Iveson Ranch

Energetics, Airstrip & Outdoor Storage Special Use Permit Application

Prepared for:

BRDR Properties, LLC

Prepared by:











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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	S	taff Assigned Case No.:	
Project Name: Iveson R	anch Ener	getics & Airstrip St	UP
Project Special Use Perm Description: Outdoor Storage.	nit to allow for an Air	rstrip and Energetics/explosives for modification to standards re) testing, and
Project Address: 2001 State Route	34, Gerlach, Nevada 894	12	
Project Area (acres or square fee	et): 320 acres		
Project Location (with point of re	ference to major cross	streets AND area locator):	
Approximately 20 (straight line) miles no	rth of Gerlach, west of Mil	e Marker 24 on State Route 34. Reference	ce Vicinity Map attached.
Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No.(s):	Parcel Acreage:
066-030-05	320		
Indicate any previous Washo Case No.(s). N/A	e County approval	s associated with this applicat	ion:
Applicant Info	ormation (attach	additional sheets if necess	ary)
Property Owner:		Professional Consultant:	
Name: BRDR Properties, LLC, c/o G	. Barton Mowry	Name: See Following List of Consult	ants
Address: 4785 Caughlin Parkway		Address:	
Reno, NV	Zip: 89519		Zip:
Phone:	Fax:	Phone:	Fax:
Email:		Email:	
Cell:	Other:	Cell:	Other:
Contact Person:		Contact Person: Tom Gallagher	
Applicant/Developer:		Other Persons to be Contacted:	
Name: Same as Property Owner		Name: Catherine Reichenberg, Esq.	
Address:		Address: 3895 Warren Way	
	Zip:	Reno, NV	Zip: 89509
Phone:	Fax:	Phone: 775-829-1222	Fax:
Email:		Email: creichenberg@gundersor	nlaw.com
Cell:	Other:	Cell: 775-722-5587	Other:
Contact Person:		Contact Person: Catherine Reic	henberg
	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: BRDR PROPERTIES, LLC	
requirements of the Washoe County Developm	tal does not guarantee the application complies with all ent Code, the Washoe County Master Plan or the ing, or that the application is deemed complete and will
STATE OF New York)	
COUNTY OF New York	
1, James Po	print name)
being duly sworn, depose and say that I am the application as listed below and that the foregoin information herewith submitted are in all respects of and belief. I understand that no assurance or graduating.	e owner* of the property or properties involved in this g statements and answers herein contained and the complete, true, and correct to the best of my knowledge quarantee can be given by members of Planning and each property owner named in the title report.)
Assessor Parcel Number(s): 066-030-05	
	Printed Name James Parker
	Signed Par Au
	Address 2350 Broadway
	Stc. 315, Newyork, My 1002
Subscribed and sworn to before me this day of August , 2005.	(Notary Stamp)
Notary Public in and for said county and state	Olivia M. Marine Notary Public, State of New York No. 01MA6196792 Qualified in Nassau County Certificate Filed in New York County
My commission expires:	Commission Expires 11/17/
*Owner refers to the following: (Please mark appro	opriate 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 doc	cument indicating authority to sign.)
☐ Letter from Government Agency with Stew	ardship

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February 2024

Special Use Permit Application Supplemental Information

(All required information may be separately attached)

1. What is the project being requested?

Requested is a Special Use Permit to allow for the use of a private Airstrip, Hazardous Materials (Energetics - explosives testing), and Outdoor Storage. Additionally, modifications or waivers from certain code sections and requirement is also sought addressing, parking, paving, and landscaping is also sought. Please see project narrative for a more detailed description of the project requests.

2. Provide a site plan with all existing and proposed structures (e.g. new structures, roadway improvements, utilities, sanitation, water supply, drainage, parking, signs, etc.)

Please see project plans and exhibits provided in Tab B with this application package.

3. What is the intended phasing schedule for the construction and completion of the project?

The proposed project requests the allowance for the necessary drone and energetics testing to commence at the site. The property owner/applicant does have vision for an expanded operation, but the expanded plans and information for use above what is currently proposed will be provided in a latter special use permit application. A copy of the conceptual master plan is provided with this application such that the County can get an ideal of the potential future plans. It should be noted that the conceptual master plan is subject to change and modification as it is still in process.

4. What physical characteristics of your location and/or premises are especially suited to deal with the impacts and the intensity of your proposed use?

Iveson Ranch is in a remote location and its topography creates a natural buffer making it a well-suited area. The location provides the necessary separation from other land uses and is compatible with the scale and nature of the proposed activities.

- 5. What are the anticipated beneficial aspects or affects your project will have on adjacent properties and the community?
 - Increased private investment in in a historically underdeveloped region of Washoe County
 - Creation of employment and contract opportunities within Washoe County
 - Spillover benefits to Gerlach from increased use and private investment.
- 6. What are the anticipated negative impacts or affect your project will have on adjacent properties? How will you mitigate these impacts?
 - Temporary noise associated with of energetics testing and aircraft takeoffs and landings -- Negligible impact due to remoteness. See attached Exhibit 2 containing supplemental information regarding energetics. Airstrip is existing and fully compliant with FAA regulations and applicant has begun work with the BLM to secure necessary land rights in association with the portion of the Airstrip that is located on federal land.

Provide specific information on landscaping, parking, type of signs and lighting, and all other code requirements pertinent to the type of use being purposed. Show and indicate these requirements on submitted drawings with the application.

8.	Are there any restrictive covenants, recorded conditions, or deed restrictions (CC&Rs) that apply to
	the area subject to the special use permit request? (If so, please attach a copy.)

□ Vaa	□ No
□ res	■ INO

9. Utilities:

a. Sewer Service	existing septic - upgraded system will be provided for
b. Electrical Service	Existing solar and backup generator -system will be u
c. Telephone Service	STARLINK
d. LPG or Natural Gas Service	LPG
e. Solid Waste Disposal Service	Walker Lake Disposal
f. Cable Television Service	STARLINK
g. Water Service	Well with water storage tank

For most uses, Washoe County Code, Chapter 110, Article 422, Water and Sewer Resource Requirements, requires the dedication of water rights to Washoe County. Please indicate the type and quantity of water rights you have available should dedication be required.

h. Permit #		acre-feet per year	
i. Certificate #		acre-feet per year	
j. Surface Claim #	09463, 11145, 09251	acre-feet per year	54.16 AF
k. Other#		acre-feet per year	

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

-	

10. Community Services (provided and nearest facility):

a. Fire Station	Gerlach Volunteer Fire Department
b. Health Care Facility	Gerlach Medical Center (250 Short Street) - per web Listing
c. Elementary School	Not Applicable
d. Middle School	Not Applicable
e. High School	Not Applicable
f. Parks	Not Applicable
g. Library	Not Applicable
h. Citifare Bus Stop	Not Applicable

Director's Modification of Standards Supplemental Information

(All required information may be separately attached)

1. What modification or deviation are you requesting? **Be specific.**

Modificiation/waiver of the requirements associated with Landscaping, (Article 412) & Parking (Article 410) standards. Additionally a modificiation to typical paving standards are requested as part of this application

2. Why is the modification or deviation necessary to the success of the project/development? **Be specific.** Are there any extenuating circumstances or physical conditions on the proposed project/development site?

The property is very remote and rural in nature (surrounded by BLM property) The natural vegetation character of the property and unpaved graded accesses that serve this entire area indicated that typical suburban/urban level landscape, parking and paving requriements are inappropriate and unnecessary for the environment in which the project is proposed.

3. Are you proposing to mitigate the effect of the modification or reduction?

There is not mitigation seen as necessary as we have requested that no landscape be required to conform and match the existing environment in this remote locaiton. Reseeding with native vegetation is proposed in areas that will not have vehicular travel or operations associated with the proposed uses.

4. What section of code are you requesting to modify or deviate? **Be specific.** List the code section and if there are specific requirements for the modification, provide detailed information. For deviation, provide the percentage of the deviation.

Requirements of Article 412 associated with tree and shrub planting and irrigation and associated typical required suburban and urban level treatments are requested to be waived. vehicular travel around the site will be limited and similar to an agricultural type use, which paving of accesses park paved parking spaces would not be required.

5. For Minor Deviation request; list what properties/parcels are affected by the deviation? Explain if there will be any impacts to the affected neighboring properties. (At a minimum, affected property owners are those owners of parcels that immediately abut the location of the proposed minor deviation.)

BLM parcels 066-030-48 surrounds the subject parcel as there are many access roads crossing the BLM property, but no enhanced/artificial landscape treatment that has been applied. Only the use of revegetation techniques, as is proposed for this project are typical with ground disturbance on BLM properties.

Special Use Permits

Washoe County Code (WCC) Chapter 110, Article 810, Special Use Permit, provides a method of reviewing proposed uses as listed in Article 302, Allowed Uses, which possess characteristics that require special appraisal in order to determine if the uses have the potential to adversely affect other land uses, transportation systems, or public facilities in the vicinity. The Planning Commission, Board of Adjustment, or Hearing Examiner may require conditions of approval necessary to eliminate or minimize, to an acceptable level, any potentially adverse effects of the use. See WCC 110.810, for further information

Development Application Submittal Requirements

Applications are accepted on the 8th of each month. If the 8th falls on a non-business day, applications will be accepted on the next business day.

If you are submitting your application online, you may do so at OneNV.us

- 1. Fees: See Master Fee Schedule. Most payments can be made directly through the OneNV.us portal. If you would like to pay by check, please make the check payable to Washoe County and bring your application and payment to the Community Services Department (CSD).
- 2. Development Application: A completed Washoe County Development Application form.
- 3. **Owner Affidavit:** The Owner Affidavit must be signed and notarized by all owners of the property subject to the application request.
- 4. **Proof of Property Tax Payment:** The applicant must provide a written statement from the Washoe County Treasurer's Office indicating all property taxes for the current quarter of the fiscal year on the land have been paid.
- 5. **Neighborhood Meeting:** This project may require a Neighborhood Meeting to be held prior to application submittal. Please contact Washoe County Planning at <u>Planning@washoecounty.gov</u> or by phone at 775-328-6100 to discuss requirements.
- 6. Application Materials: The completed Special Use Permit Application materials.
- 7. Proposed Site Plan Specifications (Special Use Permit and Stables):
 - a. Lot size with dimensions drawn using standard engineering scales (e.g. scale 1" = 100', 1" = 200', or 1" = 500') showing all streets and ingress/egress to the property.
 - b. Show the location and configuration of all existing and proposed buildings (with distances from the property lines and from each other), all existing buildings that will remain (with distances from the property lines and from each other), all existing buildings that will be removed, and site improvements on a base map with existing and proposed topography expressed in intervals of no more than five (5) feet.
 - c. Show the location and configuration of wells and well houses, septic systems and leach fields, overhead utilities, water and sewer lines, and all existing and proposed easements.
 - d. Show locations of parking, landscaping, signage and lighting.
 - e. The cross sections of all rights-of-way, streets, alleys or private access ways within the proposed development, proposed name and approximate grade of each, and approximate radius of all curves and diameter of each cul-de-sac.
 - f. Property boundary lines, distances and bearings.
 - g. Contours at five (5) foot intervals or two (2) foot intervals where, in the opinion of the County Engineer, topography is a major factor in the development.
 - h. Indication of prominent landmarks, rock outcroppings, and natural foliage which will be deciding considerations in the design of the development.

- i. If any portion of the land within the boundary of the development is subject to inundation or storm water overflow, as shown on the adopted Federal Emergency Management Agency's Flood Boundary and Floodway Maps, that fact and the land so affected shall be clearly shown on the map by a prominent note on each sheet, as well as width and direction of flow of each water course within the boundaries of the development.
- j. Existing and proposed roads, trails or rights-of-way within the development shall be designated on the map. Topography and existing developments within three hundred (300) feet must also be shown on the map.
- k. Vicinity map showing the proposed development in relation to Interstate 80, Highway 395, I-580, or a major arterial. The vicinity map shall also include a north arrow.
- I. Date, scale, and number of each sheet in relation to the total number of sheets, and the name of the person preparing the plans.
- m. Location of snow storage areas sufficient to handle snow removed from public and private street, if above 5,500 feet.
- n. All known areas of potential hazard (and the basis for delineation) shall be clearly designated on the map. Additionally, active fault lines (post-Holocene) shall be delineated on the map.
- o. Location of areas with slopes greater than fifteen percent (15%) and thirty percent (30%).
- p. Boundary of any wetland areas and/or floodplains within the project site.
- q. Note by the project engineer or design professional indicating compliance with all applicable provisions of the Washoe County Development Code.
- r. Significant Hydrological Resources. Indicate the critical and sensitive buffer zones according to Article 418 of the Washoe County Development Code.

8. Site Plan Specifications for Grading:

- a. Location and limits of all work to be done.
- b. Existing contours and proposed contours.
- c. Location of any structures on adjacent parcels that are within fifteen (15) feet of the work site's parcel boundary.
- d. Existing draining (natural and man-made) and proposed drainage patterns.
- e. Sufficient elevation data to show the drainage will work as proposed.
- f. Quantities of excavation fill and disturbed surface area shall be calculated and shown on the site plan. Areas under buildings and pavement need not be included in these calculations.
- g. Quantities of material proposed to be removed from the site must be shown. The proposed disposal area and the disposition of fill must be noted on the plan.
- h. Limiting dimensions of cut and fill.
- i. Proposed BMPs (Best Management Practices) for controlling water and wind erosion if a disturbed area is left undeveloped for more than thirty (30) days.
- j. Cut and fill slopes setback from the property boundary.
- k. Structure setbacks from a slope.
- 9. Grading: In accordance with the grading provisions of Washoe County Code, Article 438, if the thresholds for a grading permit are met or exceeded, the grading plans shall indicate the existing and proposed grades, slope treatments (i.e. rip rap, erosion control, etc.) and drainage channels and the direction of flow. Cross sections must be provided at a minimum of two key locations.
- 9. Traffic Impact Report (Special Use Permit and Stables): Traffic impact reports are required whenever the proposed development project will generate 80 or more weekday peak hour trips as determined using the latest edition Institute of Transportation Engineers (ITE) trip generation rates or other such sources as may be accepted by Washoe County Engineering. Projects with less than 200 peak hour trips may not need to perform an impact analysis for future years. Traffic consultants are

- encouraged to contact Washoe County Engineering and Capital Projects staff prior to preparing a traffic impact report.
- 10. **Landscaping:** Landscape plans may be required, for **stables**. Landscape plans may include: a soils evaluation; color and type of building material, such as fencing material; type of plant material; location of plant material and proposed maintenance schedule; size of plant material at planting and size of plant material at full maturation; type and amount of mulch material; and an irrigation plan.
 - a. **Planting Plan Specifications:** The planting plan must include all necessary information to satisfy Washoe County Code Section 110.412.60, Planting Standards.
 - Proposed Tree Locations. Individual trees shall be graphically depicted in the proposed locations; trees shall be identified as either evergreen or deciduous; trees shall be individually labeled or coded and cross referenced to the proposed plant species in the plant legend.
 - Proposed Plant Material. The preliminary plan must identify where, and a square footage amount for, one or all of the following items: trees, mulch (rock, DG or bark), seeded areas, etc.
 - Existing On-Site Vegetation. In the case of large strands of trees and shrubs, individual
 locations may be identified with a revision cloud symbol. Smaller numbers or strands of trees
 (six (6) inch caliper and greater) shall be identified individually. Shrub areas and other forms
 of vegetation such as grasses shall be identified with a revision cloud symbol.
 - Plant Legend. Legend shall include all proposed plant material, including the following: common name, botanical name, size at planting, spacing and quantity (of trees only).
 - Landscape Area Legend. A summary of proposed areas and their square footages shall include: lawn, existing and or proposed paving, existing trees to be preserved, existing trees to be removed and the amount of proposed shrubs.
 - b. **Irrigation Plan Specifications:** The irrigation plan must include all necessary information to satisfy Washoe County Code Section 110.412.65, Irrigation Standards.
 - Location, size, and specifications of water source(s), water mains, meter(s), valves, and the controller.
 - Temporary or permanent water irrigation systems.
 - Specifications of irrigation equipment identified by manufacturer's name and equipment identification number.
 - An approved backflow prevention device is required on all landscape irrigation systems.
- 11. **Signage Plan:** The signage plans shall include sign elevations and delineate location, height, style, dimensions, intensity of sign lighting and finish of any proposed signage:
- 12. **Lighting Plan:** Show the location and configuration of all proposed exterior lighting including a detail of the parking lot light fixtures, pole heights, security lighting, and wall mounted illumination fixtures. Parking lot areas shall be depicted showing lumen isolines demonstrating compliance with the provisions of the Washoe County Development Code.
- 13. **Building Elevations:** All buildings and structures including fences, walls, poles and monument signs proposed for construction within the project shall be clearly depicted in vertical architectural drawings provided in accurate architectural scale. All architectural elevations from all building faces shall be presented.
- 14. **Submission Packets:** Two (2) packets and a flash drive. One (1) packet must be labeled "Original" and contain a signed and notarized Owner Affidavit. Any digital documents need to have a resolution of 300 dpi. If materials are unreadable, you will be asked to provide a higher quality copy. The packet shall include one (1) 8.5" x 11" reduction of any applicable site plan, development plan, and/or application map. Labeling on these reproductions should be no smaller than 8 point on the 8.5" x 11" display. Large format sheets should be included in a slide pocket(s). Any specialized reports identified above shall be included as attachments or appendices and be annotated as such.

