion of the foregoing Water Facilities (or portions thereof, for phased development) no later than twenty-four (24) months from the Effective Date of this Annexation Agreement, or this Agreement shall automatically terminate, and the Property shall be deemed de-annexed from the Authority retail service area. For phased development, Owner shall continue to submit complete Applications for New or Modified Water Service and enter into Water Service Agreements for subsequent phases no later than twenty-four months from the Effective Date of the previous Water Service Agreement, or this Annexation Agreement shall automatically terminate and portions of the Property not actively

receiving water service from Authority shall be deemed de-annexed from the Authority retail service area. Authority shall have no obligation to provide water service to any portion of the Property until required water system facilities are completed to the satisfaction of Authority. Upon completion of the facilities listed in Exhibit B, Owner shall dedicate the facilities to Authority pursuant to the terms of this Annexation Agreement and Authority's Rules, and Authority will own all capacity in the system including any excess capacity.

2.2 Dedication of Real Property. The Authority has determined that the dedication of certain real property in fee, or certain easements, rights of way or other interests in real property, is required to expand its retail water service area to include the Property. Owner shall, prior to the start of construction of any facilities required under this Annexation Agreement, grant and convey to Authority, all necessary easements, conveyances, deeds, rights-of-way, or other rights required by this Annexation Agreement. Such property shall be conveyed free and clear of all liens and encumbrances, and Owner shall obtain and provide Authority prior to dedication, at Owner's expense, a preliminary title report for any property offered for dedication showing all matters of record affecting such property. Owner is solely responsible for obtaining all appropriate permits, licenses, construction easements, subordination agreements, consents from lenders, and other necessary rights from all necessary parties to dedicate property with title acceptable to Authority. If any portion of the property required for dedication is located on property other than that owned by Owner, Owner shall be responsible for obtaining, at no cost to Authority, any necessary interests therein from such owners for conveyance to Authority free and clear of all liens and encumbrances. Owner may not apply for, nor shall Authority shall have any obligation to issue or enter, a Water Service Agreement for service to any portion of the Property until such real property required hereunder is granted to Authority in such form, location, scope and condition of title satisfactory to Authority. Furthermore, unless such real property is granted to Authority no later than twenty-four (24) months from the Effective Date of this Annexation Agreement, this Annexation Agreement shall automatically terminate, and the Property shall be deemed de-annexed from the Authority retail service area. In the event Owner has not conveyed the real property within the 24-month period, Owner may submit a written request for, and Authority in its sole discretion may grant, an extension up to one-year if Owner can show reasonable justification to Authority why the real property was not transferred.

3. Conditions of Water Service. Owner acknowledges and agrees that this Annexation Agreement merely addresses conditions required for the expansion of Authority's retail water service area, and that Owner must independently comply with all applicable requirements in Authority's Rules before the Authority has any obligation to provide water service to the Property, including without limitation (i) submitting and receiving approval from the Authority of appropriate applications for

service; (ii) dedicating sufficient Water Resources to the Authority and receiving a Will Serve Commitment for service to the Property; (iii) in addition to any dedication requirements in Section 2 of this Annexation Agreement, dedicating appropriate easements and other real property required for service; (iv) in addition to any dedication requirements in Section 2 of this Annexation Agreement, installing, constructing and dedicating subdivision or on-site water system facility additions, improvements or modifications or further additions, improvements, extensions or modifications to Authority's Water System Facilities as necessary to provide the requested new service(s) or modification of service(s) to the Property; and (v) satisfying such other terms and conditions pursuant to the Authority's Rules and any requirements of any local governmental entity with jurisdiction over the Property as necessary to obtain a Will-Serve Commitment letter from the Authority for the delivery of water to the Property. Owner shall submit such applications and execute such other documents required by Authority's Rules and procedures prior to being eligible for the delivery of water to the Property. All such conditions, dedications, additions, improvements, extensions and modifications shall be made in accordance with the Authority's Rules and regulations in effect at the time Authority and Owner enter into any agreement or agreements for the specific dedication, additions, improvements or modifications required to provide water service to the Property.

4. General Terms

4.1 Owner acknowledges and agrees that it is entering this Annexation Agreement voluntarily, that the expansion of Authority's service area is specifically conditioned on Owner's performance of all terms and conditions contained herein, and that if any of the provisions of this Annexation Agreement are deemed unenforceable or if Owner fails to perform any of its obligations hereunder, Authority is under no obligation to expand its service area to include any portion of the Property for which the Authority has not previously entered an agreement to provide water service. Nothing in this paragraph shall be construed to grant Owner a right, and Owner specifically waives any right, if any exists, to dispute any of the terms and conditions of this Annexation Agreement under Rule 8 in Authority's Rules, as such may be amended from time to time. Upon annexation of the Property, the Parties acknowledge and agree that both are bound by the terms and conditions of the rules and regulations adopted by Authority, as the rules and regulations may be amended from time to time, and as such rules may exist at the time service is applied for or requested for the Property or certain phases of the Property.

4.2. Any written notices or communications required hereunder shall be served by placing such notices in the U.S. Mail, postage prepaid, properly addressed to the following:

To: Authority	Truckee Meadows Water Authority Attn. General Manager P.O. Box 30013 Reno, NV 89520-3013
To: Owner	Kenneth & Surinder Dixon Attn: Ken Dixon 150 Isidor Ct., Bldg 204 Sparks, NV 89441

4.3. This Annexation Agreement shall inure to and be binding upon the parties, their respective successors and assigns.

4.4. This Annexation Agreement shall not be modified except in writing, signed by all parties.

4.5. This Annexation Agreement represents the entire agreement between the Parties related to the expansion of the Authority's retail water service area and supersedes all prior representations and agreements whether written or oral with respect to the covenants and conditions provided herein; provided, however, that the obligations set forth in this Annexation Agreement shall be in addition to, and do not supersede or replace, any obligations that may be imposed upon Owner under Authority's Rules.

4.6 This Annexation Agreement and terms and conditions herein shall run with the land and be binding upon and inure to the benefit and burden of the parties to the agreement and their heirs, successors and assigns and any future owners of the Property.

4.7 Neither this Annexation Agreement nor any of the terms set forth herein shall be effective or binding on Authority until this Annexation Agreement is executed by Authority, and the Authority will be under no obligation to execute this Annexation Agreement if not executed and returned by Owners to the Authority by ***July 26, 2019***.

IN WITNESS WHEREOF, the Parties hereto have executed this Annexation Agreement effective as of the Effective Date first written above.

TMWA:
TRUCKEE MEADOWS WATER AUTHORITY, a Joint Powers Authority

By: _____
Mark Foree, General Manager

OWNER:

By: _____
Kenneth K. Dixon, Owner

By: _____
Surinder A. Dixon, Owner

STATE OF Nevada)
) ss.
COUNTY OF Washoe)

This instrument was acknowledged before me this 29th day of April, 2019, by **KENNETH K. DIXON**, as therein named.

AMANDA DUNCAN
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 12-8882-2 - Expires September 14, 2020

_____
Notary Public

STATE OF Nevada)
) ss.
COUNTY OF Washoe)

This instrument was acknowledged before me this 30th day of April, 2019, by **SURINDER A. DIXON**, as therein named.

DANA L. WALTON
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 18-3554-2 - Expires Aug. 10, 2022

_____
Notary Public

[TMWA Notary Acknowledgement Follows]

STATE OF NEVADA)
) ss
COUNTY OF WASHOE)

This instrument was acknowledged before me this 3RD day of MAY, 2019, by **MARK FOREE** as General Manager of **TRUCKEE MEADOWS WATER AUTHORITY** on behalf of said Joint Powers Authority as therein named.

NOTARY PUBLIC

SONIA FOLSOM
Notary Public-State of Nevada
APPT. NO. 14-15504-2
My Appt. Expires October 24, 2022

Exhibit "A"

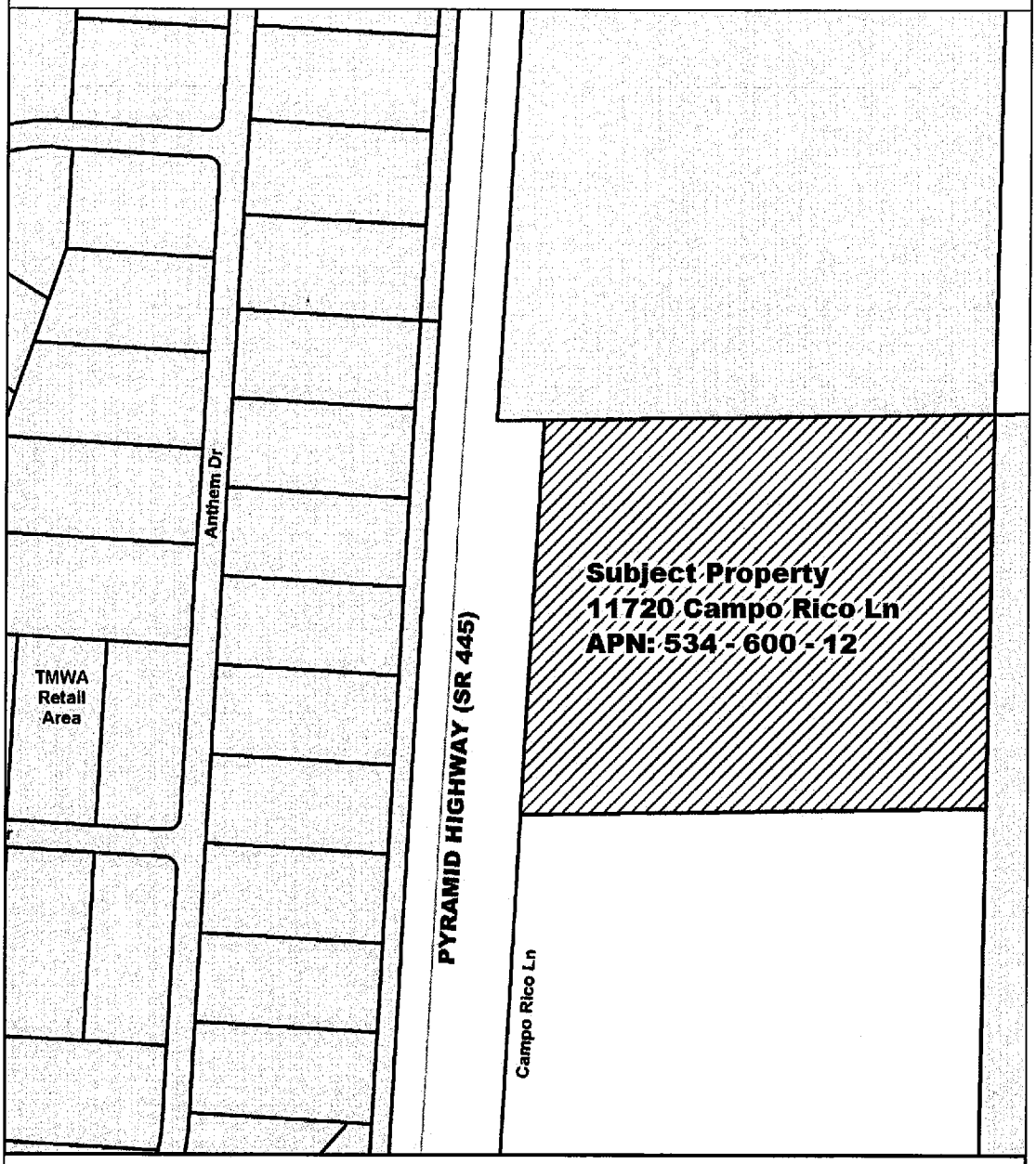
Description of Property

Parcel 1 of Parcel Map 2183, for BROOKSIDE SAVINGS AND LOAN, according to the map thereof, filed in the office of the County Recorder of Washoe County, State of Nevada, on September 9, 1987, as Document No. 1190961.

APN: 534-600-12

[Above legal description was referenced from that certain Grant, Bargain, Sale Deed recorded as Document No. 2491824 on October 17, 2000 in the office of the Washoe County Recorder, State of Nevada.]

EXHIBIT A-1



TRUCKEE MEADOWS WATER AUTHORITY
Quality. Delivered.

EXHIBIT A-1: ANNEXATION EXHIBIT FOR 11720 CAMPO RICO FOR KENNETH K. DIXON and SURINDER A. DIXON
APN: 534-600-12

EXHIBIT B

11720 CAMPO RICO LANE - APN 534-600-12
SUMMARY OF MAJOR OFFSITE FACILITY REQUIREMENTS AND APPROXIMATE COSTS TO BE PAID BY DEVELOPER

Table 1: Estimated Major Offsite Water Facility Costs

Facility Description	Quantity	Unit	Unit Cost	Total Cost	Comments
Offsite Facility Improvements	unknown	unknown	unknown	TBD	To be determined
Area 12 Facility Charge	19	per gpm	$5,789	$109,991	Rate Schedule WSF
Supply and Treatment Facility Charge	19	per gpm	$4,163	$79,097	Rate Schedule WSF
Estimated Cost				**$189,088**	2019 partial planning level estimate only

Notes:

1. Water System Facility Charges are determined based on the maximum day demand (MDD) of the development. The above MDD is estimated and will be determined at the time final development plans are submitted with a formal application for water service. All facility requirements listed above are preliminary and are subject to change during the final planning and design process. TMWA plans to reevaluate the maximum day demand equations for all customer usage types within the next three to six months, as part of a Water Facility Plan Update.
2. Review of conceptual plans or tentative maps by TMWA does not constitute an application for service, nor implies a commitment by TMWA for planning, design or construction of the water facilities necessary for service. The extent of required off-site and on-site water infrastructure improvements will be determined by TMWA upon receiving a specific development proposal or complete application for service and upon review and approval of a water facilities plan by the local health authority. Because the NAC 445A Water System regulations are subject to interpretation, TMWA cannot guarantee that a subsequent water facility plan will be approved by the health authority or that a timely review and approval of the Project will be made. The Applicant should carefully consider the financial risk associated with committing resources to their project prior to receiving all required approvals. After submittal of a complete Application for Service, the required facilities, the cost of these facilities and associated fees will be estimated and will be included as part of the Water Service Agreement necessary for the Project. All fees must be paid to TMWA prior to water delivery to the Project.

WASHOE COUNTY RECORDER

OFFICE OF THE RECORDER
KALIE M. WORK, RECORDER

1001 E. NINTH STREET
RENO, NV 89512
PHONE (775) 328-3661
FAX (775) 325-8010

LEGIBILITY NOTICE

The Washoe County Recorder's Office has determined that the attached document may not be suitable for recording by the method used by the Recorder to preserve the Recorder's records. The customer was advised that copies reproduced from the recorded document would not be legible. However, the customer demanded that the document be recorded without delay as the parties rights may be adversely affected because of a delay in recording. Therefore, pursuant to NRS 247.120 (3), the County Recorder accepted the document conditionally, based on the undersigned's representation (1) that a suitable copy will be submitted at a later date (2) it is impossible or impracticable to submit a more suitable copy.

By my signing below, I acknowledge that I have been advised that once the document has been microfilmed it may not reproduce a legible copy.

Signature

5/6/2019
Date

Amanda Duncan
Printed Name

TRUCKEE MEADOWS WATER AUTHORITY

Quality. Delivered.

May 24, 2018

To: Karen Meyer

Thru: Scott Estes SGE

From: Holly Flores HMF

RE: 11720 Campo Rico Lane Annexation 18-6141

Purpose:
Conduct a high-level engineering analysis to determine the least cost major TMWA water facility requirements and preliminary cost estimate necessary to provide water service to the proposed project. The applicant has directed TMWA to only consider extending water service from the proposed Harris Ranch Project located east of this parcel.

Preliminary Water Facility Requirements and Cost Estimates:
The estimated ***partial*** cost for water facility charges associated with this project is approximately $189,088. Offsite water facility requirements for service from the unbuilt Harris Ranch Project east of this property cannot be determined now. It is likely that there will be offsite water infrastructure required including, but not limited to, a possible main extension and pressure regulating station ($75,000). These partial costs for water facility charges known now are summarized in the table below.

Table 1: Estimated Major Offsite Water Facility Costs From Future Harris Ranch Project

Facility Description	Quantity	Unit	Unit Cost	Total Cost	Comments
Offsite Facility Improvements	unknown	unknown	unknown	TBD	To be determined
Area 12 Facility Charge	19	per gpm	$5,789	$109,991	Rate Schedule WSF
Supply and Treatment Facility Charge	19	per gpm	$4,163	$79,097	Rate Schedule WSF
Estimated Cost				**$189,088**	2018 partial planning level estimate only

The applicant's engineer has communicated that a water service plan through the future Harris Ranch Development to the east of this parcel is preferred by the owner. While this may be possible, not enough information exists now to determine if such service plan is feasible or to provide a complete cost estimate. In addition, the timing of construction of the Harris Ranch Project is unknown and out of the control of both TMWA and this owner. Please be advised that annexations expire two years after execution if construction has not commenced.

Alternate Water Service Plan:
For the sake of comparison, an alternate water service plan from existing TMWA water mains is estimated to cost approximately $829,088 as described in the table below:

Table 1: Estimated Major Offsite Water Facility Costs

Facility Description	Quantity	Unit	Unit Cost	Total Cost	Comments
Water Main Extension	2,700	feet	$200 per foot	$540,000	Campo Rico Lane - Alamosa Drive to Pebble Creek Drive
Pyramid Way Bore and Jack	200	feet	$500 per foot	$100,000	Casing sized for 10-inch diameter main minimum
Area 12 Facility Charge	19	per gpm	$5,789	$109,991	Rate Schedule WSF
Supply and Treatment Facility Charge	19	per gpm	$4,163	$79,097	Rate Schedule WSF
Estimated Cost				**$829,088**	2018 planning level estimate only

The plan above assumed a required fire flow between 1,500 gpm and 2,000 gpm within the project. Fire requirements are currently unknown.

Discussion:
Location:
The proposed development is located south of Alamosa Drive and east of Pyramid Way in Washoe County, Nevada on APN 534-600-12. The project development plan consists of approximately 10 single-family lots on 10 acres. The project is outside TMWA's retail water service territory so will require annexation prior to service. The preliminary site plan by Axion Engineering is attached for reference.

Estimated Project Demands:
The estimated maximum day demand for the project is approximately 19 gpm including an estimated demand for potable irrigation. Fire flow and duration are unknown now. Fire requirements were estimated at 1,500 to 2,000 gpm for two hours.