Notes:

- (i) Application and map submittals must comply with all specific criteria as established in the Washoe County Development Code and/or the Nevada Revised Statutes.
- (ii) Appropriate map engineering and building architectural scales are subject to the approval of the Planning and Building and/or Engineering and Capital Projects.
- (iii) All oversized maps and plans must be folded to a 9" x 12" size.
- (iv) Based on the specific nature of the development request, Washoe County reserves the right to specify additional submittal packets, additional information and/or specialized studies that clarify the potential impacts and potential conditions of development in order to minimize or mitigate impacts resulting from the project. No application shall be processed until the information necessary to review and evaluate the proposed project is deemed complete by the Director of Planning and Building.
- (v) **Labels:** The applicant is required to submit a list of mailing addresses for every tenant residing in a mobile home park that is within five hundred (500) feet of the proposed project (or within seven hundred fifty (750) feet of the proposed project if the proposed project is a project of regional significance).
- (vi) Please be advised that the Washoe County Director of Planning and Building or their designee, Washoe County Board of Adjustment, and/or Washoe County Planning Commission have the ability to determine an application incomplete if they cannot ascertain what the applicant is requesting, or if there is insufficient information to determine a favorable outcome.

Director's Modification

Parking standards may be modified by the Director of Planning and Building per Washoe County Code Chapter 110.410.35 – Modification of Standards

Landscaping standards may be modified by the Director of Planning and Building per Washoe County Code Chapter 110.412.05(d) – Review of Extenuating Circumstances.

Grading standards may be modify by the Director of Planning and Building per Washoe County Code Chapter 110.438.45- Grading of Slopes

Minor Deviation Standards may be granted by the Director of Planning and Building per Washoe County Code Section $110.804.35 - \underline{\text{Minor Deviations}}$, for a deviation of less than 10% of the applicable Development Code standards.

Development Application Submittal Requirements

If you are submitting your application online, you may do so at OneNV.us

- 1. Fees: See Master Fee Schedule. Most payments can be made directly through the OneNV.us portal. If you would like to pay by check, please make the check payable to Washoe County and bring your application and payment to the Community Services Department (CSD).
- 2. Development Application: A completed Washoe County Development Application form.
- 3. **Owner Affidavit:** The Owner Affidavit must be signed and notarized by all owners of the property subject to the application request.
- 4. **Proof of Property Tax Payment:** The applicant must provide a written statement from the Washoe County Treasurer's Office indicating all property taxes for the current quarter of the fiscal year on the land have been paid.
- 5. **Application Materials:** The completed Director's Modification Supplemental Information. (You are encouraged to meet with a planner to determine the applicability of individual requirements.)
- 6. **General Modifications:** Provided a site plan which includes all buildings on the property, location of the modification and any other useful details.
 - a. **Parking Modifications:** If the modification is for parking, a site plan shall be provided which includes all buildings on the property, all parking areas, stripping plan, handicap parking plan, and number of proposed parking spaces and the proposed surface materials.
 - b. Landscaping Modifications: If the request is for a modification of landscaping requirements, landscaping plans of the proposal are required. The landscape plan must include: type of plant material; location of plant material and proposed maintenance schedule; size of plant material at planting and size of plant material at full maturation; type and amount of mulch material; and an irrigation plan. The planting plan must include all necessary information to satisfy Washoe County Code Section 110.412.60, Planting Standards.
 - Location, spacing, size, and genus and/or species of proposed plantings, and identification of existing plants;
 - Existing vegetation, natural features, and site improvements on adjoining properties within ten (10) feet of the property line; and
 - Plant list which includes the following: quantity of proposed plants; existing plants to remain; number of proposed trees; number of existing trees to be preserved; amount of paved area; and the amount of turf.
 - Irrigation Plan Specifications.

- Location, size, and specifications of water source(s), water mains, meter(s), valves, and the controller:
- Temporary or permanent water irrigation systems;
- Specifications of irrigation equipment identified by manufacturer's name and equipment identification number: and
- An approved backflow prevention device is required on all landscape irrigation systems.
- c. Minor Deviation Plot Plan or Vicinity Map:
 - The location of the proposed deviation;
 - Location of adjoining neighboring parcels;
 - Location of all existing structures on site;
 - Clearly show property lines, streets, easements, and setback measurements from property lines;
 - Any other information supporting your request or illustrates the need of the deviation; and
 - Signed written consent from owners of all properties affected by deviation (properties abutting the property).
- 7. **Submission Packets:** One (1) packet and a flash drive. Any digital documents need to have a resolution of 300 dpi. If materials are unreadable, you will be asked to provide a higher quality copy. The packet shall include one (1) 8.5" x 11" reduction of any applicable site plan, development plan, and/or application map. Labeling on these reproductions should be no smaller than 8 point on the 8.5" x 11" display. Large format sheets should be included in a slide pocket(s). Any specialized reports identified above shall be included as attachments or appendices and be annotated as such.

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Tab A

PROJECT NARRATIVE

Project Summary

The property owner/applicant (BRDR Properties, LLC) is seeking Special Use Permits (SUPs) and appropriate modifications to certain code standards on a 320-acre parcel known as the Iveson Ranch. The parcel is located approximately 26 miles north of Gerlach, Nevada, west of County Route 34 and is recognized by the Washoe County Assessor's office as APN 066-030-05 Two vicinity maps are provided below showing the subject parcel location. The first shows the subject property location relative to Gerlach, Nevada and the second shows a closer view with County Route 34 and the nearest surrounding uses.



PROJECT NARRATIVE



The remotely situated subject property is proposed to be used as a facility for the work of software engineers for the design and testing of drone applications and the testing of energetics (explosives). An existing unpermitted airstrip is located on the property (partially) that is also proposed for official allowance of use by Washoe County.

Part of the testing at the site will include the drone operations and testing along with the energetic testing. Facilities that are proposed and associated with the overall operation of the lveson Ranch project include an (existing) airstrip with a hanger, energetics testing areas, kitchen/dining hall, offices, outdoor storage areas.

Property Background

The Iveson Ranch/subject property operated previously as a guest/dude ranch offering rooms, RV spaces and tent camping along with other amenities. The inhabited and accommodations portion of the Ranch provides many buildings in an oasis area with large trees for shade and wind shielding. There are sleeping, toilet, shower and cooking facilities that can currently accommodate 20 people on the site as a carryover from the previous use of the site as a guest/due ranch. Surrounding the existing structures and accommodations are large trees similar to what you would find on most remote agricultural properties around living area.

Below is an aerial perspective of the inhabited portion of the Ranch highlighting the existing structures and large rural ranch vegetation around this small portion of the site. The inhabited portion of the site only accounts for 8.5+/- acres (+/-2.6%) of the 320-acre parcel.

PROJECT NARRATIVE



The existing airstrip is located to the north of the inhabited portion of the ranch with approximately 2/3 of the airstrip on the Iveson Ranch property and the remaining 1/3 located on BLM property (APN 066-030-48).

Project Purpose & Proposed Uses

The Iveson Ranch parcel was purchased by BRDR Properties, LLC with plans for an appropriately situated/remote facility where drone and energetic testing and research can occur in a wide-open area. The inhabited portion of the site is planned for adaptive reuse to provide offices and accommodations suitable for the researchers and scientists who will come to the Ranch for their drone and energetics testing. The existing airstrip will provide a convenient option for the researchers and scientists to get to the site to do their work.

It is anticipated that up to 10-15 people may be at the Ranch working on research and testing with the predominance arriving by aircraft (estimated to be +/-75%). Those not arriving by aircraft would drive to the site, typically in a carpooled fashion with 2-4 people per vehicle or more. Anticipated periods where research and testing would typically occur is Tuesdays thru Thursdays – 3 day per week where those traveling researchers and testers would be housed at the Iveson Ranch facilities. There are 2-3 ranch workers and employees who would also be at the site 7 days per week. As such, the existing accommodations from the prior use can easily address the proposed needs for the facility. Company vehicles would transport workers to different parts of the site for their testing and research work, transport to and from the airstrip and excursions to Gerlach or other locations.

PROJECT NARRATIVE

Drone development is a rapidly growing field in Nevada and globally. At the Iveson Ranch, engineers will test software on small drones—many the size of a dinner plate—over BRDR's property and adjacent BLM land. Drones are allowed to be flown in Nevada for recreational and commercial use, subject to Federal Aviation Administration (FAA) regulations. Drone operations at Iveson Ranch comply with FAA Part 107 regulations which governs commercial drone use. Drones can fly up to 400 feet in the air without prior authorization nearly everywhere, including over BLM land, unless the area is restricted. The nearest restricted airspace to the Iveson Ranch is more than 100 miles away making this site ideally located for the intended purpose.

Access

Access to the Iveson Ranch site is currently served from CR 34 through a BLM ROW grant to connect to the property on the western edge. Existing access roads are located on the site that travel to and through the inhabited area and to and from the airstrip and other points on the site to the southeast and northwest. Only limited improvement to the site access routes is proposed to the level necessary to meet county fire access standards. No asphalt paving is proposed under this plan due to the remoteness of the site. This is justified and supported by the fact that CR 34 is not asphalted at the point of connection to the site.

A traffic generation letter is provided in Tab C with this application. The trip generation letter was written to look predominately at the potential future build-out of the site that would need additional application review to add necessary housing, water and sewer facilities. Nonetheless this letter explains that the majority of any researchers and scientists that would come to the site will be flown in and the limited amount of traffic that would be generated, even in a possible expanded scenario would be very light and would not trip the requirement for a traffic report.

Grading & Hillside Ordinance Review

A preliminary grading plan and cut and fill map are provided in Tab B with this application package. Proposed grading is limited to the onsite access road accessing the energetics site and the grading (9-foot berms) around the energetics testing area. The estimated amount of cut and fill is 3,242+/- CY and 3,212+/- CY, respectively. The net estimated earthwork is 30+/- CY of cut. The total area of disturbance is estimated to be 115,264 SF (2.64+/- AC). Neither the depth, volume nor area of grading trip the code thresholds for a grading special use permit.

Hillside Ordinance (No Applicability)

A slope analysis map is provided showing the slopes on the entire 320-acre parcel. Looking only at the slope cell breakdown on this map would indicate that the project trips the threshold for a hillside development review. However, the area of proposed improvements and operations is

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predominately within the 0% to 15% slope areas. As such, the hillside ordinance does not apply as all other portions of the site will not be disturbed with the proposal project.

Signage

No signage is proposed with this special use permit.

Lighting

No lighting is proposed with this special use permit. The facility's use/operations for aircraft flights, energetics and drone testing is proposed to occur from dawn to dusk and existing lighting is sufficient for those uses.

Future Conceptual Master Plan

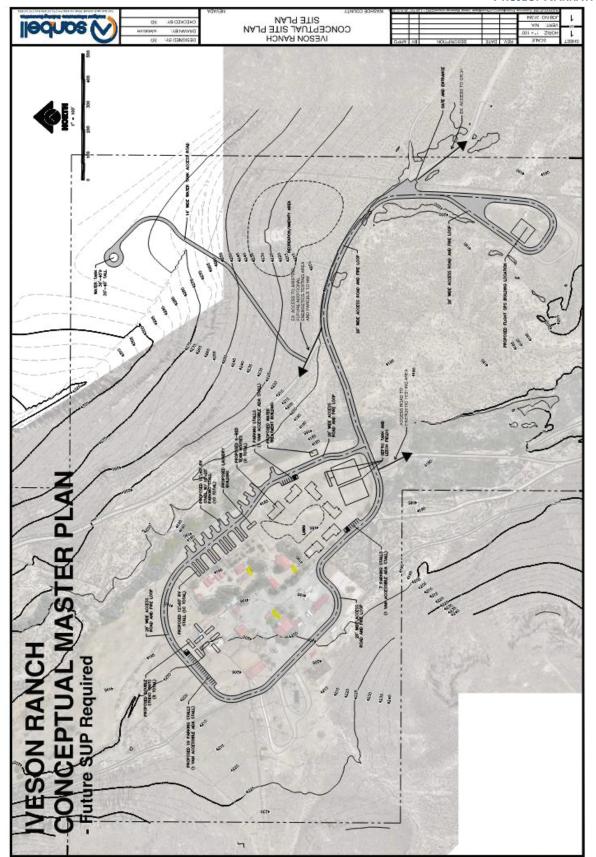
After the initial startup of the facility, as requested under this SUP, future growth of the operation is anticipated but not yet fully defined. It is understood that expansion of use of the facility to include additional workers and testing areas on this and other commonly owned properties will necessitate additional housing units and facilities to service an expanded workforce at the site. Any such expansion will require the review and approval of an additional SUP.

The property owner and design team have been actively working on conceptual plans for long run expansion of the site, but those plans are still in process. There is an immediate need to get the proposed drone and energetics testing going on the site and any future expansion is understood to necessitate a following SUP review.

The conceptual site plan shows a number of housing units that is beyond the current code allowed number of employee housing units. The applicant has submitted a development code amendment (DCA) requesting that employee housing in the GR zoned areas of the High Desert Area be allowed to exceed the standard limitation per code (1 DU/40 acres) with review and approval of a SUP. Due to the remoteness of most of the High Desert Area (including this proposed project site), any non-residential operations or agricultural uses could benefit by the allowance requested through the DCA. If the DCA is approved, it is anticipated that the follow-up SUP will request additional employee housing beyond current GR designation allowances.

Provided on the following page is a copy of the current conceptual site plan for the site that shows future anticipated new buildings for employee housing, RV spaces, recreation areas, a water tank and expanded septic system to accommodate additional uses foreseen with future growth of the Iveson Ranch facility.

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The Iveson Ranch location for this facility was chosen due to its remote location and absence of nearby residences. A few larger acreage parcels exist to the northwest of the project site, across CR 34 with the closest residential structure being 1.3+/- miles from the Iveson Ranch property line. The subject parcels are directly surrounded on three sides by extensive Bureau of Land Management (BLM) land.

Project Requests

Requested are special use permits for the following uses or considerations:

- Airstrip;
- Energetics;
- Outdoor Storage

Additionally, variation from code standards or a formal common understanding are sought for the following development-related items:

- Parking (Modification of Standards Request);
- Paving (Waiver Request)
- Landscaping (Director's Modification); and
- Noise (formal common understanding)

Each of the above listed uses or design requirements is discussed below, providing additional information regarding the proposed use, allowance within the code. Legal finding review for each permit or development variation is provided at the end of this project narrative.

Airstrip SUP

The property has an existing airstrip located at the northern end of APN 066-030-05. The use type under the County Code that fits this use is "Non-municipal airstrips and glider ports." This use requires a SUP. The section of code that provides regulatory specifics for non-municipal airstrips is 110.306.50.

The western 2/3 of the existing airstrip is located on APN 006-030-05 and the eastern 1/3 of the airstrip is located on BLM property. Discussions and necessary permitting to formalize the use of the existing airstrip have commenced with the BLM and are ongoing.

An aerial image of the airstrip location relative to the private and BLM properties is provided below. Because the airstrip crosses a private/federal property line, the requirement contained within 100.306.50(a), requiring a 300-foot distance separation and a maximum 65 decibels Ldn cannot be met, solely because of the existing parcel ownership situation relative to this existing

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airstrip. As such, acknowledged relief from this requirement, due to the site location and existing ownership conditions, is sought with this special use permit. BLM has stated to the applicant's representative that it does not have an issue with the existing airstrip or its use, and given that the BLM land is open space, it does not appear that this provides an issue.

Due to its remote location, BRDR intends to use the existing private airstrip to bring people and materials to the Iveson Ranch. It is expected that +/-75% of the personnel travel to and from the Iveson Ranch will use the airstrip rather than traveling by road.

The airstrip, originally improved by prior owners perhaps sometime in the mid-2010's partially extends into BLM parcel APN 066-030-48. Approximately 1/3 of the existing airstrip is located on the federal land. The property owner/applicant is actively working and coordinating with Jonah Blustain, Field Manager for the BLM Black Rock Field Office, to secure legal use of this land, pursuing both a lease and acquisition of the portion of federal land containing a section of the airstrip.



Energetics SUP

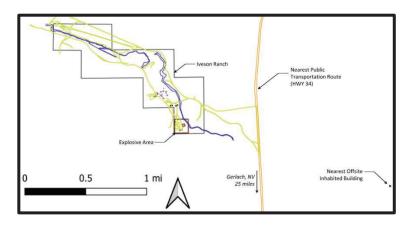
A limited component of BRDR's use of its land involves energetics. Energetics is a common and comprehensive industry term used to more accurately encompass and describe aspects of our project. Put simply, energetics are materials ranging from pyrotechnics and propellants, like gunpowder and fireworks, to explosives used for mining and construction. However, BRDR plans on storing and using only what is required for small-scale testing as the work is focused on small and innovative scientific and engineering endeavors. The small energetics will be tested in a fixed, designated area of the site, away from the other activities and the inhabited area of the site, in compliance with local, state and federal regulations. Below is an exhibit showing the proposed energetics testing location on the Iveson Ranch property. Provided in Tab C with this

PROJECT NARRATIVE

application is an Energetics Exhibit/document that presents information regarding energetics testing, procedures, safety and locations at the site.

The Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) regulates many aspects of energetics, including how close energetic testing can occur to housing and people. All testing at the Iveson Ranch will meet or exceed the ATF's regulations.

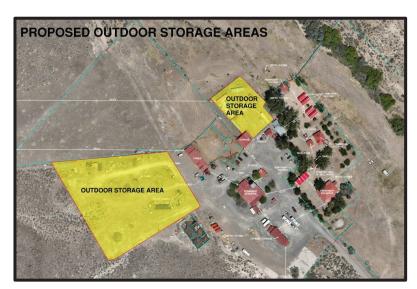
Energetics/the use of explosives is allowed within the GR zone in the High Desert Area as a heavy industrial use with approval of a special use permit. This allowance is provided in the High Desert Area General Rural Regulatory Zone Area Modifier (110.206.10). The proposed use and testing of energetics on the property, pursuant to NRS 278.147.



Outdoor Storage SUP

Operation on the site will necessitate the storage of materials, trailers and storage boxes that will often exceed the 72-hour limitation for consideration as "outdoor storage." As such, the allowance of outdoor storage is requested on the site. Locations of where outdoor storage is likely to occur have been identified on the project site plan sheet included in Tab B with this application.

Due to the remote nature of the site, there is no rational need for screening such areas, as would be typical in a suburban or urban environment. As such, it is requested that all requirements for screening outdoor storage be waived as part of this special use permit. To the right is an aerial image of the proposed outdoor storage areas near the existing



PROJECT NARRATIVE

inhabited area of the Iveson Ranch.

Code Variation Requests

Parking (Modification of Standards Request) – a modification of parking standards is allowed under 110.410.35. The remoteness of the site and the availability of the on-site airstrip dictates that much of the employee travel to and from the site will occur by plane, rather than by car. As such, it is not expected that typical parking ratios will be experienced. Additionally, the remote rural nature of this site makes the provision of suburban/urban level and designed parking inappropriate. There are ample areas around the site that have been used for decades for parking vehicles and it is proposed that this use in the current design and condition continue in this use with the proposed project.

Paving (Waiver Request) – Access to the subject property is served through a rural driveway that crosses BLM property (APN 066-030-48) before entering the Iveson Ranch parcel. Due to the remoteness, non-connectivity to any paved roadway and driveway use serving the property, it is requested that paving in and around the facility be provided in a graded, graveled, decomposed granite or other non-pervious all-weather surface rather than asphalt or concrete. The reasonable availability of some materials may be challenging due to the remote location of the site. As such, it is requested that any condition of approval addressing paved surfaces provide flexibility relative to materials that may be used.

This request is justified by the remote nature of the site and the fact that the primary access to the site (CR 34) is not a formally paved roadway. Pavement ends on CR 34 approximately 4 miles south of access to the Iveson Ranch. It would make no sense to require or provide AC or similar non-pervious paving within a site where access is provided in a graded, pervious all-weather surface. A pervious surface will be provided in all required accessible parking spaces, to meet ADA standards.

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Pavement's End on CR 34, 4+ Miles South of Project Entry





Existing pavement at material and condition at access to Iveson Ranch from CR 34

Landscaping (Director's Modification) – A director's modification of standards relative to landscaping is requested per allowances set forth in 110.412.05(d). It is requested that all requirements of Article 412 (Landscaping) be waived for this SUP request based on property location, remoteness and surrounding vegetation character and limited nature of improvements proposed.

The area in which this project site is located is a remote, high desert area and that is characterized by natural/native vegetation that would be typical in this environment. In such climates and/or sparsely populated rural and agricultural areas, it is typical to only see trees in riparian areas or strategically planted around inhabited areas for shade and wind buffering. Shrubs consist of sage brush and other natural low-level vegetation and to incorporate ornamental plantings for the purpose of meeting code language would not be responsive to the project area. Following is an aerial view of the property where it is clear that trees only exist in the areas noted previously in this paragraph and within irrigates areas of the surrounding land.

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The landscape requirements of the Washoe County Development Codes have been written primarily for suburban and high rural level development areas. Such requirements, while understood and well-intended, present a rigid and unnecessary pallet and placement requirement for the truly rural areas. The level of improvements proposed with this special use permit, consisting of access road improvements, berms and grading for the energetics area and the allowance of the use of the existing airstrip are not meritorious of any landscape treatment.

Noise (Formal Common Understanding) – The existing Iveson Ranch Airstrip is located partially on a private parcel (066-030-05) and a BLM parcel (066-030-48). Additionally, the energetics area will have isolated noises that will exceed thresholds (on individual instances) identified, but it is not expected that the average noise level would exceed the code threshold. While it not anticipated that either use will exceed the Day-Night Average Sound Level (Ldn) identified in code, it is understood that individual instances will surpass the decibel level and we request that it be clearly noted that noise-related restrictions as associated with the proposed uses be waived due to the remote nature of the site. Due to the potential for misinterpretation of the requirements of the noise ordinance requirements and thresholds, it is requested that the uses proposed are formally identified as meeting the ordinance requirements.

PROJECT NARRATIVE

Safety and Emergency Response

All activities at Iveson Ranch will be conducted by experts in their fields. BRDR maintains emergency response plans and coordinates regularly with local fire, police, and emergency management agencies. BRDR has engaged with Becky Kling (State Fire Marshal), Dale Way (Deputy Fire Chief, Truckee Meadows Fire & Rescue), and Russell Bierle (former head of the Gerlach Fire Department) to ensure safety standards are met. Recognizing the current volunteer status of the Gerlach Fire Department, BRDR has offered support to help maintain its equipment and readiness, benefiting both the Iveson Ranch and the surrounding community.

In addition, BRDR currently has two 4000-gallon water trucks with aft spray bars, one of which has a high-pressure water cannon with approximately 360 degrees of coverage, three UTVs with 80-gallon QTAC fire skids, and multiple sets of wildfire hand tools, PPE and handheld fire extinguishers on site.

Environmental and Community Stewardship

Environmental protection is a core value at BRDR. Environmental testing will be conducted regularly to ensure operations remain within applicable standards. Energetics testing will be restricted to business hours and will comply with Washoe County noise ordinances. In addition, the Iveson Ranch will provide ample employment opportunities in many disciplines and will bring resources to Gerlach and the rest of Washoe County.

The applicant has met with NDOW (Katie Andrle) who said that NDOW will not have jurisdiction over this private land development as there is no subdivision proposed. Additionally, Ms. Andrle noted that any suggested conditions that NDOW may provide through any preliminary plan review would be advisory only and not required.

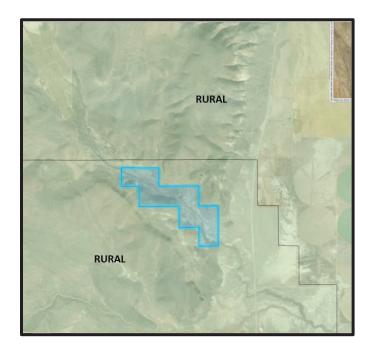
Neighborhood Meeting

A neighborhood meeting was conducted on July 28, 2025, via Zoom. There were 4 residents/business owners from the notified area that attended the meeting. The comments concerning the application were supportive. A supplemental neighborhood meeting was conducted on August 6, 2025, with one resident attending. Again, the comments were supportive and generally curious. Video and documentation concerning the neighborhood meeting have been uploaded on the HUD website.

PROJECT NARRATIVE

Master Plan and Zoning Conformance

The subject property is master planned Rural and zoned General Rural (GR). The uses that are proposed under this special use permit application are all allowed under standard zoning code or through the High Desert Area with the approval of a special use permit. Images of the Existing Master Plan and Existing Zoning of the subject property and surrounding area are provided below.



Exisitng Master Plan Exhibit

Existing Zoning Exhibit



PROJECT NARRATIVE

Legal Findings Review

Washoe County Special Use Permit Legal Findings

Section 110.810.30 Findings. Prior to approving an application for a special use permit, the Planning Commission, Board of Adjustment or a hearing examiner shall find that all of the following are true:

(a) Consistency. The proposed use is consistent with the action programs, policies, standards and maps of the Master Plan and the applicable area plan;

The proposed uses fit withing the General Rural designation as defined in the Washoe County Development Code and expanded in definition and allowances under Article 208.

(b) Improvements. Adequate utilities, roadway improvements, sanitation, water supply, drainage, and other necessary facilities have been provided, the proposed improvements are properly related to existing and proposed roadways, and an adequate public facilities determination has been made in accordance with Division Seven;

The proposed improvement to use the site for drone testing, energetics and allowance of the use of the existing airstrip will not create significant increases to the need for these infrastructure and utilities. The proposed occupancy on the site is similar to the prior use as a guest/dude ranch and appropriate and necessary safety precautions will be taken in the areas of the energetics, as described in the Energetics Exhibit in Tab B of this application package.

(c) Site Suitability. The site is physically suitable for the type of development and for the intensity of development;

The remote location of the proposed site makes it ideal for the proposed use.

(d) Issuance Not Detrimental. Issuance of the permit will not be significantly detrimental to the public health, safety or welfare; injurious to the property or improvements of adjacent properties; or detrimental to the character of the surrounding area; and

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All activities at Iveson Ranch will be conducted by experts in their fields. BRDR maintains emergency response plans, vehicles and tools and coordinates regularly with local fire, police, and emergency management agencies. BRDR has engaged with Becky Kling (State Fire Marshal), Dale Way (Deputy Fire Chief, Truckee Meadows Fire & Rescue), and Russell Bierle (former head of the Gerlach Fire Department) to ensure safety standards are met. Recognizing the current volunteer status of the Gerlach Fire Department, BRDR has offered support to help maintain its equipment and readiness, benefiting both the Iveson Ranch and the surrounding community.

The remoteness of the project site presents a situation where no other properties could be reasonably damaged, nor would the proposed use be deemed detrimental to the surrounding area.

(e) Effect on a Military Installation. Issuance of the permit will not have a detrimental effect on the location, purpose or mission of the military installation.

Not applicable – There are no military installations within the area of the project.

Additional Legal Findings/Considerations

NRS 278.147(4)(b) requires the consideration of the following with approval of a facility using hazardous substances, as is proposed with the use of energetics at the Iveson Ranch site.

(1) The health and safety of the residents of the city, county or region.

As noted in the response to Washoe County, finding, above, all activities at Iveson Ranch will be conducted by experts in their fields. BRDR maintains emergency response plans, vehicles and tools and coordinates regularly with local fire, police, and emergency management agencies. BRDR has engaged with Becky Kling (State Fire Marshal), Dale Way (Deputy Fire Chief, Truckee Meadows Fire & Rescue), and Russell Bierle (former head of the Gerlach Fire Department) to ensure safety standards are met. Recognizing the current volunteer status of the Gerlach Fire Department, BRDR has offered support to help maintain its equipment and readiness, benefiting both the Iveson Ranch and the surrounding community.

The remoteness of the project site presents a situation where no other properties could be reasonably damaged, nor would the use be deemed detrimental to the surrounding area.

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As such, no health or safety issues are apparent with the approval and ultimate use of the site in the manner proposed.

(2) The safety and security of any military installation in the city, county or region.

There are no military installations within the area of the project that would be impacted by the location and proposed uses on this project site.

Director's Modification Considerations

110.804.35(b) states that the Director must find that the following considerations can be made in the affirmative for approval of director's modifications or administrative level decisions:

(1) The requested modification of standards does not result in a substantial detriment to the public good

The project site is remote and the provision of contrived landscaping (beyond seeding with natural revegetation materials), paved roads and paved, striped and formal parking spaces are miles away from the subject property. The nearest commercial use to this site is the Fly Ranch an Fly Geyser and no paved roads, parking or landscaping are provided. One would need to be in Gerlach (a different character management area of the High Desert Area) to begin to find paving, formal parking and formal landscape requirements enforced. Due to the surrounding use and general remote nature of the site, the requested modifications will not present detriment to the public good.

(2) The requested modification of standards does not impair the purpose of the zoning district or any regulations adopted by Washoe County.

The GR zoning district in the High Desert Area is intended to provide the typical county standard uses allowed in GR but also presents many business and industrial level use opportunities (as is proposed with the Iveson Ranch). The additional use allowances are provided for in the Modifiers contained in Article 208. Given the location, BLM land surrounding and the fact that you need to get into a different character management area of the High Desert Area before you begin to see the requested waived or modified suburban and urban level improvements (landscape, parking and paving). It is for these reasons that it is firmly believed that the requested modifications/waivers will not impair the purpose of the GR zoning district in the High Desert Area.

OWNER & APPLICANT

BASIS OF ELEVATIONS

BASIS OF BEARINGS

SPECIAL USE PERMIT PLANS FOR

IVESON RANCH ENERGETICS AND RUNWAY Sarbell



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NEVADA WASHOE COUNTY

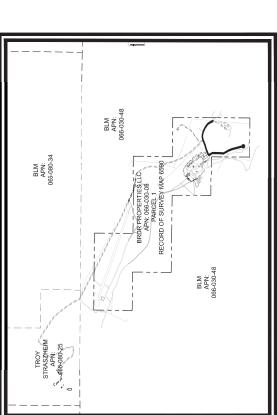
VICINITY MAP (N.T.S.)