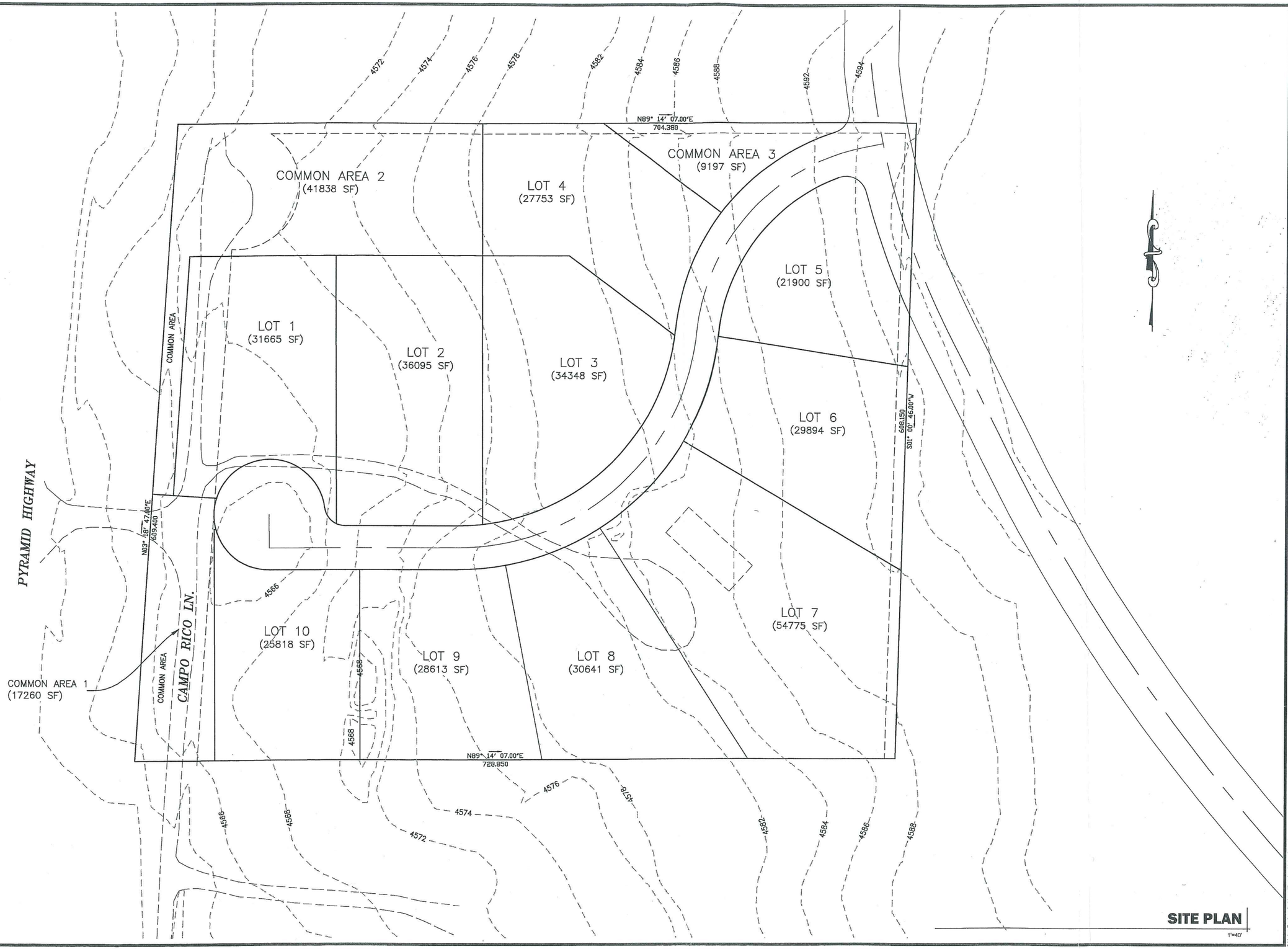
Assumptions:
1. This preliminary study was based on information provided by Axion Engineering in April 2018.
2. The conceptual water service plans described herein are preliminary and subject to change.
3. Annexation to TMWA's retail service territory is required.
4. Privately owned individual pressure regulating valves may be required and installed by the applicant per TMWA design standards and the Uniform Plumbing Code.
5. The estimated maximum day demand for the project is approximately 19 gpm including an estimate for potable irrigation. Actual demands will be determined at the time of service.
6. TMWA plans to reevaluate and possibly revise the maximum day demand calculations for all usage types within the next twelve months as part of the Water Facility Plan Update.

7. Fire flow requirements were not submitted with this project. The actual fire flow requirements will be set by the governing fire authority.
8. Facility requirements were based on the estimated maximum day demand and limitations of service of existing facilities in the local area. Changes in demand and assumed fire flow and duration requirements will affect the facility requirements and in turn the cost estimates included herein.
9. All cost estimates are preliminary and subject to change. Actual costs will be determined at the time of application for service.
10. This estimate does not include the cost of onsite facilities, water rights for the project, nor contribution to the water meter retrofit fund.
11. The ultimate water facility plan proposed by the Truckee Meadows Water Authority must be reviewed for compliance with state and local codes and regulations and approved by the health authority prior to service.
12. Dead ends must be eliminated and a looped water system designed, to the extent possible, per NAC 445A regulations. The health authority may require changes to the enclosed water facility plan that may in turn affect the included cost estimates.

Please call me at (775) 834-8026 if you have questions or need more information.

/hmf
cc: Gary Guzelis, P.E., Axion Engineering
Kenneth and Surinder Dixon
File: 18-6141

Attachments: Arora Estates Preliminary Site Plan by Axion Engineering
Preliminary Demand Calculations
TMWA Distribution Exhibit of Existing Water Facilities



SITE PLAN
1"=40'

Axion ENGINEERING
Civil Engineering · Land Development
681 EDISON WAY – RENO, NEVADA 89502
PH 775-771-5554 / FX 775-856-3861

PROFESSIONAL ENGINEER-STATE OF NEVADA
GARY K. GUZELIS
Exp. 6-30-19
CIVIL
No. 10372

ARORA ESTATES
PRELIMINARY SITE PLAN
WASHOE COUNTY, NEVADA

revisions

drawn:	GKG
checked:	GKG
date:	APRIL 2018
scale:	1"=40'
project no:	17036

S-1

OF 1

S:\Axion Engineering\Arora\Drawings\Arora Base.dwg

Arora Estates Annexation - 10 SFR

Preliminary Demand Calculations

18-6141

Line No.	Lot Number	Lot Size (sq. ft.)	Max. Day Demand Calculation (gpm)
1	1	31,665	1.6
2	2	36,095	1.7
3	3	34,348	1.7
4	4	27,753	1.5
5	5	21,900	1.3
6	6	29,894	1.6
7	7	54,775	2.1
8	8	30,641	1.6
9	9	28,613	1.5
10	10	25,818	1.5
		321,502	16.1

Demand Equation (2005): $y = 1.05*0.008607*x^{0.5}$

where: y = maximum day demand in gpm
x = lot size in square feet

Estimated historical peaking factors:

MDD:ADD = 2.61:1
PHD:MDD = 1.8:1

Residential Demand:
MDD = 16.1 gpm

Landscape demand estimate:
MDD = 2.9 gpm

Total Demands:
MDD = 19.0 gpm

TRUCKEE MEADOWS WATER AUTHORITY

Quality. Delivered.

11720 CAMPO RICO LANE

ANNEXATION

DATE: May 14, 2018	
MAP BY:	
WORK ORDER #:	
SCALE: NTS	

NORTH

NAD 83 NEVADA STATE PLANE WEST FEET

TRUCKEE MEADOWS WATER AUTHORITY

Quality. Delivered.

June 12, 2019

Gary Guzelis, P.E.
Axion Engineering
681 Edison Way
Reno, NV 89502

RE: ACKNOWLEDGEMENT OF WATER SERVICE
BLUE OAKS TENTATIVE MAP

Mr. Guzelis:

The referenced project is located within the Truckee Meadows Water Authority's (TMWA) retail water service territory. TMWA will provide water service to the project, subject to certain conditions precedent, including, without limitation, the dedication of water resources, approval of the water supply plan by the local health authority, the execution of a service contract, payment of fees, and the construction and dedication of infrastructure in accordance with our rules and tariffs.

Review of conceptual site plans or tentative maps by TMWA does not constitute an application for service, nor implies a commitment by TMWA for planning, design or construction of the water facilities necessary for service. The extent of required off-site and on-site water infrastructure improvements will be determined upon TMWA receiving a specific development proposal or complete application for service and upon review and approval of a water facilities plan. After submittal of a complete Application for Service, the required facilities, the cost of these facilities, which could be significant, and associated fees will be estimated and will be included as part of the Water Service Agreement for the project. All fees must be paid to TMWA prior to water being delivered to the project.

Please call me at (775) 834-8026 at your convenience if you have any questions.

Regards,

Holly M. Flores

Holly M. Flores, P.E.
Principal Engineer

cc: Karen Meyer, TMWA
19-6899

APPENDIX "B"

REPORTS and PLAN SETS

Axion ENGINEERING
Civil Engineering • Land Development

PRELIMINARY HYDROLOGY REPORT

Preliminary Drainage Study

For

Blue Oaks

Prepared for:

Ken Dixon
11720 Campo Rico Lane
Sparks NV 89441

Prepared by:

Axion ENGINEERING
Civil Engineering • Land Development
Mapping • Surveying

June, 2019

Introduction:

The proposed Blue Oaks subdivision lies within APN 534-600-12, at 11720 Campo Rico Lane, along the east side of SR445 Pyramid Highway approximately 940' south of the intersection of SR445 and Landmark Drive. The 10 acre parcel lies within the Northeast ¼ of Section 14, Township 21 North, Range 20 East, Mount Diablo Meridian. Reference the attached Vicinity Map.

The proposed project is a tentative map for 10 residential lots along a private roadway and cul-de-sac, connecting to the proposed Harris Ranch Road to the east of the parcel. Reference the attached site plan.

The site currently contains a single residence, in the southeast portion of the site. The residence is currently accessed from Campo Rico Lane, a dirt road within the parcel along the west boundary. There is an existing access from SR445 Pyramid Highway directly in front of the parcel onto Campo Rico Lane. Except for Campo Rico Lane, the residence, the area immediately around the residence, and the driveway, the parcel is undeveloped. The undeveloped majority of the site is covered in a rangeland mix of sagebrush and grasses, and slopes typically from east to west at approximately 4%.

There are no current improved drainage facilities on the site, the site currently drains generally from east to west towards Campo Rico Lane and Pyramid Highway.

Upstream/uphill of the site, according to previous reports, there is an approximately 500 acre drainage basin that drains toward the east side of the site. Examination of topography and aerial photography shows that this flow is conveyed in a natural channel that intercepts the east boundary approximately 60' from the southeast corner of the property, and then exits at a point on the southern boundary approximately 60' from the southeast corner. This existing flow pattern, whether or not Harris Ranch is developed, will be maintained in its current state, therefore offsite flows are not considered in this report nor in the design of the project.

Previous related studies include:

Harris Ranch Subdivision Preliminary Drainage Report, dated July 8, 2016, by C&M Engineering and Design, LTD, included in the application for tentative map for Harris Ranch Subdivision.

Letter of Map Revision LOMR Boneyard Flat, Washoe County Nevada, December 2013, by DEW Hydrology.

Conditional Letter of Map Revision (CLOMR) Boneyard Flat, Washoe County, Nevada, December, 2013.

Existing and Proposed Hydrology

Existing:

As discussed above, the upstream drainage only cuts the corner of the site, and will not be considered for this analysis. Additionally, the expected construction of Harris Ranch Road and Harris Ranch Subdivision will effectively cut off any upstream flow entering the site, and according to the tentative map grading plan included in the application, will intercept and detain the flows, discharging slightly to

the south of the site. Any flows from the Harris Ranch Roadway will have to be returned to their natural condition.

These conditions will limit the drainage basin to be considered for the design of the project to the 10 acre property itself.

Currently the entire 10 acres drains overland toward the west boundary and Campo Rico Lane/SR445 Pyramid Highway. The drainage then flows along Pyramid Highway within roadside drainage, and due to the site being situated generally at a high point of the highway, both north and south toward culvert crossings to the west.

Proposed:

The developed site will be divided into two main drainage basins, the +-6 Acre east portion, and majority of the site, will drain toward roadside drainage along the proposed roadway, then be intercepted and flow into the proposed retention basin. At the current proposed design volume of 17,500 cubic feet, the retention pond will hold the overall site's increase in volume from pre-development to post-development storm flows, as well as the full storm volume from the east portion up to and including the 100-year, 2.4 day storm, or the 10 year, 10-day storm event. At the expected percolation rates, based on tests at nearby projects, the pond should drain and infiltrate within the required maximum time of 7 days.

The west 4 acre portion of the project will drain and be released toward Campo Rico Lane/SR445 Pyramid Highway without detention or retention. Flows will be directed, controlled, and released in a predevelopment condition.

Please reference the hydrology display showing the two drainage basins, retention pond, and expected outflows from all locations. Overall, the 5-year peak flow leaving the project will be reduced from 3.1 cfs to 2.2 cfs, the 100-year peak flow will be reduced from 19.5 cfs to 7.8 cfs, and the overall 100-year 10 day volume leaving the site will be reduced from 88,600 cubic feet in the predeveloped condition to 79,200 cubic feet in the developed condition, a decrease of 9,400 cubic feet, or 11%.

There are no current drainage problems on the site.

Proposed Drainage Facilities

The project will consist of large custom residential lots, the overall design of which is expected to maintain existing drainage patterns to the extent possible. Flows from the developed portions within the lots will be directed to roadside drainage along the proposed street, and then drain west toward Campo Rico Lane/SR445 Pyramid Highway.

The east portion drainage will be captured by drop inlets in the roadside ditches and conveyed north to the proposed retention basin.

The west portion of the project will drain and be released toward Campo Rico Lane/SR445 Pyramid Highway without detention or retention, via a drop inlet in the roadside drainage ditch at the low end of the proposed cul-de-sac, which will pipe under Campo Rico Lane and discharge the flow toward existing roadside drainage along SR445 Pyramid Highway.

The current Washoe County Boneyard Flat Closed Basin Interim Drainage Policy, which will apply to this site, requires:

> New development within the basin shall not include any development or fill within current FEMA SFHA areas.
>
> Design shall include analyses based on 100-year, 10 day storm event, using NOAA Atlas 14 Rainfall depths.
>
> Increased stormwater volume resulting from development based on the 100-year, 10-day storm event shall be mitigated either through onsite facilities (retention ponds, infiltration improvements, etc) or volumetric mitigation within Boneyard Flat closed basin area.
>
> All projects proposing to place fill may be required to implement a storage volume mitigation strategy.

To address these requirements, the retention basin will be constructed. At the current proposed design volume of 17,500 cubic feet, the retention pond will hold the overall site's increase in volume from pre-development to post-development 100-year, 10 day storm flows. It will retain the full storm volume from the east portion up to and including the 100-year, 2.4 day storm, or the 10 year, 10-day storm event. At the expected percolation rates, based on tests at nearby projects, the pond should drain and infiltrate within the required maximum time of 7 days.

The overall 100-year 10 day volume leaving the site will be reduced from 88,600 cubic feet in the predeveloped condition to 79,200 cubic feet in the developed condition, a decrease of 9,400 cubic feet, or 11%.

There will be no flood plain modifications or FEMA approvals necessary for this project.

This project will be constructed in one phase, and all drainage improvements will be complete at the end of this project, no relevant future facilities are planned.

Conclusions

The project and associated drainage improvements will be in compliance with the current edition of the Truckee Meadows Regional Drainage Manual and the current Washoe County Boneyard Flat Closed Basin Interim Drainage Policy.

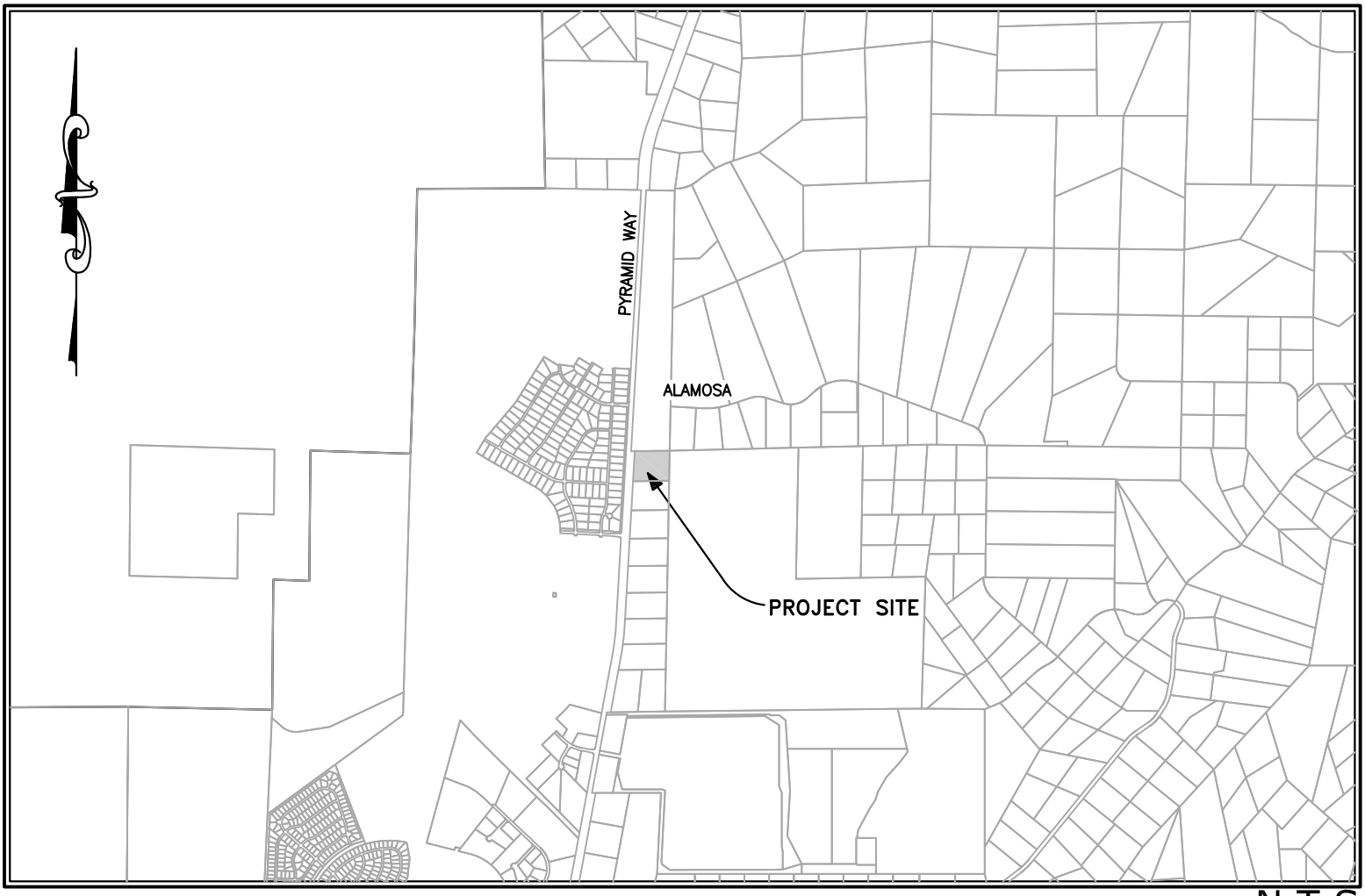
There are no requested exemptions to any current public policy in place covering this site.