PRELIMINARY PLANS NOT FOR CONSTRUCTION

PROJECT INFORMATION APPLEADAGE ZONE GE ZONE GE COLOZOZO GE GERGETES SERVINAVI USE

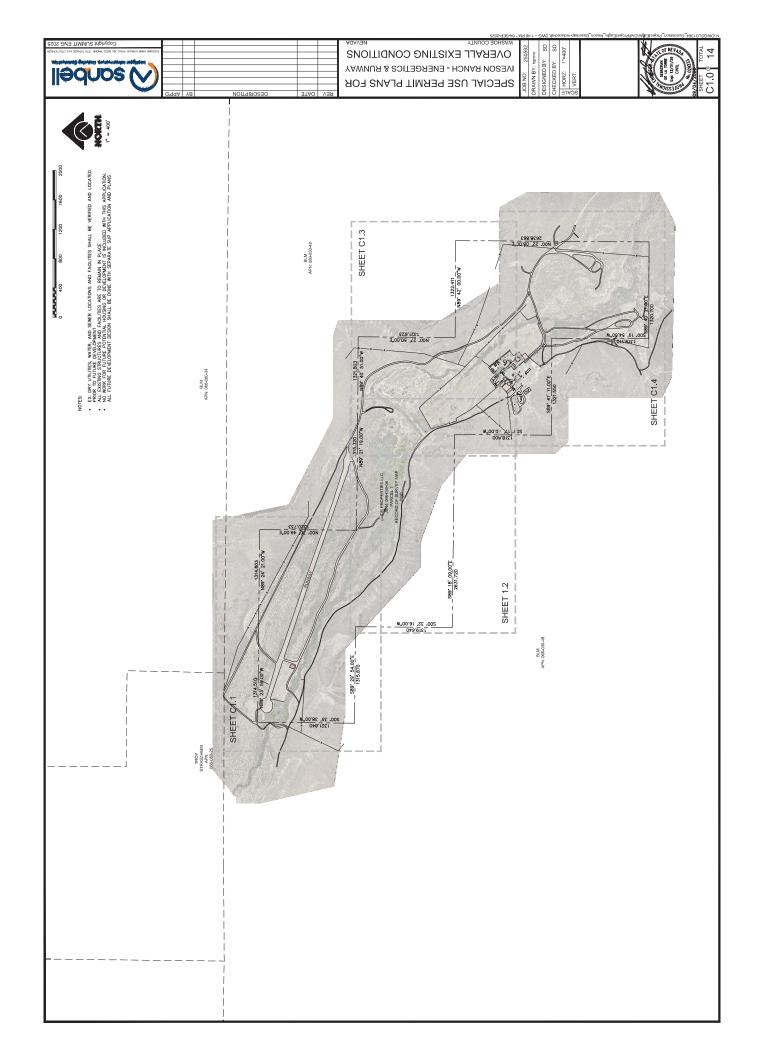
TITLE SHEET

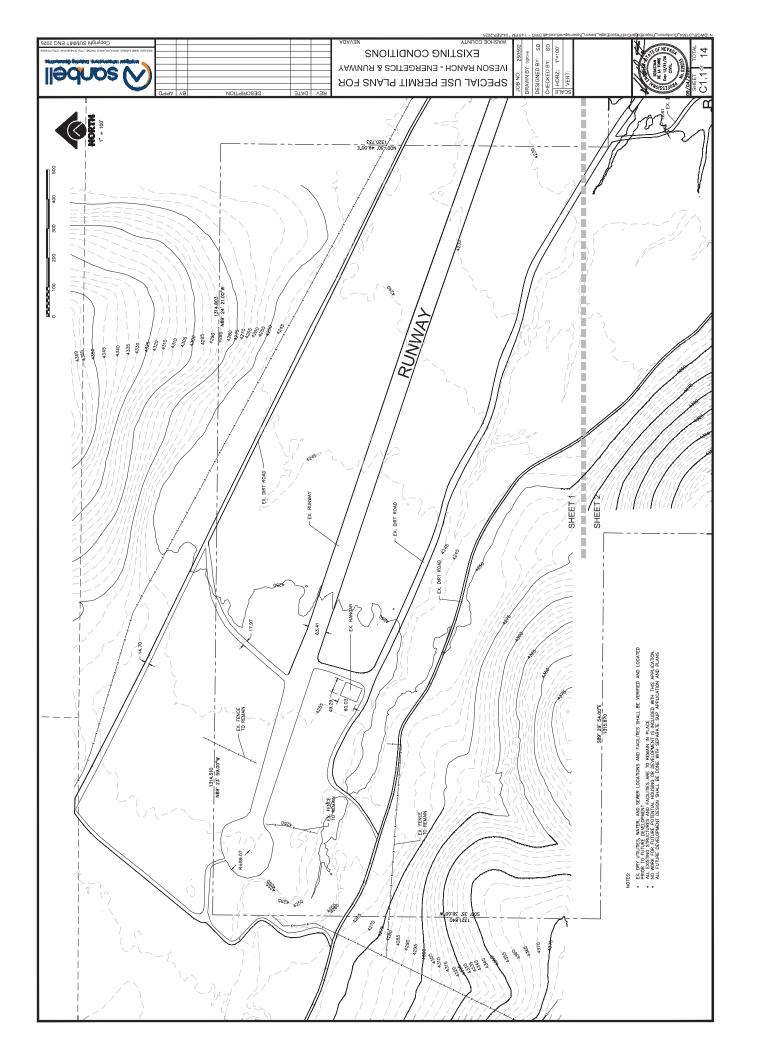
IVESON RANCH - ENERGETICS & RUNWAY SPECIAL USE PERMIT PLANS FOR

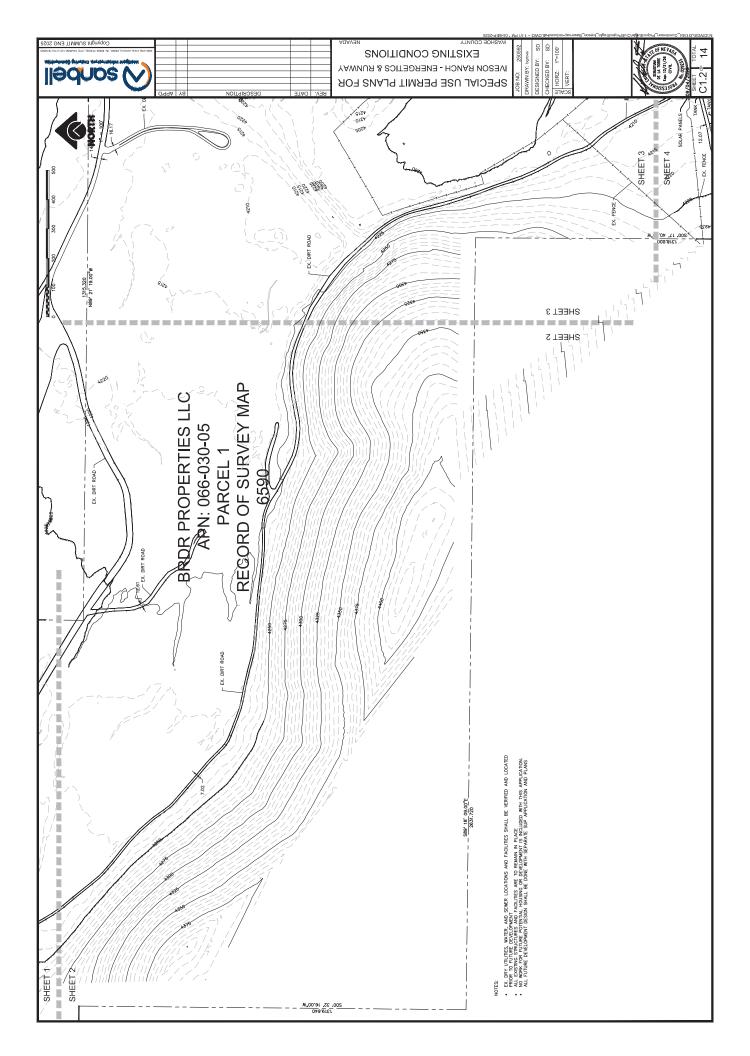


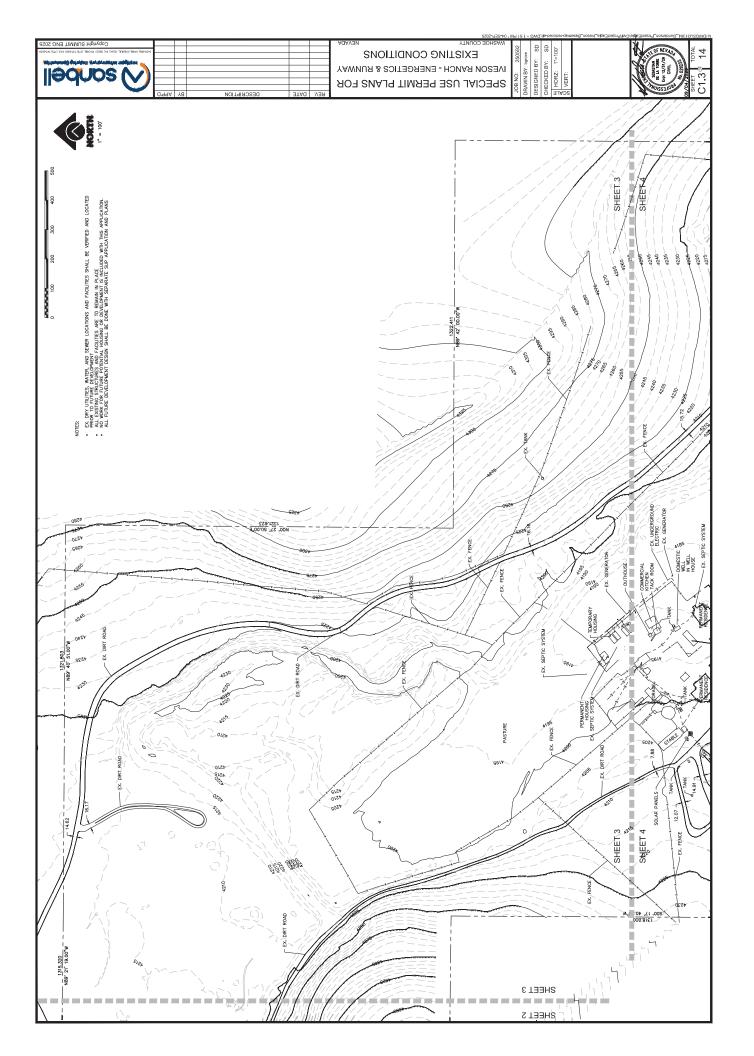
SIGNED BY: 59 IECKED BY: SHORZ: N/A VERT: N/A

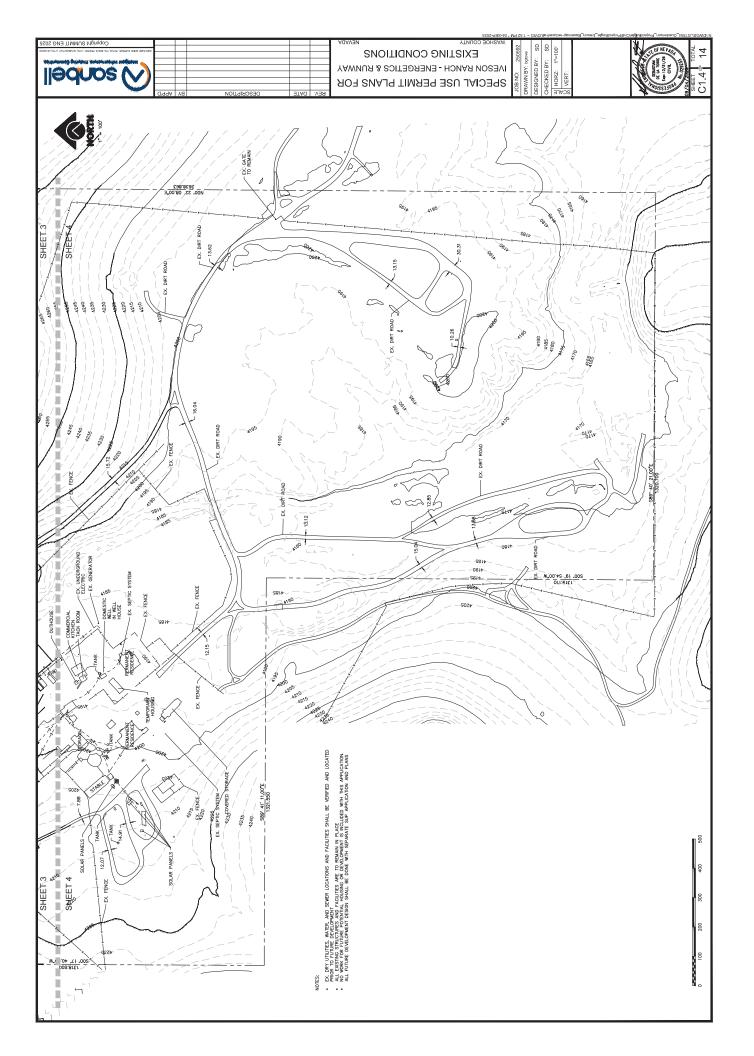
SITE PLAN (N.T.S.)

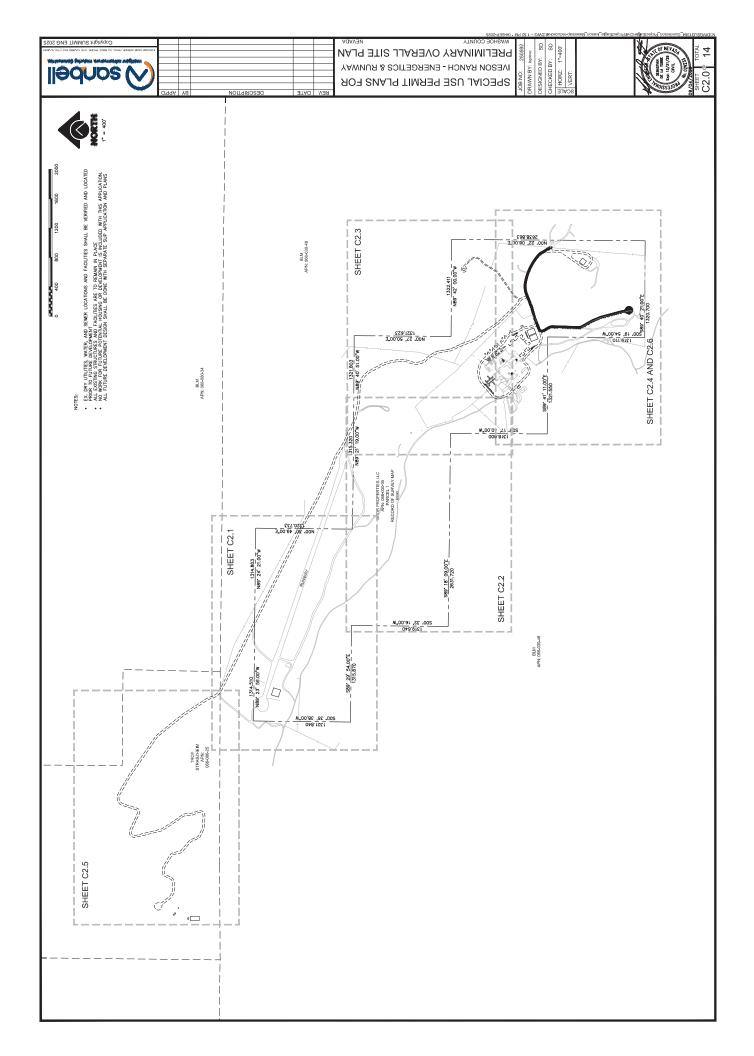


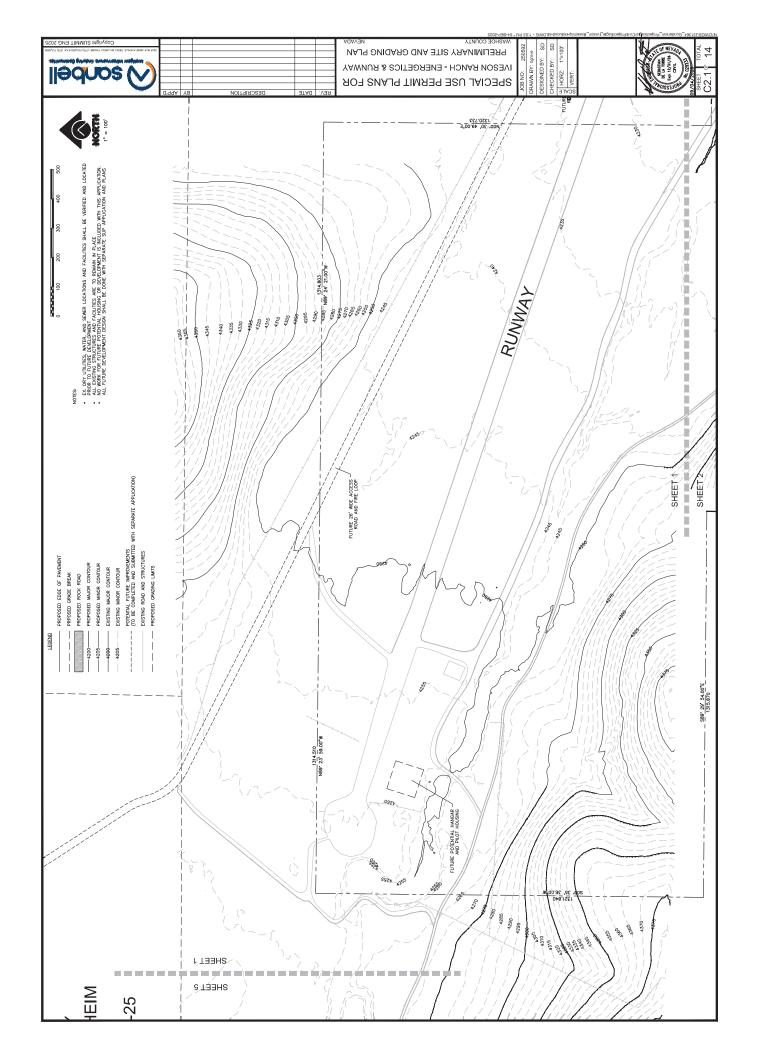


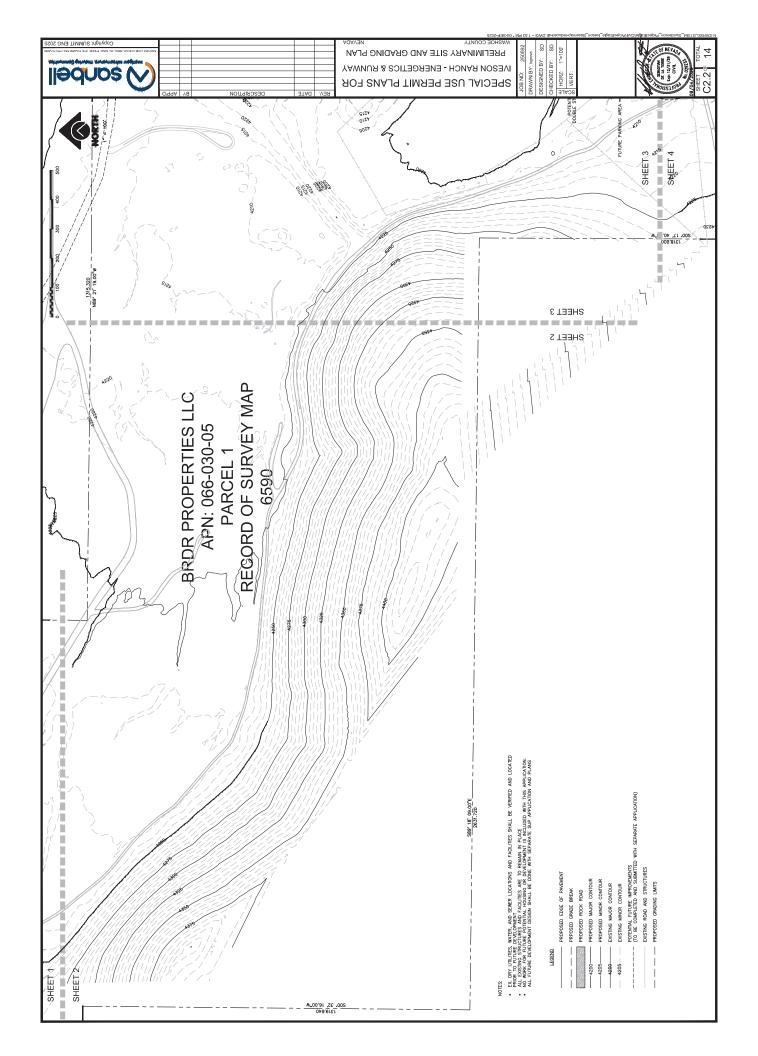


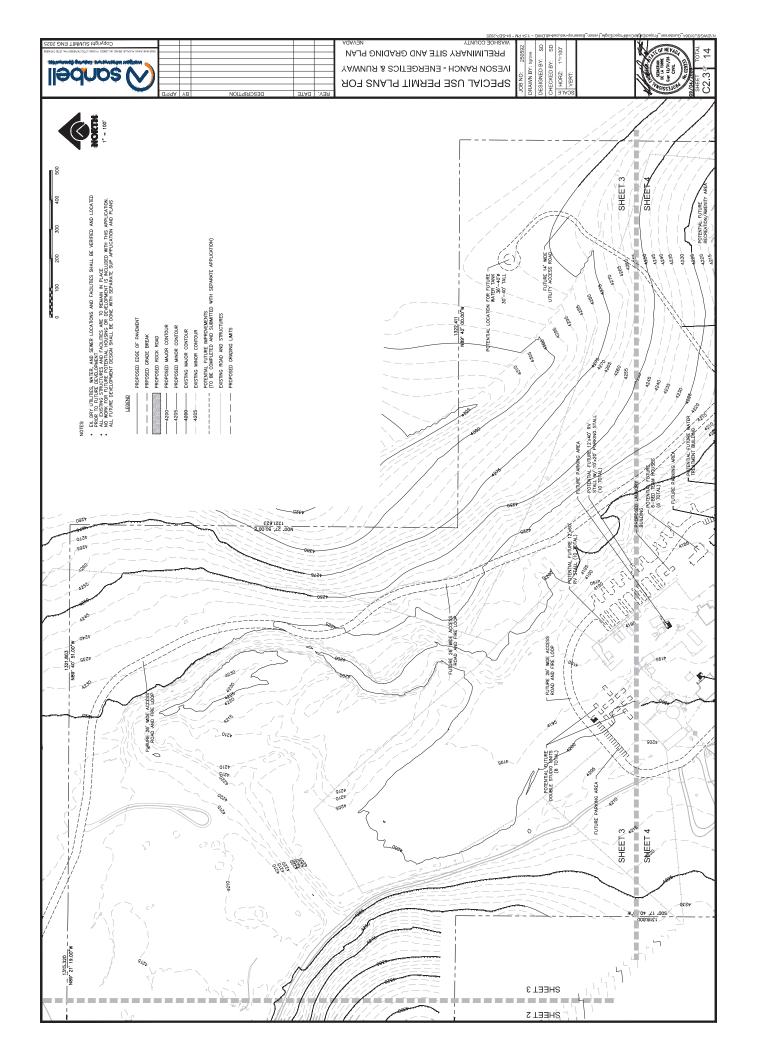


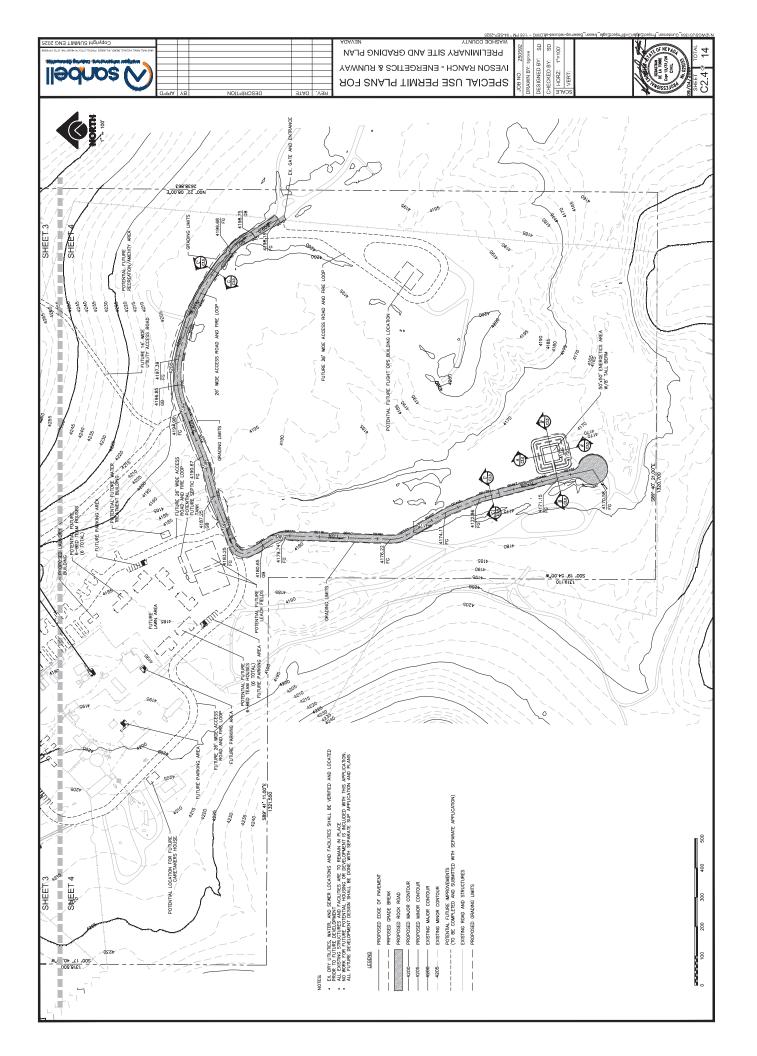


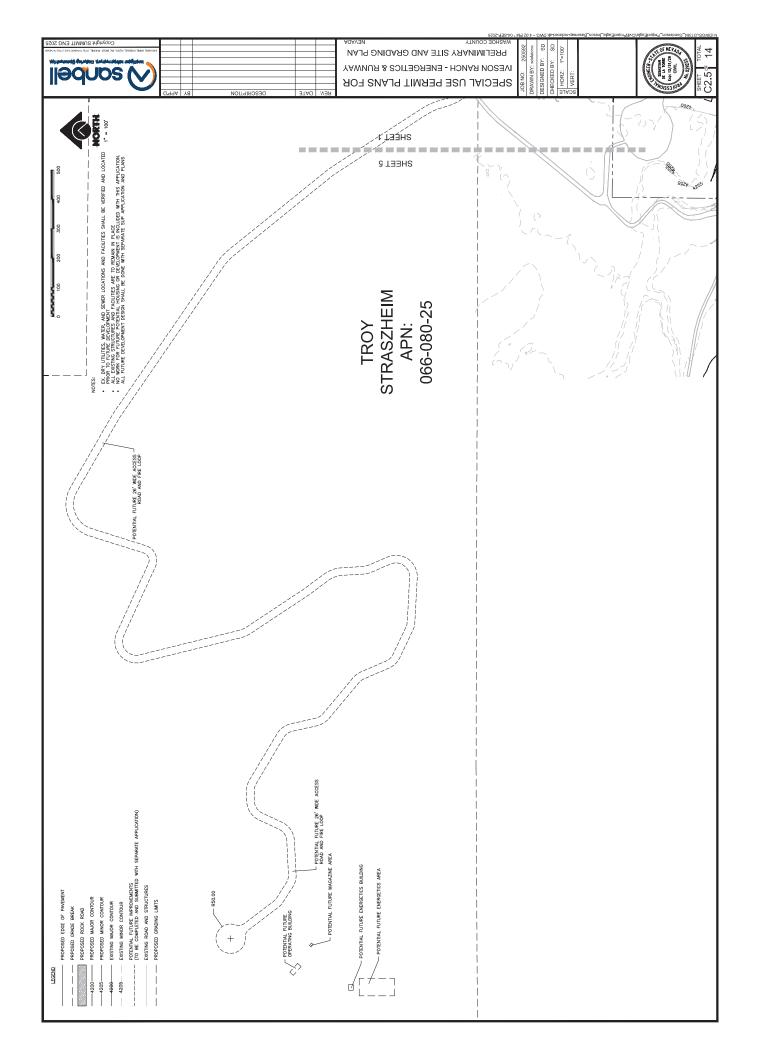


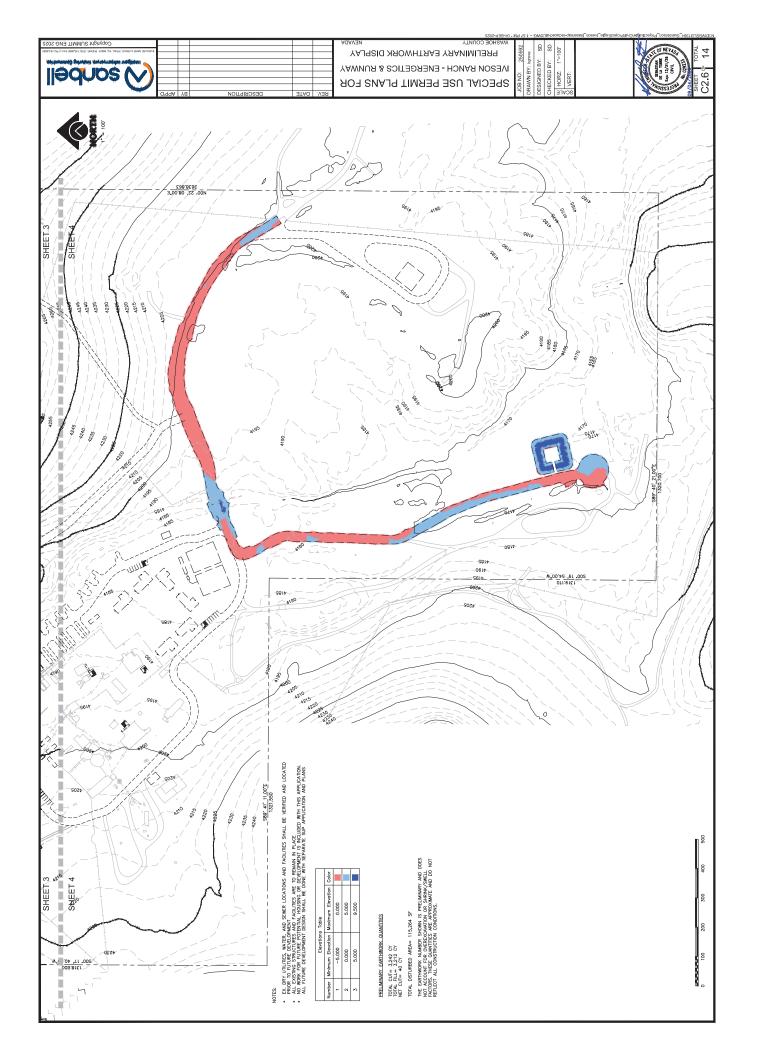


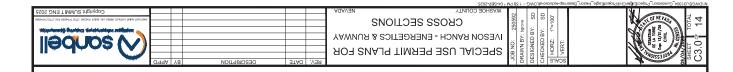


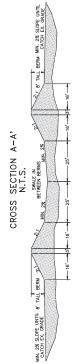


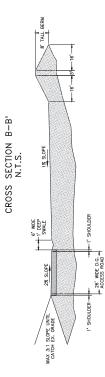


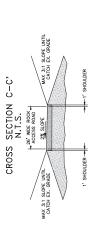


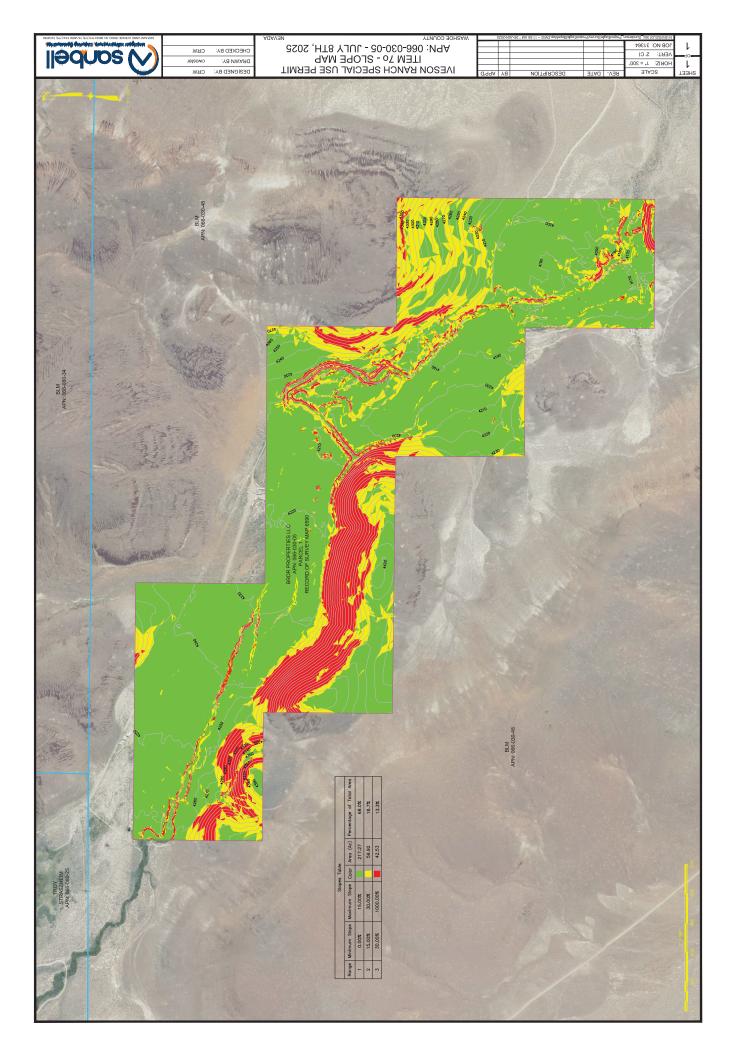












Tab C

ENERGETICS EXHIBIT

The following information provides a comprehensive overview of the energetics testing operations related to the Special Use Permit for Iveson Ranch. Material contained in this exhibit provides background into energetics testing, review of relevant industry standards, and the methods in which the company will comply with federal, state, and local regulation.

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Energetics Testing Description	4
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Airblast	5
Industry Standard Airblast Limits	5
Department of Defense Explosive Safety Board (DDESB) Model	6
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Standard Operating Procedures (SOPs)	10
SOP Policy	10
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Fire Protection	12
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Project Description

This section describes the permitted areas for energetics use and the energetics operations themselves.

Land Description

The property consists of one parcel - Iveson (APN 066-030-05) totaling 320 acres in unincorporated Washoe County, approximately 26 miles north of Gerlach on public state highway 34 (Figure 1). The primary access to the property is a 0.45 mi unpaved and maintained gravel road from highway 34 through Bureau of Land Management (BLM) land.



FIGURE 1: LOCATION OF IVESON

Energetic operations are isolated from other ranch operations and centralized to the southernmost quarter-quarter (40 acres) section of land shown in Figure 2. Located in this area is an Alcohol, Tobacco, Firearm (ATF) approved explosive storage container, called a magazine, and placed at a distance from highway 34 and inhabited buildings appropriate for the storage of 2,000 pounds of net explosive weight (NEW)



FIGURE 2: IVESON ENERGETICS OPERATIONS

Energetics Description

The term "Energetics" is a common and comprehensive industry term for materials that can release chemical energy. Put simply, these are materials ranging from pyrotechnics and propellants, like gunpowder and fireworks, to explosives used for mining and construction.