Emergency all weather access is available with the construction of the project.

The project will be in compliance with current flood plain/flood hazard regulations.

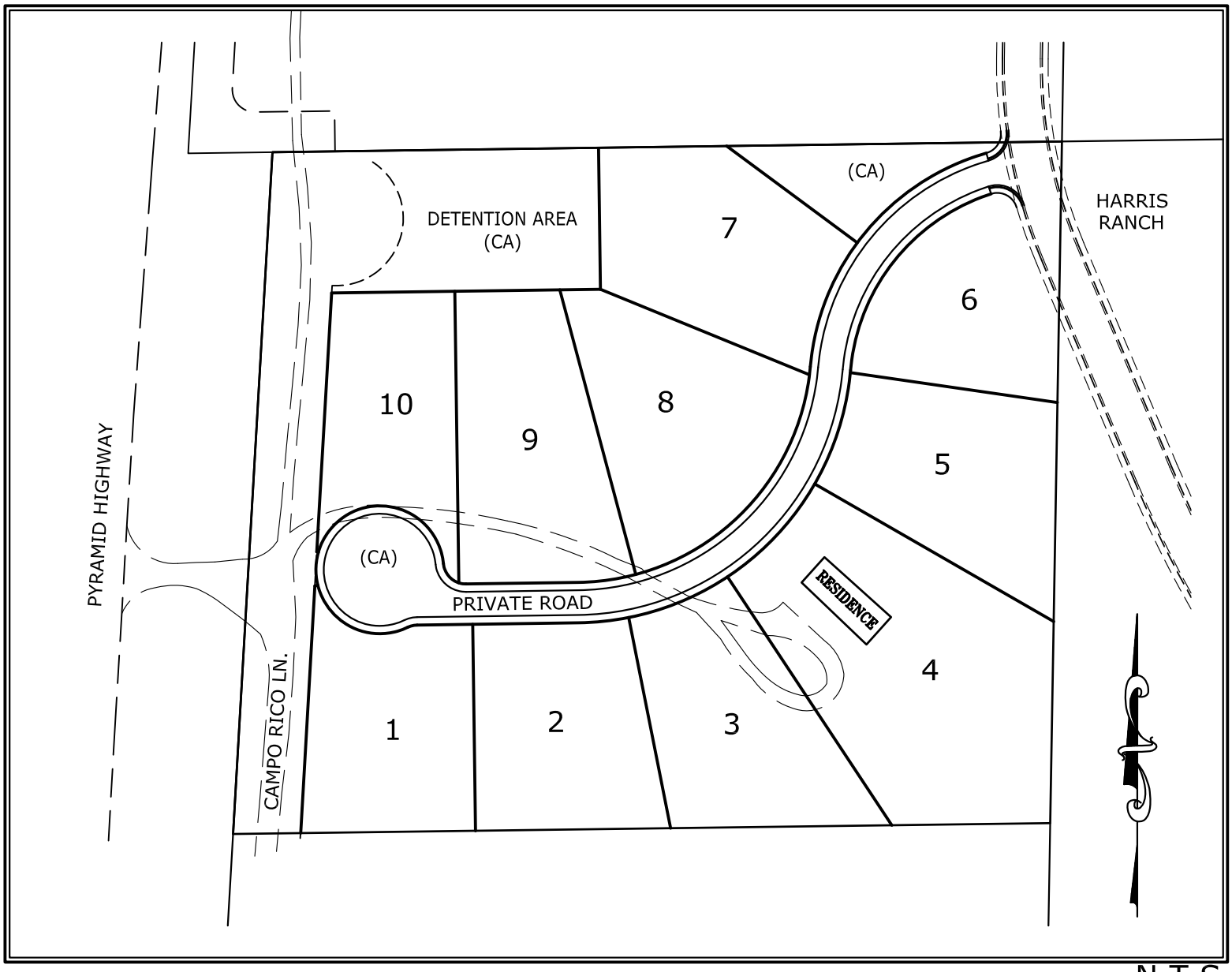
Overall, the 5-year peak flow leaving the project will be reduced from 3.1 cfs to 2.2 cfs, the 100-year peak flow will be reduced from 19.5 cfs to 7.8 cfs, and the overall 100-year 10 day volume leaving the site will be reduced from 88,600 cubic feet in the predeveloped condition to 79,200 cubic feet in the

developed condition, a decrease of 9,400 cubic feet, or 11%. Therefore the effect of the development on all adjacent and downstream properties and drainageways will be to lessen the impact of stormwater flows.



N.T.S.

VICINITY MAP


DETENTION AREA
(CA)
(CA)
HARRIS
RANCH
7
6
10
9
8
5
(CA)
PRIVATE ROAD
RESIDENCE
4
1
2
3
PYRAMID HIGHWAY
CAMPO RICO LN.

SITE

N.T.S.

Basin B-5
Area = 1.738 Mi^2=1111ac
CN = 73
Lag Time = 0.68
Q_{100} = 191 cfs

PC-5
A=0.4118 Mi^2=263.5ac
CN=74
Lag Time = 0.71
Q_{100} = 49 cfs

PC-6
A=0.7813 Mi^2=500ac
CN=74
Lag Time = 0.63
Q_{100} = 101 cfs

ESTIMATE OFF-SITE FLOWS
Flows are estimated by percentage of areas

- **Basin B-6**
  Q_{100} = 191 cfs
  Area = 1.738 Mi^2 = 1112 acres
  A = 234 acres
  B = 115 acres
  C = 221 acres

Sub Basin	Percentage	Q_{100}
A	21%	40.1cfs
B	10.3%	19.7 cfs
C	19.9%	38.0 cfs

- **Basin PC-5**
  D_1 = 96.8 acres

Sub Basin	Percentage	Q_{100}
D_1	36.7%	18cfs

- **Basin PC-6**
  D_2 = 96.8 acres
  D_3 = 368.7 acres

Sub Basin	Percentage	Q_{100}
D_2	18.5%	18.7cfs
D_3	73.7%	74.4cfs

PC4
PC5A
PC3
PC2A
PC2B
PC9B
PC7
PC1
PC8B
PC8A
PC6
B5
B1
B7
B8
B6
H1
H2
H3
I
K
K1
SW1
SW2
SW3
SW4
G1
G2
BLUE ROCKS SITE PC5
Boneyard Flat
Sterling Lake
VALLEY

Legend
Boundary
Watersheds
Soil Types
A
B
C
D
NR

AquA
Hydrogeologic Consulting LLC

Boneyard Flat
Soils Map

N W E S
Feet 0 1,250 2,500 5,000

SCALE: 1"=500'

OFFSITE FLOWS AS ESTIMATED BASED ON HYDRO-REPORTS BY OTHERS, SEE MAP APPENDIX B

OFF N1 (D1 FROM AQUA)

OFF N1 (D2 FROM AQUA)

OFF N1 (D3 FROM AQUA)

OFF W3 (C FROM AQUA)

OFF W4 (B FROM AQUA)

ALAMOSA

N1 DITCH

N1 DETENTION POND

W1 DITCH

W1 DETENTION POND

W2 DITCH

W2 DETENTION POND

W3 DITCH

W3 DETENTION POND

W4 DITCH

W4 DETENTION POND

S1 DITCH

SITE

CAMPO RICO LANE

PYRAMID LAKE HWY (SR 445)

BLUE OAKS

HYDROLOGY LEGEND

W4A	SUBAREA
	EX. DESIGN PT
	DESIGN POINT

PRELIMINARY FLOWS

DESIGN POINT	DRAINAGE SUB-AREA	PEAK RUNOFF (cfs) 5-YR	100-YR
N1 Ditch	N1A	2.66	6.84
N1 Ditch	N1B	3.11	7.88
N1 Ditch	N1C	2.77	7.10
W1 Ditch	W1A	8.36	21.34
W1 Ditch	W1B	5.93	14.87
W1 Ditch	W1C	5.25	13.47
W1 Ditch	W1D	3.32	8.62
W1 Ditch	W1E	0.58	1.36
W2 Ditch	W2A	17.98	46.11
W2 Ditch	W2B	2.90	7.45
W2 Ditch	W2C	2.26	5.79
W2 Ditch	W2D	1.41	3.62
W2 Ditch	W2E	1.82	4.82
W2 Ditch	W2F	0.40	1.02
W3 Ditch	W3A	2.38	6.12
W3 Ditch	W3B	12.97	33.29
W3 Ditch	W3C	2.87	7.36
W3 Ditch	W3D	2.42	6.20
W3 Ditch	W3E	2.57	6.59
W3 Ditch	W3F	2.26	5.78
W3 Ditch	W3G	3.14	8.05
W3 Ditch	W3H	2.29	5.88
W4 Ditch	W4A	3.78	9.70
W4 Ditch	W4B	2.54	6.53
W4 Ditch	W4C	8.18	21.02
W4 Ditch	W4D	18.54	42.04
W4 Ditch	W4E	2.87	7.37
W4 Ditch	W4F	2.27	5.84
W4 Ditch	W4G	4.98	12.80
W4 Ditch	W4H	2.57	6.60
W4 Ditch	W4I	4.57	11.73
W4 Ditch	W4J	6.38	16.38
S1 Ditch	S1A	7.43	18.08
S1 Ditch	S1B	2.52	6.48
S1 Ditch	S1C	2.39	6.13
S1 Ditch	S1D	2.40	6.15
N1 Detention	OffN1(D1)*		18.00
N1 Detention	OffN1(D2)*		18.70
N1 Detention	OffN1(D3)*		74.40
W3 Detention	OFF W3 (C)*		38.00
W4 Detention	OFF W4 (B)*		19.70

* Offsite flows per Aqua Hydrogeologic Consulting LLC

HYDROLOGY MAP

HARRIS RANCH

C & M ENGINEERING AND DESIGN, LTD
5488 RENO CORPORATE DR., SUITE 200B
RENO, NV 89511 PHONE (775)856-3312

File: P:\04-009.32 Harris Ranch\dwg\revtentmap\tentmapREV\ hydrotentmapREV.dwg
<schacon> Mon, 11 Jul 2016 - 2:25pm

NOAA Atlas 14, Volume 1, Version 5
Location name: Sparks, Nevada, USA*
Latitude: 39.6937°, Longitude: -119.697°
Elevation: 4585.17 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.103 (0.086-0.119)	0.128 (0.107-0.150)	0.172 (0.144-0.203)	0.213 (0.179-0.254)	0.283 (0.233-0.342)	0.348 (0.279-0.428)	0.428 (0.332-0.533)	0.524 (0.392-0.669)	0.683 (0.484-0.902)	0.830 (0.564-1.12)
10-min	0.157 (0.131-0.181)	0.195 (0.163-0.228)	0.261 (0.219-0.308)	0.324 (0.273-0.386)	0.430 (0.354-0.521)	0.531 (0.425-0.651)	0.650 (0.506-0.811)	0.798 (0.597-1.02)	1.04 (0.737-1.37)	1.26 (0.858-1.71)
15-min	0.194 (0.162-0.224)	0.242 (0.201-0.282)	0.324 (0.272-0.383)	0.402 (0.338-0.479)	0.534 (0.439-0.646)	0.657 (0.526-0.806)	0.806 (0.627-1.01)	0.989 (0.740-1.26)	1.29 (0.913-1.70)	1.57 (1.06-2.12)
30-min	0.261 (0.218-0.301)	0.326 (0.271-0.380)	0.436 (0.366-0.515)	0.541 (0.455-0.644)	0.719 (0.591-0.869)	0.885 (0.709-1.09)	1.09 (0.844-1.35)	1.33 (0.996-1.70)	1.73 (1.23-2.29)	2.11 (1.43-2.86)
60-min	0.323 (0.270-0.373)	0.403 (0.336-0.471)	0.539 (0.453-0.637)	0.670 (0.563-0.798)	0.889 (0.731-1.08)	1.10 (0.877-1.34)	1.34 (1.05-1.68)	1.65 (1.23-2.10)	2.15 (1.52-2.84)	2.61 (1.77-3.54)
2-hr	0.423 (0.372-0.490)	0.527 (0.464-0.610)	0.678 (0.590-0.787)	0.811 (0.697-0.941)	1.02 (0.853-1.19)	1.20 (0.986-1.42)	1.42 (1.14-1.70)	1.71 (1.33-2.12)	2.23 (1.66-2.86)	2.74 (1.95-3.57)
3-hr	0.510 (0.453-0.582)	0.634 (0.568-0.727)	0.796 (0.707-0.910)	0.930 (0.818-1.07)	1.12 (0.971-1.29)	1.29 (1.10-1.50)	1.49 (1.25-1.76)	1.79 (1.46-2.13)	2.29 (1.82-2.89)	2.77 (2.14-3.61)
6-hr	0.728 (0.651-0.823)	0.909 (0.813-1.03)	1.13 (1.00-1.28)	1.29 (1.14-1.47)	1.51 (1.32-1.73)	1.68 (1.45-1.93)	1.85 (1.57-2.14)	2.06 (1.73-2.43)	2.49 (2.05-2.97)	2.92 (2.37-3.64)
12-hr	0.981 (0.876-1.10)	1.23 (1.10-1.39)	1.55 (1.38-1.75)	1.81 (1.60-2.04)	2.14 (1.87-2.43)	2.40 (2.07-2.74)	2.66 (2.27-3.08)	2.92 (2.45-3.42)	3.27 (2.68-3.91)	3.59 (2.88-4.35)
24-hr	1.25 (1.12-1.41)	1.58 (1.41-1.78)	2.03 (1.81-2.29)	2.40 (2.13-2.71)	2.92 (2.57-3.30)	3.34 (2.90-3.79)	3.78 (3.25-4.32)	4.24 (3.61-4.88)	4.88 (4.07-5.68)	5.40 (4.43-6.35)
2-day	1.51 (1.33-1.72)	1.92 (1.70-2.19)	2.52 (2.21-2.87)	3.00 (2.63-3.43)	3.70 (3.19-4.23)	4.26 (3.65-4.91)	4.86 (4.11-5.64)	5.50 (4.59-6.44)	6.41 (5.23-7.62)	7.15 (5.72-8.61)
3-day	1.66 (1.46-1.89)	2.12 (1.87-2.42)	2.81 (2.47-3.21)	3.38 (2.95-3.87)	4.21 (3.63-4.83)	4.87 (4.16-5.63)	5.60 (4.71-6.52)	6.37 (5.28-7.48)	7.48 (6.05-8.93)	8.39 (6.65-10.2)
4-day	1.80 (1.58-2.06)	2.31 (2.03-2.64)	3.11 (2.73-3.55)	3.76 (3.28-4.31)	4.71 (4.06-5.42)	5.49 (4.66-6.36)	6.34 (5.30-7.39)	7.24 (5.97-8.53)	8.55 (6.86-10.2)	9.63 (7.59-11.7)
7-day	2.13 (1.85-2.46)	2.74 (2.38-3.16)	3.71 (3.22-4.29)	4.51 (3.89-5.23)	5.66 (4.82-6.60)	6.61 (5.56-7.77)	7.65 (6.34-9.06)	8.76 (7.15-10.5)	10.4 (8.25-12.6)	11.7 (9.15-14.4)
10-day	2.41 (2.09-2.79)	3.12 (2.71-3.60)	4.22 (3.66-4.89)	5.11 (4.40-5.92)	6.37 (5.43-7.43)	7.40 (6.23-8.68)	8.49 (7.06-10.0)	9.65 (7.91-11.5)	11.3 (9.05-13.7)	12.6 (9.95-15.5)
20-day	3.06 (2.67-3.52)	3.96 (3.46-4.57)	5.36 (4.66-6.18)	6.43 (5.57-7.41)	7.87 (6.76-9.09)	8.97 (7.65-10.4)	10.1 (8.52-11.8)	11.4 (9.47-13.5)	13.2 (10.7-15.8)	14.6 (11.7-17.7)
30-day	3.62 (3.16-4.20)	4.71 (4.11-5.45)	6.37 (5.53-7.37)	7.63 (6.60-8.81)	9.31 (8.00-10.8)	10.6 (9.04-12.3)	11.9 (10.1-14.0)	13.3 (11.1-15.7)	15.3 (12.6-18.3)	16.9 (13.7-20.5)
45-day	4.37 (3.80-4.98)	5.68 (4.94-6.48)	7.64 (6.62-8.70)	9.09 (7.87-10.4)	11.0 (9.46-12.6)	12.5 (10.6-14.3)	13.9 (11.8-16.1)	15.5 (12.9-18.0)	17.8 (14.6-20.9)	19.6 (15.9-23.3)
60-day	5.04 (4.37-5.76)	6.59 (5.72-7.52)	8.84 (7.66-10.1)	10.4 (9.02-11.9)	12.4 (10.7-14.2)	13.9 (11.9-16.0)	15.4 (13.1-17.8)	16.8 (14.1-19.6)	18.9 (15.7-22.2)	20.6 (16.9-24.4)

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

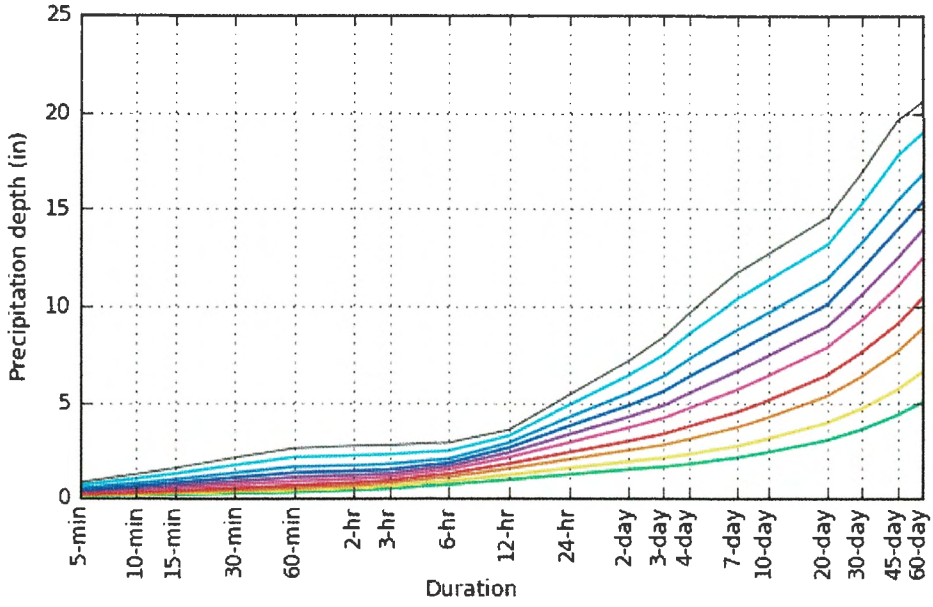
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper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