We are focused on small and innovative scientific and engineering endeavors at the small scale and applications of common energetic material are performed by industry subject matter experts (SMEs) at the small scale. Table 1 is a list of explosive material typical in this type of testing. The list contains thoroughly studied and documented industry standard materials used in commercial projects like mining and demolition as well as typical aerospace and defense applications.

TABLE 1: LIST OF ENERGETIC MATERIAL ON SITE

List of Energ	etic Material	
CAS#	Explosive	Expected Applications
121-82-4	RDX	Composition C-4, A5
118-96-7	TNT	Hexolite, Pentolite
78-11-5	PETN	Detasheet, Blasting Caps, Detonating Cord
2691-41-0	HMX	NONEL, PBX 9501
7790-98-9	AP	Hobby Rocket Motors

The energetics described above are utilized in quantities totaling tens of thousands of pounds annually across the United States. While these materials are likely familiar to the public, they may not be widely recognized by their specific names. Figure 3 illustrates their common applications in demolition, defense, hobby rocketry, and academic research.

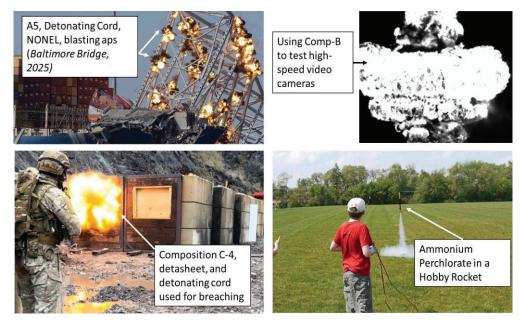


FIGURE 3: COMMON APPLICATIONS OF ENERGETICS

Below is a list of explosives accompanied by representative Safety Data Sheets (SDSs). While the specific vendor or product may vary depending on availability at the time of procurement, these SDSs are considered indicative of the materials that will be received.

TABLE 2: SAMPLE SAFETY DATA SHEETS

Safety Data Sheets (SDS	5)
Item	Link
Detasheet	https://docs.fortordcleanup.com/ar_pdfs/AR-OE-0297B/Appendix_I_MSDS/MSDS.pdf
Hobby Rocket Motor	https://www.apogeerockets.com/downloads/MSDS/Aerotech/Motors.pdf
Composition C-4	https://swordenergetics.com/wp-content/uploads/2025/05/M112-Demolition-Block-Composition-C-4-SDS.pdf
TNT	https://swordenergetics.com/wp-content/uploads/2025/05/SWORD-Energetics-TNT-MSDS-1.pdf
RDX	https://swordenergetics.com/wp-content/uploads/2025/05/SWORD-Energetics-RDX-MSDS.pdf
Detonating Cord	https://www.dynonobel.com/siteassets/product-hub/safety-data-sheets/1121-det-cord-special.pdf
Pentolite	https://www.dynonobel.com/siteassets/product-hub/safety-data-sheets/1108-cast-booster.pdf
NONEL	https://www.dynonobel.com/siteassets/product-hub/safety-data-sheets/1124-nonel-lead-line.pdf
Blasting Cap	https://www.dynonobel.com/siteassets/product-hub/safety-data-sheets/1122-detonators-nonel-11.pdf

Energetics Testing Description

A typical quantity of energetics tested at a single time is roughly ten pounds depending on the objective of the test and results needed. Upper limits are described in a later section.

Testing consists of the controlled initiation of small quantities of energetic material to measure performance characteristics such as energy output and reaction behavior to evaluate the performance, safety, and reliability of these materials and devices. All testing is conducted at a secure range using remote operation to ensure safety, with materials contained or managed to prevent unintended effects outside the immediate test area.

Determining Blast Limits

Explosive limits for intentional detonations at Iveson are as follows:

TABLE 3: INITIATION LIMITS

	NEW Limits for Detonations
Category	Iveson
1.1 Fragmenting	30 lbs.
1.1 Non-Fragmenting	200 lbs.

This section reviews hazards associated with intentional detonations and provides background and justification for determining these limits. Explosive hazards can be generalized by:

- Pressure/airblast/noise/shockwave/overpressure
- Fragmentation (primary or secondary)
- Ground vibration (not relevant)

Airblast

Industry standard airblast predictions and limits allow for intentional limits of up to 200 – 500 pounds with negligible risk of damage to public structures from overpressure. Realistically, a typical NEW limit of under 10 pounds will be used to protect private structures internal to the ranch and reduce publicly perceived nuisance noise.

The primary hazard of mass detonating material (Hazard division 1.1) - airblast is well understood and predicted with simple empirical modelling or cubed root modelling.

Industry Standard Airblast Limits

The International Society of Explosives Engineers (ISEE) provides guidance for the explosive industry that most states and local governments adopt when setting airblast limits. Most guidance is written for the mining industry since they consume 95% of explosives in the US and explosive events can be in the tens of thousands of pounds. Blasting limits and usage permits (<u>NV License</u>) are typically governed by the state fire marshal office and permitted blasters are tested and certified to the international standard.

For example:

- Las Vegas Fire and Rescue limits airblast limits at the nearest external structure to 120 dBa.
- Henderson, NV requires: "Ground vibrations and airblast shall be monitored with blasting seismographs that meet the current International Society of Explosives Engineer's guideline entitled "Performance Specifications for Blasting Seismographs" (www.isee.org) and approved by the fire chief and building and fire safety director." And "Airblast shall not exceed the maximum limit of 120 dBL sound pressure level equivalent of air pressure measured on a linear-weighted scale at the location of any building. Exception: The maximum limit may be raised to 133 dBL with written permission of all building owner(s) within the distance as shown in Figure 2."

The ATF, under 27 CFR, determines appropriate siting locations (table in 555.218 for high explosives) for explosive storage according to nearby structures or activities and prescribes minimum distances as **Inhabited Building Distance (IBD)**, and **Public Transportation Routed Distance (PTRD)**. These two categories will be used to verify minimum safe distances for blasting operations at the test site.

Self-imposed limits, in lieu of fire marshal or county provided limits and in accordance with the International Society of Explosives standards and industry best practices, will be 120 dBL at the nearest structure.

To achieve 120 dBL at the county road from Iveson would require ~200lbs of high explosives. A similar response at the private residence would require detonation of nearly 2 tons of explosives.

However, these limits are not practical and detonations are planned around the 10-pound scale given the proximity to the structures internal to the ranch.

Department of Defense Explosive Safety Board (DDESB) Model

The Department of Defense Explosive Safety Board (DDESB) published an empirical model based on the Kingery and Bulmash polynomials (widely accepted as the preeminent engineering predictions and the basis of Conventional Weapons Effects Programs (CONWEP) for the US COE for predicting pressure at a given distance, formulation, air temperature, altitude, etc. Pressure is most sensitive to the distance an explosive event is from a point. For example, using a typical explosive weight of 10 pounds, results fall below the predictable value of these equations at the distance of 1,620 feet to internal structures. 30 pounds begins to reveal the lower limits of predictability where air pressure experienced by the ranch structure in negligible and window breakage is 1% for a 50 ft^2 window.

Hopkinson-Cranz Scaling Law

It's intuitive to understand airblast will decrease at a given point the further it is from an explosive. The reduction of airblast, specifically is as a cubed-root of the distance. This also leads to factors that may be used to scaled distances given specific explosive weights:

$$Z = \frac{R}{W^{1/3}}$$

Where Z is the "scaled distance", R is the distance or range from the explosive to the target, and W is the weight of the explosive. The Department of Defense (DoD) and United Nations (UN) both publish guidelines for recommending scaled distance coefficients for a given explosive charge. *Note:* UN tends to use Z and DOD uses K.

Example K factors used by the DoD (DA Pam 385-64, Table 8-1, Safe Separation Distances and Expected Severities (HC/D 1.1)) and Defense Explosives Safety Regulation 6055.09, for example when determining the layout of an explosive site for high explosives, are:

TABLE 4: K-FACTORS FOR DETERMINING SITE LAYOUT

Exposure	K-Factor	Incident
		Pressure (PSI)
Inhabited Building (IBD)	40	1.2 psi
(<100,000 lbs)		
Public Traffic Route	24	2.3 psi
(PTRD) Distance		
(<100,000 lbs)		
Absolute Safe Distance	328	

As an example, using these factors to predict DoD allowable distances for 200 and 10 pounds of 1.1 HE:

Exposure	K-Factor	Distance (ft) for 200 lbs	Distance (ft) for 10 lbs
Inhabited Building (IBD) (<100,000 lbs)	40	233.9	86.2
Public Traffic Route (PTRD) Distance (<100,000 lbs)	24	140.4	51.7
Absolute Safe Distance	328	1918.2	706.7

Typical Mitigations

Noise complaints are the most likely impact to the public because of the abrupt nature of a shockwave, regardless of strength. Typical mitigations include providing monitoring service at the address of complaint, awareness/education on effects and industry standards, reduction in frequency, pre-shot warnings or awareness of schedule, limiting to specific business hours, etc.

Fragmentation

Because of the variety of fragments expected, each test will be considered and orientation, topography, and barriers (bin blocks, steel/concrete walls) will be used if needed to reduce the risk of escaping fragments.

Fragments are typically categorized into two sources: primary and secondary. Primary fragments result from the direct shattering of material in direct contact with explosive material and are typically very small and fast. Secondary fragments are from materials in proximity to the device and driven by airblast or airblast. These are larger but slower.

Fragmentation hazards vary depending on the type of charge used. Because of the R&D nature of this operation, fragments tend to be of interest and are captured and studied by the range operator. Orientation of the device and topography is also used to limit the travel distance of primary fragments. Predictions are made depending on the device according to: initial Mach numbers and drag coefficients, fragment shape, Gurney energy and velocity, mass distribution according to Mott's equations/coefficients, and length distribution.

Compared to the mining or construction industry – as opposed to specific airblast requirements, the requirement to control fly rock (mining equivalent) is typically simplified as, "provide methods to prevent fly rock from damaging structure" The same approach will be used since the formation of primary and secondary fragments will be dependent on the situation.

United Nations Guidelines

The international Ammunition Technical Guidelines (IATG) 01.80 offers conservative guidelines according to metric Z factors (for scaled-law approximations).

For example, a 30-pound fragmenting charge results in a minimum safe distance of 2,250 feet. Note that this is a distance at which no more than 1 fragment is expected to fall.

Defense Explosive Safety Regulation (DESR) 6055.09

Ground vibration, similar to airblast, is predictable and periodically measured for buried charges. However, we are not expected to test buried charges and minimal ground coupling occurs with airblast and surface testing. ISEE guidelines will be followed if there is a transition to buried targets.

Pollution

At the projected rate of 360 tests per year, the company does not require a permit from the Air Quality Management Division (AQMD) of the Nevada Department of Environmental Protection (NDEP) of Washoe County. The volume of testing necessary to reach threshold levels for criteria pollutants exceeds the scale and scope of the planned operations at this location

Any pollution source located in Washoe County must obtain a permit if it emits, or has the potential to emit, air pollutants in amounts equal to or exceeding the thresholds specified in the table below:

Table 5: Washoe County District Board of Health Regulations Governing Air Quality Management General Source

Permitting Applicability – 030.020

Regulated Criteria Pollutant	Minor Source Potential to Emit (PTE) Threshold (tons/year)	Major Source Potential to Emit (PTE) Threshold (tons/year)
PM10	5	100
PM2.5	5	100
Carbon Monoxide (CO)	5	100
Volatile Organic Compounds	5	100
Nitrous Oxides (NOx)	5	100
Sulfur Dioxide (SO2)	5	100
Lead (Pb)	0.3	100
Hazardous Air Pollutants (HAP)	-	10/25

The majority of planned operations involve small scale detonations of standard explosive materials and devices and static rocket motor testing. For the purpose of these calculations, an optimistic test frequency is in the below table. This is equivalent to a 1-week test series once or twice a month:

TABLE 6: TYPICAL ANNUAL TEST FREQUENCY

Number of Tests per Day	5
Test Days per Week	4
Test Weeks per Year	18
Total # of Tests per Year:	360

A "standard" reference test was used to estimate the number of emissions per year.

The Environmental Protection Agency (EPA) publication AP-42 compiles air emission factors from stationary sources to support the estimation of pollutant and hazardous material emission rates. This analysis uses Chapter 15: Ordnance Detonation to estimate emission rates for the materials and devices listed in Table 3.

Using the data above, the expected annual emission factors for criteria pollutants and Hazardous Air Pollutants (HAPs) were calculated to estimate total yearly emissions based on the projected testing rate. At a rate of 360 tests per year, HAPs represent the largest emission category, with an estimated output of approximately 1.2 tons annually. Note that this calculation does not account for VOCs separately and they are instead included in the HAP category.

TABLE 7: IVESON RANCH EMISSION RATES SHOWN AGAINST THRESHOLD LIMITS

Regulated Criteria Pollutant	Minor Source Potential to Emit (PTE) Threshold (tons/year)	Ivesone Potential to Emit (tons/year)
PM10	5	0.019
PM2.5	5	0.041
Carbon Monoxide (CO)	5	0.244
Volatile Organic Compounds	5	Note 1
Nitrous Oxides (NOx)	5	0.024
Sulfur Dioxide (SO2)	5	0.027
Lead (Pb)	0.3	0.00014
Hazardous Air Pollutants (HAP)	5 (major)	1.2
Note 1: VOCs are included in HAP calculation		

Based on this rate, HAP emissions would reach the 5-ton threshold at approximately 1,503 tests per year, exceeding the number of "standard" tests per year.

TABLE 8: REQUIRED TESTS TO ACHIEVE FIVE TONS OF HAP OUTPUT

Tons of Criteria Pollutant / Yr			
	No. of Tests/Yr		
	360	1503	
PM10	0.018684	0.078004804	
PM2.5	0.040695	0.16990029	
Carbon Monoxide (CO)	0.243684	1.017380355	
Nitrous Oxides (NOx)	0.023677	0.098850982	
Sulfur Dioxide (SO2)	0.027105	0.113163475	
Lead (Pb)	0.000145	0.000604777	
Hazardous Air Pollutants (HAPs)	1.196937	4.997212151	

Standard Operating Procedures (SOPs)

Standard Operating Procedures (SOPs) are used to explicitly provide direction to employees who interact with energetics and the company policy dictates only the specific steps in the procedure are permitted. This means an energetic operating procedure contains proprietary and business sensitive steps that may expose the safety and operational security of the personnel and company if provided to the general public. It is general practice to provide an outline or table of contents of an SOP when desired to ensure appropriate topics have been addressed and the specific implementation is the responsibility of the company in accordance with applicable regulations. Below is a list of sections in the SOP governing energetics operations:

TABLE 9: ENERGETIC SOP CONTENTS

	SOP Table of Contents
1.	Background
2.	Roles & Responsibilities
3.	Daily Risk Management
4.	Storage Operations
5.	Onsite Transportation
6.	Energetic Handling Safety
7.	Test Procedure
8.	Mishap Procedures
9.	Emergency Procedures

SOP Policy

A general Standard Operating Procedure dictating procedures for conducting explosive operations at Iveson Ranch is established and followed prior to beginning operations on the property. This procedure shall detail specific steps for meeting federal, state, and local regulations and establish safe working practices for typical explosive handling operations. The procedure must address the following areas:

- Roles and responsibilities

- Hazard Control Briefing
- Magazine operations
 - Inspection requirements and frequency
 - o Storage requirements in accordance with ATF regulations
 - Magazine access control
 - Receipt of shipped goods
- On-site transportation
- General explosive handling safety
- Site Security
- Explosive Mishap procedures
- Emergency Procedures
 - Environmental (Heat, water, lightning)
 - Medical

All other procedures shall be subordinate to the above general SOP.

Personnel Qualification Policy

Company policy describes the required qualifications and certifications of personnel involved with or participating in energetic operations and the method through which the company shall authorize and manage this process.

All personnel required to have physical or constructive possession of explosive material must be designated as an **Employee Possessor** under the company's federal explosive license through the ATF.

Roles and responsibilities of employees will be determined by their level of experience, training, and knowledge of certain explosive operations. Risk is managed through a team member/lead program with the following roles:

- <u>Team Member</u> Ability to participate in explosive operations while under the direct control of a team lead. This designation is meant for personnel new to either explosives in general or federal, state, and local regulations. This is the expected designation for most personnel while developing the knowledge and abilities needed for independent work.
- <u>Team Lead</u> Ability to work independently and train and oversee Team Member employees.

The goal of this progression is to ensure employees are trained to and can and will comply with all federal, state, and local regulations and follows industry standard best practices. This minimizes both risk to the health and safety of the employees and reduces the liability of the company.