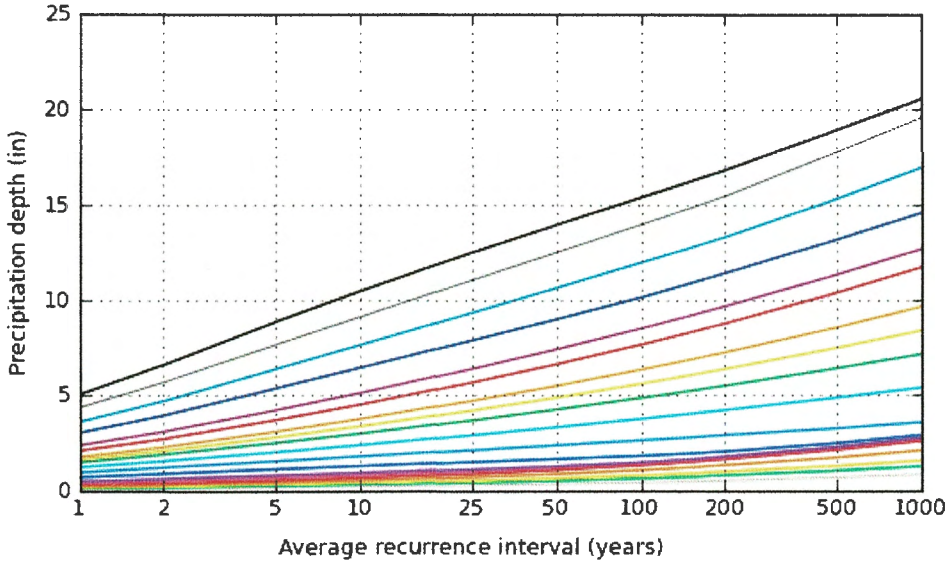
Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 39.6937°, Longitude: -119.6970°





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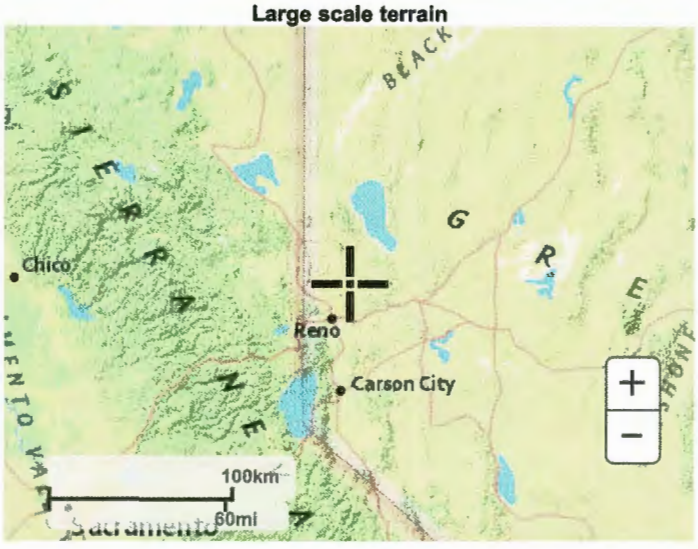
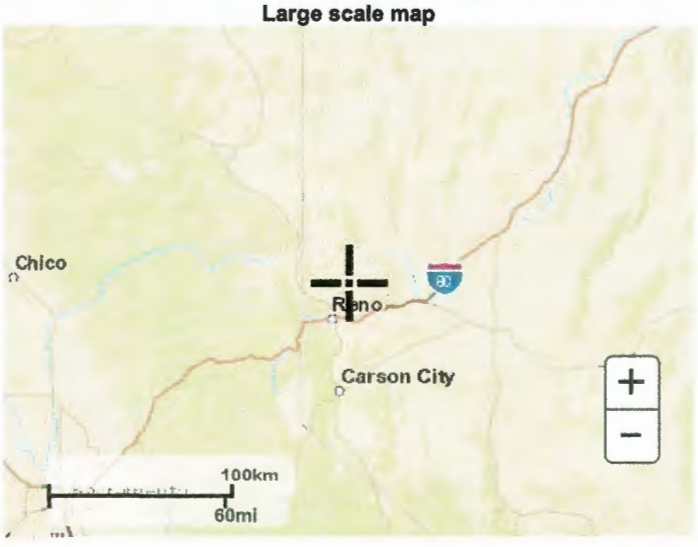
Maps & aerials

Small scale terrain

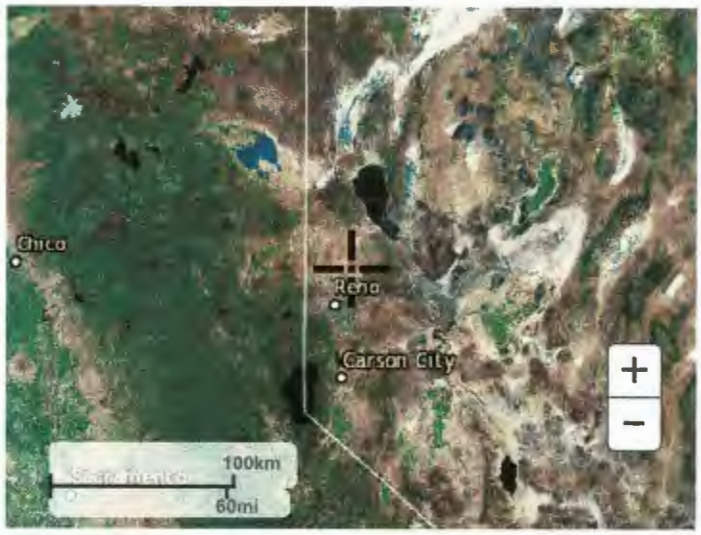
Large scale terrain



Large scale map



Large scale aerial



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

Disclaimer

NOAA Atlas 14, Volume 1, Version 5
Location name: Sparks, Nevada, USA*
Latitude: 39.6937°, Longitude: -119.697°
Elevation: 4585.17 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

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

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.24 (1.03-1.43)	1.54 (1.28-1.80)	2.06 (1.73-2.44)	2.56 (2.15-3.05)	3.40 (2.80-4.10)	4.18 (3.35-5.14)	5.14 (3.98-6.40)	6.29 (4.70-8.03)	8.20 (5.81-10.8)	9.96 (6.77-13.5)
10-min	0.942 (0.786-1.09)	1.17 (0.978-1.37)	1.57 (1.31-1.85)	1.94 (1.64-2.32)	2.58 (2.12-3.13)	3.19 (2.55-3.91)	3.90 (3.04-4.87)	4.79 (3.58-6.11)	6.23 (4.42-8.24)	7.58 (5.15-10.3)
15-min	0.776 (0.648-0.896)	0.968 (0.804-1.13)	1.30 (1.09-1.53)	1.61 (1.35-1.92)	2.14 (1.76-2.58)	2.63 (2.10-3.22)	3.22 (2.51-4.02)	3.96 (2.96-5.04)	5.15 (3.65-6.80)	6.26 (4.26-8.48)
30-min	0.522 (0.436-0.602)	0.652 (0.542-0.760)	0.872 (0.732-1.03)	1.08 (0.910-1.29)	1.44 (1.18-1.74)	1.77 (1.42-2.17)	2.17 (1.69-2.71)	2.66 (1.99-3.40)	3.47 (2.46-4.58)	4.22 (2.86-5.71)
60-min	0.323 (0.270-0.373)	0.403 (0.336-0.471)	0.539 (0.453-0.637)	0.670 (0.563-0.798)	0.889 (0.731-1.08)	1.10 (0.877-1.34)	1.34 (1.05-1.68)	1.65 (1.23-2.10)	2.15 (1.52-2.84)	2.61 (1.77-3.54)
2-hr	0.212 (0.186-0.245)	0.264 (0.232-0.305)	0.339 (0.295-0.394)	0.406 (0.348-0.470)	0.508 (0.426-0.594)	0.601 (0.493-0.710)	0.710 (0.568-0.851)	0.856 (0.664-1.06)	1.12 (0.828-1.43)	1.37 (0.976-1.79)
3-hr	0.170 (0.151-0.194)	0.211 (0.189-0.242)	0.265 (0.235-0.303)	0.310 (0.272-0.355)	0.373 (0.323-0.429)	0.429 (0.366-0.499)	0.497 (0.416-0.586)	0.594 (0.486-0.710)	0.762 (0.605-0.963)	0.921 (0.713-1.20)
6-hr	0.122 (0.109-0.137)	0.152 (0.136-0.172)	0.188 (0.167-0.214)	0.216 (0.191-0.245)	0.253 (0.221-0.289)	0.280 (0.242-0.322)	0.308 (0.263-0.358)	0.344 (0.289-0.405)	0.416 (0.343-0.497)	0.487 (0.395-0.608)
12-hr	0.081 (0.073-0.091)	0.102 (0.091-0.115)	0.129 (0.115-0.145)	0.150 (0.132-0.169)	0.178 (0.155-0.202)	0.199 (0.172-0.228)	0.221 (0.188-0.255)	0.243 (0.204-0.284)	0.272 (0.223-0.324)	0.298 (0.239-0.361)
24-hr	0.052 (0.046-0.059)	0.066 (0.059-0.074)	0.085 (0.075-0.095)	0.100 (0.089-0.113)	0.122 (0.107-0.138)	0.139 (0.121-0.158)	0.157 (0.136-0.180)	0.176 (0.150-0.203)	0.203 (0.170-0.237)	0.225 (0.184-0.265)
2-day	0.032 (0.028-0.036)	0.040 (0.035-0.046)	0.052 (0.046-0.060)	0.063 (0.055-0.071)	0.077 (0.067-0.088)	0.089 (0.076-0.102)	0.101 (0.086-0.118)	0.115 (0.096-0.134)	0.133 (0.109-0.159)	0.149 (0.119-0.179)
3-day	0.023 (0.020-0.026)	0.029 (0.026-0.034)	0.039 (0.034-0.045)	0.047 (0.041-0.054)	0.058 (0.050-0.067)	0.068 (0.058-0.078)	0.078 (0.065-0.091)	0.088 (0.073-0.104)	0.104 (0.084-0.124)	0.117 (0.092-0.141)
4-day	0.019 (0.017-0.021)	0.024 (0.021-0.028)	0.032 (0.028-0.037)	0.039 (0.034-0.045)	0.049 (0.042-0.057)	0.057 (0.049-0.066)	0.066 (0.055-0.077)	0.075 (0.062-0.089)	0.089 (0.072-0.107)	0.100 (0.079-0.122)
7-day	0.013 (0.011-0.015)	0.016 (0.014-0.019)	0.022 (0.019-0.026)	0.027 (0.023-0.031)	0.034 (0.029-0.039)	0.039 (0.033-0.046)	0.046 (0.038-0.054)	0.052 (0.043-0.062)	0.062 (0.049-0.075)	0.070 (0.054-0.086)
10-day	0.010 (0.009-0.012)	0.013 (0.011-0.015)	0.018 (0.015-0.020)	0.021 (0.018-0.025)	0.027 (0.023-0.031)	0.031 (0.026-0.036)	0.035 (0.029-0.042)	0.040 (0.033-0.048)	0.047 (0.038-0.057)	0.053 (0.041-0.065)
20-day	0.006 (0.006-0.007)	0.008 (0.007-0.010)	0.011 (0.010-0.013)	0.013 (0.012-0.015)	0.016 (0.014-0.019)	0.019 (0.016-0.022)	0.021 (0.018-0.025)	0.024 (0.020-0.028)	0.027 (0.022-0.033)	0.030 (0.024-0.037)
30-day	0.005 (0.004-0.006)	0.007 (0.006-0.008)	0.009 (0.008-0.010)	0.011 (0.009-0.012)	0.013 (0.011-0.015)	0.015 (0.013-0.017)	0.017 (0.014-0.019)	0.018 (0.015-0.022)	0.021 (0.017-0.025)	0.024 (0.019-0.028)
45-day	0.004 (0.004-0.005)	0.005 (0.005-0.006)	0.007 (0.006-0.008)	0.008 (0.007-0.010)	0.010 (0.009-0.012)	0.012 (0.010-0.013)	0.013 (0.011-0.015)	0.014 (0.012-0.017)	0.016 (0.014-0.019)	0.018 (0.015-0.022)
60-day	0.003 (0.003-0.004)	0.005 (0.004-0.005)	0.006 (0.005-0.007)	0.007 (0.006-0.008)	0.009 (0.007-0.010)	0.010 (0.008-0.011)	0.011 (0.009-0.012)	0.012 (0.010-0.014)	0.013 (0.011-0.015)	0.014 (0.012-0.017)

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

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

Please refer to NOAA Atlas 14 document for more information.

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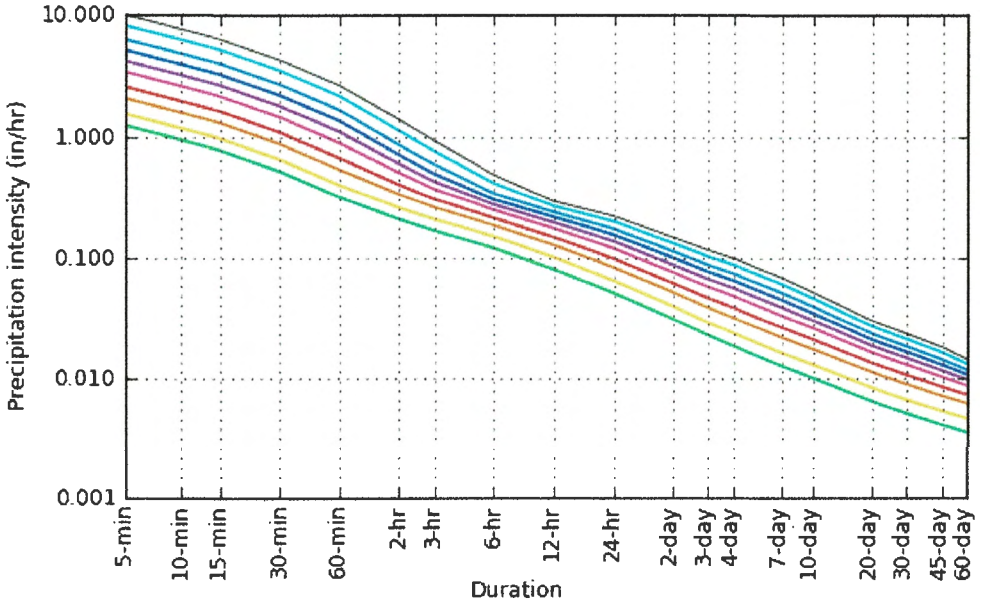
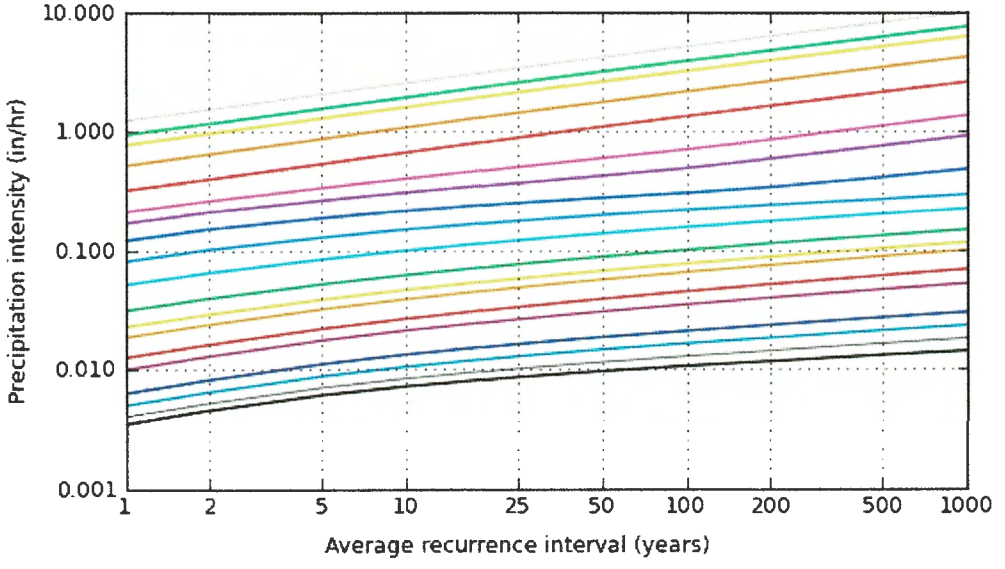
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 39.6937°, Longitude: -119.6970°