Certification areas will include:

 Magazine Operations - Employees certified in this area will demonstrate competency and knowledge of rules and regulations governing the stowage and storage of explosive materials in order to comply with industry best practices and federal ATF storage requirements. An example of employee certified to magazine operations includes a site or facility manager who would conduct a weekly visual inspection of a magazine. Magazine operators may also receive magazine keys at the beginning of a shift to open and dispense explosive materials while ensuring daily inventory is up to date.

- On-Site Transportation While restricted to private property, on-site transportation shall follow DOT guidelines and best practices.
- <u>High Explosive Handling</u> Certified employees are familiar with safe work practices of handling low sensitivity high explosives. This includes handling, packing, loading, assembling bulk high explosives or devices containing high explosives.
- <u>Low Explosive Handling</u> Certified employees are familiar with safe work practices of handling low sensitivity low explosives. This includes handling, packing, loading, assembling propellant, rocket motors, and other pyrotechnics.
- <u>Initiator Handling</u> Because of their ability to initiate and promote detonation, deflagration, and combustion events at a low impetus, employees required to handle initiating devices shall undergo additional training, either on-the-job, formal, or both before certifying to initiator handling.

The Director of Explosive Operations is responsible for certifying them at a specific level and verifying all other policies are being followed, either through past experience or through a Team Lead.

A list of explosively qualified and certified employees is maintained by the company and will be periodically reviewed.

Fire Protection

This section describes fire protection and fire fighting responses as it relates to the energetic operations on Iveson. These are steps taken from the standard operating procedure and other mitigations taken to ensure a safe working environment and appropriate response.

Fires involving explosives will never be fought. Any emergency response shall be alerted of the presence of or potential of explosives involved in a fire. In the event of a fire involving explosives, the onsite team lead shall evacuate everyone to a safe distance. Efforts will be focused on containing the fire at a safe distance to protect the surrounding area.

Mitigations for encroaching wildfires includes compliance with ATF, OSHA, and IFC codes and regulations that state keeping a 25-foot area around the storage magazine clear of combustibles such as rubbish, brush, dry grass, small trees, and other debris. Additionally, the site will maintain more stringent NASA and U.S. Navy explosive safety standards by keep a 50-foot area clear of combustibles as a fire break to minimize hazards.

Berms or barricades will be maintained around the test area to contain the blast effects and, as part of immediate post-blast inspections, a fire watch is implemented to inspect the immediate area for any smoldering remains that may have been ejected. Personnel are experienced with responding to smoldering remains or small spot fires with flappers or a UTV equipped with water and a sprayer (Figure 4).

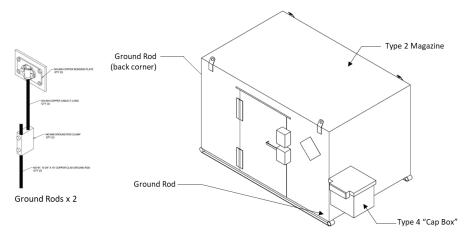


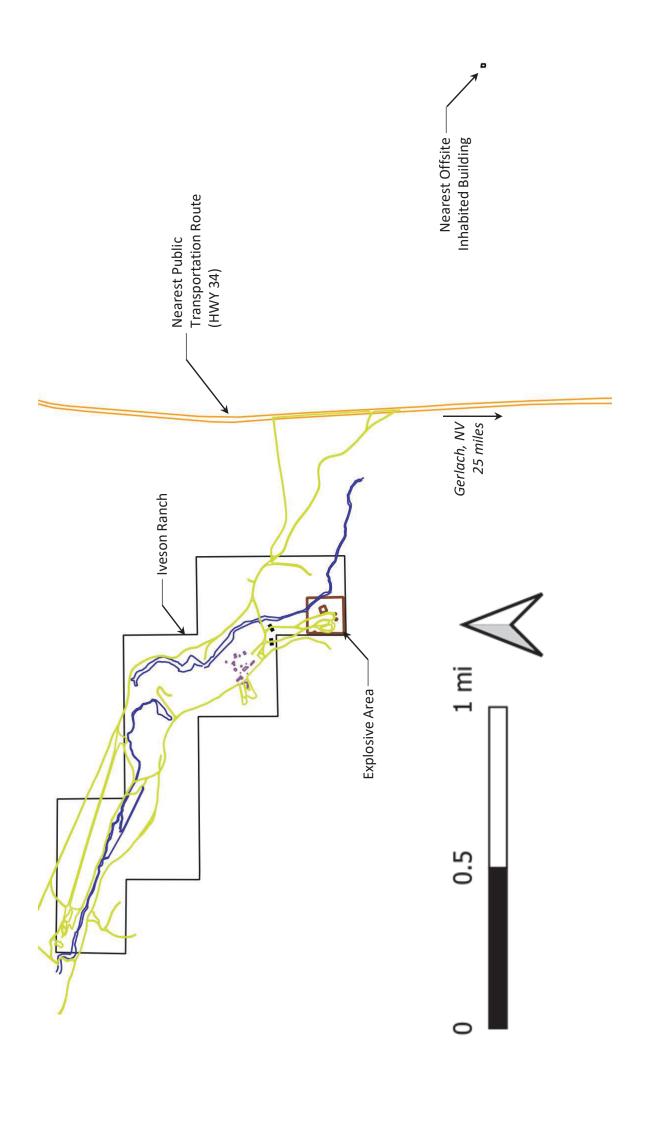


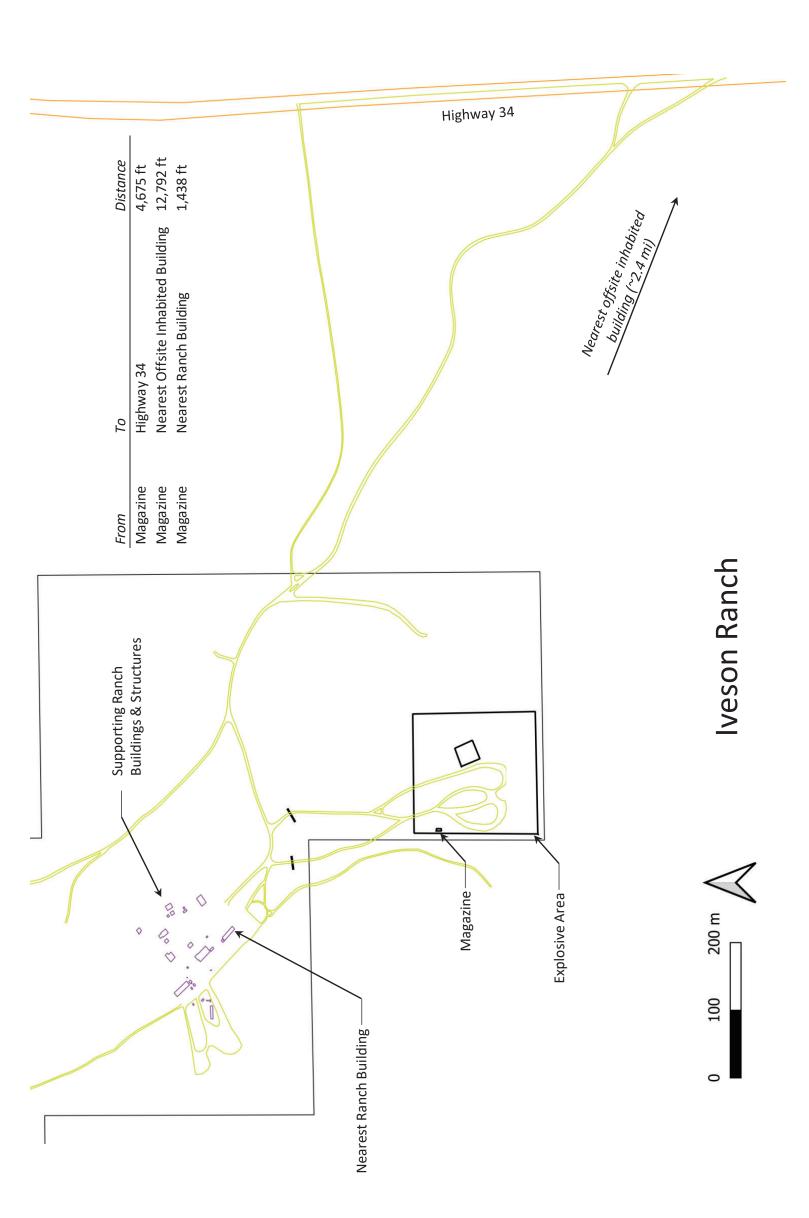
FIGURE 4: FIRE FLAPPER (LEFT) AND UTV WITH SKID SPRAYER (RIGHT)

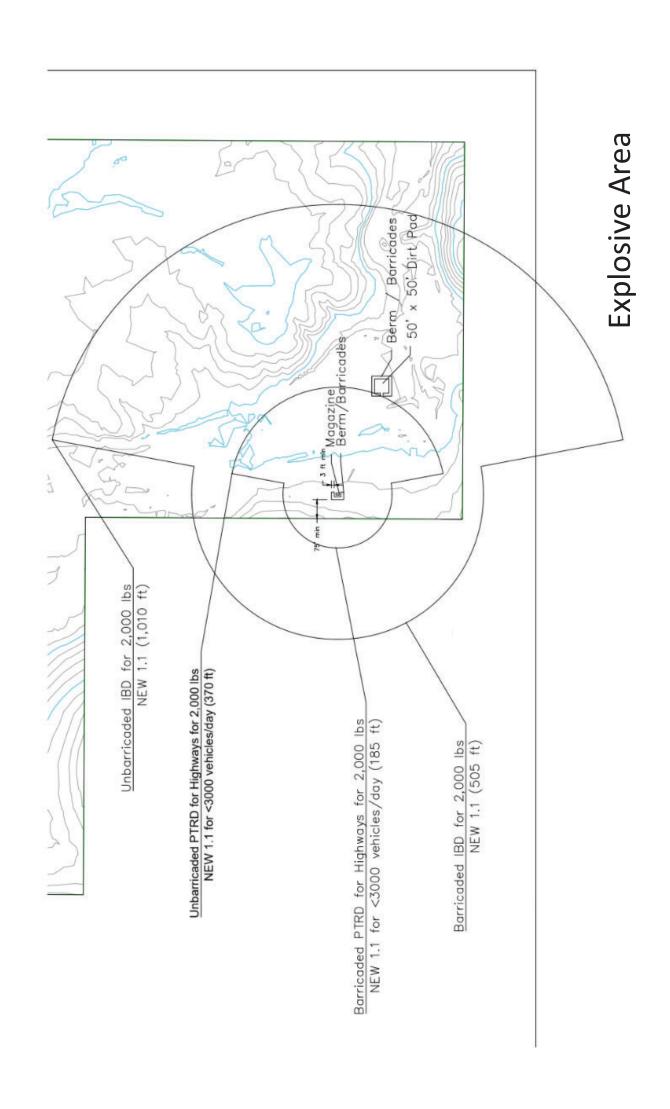
Site Plan

The energetics area on the property has a single structure: an explosive storage magazine. This existing magazine meets ATF specification (27 CFR Section 555.208) for Type 2 explosive storage with an attached Type 4, class BC detonator magazine. Purchased new from ARMAG corporation. The magazine is considered an above ground portable magazine and is installed on flat level ground with manufacture provided NFPA grounding rounds on opposing corners. Hazard Class/Division 1.1 will be stored in the magazine. The magazine is also set back at least 75 feet from the property boundary.











Kevin Phelps kphelps@aurelianindustries.com

ATF Federal Explosives License

1 message

Hamorski, **Kevin J. (ATF)** < Kevin.Hamorski@atf.gov> To: Kevin Phelps < kphelps@aurelianindustries.com>

Thu, Sep 4, 2025 at 11:05 AM

To whom it may concern,

This email is to inform you that Aurelian Industries has completed all requirements for an explosives license with the Bureau of Alcohol, Tobacco, Firearms & Explosives and will be issued a license. If you have any questions or concerns don't hesitate to reach out.

Kevin Hamorski, Industry Operations Investigator

Bureau of Alcohol, Tobacco, Firearms and Explosives

San Francisco Field Division

Reno Satellite Office

Phone: 775-229-2801

Fax: 775-784-5933

PRELIMINARY GEOTECHNICAL INVESTIGATION FOR IVESON RANCH GERLACH, NV

File No. 31364

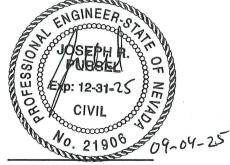
September 4, 2025



Prepared For:

Mr. Mike Arth BRDR marth@projectealge.net 314.920.9893 Prepared By:

Sanbell 5405 Mae Anne Avenue Reno, Nevada 89523



Joseph R. Pursel, P.E. Geotechnical Manager



September 4, 2025

Mike Arth BRDR marth@projecteagle.net 314.920.9893

Job No. 31364

RE:

Preliminary Geotechnical Investigation

Iveson Ranch APN 066-030-05 Gerlach, NV

Dear Mr. Arth:

Attached please find the results of our PRELIMINARY geotechnical investigation for the proposed Iveson Ranch. Sanbell excavated 8 exploratory test pits to characterize the site for phased construction of a research campus. Material testing is currently being performed on samples obtained from the site. Preliminary field analysis of soils found during excavations are shown in the excavation logs. Final results of the analyses and logs of the test pits will be present in a forthcoming final report.

The site is currently a working ranch in remote Northern Nevada. Preliminary field analysis indicates that mostly silty sands (SM) were encountered on this site. Based on preliminary findings, the site appears to be suitable for the proposed development.

The following report provides PRELIMINARY geotechnical recommendations and guidelines for the design and construction of the project. Laboratory analysis of soils encountered during investigation is currently in progress. A final soils report will be issued once all laboratory work has been completed. **DESIGN VALUES IN THIS REPORT ARE PRELIMINARY AND MAY CHANGE SIGNIFICANTLY IN THE FINAL DRAFT.** We wish to thank you for the opportunity of providing our services. We are readily available to answer any related questions.

Sincerely,

SANBELL

Joseph R. Pursel, P.E.

Geotechnical Division Manager

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PRELIMINARY GEOTECHNICAL INVESTIGATION IVESON RANCH GERLACH, NV

I. INTRODUCTION

A. Project Description

This report presents the results of our Geotechnical Investigation to evaluate Iveson Ranch, APN 066-030-05 for a phased research campus in Gerlach. Exploration has conducted to provide preliminary geotechnical recommendations for the design and construction of the project.

The subject property is located in remote northern Nevada, approximately 22 miles north of Gerlach, Nevada. Sheet 1 presents a vicinity map. Sheets 3-5 presents the project site with test pit locations.

It is our understanding that the proposed development will entail the phased construction of research campus, ultimately including multiple team housing units, RV spaces, new hanger, a flight operations center, an energetics area, new water systems, new septic systems and new solar power generation array.

The site will have access from County Road 34.

B. Purpose and Scope

The purpose of this preliminary investigation was to determine subsurface soil and bedrock conditions and to provide geotechnical design criteria for the proposed development. The scope of this investigation included surface reconnaissance, subsurface exploration, analysis of field and laboratory data (in progress), research of pertinent geologic literature and report preparation. This report provides Preliminary conclusions and recommendations concerning:

- General subsurface conditions and geology
- Site preparation and earthwork
- Engineering properties of the soils and bedrock that will influence design of future structures, including:
 - Bearing capacities
 - Settlement potential
 - Lateral earth pressures

- Portland cement concrete
- Asphalt concrete
- Seismic design criteria

The provided design criteria could change in the final report based on currently in progress laboratory testing.

C. Field Exploration and Laboratory Testing

Sanbell conducted the subsurface investigation by excavating 8 exploratory test pits and 4 exploratory percolation trenches to a maximum depth of up to 18 feet below existing grade. The exploratory excavations were excavated with a with a Caterpillar 315 tracked excavator and a Caterpillar 317 tracked excavator. Representative samples of the soil were collected from the excavations. Selected samples are currently undergoing testing at Sanbell's laboratory and other outside laboratories. A Professional Engineer supervised the logging of the subsurface conditions encountered. Sheet 1 shows the vicinity map and Sheet 2-5 presents a site maps with the locations of the test pits. Sheet 6 shows the geologic data surrounding the site. Sheet 7 shows the faults in the surrounding area. Sheets 8 through 19 display the logs of soils and bedrock encountered in the excavations. Sheet 20 provides a key to the excavation logs as well as a copy of the Unified Soil Classification System used to identify the site soils.