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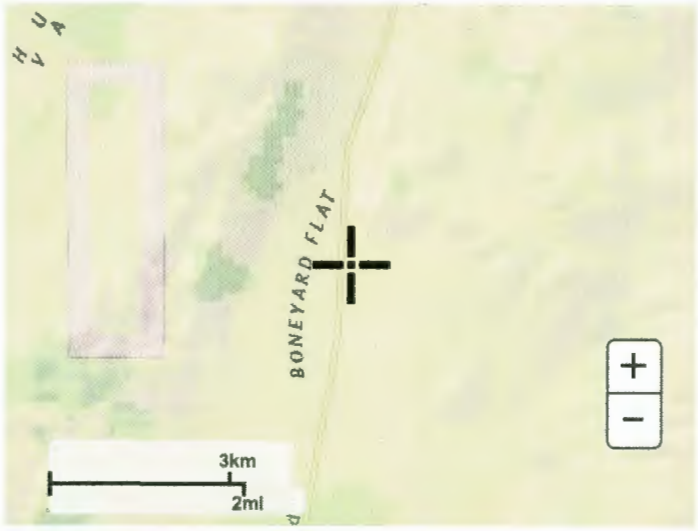
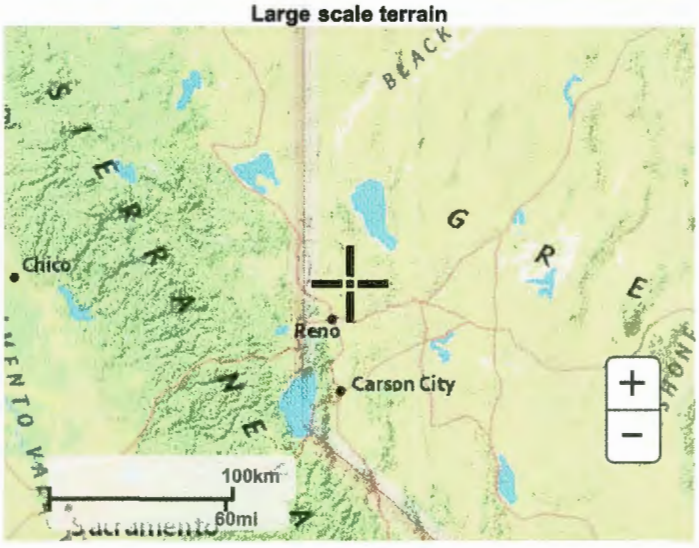
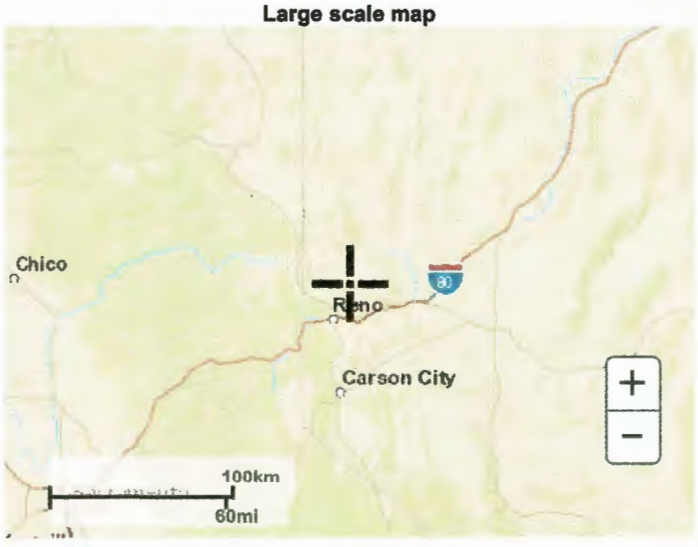
Small scale terrain



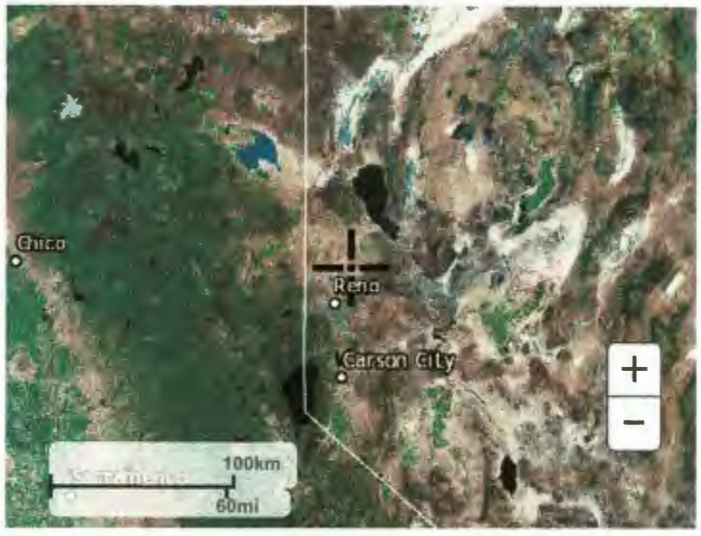
Large scale terrain



Large scale map



Large scale aerial



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

Disclaimer

Worksheet 2: Runoff curve number and runoff

Project	By	Date
BLUE OAKS	RTS	
Location	**Checked**	**Date**
11720 CAMPO RIDGE LN		

Check one: ☐ Present ☐ Developed

1. Runoff curve number

Soil name and hydrologic group (appendix A)	Cover description (cover type, treatment, and hydrologic condition; percent impervious; unconnected/connected impervious area ratio)	CN 1/ Table 2-2	CN 1/ Figure 2-3	CN 1/ Figure 2-4	Area ☐ acres ☐ mi² ☐ %	Product of CN x area
PRE DEV. 1210 - LINHART STONY COARSE SAND HG: A	SAGEBRUSH/GRASS	49			100	49
POST DEV		51			100	51

1/ Use only one CN source per line

Totals ➡

CN (weighted) = $\frac{\text{total product}}{\text{total area}}$ = _____ = _____ ;

Use CN ➡ PRE POST 49/51

2. Runoff

		Pre-Development ~~Storm #1~~	Post-Development ~~Storm #2~~	Storm #3
Frequency	yr	100 YR / 10 DAY	100 YR / 10 DAY	
Rainfall, P (24-hour)	in	8.49	8.49	
Runoff, Q	in	2.44	2.67	

(Use P and CN with table 2-1, figure 2-1, or equations 2-3 and 2-4)

$S = \frac{1000}{CN} - 10$ (10.41 PRE, 9.61 POST) $Q = \frac{(P-0.2S)^2}{(P+0.8S)}$

Worksheet 4: Graphical Peak Discharge method

Project	By	Date
BLUE OAKS		
Location	**Checked**	**Date**

Check one: ☒ Present ☒ Developed

1. Data

Drainage area ..... A_m = 0.0156 mi^2 (acres/640)

Runoff curve number ..... CN = 49/51 (From worksheet 2)

Time of concentration ..... T_c = 0.167 hr hr (From worksheet 3)

Rainfall distribution ..... = II (I, IA, II III)

Pond and swamp areas sprea throughout watershed ..... = Ø percent of A_m (_____ acres or mi^2 covered)

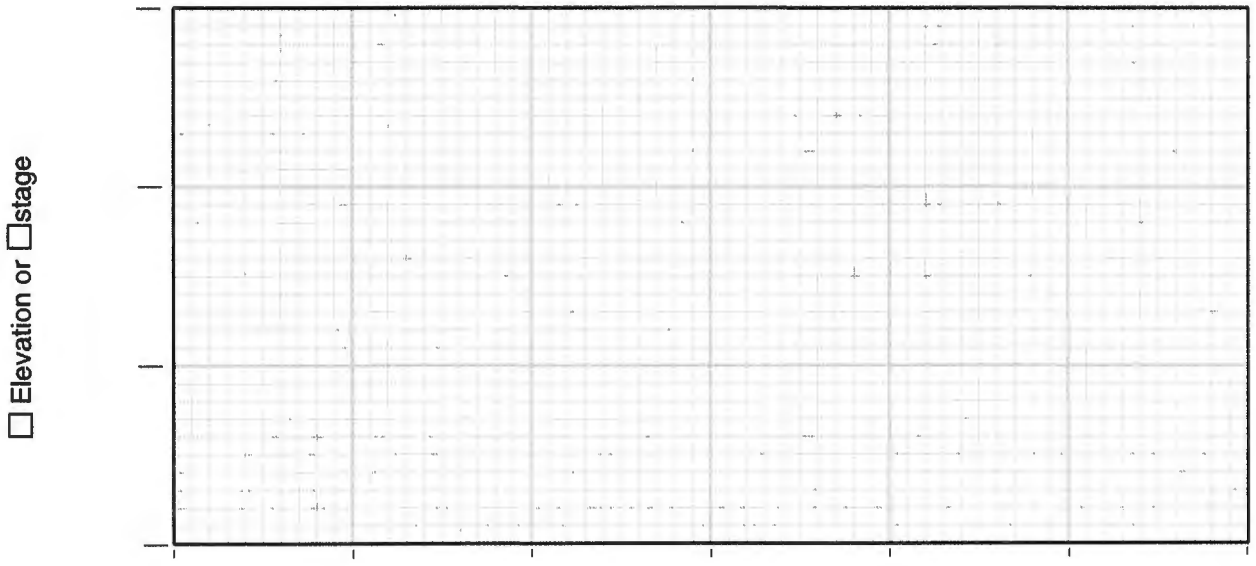
		Storm #1 (PRE)	Storm #2 (POST)	Storm #3
2. Frequency	yr	100 ra/100 yr	100 ra/100 yr	
3. Rainfall, P (24-hour)	in	8.49	8.49	
4. Initial abstraction, I_a (Use CN with table 4-1)	in	2.082	1.922	
5. Compute I_a/P		0.245	0.226	
6. Unit peak discharge, q_u (Use T_c and I_a/P with exhibit 4– _____)	csm/in	780	800	
7. Runoff, Q (From worksheet 2) Figure 2-6	in	2.44	2.67	
8. Pond and swamp adjustment factor, F_p (Use percent pond and swamp area with table 4-2. Factor is 1.0 for zero percent pond ans swamp area.)		1	1	
9. Peak discharge, q_p	ft^3/s	29.69	33.3	

(Where $q_p = q_u A_m Q F_p$)

Worksheet 6a: Detention basin storage, peak outflow discharge (q_o) known

Project	By	Date
BLUE OAKS		
Location	**Checked**	**Date**

Check one: ☐ Present ☒ Developed



1. Data:
   Drainage area ..... A_m = 0.0156 mi²
   Rainfall distribution type (I, IA, II, III) = II

	1st Stage	2nd Stage
2. Frequency ..... yr	100yr/100yr	
3. Peak inflow discharge q_i ..... ft³/s (from worksheet 4 or 5b)	33.3	
4. Peak outflow discharge q_u ..... ft³/s [1/]	29.69	
5. Compute $\frac{q_o}{q_i}$	0.89	

[1/] 2nd stage q_o includes 1st stage q_o.

6. $\frac{V_s}{V_r}$ ..... (Use $\frac{q_o}{q_i}$ with figure 6-1)	6.18	
7. Runoff, Q ..... in (From worksheet 2)	2.67	
8. Runoff volume V_r ..... ac ft ($V_r = QA_m$ 53.33)	2.77	
9. Storage volume, V_s ..... ac-ft	6.40 (17,407 FT³)	
($V_s = V_r (\frac{V_s}{V_r})$)		
10. Maximum storage E_{max} (from plot)		

BASIN 1: 6AC. BASIN 2: 4AC
V_r = 58,022 FT³ V_r = 38,681 FT³
- 17,500
40,522 + 38,681 = 79,203 FT³ OUT

PRE: A=10AC, Q=2.44 → V_r = 88,566 FT³

RATIONAL METHOD: Q=CiA
C5PRE=0.20
C100PRE=0.50
C5POST=0.35
C100POST=0.50
Tc=10 MIN.
i5=1.57 in/hr
i100=3.90 in/hr

BASIN 1:

Q5pre=1.88 cfs
Q100pre=11.7 cfs

Q5post=3.30 cfs
Q100post=11.7 cfs

BASIN 2:

Q5pre=1.26 cfs
Q100pre=7.80 cfs

Q5post=2.20 cfs
Q100post=7.80 cfs

PROPOSED RETENTION BASIN VOLUME: 17,500 FT³

Q5=0 cfs
Q100=0 cfs
100YR-10DY
VOL=40,522 FT³
WEIR: 100' WIDE, D=0.13', V=1 FPS, Q=12 cfs DURING 100YR-10DAY

Q5=3.30 cfs
Q100=11.7 cfs
100YR-10DY
VOL=58,022 FT³

Q5=2.20 cfs
Q100=7.80 cfs
100YR-10DY
VOL=38,681 FT³

STORM DRAIN OUTLET

STORM DRAIN MAIN

DRIVEWAY CULVERT (TYPICAL)

DROP INLET

LOW POINT/SD OUTLET TO CAMPO RICO LANE

POSSIBLE SD OUTLET CONFIGURATION

APPROX. LIMITS OF DISTURBANCE (TYP)

PROPOSED ROAD w/HARRIS RANCH DEVELOPMENT

APPROXIMATE FILL SLOPE FROM HARRIS RANCH DEVELOPMENT

EXISTING RESIDENCE

PYRAMID HIGHWAY

CAMPO RICO LN.

HARRIS RANCH

BASIN 1
±6 AC

BASIN 2
±4 AC

OFFSITE:
±100 CFS

TOTAL OUTFLOW:

$Q5_{pre}$=3.14 cfs
$Q5_{post}$=2.2 cfs

$Q100_{pre}$=19.5 cfs
Q100post=7.80 cfs

100 YEAR, 10 DAY VOLUMES:
PRE-DEVELOPMENT: 88,566 FT³
POST-DEVELOPMENT: 79,203 FT³

EARTHWORK:

1 CUT: 9074 CY
FILL: 9074 CY

2 EARTHWORK BALANCED ON-SITE

3 DISTURBED AREA = 6.27 ACRES

SWPPP NOTES

1. ALL PUBLIC RIGHT OF WAYS LOCATED ADJACENT TO THE SITE (E.G. STREETS AND SIDEWALKS) MUST BE CLEANED DAILY OF ALL SEDIMENT OR WASTES THAT ORIGINATE FROM THE SITE.
2. BMPs IN ADDITION TO THOSE INDICATED IN THE SWPPP MAY BE REQUIRED IF THEY DO NOT MEET LOCAL PERFORMANCE STANDARDS.
3. TEMPORARY OR PERMANENT STABILIZATION MUST BE APPLIED NO LATER THAN 14 DAYS TO ALL DISTURBED SOILS, INCLUDING STOCKPILES, WHERE CONSTRUCTION ACTIVITY HAS CEASED.
4. ALL BMPs MUST BE INSPECTED WEEKLY, PRIOR TO FORECASTED RAIN EVENTS, AND WITHIN 24 HOURS AFTER ANY EVENT THAT CREATES RUNOFF AT THE SITE.
5. ACCUMULATED SEDIMENT MUST BE REMOVED FROM BMPs WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE. SEDIMENT MUST ALSO BE REMOVED WITHIN SEVEN DAYS AFTER A RUNOFF EVENT OR PRIOR TO THE NEXT FORECASTED RAIN EVENT WHICHEVER IS EARLIER.

LEGEND

	GRADE BREAK
64	LOT NUMBER
4462	EXISTING CONTOUR LINE
88	PROPOSED CONTOUR LINE
70.00 FG	FINISHED GRADE ELEVATION
72.57 TC	TOP OF CURB ELEVATION
99.20 FL	FLOW LINE ELEVATION
89.18 LP	LOW POINT ELEVATION
5%	SLOPE IN PERCENT
(E)	EXISTING
2:1	SLOPE RATIO (VERT:HORIZ)
AP	ANGLE POINT
RP	RADIUS POINT

HYDROLOGY DISPLAY

1"=40'

Axion ENGINEERING
Civil Engineering • Land Development
681 EDISON WAY – RENO, NEVADA 89502
PH 775-771-5554 / FX 775-856-3851

TENTATIVE MAP APPLICATION FOR BLUE OAKS

PRELIMINARY HYDROLOGY DISPLAY
WASHOE COUNTY, NEVADA

revisions

drawn:	RTS
checked:	RTS
date:	JUNE 2019
scale:	1"=40'
project no:	17036

S:\Axion Engineering\Arora\Drawings\Arora Base.dwg

H-1

OF 1

PRELIMINARY GEOTECHNICAL REPORT

Axion GEOTECHNICAL
Geotechnical Engineering & Construction Testing Services
681 Edison Way, Reno, NV 89502

PRELIMINARY GEOTECHNICAL INVESTIGATION

PROPOSED

BLUE OAKS

Washoe County Assessor's Office Parcel Numbers 534-600-12

11720 Campo Rico Lane

Spanish Springs Valley

WASHOE COUNTY, NEVADA

Prepared for:

Ken Dixon
11720 Campo Rico Lane
Sparks, Nevada 89441

May 24, 2019

Project No. 19.253.01-G

Axion
GEOTECHNICAL
Geotechnical Engineering & Construction Testing Services
681 Edison Way, Reno, NV 89502

May 24, 2019
Project No. 19.253.01-G

Ken Dixon
11720 Campo Rico Lane
Sparks, Nevada 89441

Re: Preliminary Geotechnical Feasibility Study, Proposed Blue Oaks, Washoe County APN 534-600-12, 11720 Campo Rico Lane, Spanish Springs Valley, Washoe County, Nevada

Dear Mr. Dixon:

Axion Geotechnical is pleased to present results of a preliminary geotechnical investigation our firm conducted at the property. Based on results of our work, experience in the area, and understanding of proposed development, we conclude that, from a preliminary geotechnical standpoint, the property is suitable for its intended use. The primary geotechnical concerns identified are the potential presence of **loose** surface soils and relative **clean nature** of portions of the native soils.

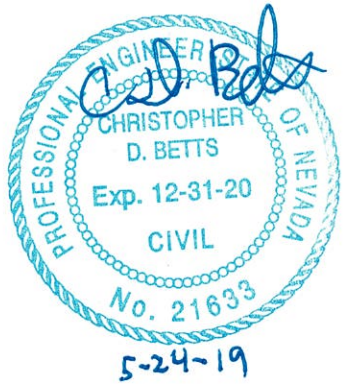
We appreciate having been selected to prepare this preliminary investigation and trust results fulfill your needs. If you or your design consultants have questions, please do not hesitate to contact us at (775) 771-2388 or chris@axionengineering.net.

Respectfully,

AXION GEOTECHNICAL, LLC

Antonio Suarez

Antonio Suarez, E.I.T



Chris D. Betts

Chris D. Betts, P.E.
President

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Axion Geotechnical, LLC
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Reno, Nevada 89502
(775) 771-2388

I INTRODUCTION

Axion Geotechnical is pleased to present results of a preliminary geotechnical investigation our firm performed for the proposed Blue Oaks development. The 10-acre parcel is Washoe County Assessor's Office Parcel Number 534-600-12 and is at 11720 Capo Rico Lane which is on the east side of Pyramid Highway in the Spanish Springs Valley area of Washoe County, Nevada (Property). We understand development will include construction of individual lots for single-family residences. We development will be serviced by community water and sewer systems with on-site storm water retention. We anticipate the structures will have one to two levels, will be wood-framed, and supported with shallow conventional spread foundations. Dedicated service streets will be surfaced with asphaltic concrete.

We have not received information concerning anticipated foundation loads; however, we anticipate maximum wall loads will be on the order of one kip per foot (dead plus live plus snow load), and maximum column loads will be less than two to three kips (dead plus live plus snow load). For frost protection, perimeter foundations will bottom at least 24 inches below lowest adjacent exterior ground surface. Structural design will follow criteria outlined in the 2016 *International Residential Code.*

We have not received civil engineering information; however, we anticipate that earthwork to attain proposed pad grades and for proper site drainage will result in cuts and fills of less than five feet. New slopes will be constructed at final inclinations of two horizontal to one vertical (2H:1V) or flatter. Site earth retaining walls are not anticipated. Depth of utility trenches should be less than 8 feet. We assume underground utilities in proposed structural areas will be abandoned or relocated. Earthwork will be performed in accordance with the 2016 *International Residential Code,* and the 2012 *Standard Specifications for Public Works Construction, Revision 8* (Regional Transportation Commission).

The purpose of our work was to perform a site reconnaissance and review available literature and maps to provide opinions and discussions concerning the geotechnical suitability of the Property for its intended use. Once design parameters, such as building locations, finish floor elevations, foundation loads and proposed grading are known; a design-level geotechnical investigation report with detailed information of the subsurface soil conditions and recommendations for design and construction must be performed.

This report is preliminary and geotechnical in nature and not intended to identify other potential site constraints such as environmental hazards, wetlands determinations or the potential presence of buried utilities. Opinions and discussions included in this report are specific to development at the Property and are not intended for off-site development.

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II SITE AND SOIL CONDITIONS

The Property is occupied by a single-family residence and is bordered by Campo Rico Lane to the west, undeveloped land to the north and east, and a single-family residence to the south. The Property grades gently downward from east to west and is covered by medium dense to dense sagebrush and weeds. Overhead utilities are present along the western property line.

View of Property from west to east

Based on the United States Geological Survey 7.5-Minute topographic map of the Griffith Canyon Quadrangle, the Property is in the Section 14, Township 21 North, Range 20 East, and elevation is between about 4560 and 4600 feet relative to mean sea level.

Mapping by Larry J. Garside and Fred L. Nials (*Preliminary Geologic Map of the Griffith Canyon Quadrangle*, Nevada Bureau of Mines and Geology, dated 1998), the materials underlying the Property consist of older alluvial fan deposits (Qoa). This unit consists of alluvial fan remnants with moderately to deeply incised surfaces, primarily consisting of semi-consolidated pebbly to bouldery arkosic sand derived from Hungry Ridge. In some areas, especially on the eastern margin of Hungry Ridge, these deposits grade into deposits of Qdg that may or may not contain corestones of relatively unweathered intrusive lithologies.

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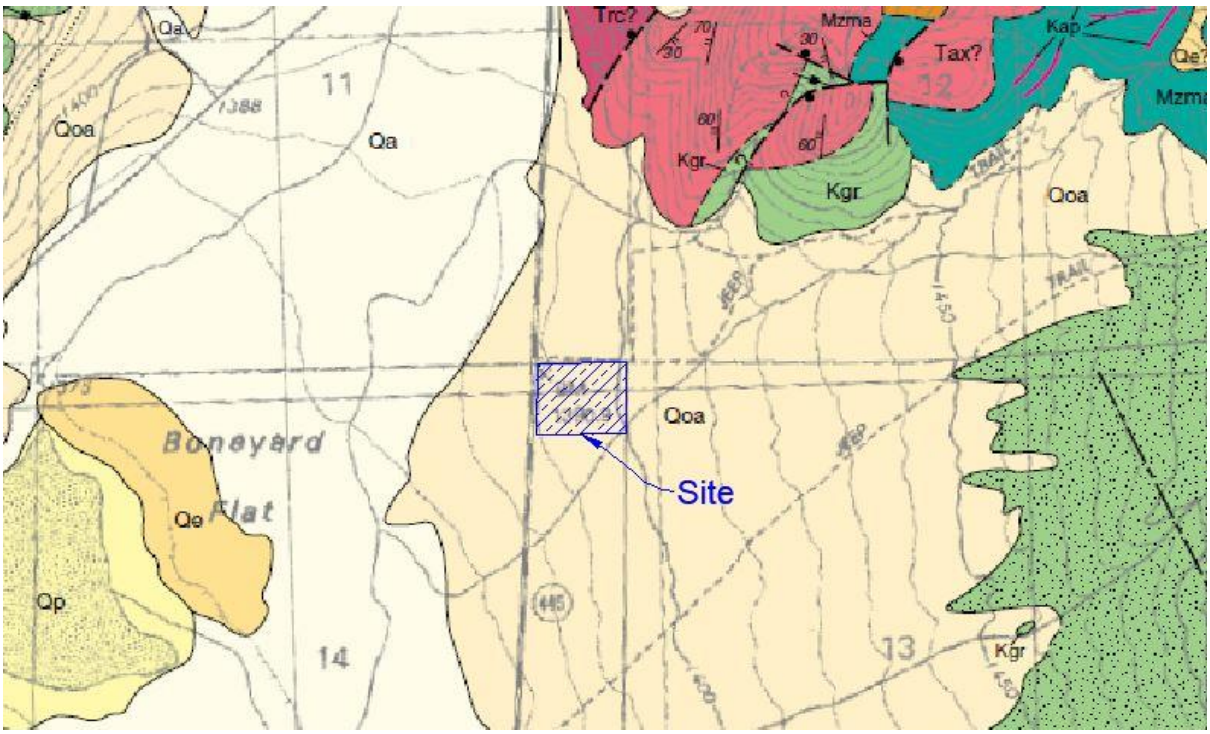

Geologic units according to the Preliminary Geologic Map of Griffith Canyon Quadrangle

According to the U.S. Department of Agriculture Natural Resources Conservation Service *Web Soil Survey,* the underlying earth material consists of Linhart stony coarse sand, 4 to 8 percent slopes (map unit #1210). This very deep, somewhat excessively drained soil is on alluvial fans and formed in alluvium derived dominantly from granitic rocks. Elevation is from 4,500 to 6,500 feet. Typically, 1 to 3 percent of the surface is covered with stones. The surface layer is a dark grayish brown, stony coarse sand about 14 inches thick. The underlying material to a depth of 60 inches is a grayish brown to light brownish gray, stratified, very gravelly, coarse sand to very gravelly, loamy coarse sand. Permeability is rapid. Available water capacity is very low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion and soil blowing is slight. Limitations to shallow excavations are severe due to cutbanks caving. Limitations to dwellings with or without basements is severe due to flooding. Limitations to roads and streets are severe due to flooding. Limitations to septic tank absorption fields is severe due to flooding and poor filtering. Shrink-swell potential is low. Flooding is occasional and very brief. Depth to high water table is greater than 6 feet. Depth to bedrock is greater than 60 inches Potential frost action is low. Risk of corrosion to uncoated steel and concrete is moderate. This soil is subject to occasional flash flooding during storms of unusually high intensity. The main limitations associated with this unit for urban development, as described by the Soil Conservation Service, are flooding and rapid permeability.

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Soil units according to the Web Soil Survey

III GEOLOGIC AND SEISMIC CONSIDERATIONS

To evaluate potential geological hazards at the Property, our study included a site reconnaissance and review of available literature and maps.

A. Geology

The Property is in the northern portion of the Spanish Springs Valley, a complex basin bordered to the east by the Pah Rah Range which is composed of granite and gabbro intrusions, ash flow tuffs, and andesitic and basaltic flows and to the west by primarily granitic rock. The entire valley and accompanying ridges drain to the south. The southern 1/3 of the valley is poorly drained and numerous small ponds have formed, in part, from the termination of the Orr Ditch. The North Truckee Drain which exits the valley partially drains the area.

B. Faulting and Seismicity

Based on referenced geologic map, faults do not cross the Property. According to *Quaternary Faults in Google Earth* by the USGS, faults do not cross the Property. Quaternary-age faults are those which have experienced movement in the last 1.6 million years. The website indicates that the nearest Holocene- to latest-Pleistocene-age fault is approximately 2.78 miles SW of the Property. Faults of this age have moved or shifted in the last 15,000 years.

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Based on the Nevada Seismological Laboratory website (http://www.seismo.unr.edu), the nearest principal Quaternary-age faults is the Spanish Springs Valley fault zone. The Nevada Seismological Laboratory indicates an earthquake of magnitude 6.9, is possible along this fault zone (*Reno/Carson Fault Information*, updated January 31, 2003).

C. Liquefaction

Liquefaction is a loss of soil shear strength associated with loose saturated granular soils subjected to strong earthquake shaking. Liquefaction can result in unacceptable movement of foundations supported by such soils. A detailed assessment of liquefaction potential is not part of the scope of our work; however, based on our anticipation that ground water is not present within the upper 50 feet, we do not believe the Property is susceptible to liquefaction.

D. Slope Stability

Based on our anticipation that slopes will be constructed at final inclinations of two horizontal to one vertical (2H:1V) or flatter, and that proper drainage will be provided, we do not believe rock falls or landslides will impact the Property.

E. Radon

Radon, a colorless, odorless, radioactive gas derived from the natural decay of uranium, is found in nearly all rocks and soils. The Environmental Protection Agency (EPA) suggests that remedial action be taken to reduce radon in any structure with average indoor radon of 4.0 picocuries per liter (pCi/L) or more. Based on our review of *Radon in Nevada*, the Property is in an area where average indoor radon concentrations can potentially be greater than 4.0 pCi/L.

F. Flooding

The Federal Emergency Management Agency flood map (FEMA-Map 32031C2855G, dated March 16, 2009) shows the Property in Flood Hazard Zones X unshaded. According to FEMA, these are areas determined to be outside the 0.2% annual chance floodplain.

IV OPINIONS AND DISCUSSIONS

Based on results of our investigation, experience in the area, and understanding of the proposed project, we conclude that the site is suitable for development of single-family residences provided the recommendations included in our report are adhered to during design and construction. The primary geotechnical concerns identified are the potential presence of **loose** surface soils and relative **clean nature** of portions of the native soils.

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Portions of the native soils may be in a relatively low (e.g. loose) density state. Loose soils can experience a loss of shear strength, especially when wet or saturated, resulting in unacceptable movement of foundations, interior slabs-on-grade, exterior flatwork and pavement sections. Wet or saturated conditions can occur as a result of seasonal variations in precipitation, landscape irrigation, broken or leaking water pipes and sewer lines, and/or poor site drainage. To provide for adequate support within these areas, loose soils will require upgrading through compaction.

Portions of the underlying soil may be clean sand and contain little or no binder such as silt or fine sand. Consideration should be given to the increased difficulty associated with moisture conditioning and attaining specified compaction associated with clean soils. Consideration should also be given to the potential for instability of excavation sidewalls and the subsequent lateral increase in pit dimensions and trench widths due to widening or over-break. We anticipate stabilization measures such reducing slope excavation inclination or installing shoring will be necessary to maintain stability and to ensure safety.

The soil survey suggests the native soils may exhibit a corrosion potential to steel and concrete, and that native soils exhibit rapid permeability. Based on our experience in the area, we believe adequate corrosion mitigation can be achieved by using properly prepared and placed Type II portland cement concrete, by maintaining a minimum 3-inch concrete cover where reinforcing steel or other metal is in close proximity to on-site soils and, at the direction of the Manufacturer, by using special coating on reinforcing steel and metal. Based on our understanding that the Property will be serviced by community water, sewer and storm drain systems, we do not believe rapid permeability rates will impact the site. Consideration, however, should be given to performing infiltration tests if retention/detention basins are proposed.

There are no other apparent geologic hazards that would place unusual constraints on the project; however, strong ground shaking associated with earthquakes should be expected to occur during the life of the project.

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V REFERENCES

American Concrete Institute, *Building Code Requirements for Reinforced Concrete* (ACI 318-11), dated 2012.

Federal Emergency Management Agency, U.S. Department of Homeland Security, *FEMA's Flood Map Service Center* (https://msc.fema.gov/portal).

Garside, Larry J. and Nials, Fred L. *Griffith Canyon Quadrangle Preliminary Geologic Map.* 1:24,000. Reno: Nevada Bureau of Mines & Geology, University of Nevada, Reno, 1998.

International Code Council *2016 International Residential and Building Codes,* Whittier: International Code Council, Inc., 2016.

Lieberman, P. *Accelerated Corrosion Tests for Buried Metal Structures*. Pipeline and Gas Journal October 1996.

Regional Transportation Commission of Washoe County. *Standard Specification for Public Works Construction, Revision 8.* Reno: Regional Transportation Commission of Washoe County, 2012.

Rigby, James G., Jonathan G. Price, Lindsay G. Christensen, Daphne D. La Pointe, Alan R. Ramelli, Mario O. Desilets, Ronald H. Hess, and Stanley R. Marshall. *Radon in Nevada*. Reno: Nevada Bureau of Mines & Geology, Bulletin 108, University of Nevada, Reno, 1994.

United States Department of Agriculture, Soil Conservation Service. Web Soil Survey.

United States Department of the Interior Geological Survey. *Griffith Canyon Quadrangle, Nevada*. 7.5-minute series map (topographic). 1:24,000. Denver: USGS, 1986.

United States Department of the Interior Geological Survey. *Griffith Canyon Quadrangle, Nevada*. 7.5-minute series map (topographic). 1:24,000. Denver: USGS, 2018.

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VI DISTRIBUTION

One wet-stamped .pdf via e-mail to:

Ken Dixon
11720 Campo Rico Lane
Sparks, Nevada 89441

Two wet-stamped copies to

Axion Engineering, LLC
681 Edison Way
Reno, Nevada 90502
Attention: Gary Guzelis, P.E.
Telephone: (775) 771-5554
Facsimile: (775) 856-3951

U.S. FISH & WILDLIFE
iPac REPORT

Axion ENGINEERING
Civil Engineering • Land Development

U.S. Fish & Wildlife Service

Blue Oaks

Species Survey Guidelines (1 Species)

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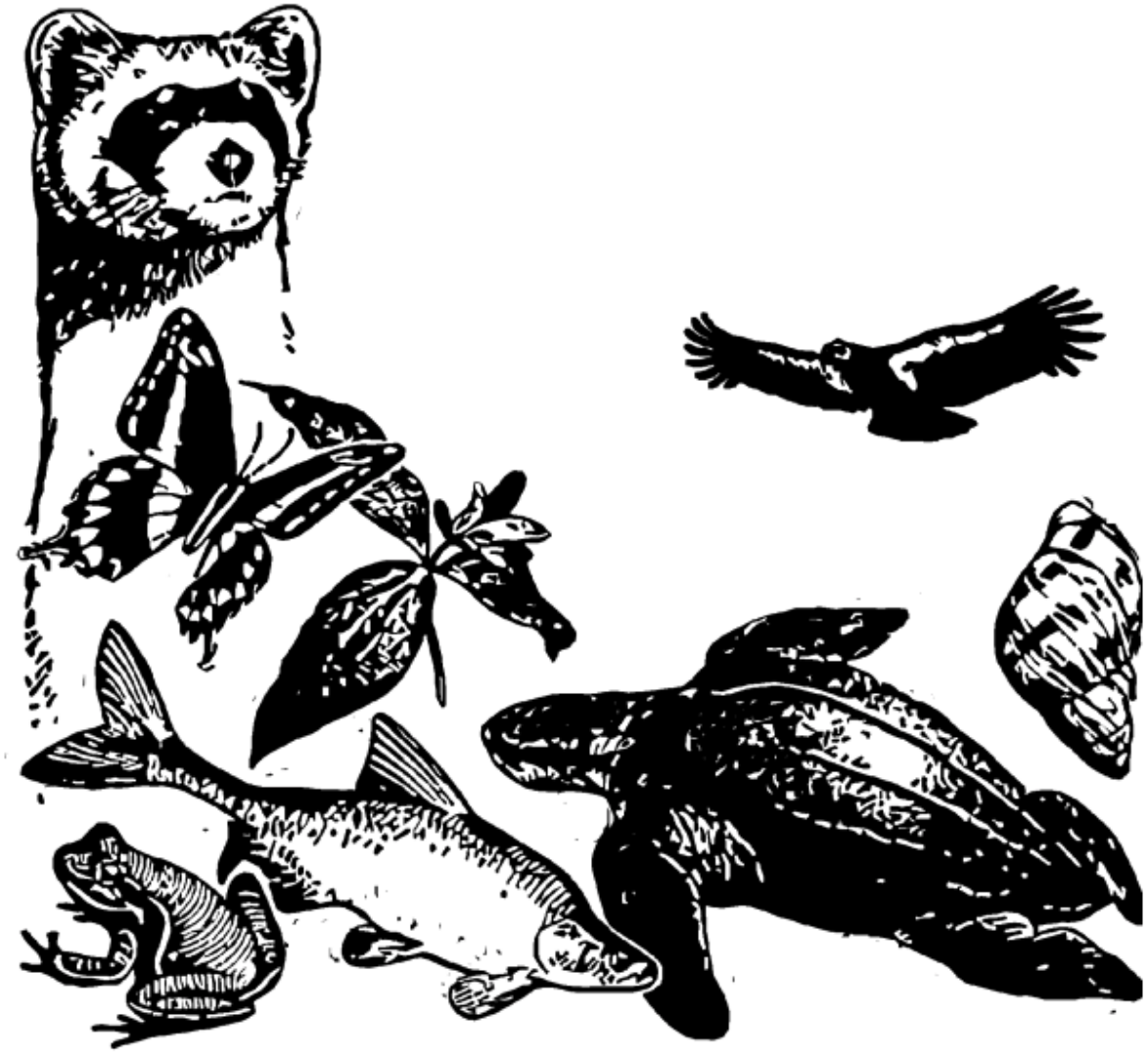

IPaC - Information for Planning and Consultation (https://ecos.fws.gov/ipac/): A project planning tool to help streamline the U.S. Fish and Wildlife Service environmental review process.

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Species Document Availability 1
Lahontan Cutthroat Trout - Reno Fish And Wildlife Office 2

Species Document Availability

Species with survey guidelines

Lahontan Cutthroat Trout *Oncorhynchus clarkii henshawi*

Species without survey guidelines available

Cui-ui *Chasmistes cujus*

IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

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Location

Washoe County, Nevada

Local office

Reno Fish And Wildlife Office

(775) 861-6300
(775) 861-6301

1340 Financial Boulevard, Suite 234
Reno, NV 89502-7147

http://www.fws.gov/nevada/

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information.
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Fishes

NAME	STATUS

Cui-ui Chasmistes cujus — Endangered
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/456

Lahontan Cutthroat Trout Oncorhynchus clarkii henshawi — Threatened
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/3964

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php
- Measures for avoiding and minimizing impacts to birds http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php
- Nationwide conservation measures for birds http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf

THERE ARE NO MIGRATORY BIRDS OF CONSERVATION CONCERN EXPECTED TO OCCUR AT THIS LOCATION.

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to

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occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the AKN Phenology Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets .

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: The Cornell Lab of Ornithology All About Birds Bird Guide, or (if you are unsuccessful in locating the bird of interest there), the Cornell Lab of Ornithology Neotropical Birds guide. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

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Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

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Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

RIVERINE

R4SBJ

A full description for each wetland code can be found at the National Wetlands Inventory website

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

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Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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TENTATIVE MAP APPLICATION

BLUE OAKS

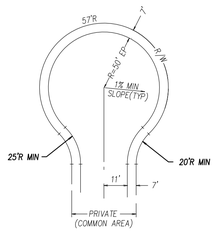
WASHOE COUNTY, NEVADA

OWNER/DEVELOPER

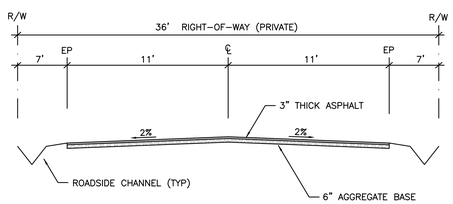
KEN DIXON
11720 CAMPO RICO LANE
SPARKS, NV 89441
ATTN: KEN DIXON

PUBLIC SERVICES

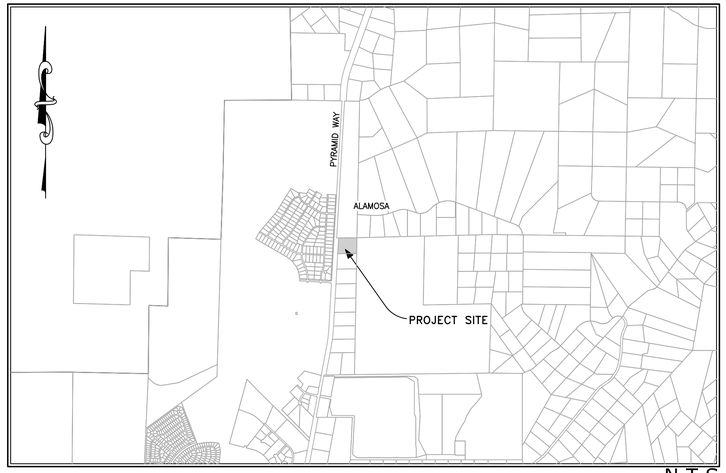
GAS & ELECTRICAL SERVICE: NV ENERGY
WATER SERVICE: TRUCKEE MEADOWS WATER AUTHORITY
SEWER SERVICE: WASHOE COUNTY
TELEPHONE: AT&T
CABLE TV: CHARTER COMMUNICATIONS
FIRE PROTECTION: TRUCKEE MEADOWS FIRE DEPARTMENT
POLICE PROTECTION: WASHOE COUNTY SHERIFF DEPARTMENT



PRIVATE CUL-DE-SAC



PRIVATE STREET SECTION



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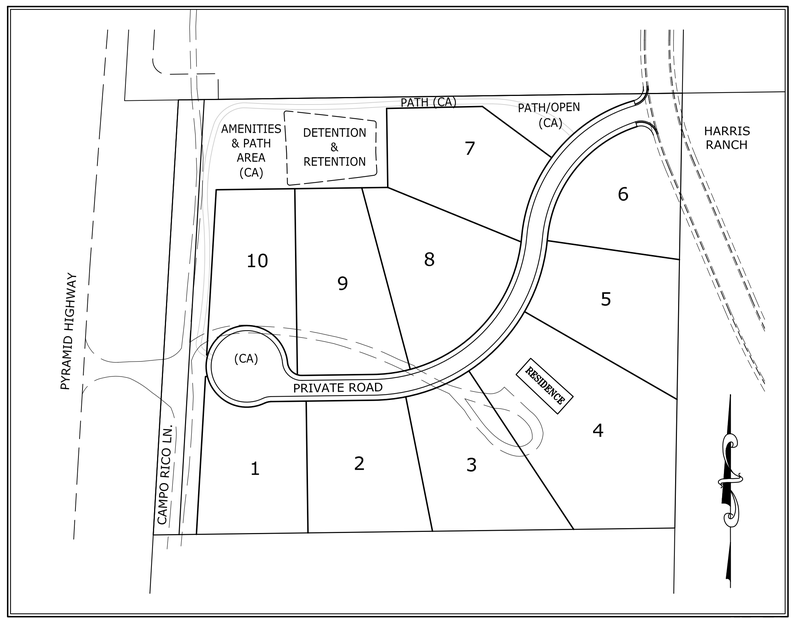
VICINITY MAP



N.T.S.

SITE

ENGINEER

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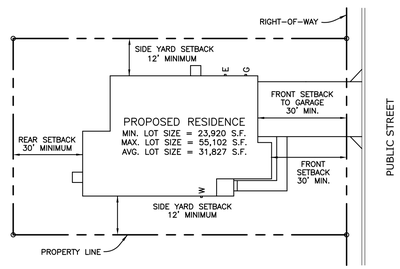
SHEET INDEX

C1 .....TITLE SHEET
C2 .....SITE PLAN
C3 .....GRADING PLAN
C4 .....UTILITY PLAN
C5 .....OFFSITE UTILITY PLAN
C6 .....CROSS SECTIONS
L1 .....LANDSCAPE PLAN

MINIMUM SETBACKS



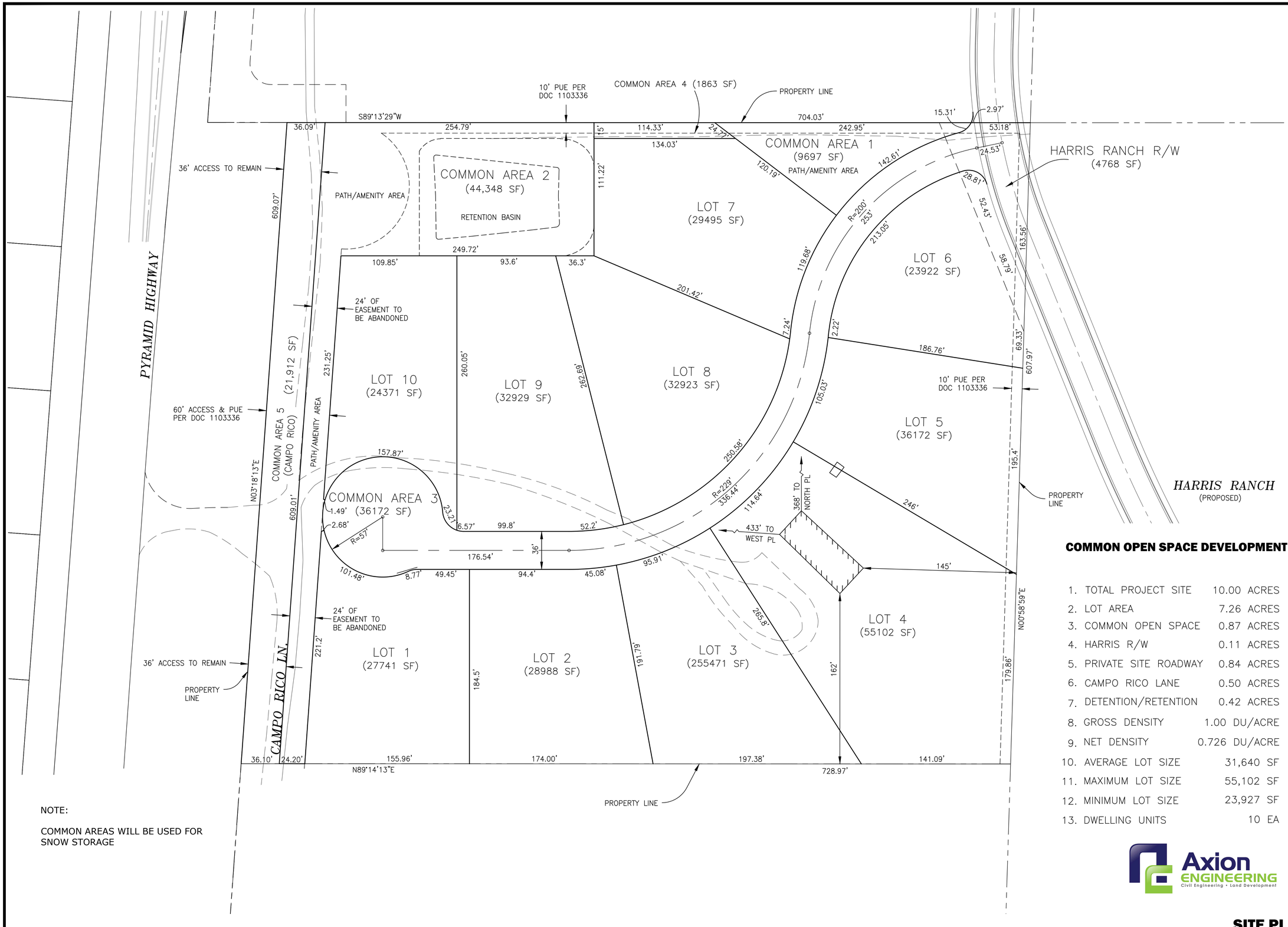
ENGINEERS STATEMENT

I, GARY K. GUZELIS, DO HEREBY CERTIFY THAT THIS MAP HAS BEEN PREPARED BY ME, OR UNDER MY SUPERVISION AND WAS COMPLETED ON THIS 16th DAY OF SEPTEMBER, 2019.

GARY K. GUZELIS P.E. #10372

BLUE OAKS TITLE SHEET

C1



NOTE:

COMMON AREAS WILL BE USED FOR SNOW STORAGE

COMMON OPEN SPACE DEVELOPMENT

1.	TOTAL PROJECT SITE	10.00 ACRES
2.	LOT AREA	7.26 ACRES
3.	COMMON OPEN SPACE	0.87 ACRES
4.	HARRIS R/W	0.11 ACRES
5.	PRIVATE SITE ROADWAY	0.84 ACRES
6.	CAMPO RICO LANE	0.50 ACRES
7.	DETENTION/RETENTION	0.42 ACRES
8.	GROSS DENSITY	1.00 DU/ACRE
9.	NET DENSITY	0.726 DU/ACRE
10.	AVERAGE LOT SIZE	31,640 SF
11.	MAXIMUM LOT SIZE	55,102 SF
12.	MINIMUM LOT SIZE	23,927 SF
13.	DWELLING UNITS	10 EA

SITE PLAN

1"=40'

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GARY K. GUZELIS
Exp. 6-30-21
CIVIL
No. 10372

TENTATIVE MAP APPLICATION FOR BLUE OAKS

SITE PLAN

WASHOE COUNTY, NEVADA

revisions

drawn:	GKG
checked:	GKG
date:	JUNE 2019
scale:	1"=40'
project no:	17036

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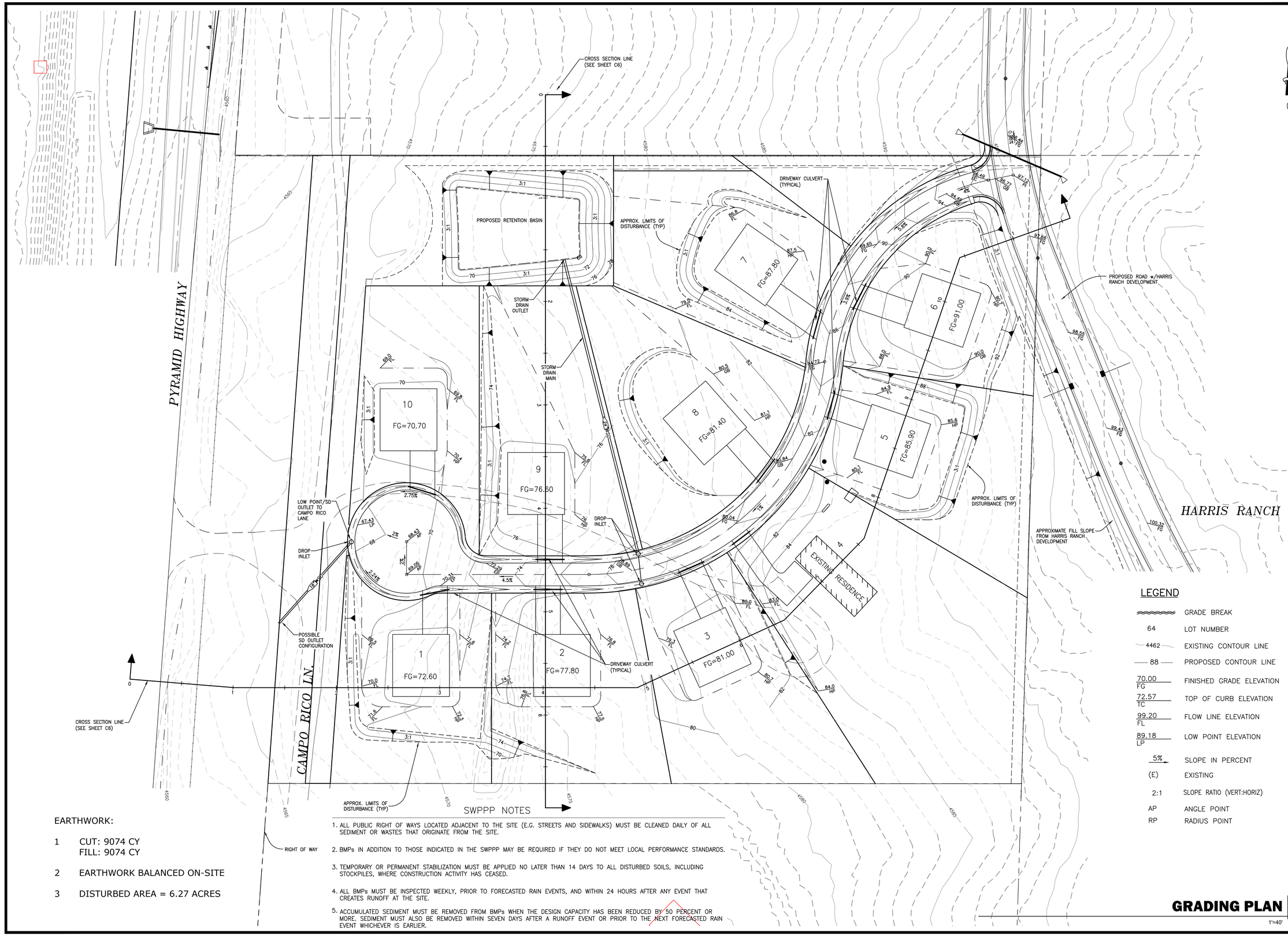
C-2



EARTHWORK:

1 CUT: 9074 CY
FILL: 9074 CY

2 EARTHWORK BALANCED ON-SITE

3 DISTURBED AREA = 6.27 ACRES

SWPPP NOTES

1. ALL PUBLIC RIGHT OF WAYS LOCATED ADJACENT TO THE SITE (E.G. STREETS AND SIDEWALKS) MUST BE CLEANED DAILY OF ALL SEDIMENT OR WASTES THAT ORIGINATE FROM THE SITE.
2. BMPs IN ADDITION TO THOSE INDICATED IN THE SWPPP MAY BE REQUIRED IF THEY DO NOT MEET LOCAL PERFORMANCE STANDARDS.
3. TEMPORARY OR PERMANENT STABILIZATION MUST BE APPLIED NO LATER THAN 14 DAYS TO ALL DISTURBED SOILS, INCLUDING STOCKPILES, WHERE CONSTRUCTION ACTIVITY HAS CEASED.
4. ALL BMPs MUST BE INSPECTED WEEKLY, PRIOR TO FORECASTED RAIN EVENTS, AND WITHIN 24 HOURS AFTER ANY EVENT THAT CREATES RUNOFF AT THE SITE.
5. ACCUMULATED SEDIMENT MUST BE REMOVED FROM BMPs WHEN THE DESIGN CAPACITY HAS BEEN REDUCED BY 50 PERCENT OR MORE. SEDIMENT MUST ALSO BE REMOVED WITHIN SEVEN DAYS AFTER A RUNOFF EVENT OR PRIOR TO THE NEXT FORECASTED RAIN EVENT WHICHEVER IS EARLIER.

LEGEND

	GRADE BREAK
64	LOT NUMBER
4462	EXISTING CONTOUR LINE
88	PROPOSED CONTOUR LINE
70.00 FG	FINISHED GRADE ELEVATION
72.57 TC	TOP OF CURB ELEVATION
99.20 FL	FLOW LINE ELEVATION
89.18 LP	LOW POINT ELEVATION
5%	SLOPE IN PERCENT
(E)	EXISTING
2:1	SLOPE RATIO (VERT:HORIZ)
AP	ANGLE POINT
RP	RADIUS POINT

GRADING PLAN

1"=40'

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TENTATIVE MAP APPLICATION FOR BLUE OAKS

PRELIMINARY GRADING PLAN
WASHOE COUNTY, NEVADA

revisions

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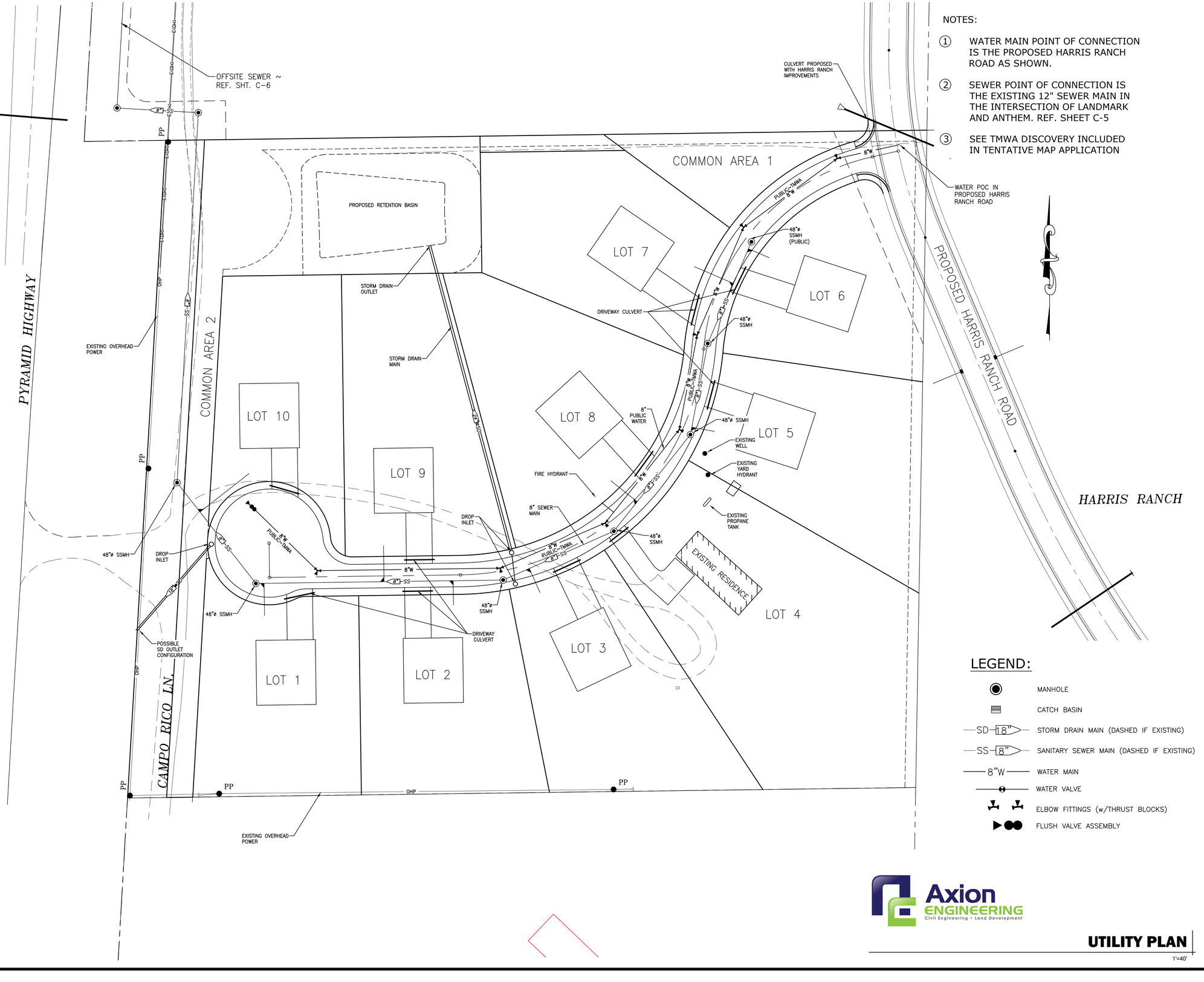
C-3



NOTES:

1. WATER MAIN POINT OF CONNECTION IS THE PROPOSED HARRIS RANCH ROAD AS SHOWN.
2. SEWER POINT OF CONNECTION IS THE EXISTING 12" SEWER MAIN IN THE INTERSECTION OF LANDMARK AND ANTHEM. REF. SHEET C-5
3. SEE TMWA DISCOVERY INCLUDED IN TENTATIVE MAP APPLICATION

LEGEND:

- MANHOLE
- CATCH BASIN
- SD 18" — STORM DRAIN MAIN (DASHED IF EXISTING)
- SS 8" — SANITARY SEWER MAIN (DASHED IF EXISTING)
- 8"W — WATER MAIN
- WATER VALVE
- ELBOW FITTINGS (w/THRUST BLOCKS)
- FLUSH VALVE ASSEMBLY

UTILITY PLAN

1"=40'

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TENTATIVE MAP APPLICATION FOR
BLUE OAKS
PRELIMINARY UTILITY PLAN
WASHOE COUNTY, NEVADA

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C-4

OF 7

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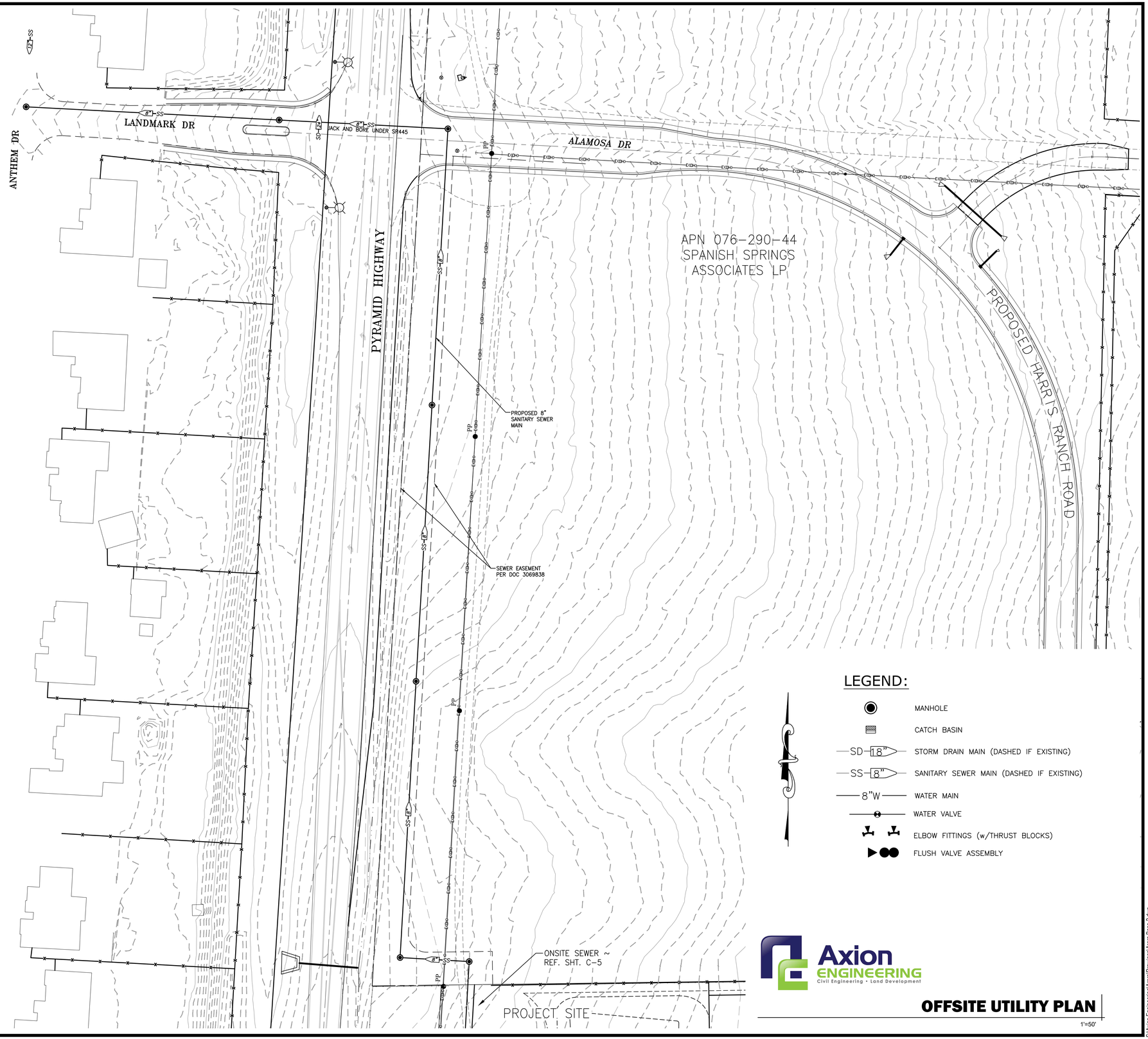

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TENTATIVE MAP APPLICATION FOR
BLUE OAKS
PRELIMINARY UTILITY PLAN
WASHOE COUNTY, NEVADA

revisions

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checked:	GKG
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scale:	1"=50'
project no:	17036

C-5

OF 7

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OFFSITE UTILITY PLAN

1"=50'

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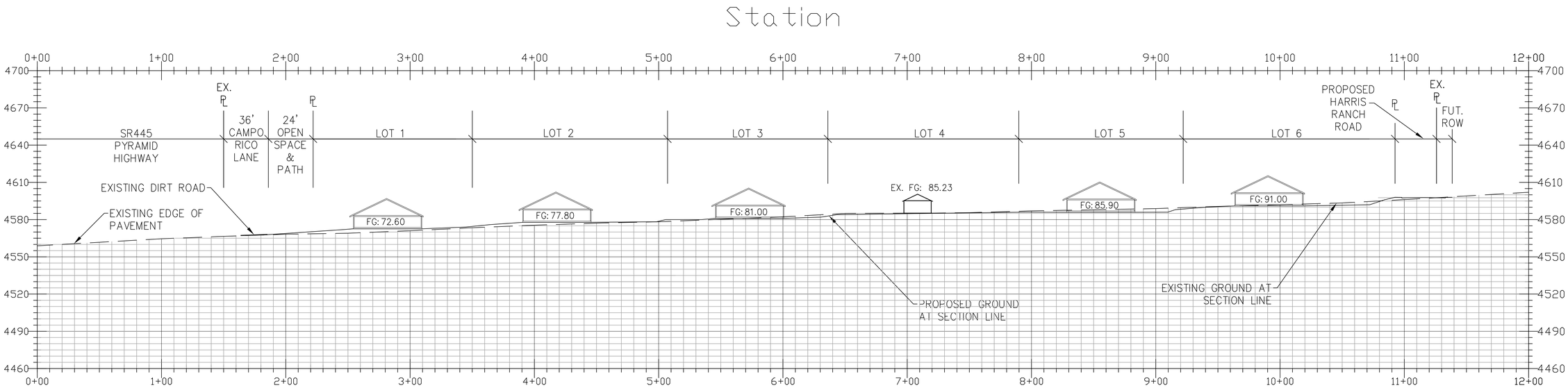
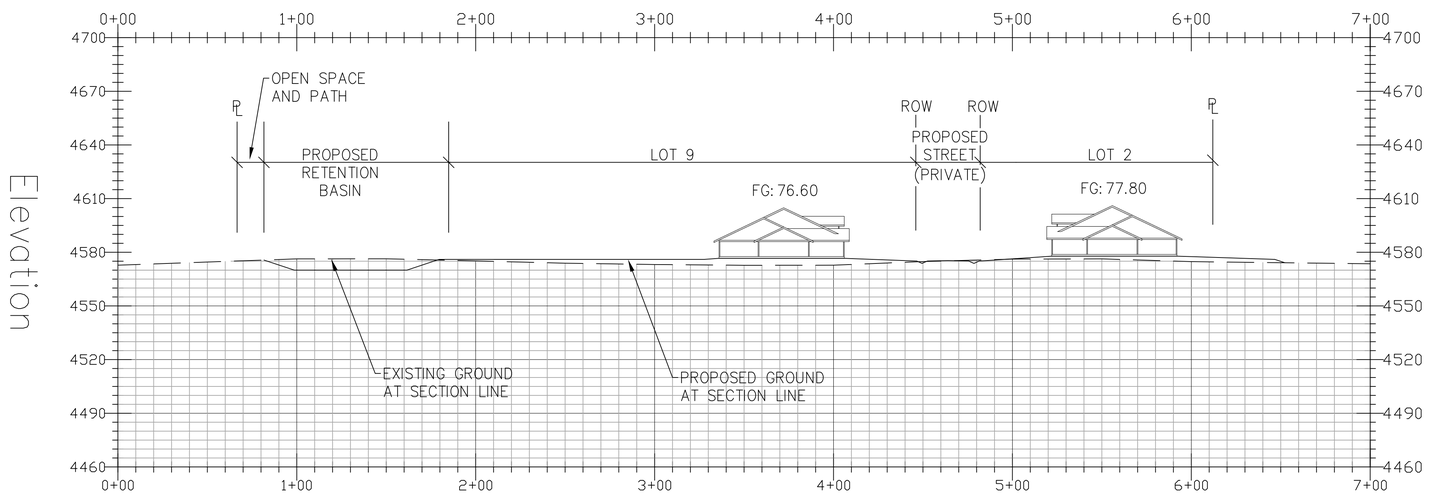


SECTION A-A



SECTION B-B

40 0 20 40 80

SCALE: 1"=40'

SITE CROSS SECTIONS

1"=40'

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TENTATIVE MAP APPLICATION FOR
BLUE OAKS
SITE CROSS SECTIONS
WASHOE COUNTY, NEVADA

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C-6

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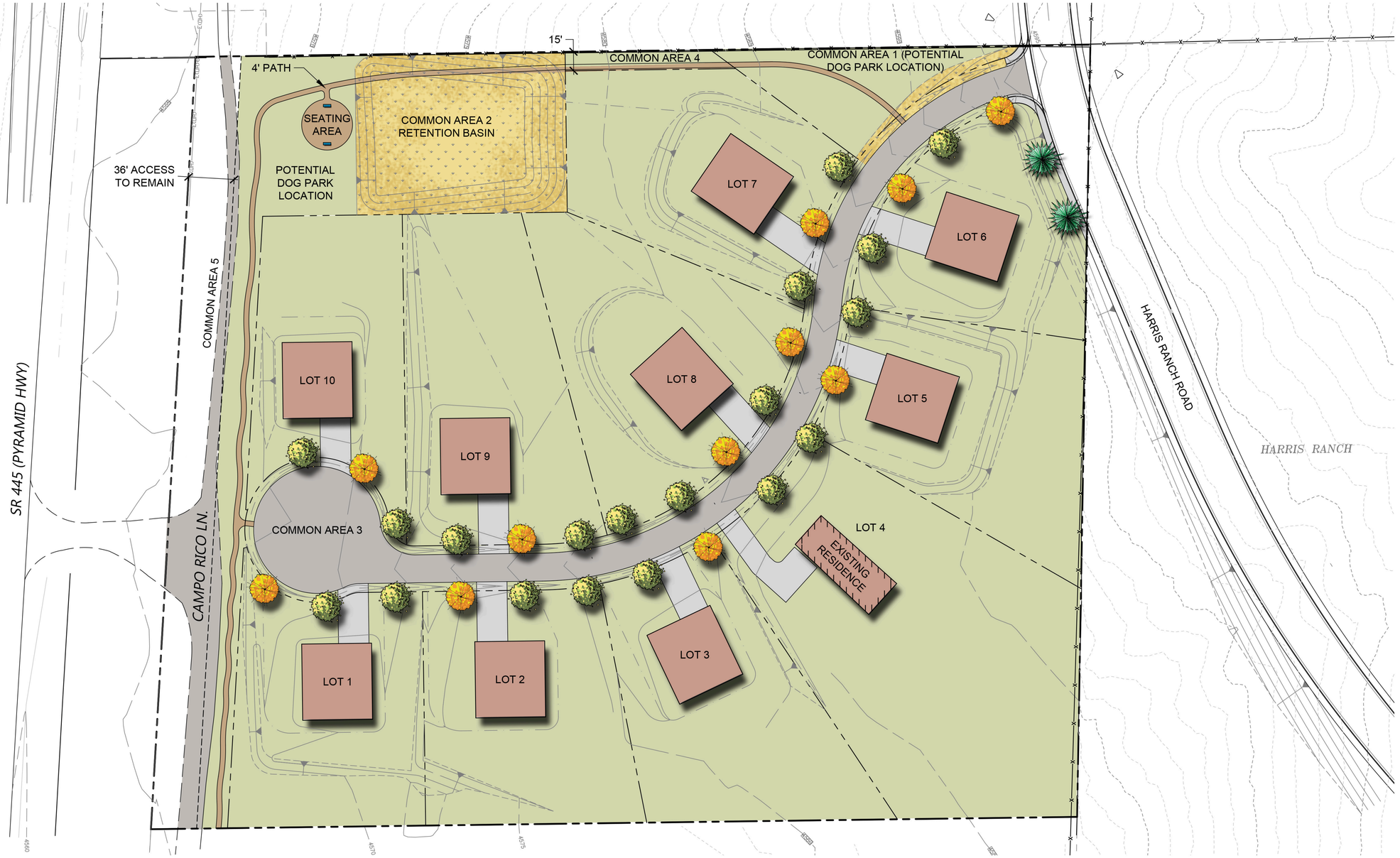

LANDSCAPE LEGEND/REQUIREMENTS

REQUIRED YARDS ADJOINING STREETS - ALL REQUIRED FRONT, REAR, AND SIDE YARDS WHICH ADJOIN A PUBLIC STREET SHALL BE LANDSCAPED AND SHALL INCLUDE AT LEAST ONE (1) TREE FOR EVERY FIFTY (50) LINEAR FEET OF STREET FRONTAGE, OR FRACTION THEREOF.

SUBDIVISION PERIMETERS - NEW RESIDENTIAL SUBDIVISION, REGARDLESS OF THE NUMBER OF DWELLING UNITS PER PARCEL, SHALL PROVIDE AT LEAST ONE (1) TREE FOR EVERY FIFTY (50) LINEAR FEET OF PERIMETER FRONTAGE ADJOINING AN ARTERIAL OR COLLECTOR IDENTIFIED IN THE WASHOE COUNTY COMPREHENSIVE PLAN STREETS AND HIGHWAYS SYSTEM PLAN MAP.

REVEGETATION AREA

NOTE: THE COMPOSITION OF TREES SHALL REPRESENT A MIXTURE OF DECIDUOUS AND CONIFEROUS VARIETIES AS FOLLOWS:

- AT LEAST ONE-HALF (1/2) OF ALL EVERGREEN TREES SHALL BE AT LEAST SEVEN (7) FEET IN HEIGHT, AND THE REMAINDER MUST BE AT LEAST FIVE (5) FEET IN HEIGHT AT THE TIME OF PLANTING.
- AT LEAST ONE-HALF (1/2) OF THE REQUIRED NUMBER OF DECIDUOUS TREES SHALL BE AT LEAST TWO (2) INCH CALIPER PER AMERICAN NURSERY STANDARDS AT THE TIME OF PLANTING. THE REMAINING NUMBER OF REQUIRED DECIDUOUS TREES SHALL BE AT LEAST ONE (1) INCH CALIPER AT THE TIME OF PLANTING.
- ALL PLANTING AND IRRIGATION SHALL BE INSTALLED PER LOCAL GOVERNING CODES.
- FINAL PLANT SELECTION AND LAYOUT WILL BE BASED ON SOUND HORTICULTURAL PRACTICES RELATING TO MICRO-CLIMATE, SOIL, AND WATER REGIMES. ALL TREES WILL BE STAKED SO AS TO REMAIN UPRIGHT AND PLUMB FOLLOWING INSTALLATION. PLANT SIZE AND QUALITY AT TIME OF PLANTING WILL BE PER CURRENT EDITION OF THE AMERICAN STANDARD FOR NURSERY STOCK (ANSI Z60.1).
- ALL PLANTER BEDS WILL RECEIVE 3" MINIMUM DEPTH OF MULCH WITH WEED CONTROL.
- ALL LANDSCAPING WILL BE AUTOMATICALLY IRRIGATED UNLESS NOTED OTHERWISE ON THE PLAN. CONTAINER PLANTINGS WILL BE DRIP IRRIGATED. A REDUCED-PRESSURE-TYPE BACKFLOW PREVENTER WILL BE PROVIDED ON THE IRRIGATION SYSTEM AS REQUIRED PER CODE.

0' 40' 80' 120'

Scale in Feet

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the landscape architecture studio
1552 C Street Sparks, NV 89431
(775) 323-2223 www.lastudionevada.com
NV RLA #440

Preliminary Landscape Plan

BLUE OAK ESTATES

Axiion Engineering

Washoe Co. Nevada

Sparks

No.	Revision Date

LA No: 532-522-06-19
Designed: JMH
Drawn: JMH
Checked: RMH
Date: 9/13/19

Sheet L1 of 1