Representative bulk samples were taken from the excavations at every significant lithologic change. Representative samples are currently being tested as follows: 1) sieve analyses tests (ASTM D422); 2) moisture content tests (ASTM D2216); 3) Atterberg limits tests (ASTM 4318), to confirm field soil classifications; 4) an R-value test (ASTM D2844) to determine a surface road structural section; and 5) a soluble sulfates test to determine if the native soils are reactive with Portland cement concrete. The index test results can be used to estimate engineering properties of the native soil/bedrock. All laboratory testing is being conducted in accordance with the applicable standards.

II. DISCUSSION

A. Site Description

The site is located in remote northern Nevada, north of Gerlach. The site consists of a working ranch. Surrounding the subject site are other ranches and open range land.

B. Site Geology

The project is located north of Gerlach, NV. The most current geologic area map is the Geologic Terrane Map of Nevada. The rock types encountered were identified by those authors as the following:

Qal: Quaternary Sediments and Rock (Holocene and Pleistocene): Alluvium, undifferentiated.

C. Regional Seismicity

The property, according to International Building Code 2018 and ASCE 7-16, may be subject to strong seismic acceleration, 0.234 (S1) ground acceleration, a major seismic event. The effect of seismic shaking, therefore, is an important consideration.

The site has native soil profile of D-Default, since the upper 100' soils profile is not fully known. The following table summarizes seismic design parameters for the 2018 International Building Code/ASCE 7-16 criteria for structural design of the project:

IBC SEISMIC DESIGN

Site Class	D – Default
Risk Category	II
Soil Shear Wave Velocity (\ddot{v}_s)	600 to 1,200 ft/s
Standard penetration resistance (N)	15 to 50
Soil undrained shear strength (s _u)	1,000 to 2,000 lb/cf
Site Coefficient (F _a) w/ short accel. (s _s)	1.287
Site Coefficient (F _v) w/ 1-sec. accel. (s ₁)	*
Max. ground motion, 0.2-sec SA (S _s), %g	0.641
Max. ground motion, 1.0-sec SA (S ₁), %g	0.234
Design acceleration, S _{DS} , g	0.55
Design acceleration, S _{D1} , g	*

NOTE *: Structural Engineer shall determine these values in accordance with ASCE 7-16, Section 11.4.8, Exception 2.

The site is located in North of Gerlach, Nevada. Earthquake activity is difficult to predict and it is not known which documented fault system may produce an earthquake event and associated surface rupture. Current research by the Nevada Bureau of Mines and Geology and the University of Nevada, Reno indicates that a local earthquake event of Richter scale magnitude 7.0 would not be unlikely.

At the present time, there are not any local codes that provide guidelines for the evaluation of seismic risk or surface rupture hazard associated with Quaternary (Holocene and Pleistocene) faults, except a minimum 50 foot set back from occupied structures. The State of Nevada requires the use of seismic provisions set by the IBC, as well as adoptions of appropriate local standards (NRS 278.580.5). For the purposes of assessing seismic hazard and potential fault rupture hazard, standard engineering practice is to pursue the most diligent investigation of those faults deemed to be most likely to be active. Most geological consultants in Nevada follow the conventions established by the Nevada Earthquake Safety Council, whose guidelines are based on the Alquist-Priolo Act of 1972 in California. Per these guidelines, faults with evidence of movement in Holocene time (past 12,000 years) are considered "Holocene active". Those faults with evidence of displacement during Late Pleistocene time (10,000 to 130,000 years ago) would be considered "Late Quaternary active". Faults with evidence of last displacement having occurred during middle and early Quaternary time (130,000 years to 1,600,000 years ago) are considered "Quaternary Active Faults" (formerly "potentially active"). Faults with last displacement older than 1,600,000 years are deemed "inactive". Active faults are afforded a greater degree of study and analysis than those regarded as inactive. Normally, any fault suspected of being active, as demonstrated by offset of the argillic (topsoil) horizon, poses a greater risk to development and requires a minimum setback of 50 feet for occupied structures. No mapped active faults cross the site or are within 50 feet of the site (Sheet 7) nor were any encountered during this investigation The seismic hazard at Iveson Ranch is probably no greater than other comparable locations in the area that are located at comparable distances to identified faults.

Occupied structures have been built over and adjacent to inactive faults in the greater Reno area for decades, without significant harm to residents from temblors affecting the area. Building codes have evolved in recent years to provide adequate structural protection to residents for the level of tremors experienced to date. Summit Engineering does not recommend siting occupied structures across any fault, regardless of activity classification.

Groundwater was encountered during the exploratory work by Sanbell. In limited areas. Liquefaction, a hazard in seismic zones where water-saturated, loose soils lose their bearing during seismic shaking, is not anticipated to be a problem on the project site due to the depth and location of groundwater as well as the relatively light proposed building loads.

D. Subsurface Materials and Conditions

Based on the exploratory excavations completed to date in this area, the native material appeared to be the only material present and there was no evidence of uncontrolled fill on the site. The native material was present throughout the test pits up to the depth of excavation. Preliminary field analysis of the encountered soils indicates majority of this material was silty sands (SM). All material on-site meeting structural fill parameters in Appendix A will be suitable to be used to provide suitable support for proposed structures.

Groundwater was encountered on the site. Groundwater is not anticipated to impact development of the site.

III. PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

From a geotechnical engineering standpoint, it is our preliminary opinion that the site at Iveson Ranch is suitable for the construction of the proposed phased improvements provided that the recommendations contained in this report are incorporated into design and construction. The following sections present our preliminary conclusions and recommendations concerning the proposed project. THESE VALUES COULD DIFFER FROM THOSE THAT WILL BE PRESENTED IN THE FINAL REPORT.

A. Foundation Considerations

Native non-expansive gravels and sands will be suitable to provide direct foundation support. If any clay or expansive silts are found they should not be used to provide direct foundation support. Preliminary field analysis indicates native materials (SM (Silty Sands)) that can typically support up to **2,000 pounds per square foot** for dead plus long term live loads, on spread type footings with less than 1 inch of total settlement and less than 1/2 inch of differential settlement across the length of the structures.

In silty sands (SM), passive soil resistance to lateral movement may be calculated using an equivalent fluid weight of 150 pounds per square foot per foot of depth and a coefficient of friction of 0.25. Active lateral soil pressure may be calculated using an equivalent fluid weight of 45 pounds per square foot per foot of depth. The at-rest soil pressure may be calculated using an equivalent fluid pressure of 60 pounds per square foot per foot of depth. These values assume that the native non-expansive granular soils and bedrock will provide direct foundation support.

B. Grading and Filling

Any uncontrolled fill materials and clayey sand, if encountered, shall be removed prior to placing any fill. These materials are unsuitable for use as fill in structural areas due to the amount of deleterious materials observed. Therefore, these materials shall only be placed as the final lift of fill in landscaped areas.

All areas that are to receive fill or structural loading shall be scarified to a depth of at least 12 inches, moisture conditioned to within 2 percent of optimum, and re-compacted to at least 90 percent relative compaction (ASTM D 1557). If the native subgrade is too coarse to density test, then moisture conditioning and compaction shall be completed to the satisfaction of the Geotechnical Engineer. A proof rolling program of a minimum 5 complete passes with a minimum 10 ton roller or a Cat 825 self propelled sheepfoot may be acceptable. For footing trenches, 3 complete passes with hand compactors may be adequate.

All fill, except rock fill (<30% retained on the 3/4" sieve), shall be placed in 12-inch maximum lifts, moisture conditioned to within 2 percent of optimum, and compacted to at least 90 percent (ASTM D1557). It is anticipated that many of the on-site materials will be amenable to density testing.

In structural areas, the maximum particle size shall be 12 inches. This material shall be placed in 12 inch lifts (maximum) moisture conditioned and compacted to the satisfaction of the Geotechnical Engineer. Care should be taken to insure that voids between cobbles and boulders are filled with finer materials. Five complete passes with a minimum 10 ton roller or a Cat 825 Sheepsfoot compactor may achieve adequate compaction. Acceptance of the density requirements shall be by observation of lift thickness, moisture conditioned, and applied compaction effort.

Any imported material for use in structural areas shall meet the specifications of Appendix A, Section 3.2 "structural fill material". (Per the Standard Specifications for Public Works Construction 2016).

The following guideline specification is provided if it is decided to import structural cap material to the site.

Sieve Sizes	Percentage Passing (by weight)
6 Inch	100
3/4 Inch	70-100
No. 40	15-50
No. 200	10-30
Liquid Limit (max.)	38
Plastic Index (max.)	15
Expansion Index (max.)	20
R-value (min.)	30

All imported structural cap material shall be moisture conditioned to within 2 percent of optimum and placed in 12 inch (max) finished lifts and compacted to a minimum 90 percent compaction relative to ASTM D 1557.

C. Surface and Subsurface Drainage

Surface drainage shall be diverted away from all buildings and not be permitted to pond or pool adjacent to foundations. It is recommended that all crawlspaces be lined with Visqueen sheeting, and that positive crawlspace drainage be provided to a collection point. A small diameter pipe (2 to 4-inch) may be placed beneath and perpendicular to the footing, sloped to drain to daylight, or the drain rock bedding of the sewer service lateral to the street may be utilized to drain the crawlspace. Slab-on-grade foundation systems may

require subsurface drainage dependent on conditions encountered during grading. The Geotechnical Engineer shall determine whether subsurface drainage is required at that time.

Grading plans should be designed to minimize the potential for infiltrated precipitation or yard irrigation to migrate laterally and down slope along the cut/fill interface and surfacing in down slope lots. Roof gutters and downspouts are recommended to discharge water well away from foundation areas.

D. Slope Stability and Erosion Control

The results of our exploration and testing indicate that 2:1 (H:V) slopes will be stable for on-site materials in cut and fill. All cut and fill slopes should incorporate brow ditches to divert surface drainage away from the slope face. Any major cut or fill slopes shall include mid-height benches in accordance with International Building Code standards.

The potential for dust generation, both during and after construction, is moderately high at this project. Dust control will be mandatory on this project in order to comply with air quality standards. The contractor shall submit a dust control plan and obtain the required permit from Northern Nevada Public Health prior to commencing site grading.

Stabilization of all slopes and areas disturbed by construction will be required to prevent erosion and to control dust. Stabilization may consist of riprap, re-vegetation and landscaping, or dust palliative. Slopes steeper than 3:1 (H:V) will require stabilization.

E. Trenching and Excavation

All trenching and excavation shall be conducted in accordance with all local, state, and federal (OSHA) standards. In general, all soil encountered during exploration meets the criteria for OSHA Type C soils. Any oversized material loosened during excavation will require scaling prior to permitting workmen to enter the trench.

Any area in question should be examined by the Geotechnical Engineer. The following table is reproduced from Occupational Safety and Health, Subpart P, 1926.652, Appendix B:

TABLE B-1

MAXIMUM ALLOWABLE SLOPES

SOIL OR ROCK TYPE	MAXIMUM ALLOWABLE SLOPES (H:V) [1] FOR EXCAVATIONS LESS THAN 20 FEET DEEP [3]
STABLE ROCK TYPE A [2] TYPE B TYPE C	VERTICAL (90°) 3/4:1 (53°) 1:1 (45°) 1 1/2:1 (34°)

NOTES

- 1. Numbers shown in parentheses next to maximum allowable slopes are angles expressed in degrees from the horizontal. Angles have been rounded off.
- 2. A short-term maximum allowable slope of 1/2 H:1V (63°) is allowed in excavations in Type A soil that are 12 feet (3.67 m) or less in depth. Short-term maximum allowable slopes for excavations greater than 12 feet (3.67 m) in depth shall be 3/4 H:1V (53°).
- 3. Sloping or benching for excavations greater than 20 feet deep shall be designed by a registered professional engineer.

Bedding and initial backfill over the pipe will require import to meet the specifications of the utility having jurisdiction. On-site soils may be used for trench backfill, provided particles over 4 inches in diameter are removed. Imported structural cap material or native silty sands or native gravels will be required within 3 feet below bottom of footing and 2 feet below bottom of pavement subgrade. All trench backfill shall be placed in 8 inch (max.) finished lifts, moisture conditioned to within 2 percent of optimum, and densified to at least 90 percent relative compaction (ASTM D1557). If metal pipes are to be utilized, corrosion protective measures shall be taken.

H. Anticipated Construction Problems

The site has a strong potential for dust generation, and will require constant dust suppression measures during construction.

LIMITATIONS

This report is prepared solely for the use of Sanbell's client. Any entity wishing to utilize this report must obtain permission from them prior to doing so. Our services consist of professional opinions and recommendations made in accordance with generally accepted soil and foundation engineering principles and practices. The analyses and recommendations contained in this report are based on our site reconnaissance, the information derived from our field exploration and laboratory testing, our understanding of the proposed development, and the assumption that the soil conditions in the proposed building and grading areas do not deviate from the anticipated conditions.

Unanticipated variations in soil conditions could exist in unexplored areas on the site. If any soil or groundwater conditions are encountered at the site that are different from those discussed in this report, our firm should be immediately notified so that our recommendations can be modified to accommodate the situation. In addition, if the scope of the proposed construction, including proposed loads or structural location, changes from that described in this report, our firm should be notified.

Recommendations made in this report are based on the assumption that an adequate number of tests and inspections will be made during construction to verify compliance with these recommendations. Such tests and inspections should include, but not necessarily be limited to, the following:

- . Review of site construction plans for conformance with soils investigation.
- . Observation and testing during site preparation, grading, excavation and placement of fill.
- . Observation and testing of materials and placement of asphalt concrete and site concrete.
- Foundation observation and review.
- . Consultation as may be required during construction.

The findings in this report are valid as of the present date; however, changes in the conditions of the property can occur with the passage of time, whether they are due to natural processes or to the works of man on this or adjacent lands. In addition, changes in applicable or appropriate standards occur, whether they result from legislation or from the broadening of knowledge. Accordingly, the findings in this report might be invalidated, wholly or partially, by changes outside of our control.

REFERENCES

Manual of Concrete Practice, American Concrete Institute, 2008

International Code Council, 2018, International Conference of Building Officials.

Nevada Bureau of Mines and Geology: http://www.nbmg.unr.edu

Standard Specifications for Public Works Construction 2016.

ASCE online hazard tool: ascehazardtool.org

U.S. Geological Survey: http://geohazards.usgs.gov/designmaps/us/application.php

APPENDIX A

APPENDIX A

SPECIFICATIONS FOR

SITE PREPARATION, EXCAVATION, COMPACTION STRUCTURAL FILL AND SUBGRADE PREPARATION

1.0 GENERAL

- 1.1 <u>Standard Specifications</u> Where referred to in these specifications, "Standard Specifications" shall mean the <u>Standard Specifications for Public Works Construction</u> (2012, Revision 8 edition).
- 1.2 Scope All work shall be done in accordance with the Standard Specifications except as may be modified by the specifications outlined below. The work done under these specifications shall include clearing, stripping, removal of unsuitable material, excavation and preparation of natural soil, placement and compaction of on-site and/or imported fill material, or as specifically referred to in the plans or specifications.
- 1.3 <u>Geotechnical Engineer</u> When used herein, Geotechnical Engineer shall mean the engineer or a representative under the engineer's supervision. The work covered by these specifications shall be inspected by a Geotechnical Engineer, who shall be retained by the Owner. The Geotechnical Engineer will be present during the site preparation and grading to inspect the work and to perform the tests necessary to evaluate material quality and compaction. The Geotechnical Engineer shall submit a report to the Owner, including a tabulation of all tests performed.
- Soils Report A "Geotechnical Investigation" report, prepared by Summit Engineering Corporation, is available for review and may be used as a reference to the surface and subsurface soil and groundwater conditions on these projects. The Contractor shall make his own interpretation with regards to the methods and equipment necessary to perform the excavations.

Percent Relative Compaction - Where referred to herein, percent relative compaction shall mean the in-place dry unit weight of soil expressed as a percentage of the maximum dry unit weight of the same material, as determined by ASTM D-1557, laboratory compaction test procedure. Optimum moisture content is the moisture content corresponding to the maximum dry density determined by ASTM D-1557.

2.0 SITE PREPARATION AND EARTHWORK

- **2.1** All earthwork and site preparation should be performed in accordance with the requirements of this report and attached specifications, and the Standard Specifications.
- 2.2 <u>Clearing</u> Areas to be graded shall be cleared of brush and debris. These materials shall be removed from the site and discarded by an acceptable means approved by the owner.
- 2.3 <u>Stripping</u> Surface soils containing roots and organic matter shall be stripped from areas to be graded and stockpiled or discarded as specified by the plans and specifications or at the discretion of the owner. Strippings may be used as the final lift of fill for areas to be planted.
- 2.4 <u>Dust Control</u> The contractor shall prevent and maintain control of all dust generated during construction in compliance with all federal, state, county, and city regulations. The project specifications should include an indemnification by the contractor of the engineer and owner for all dust generated during the entire construction period.
- 2.5 <u>Materials</u> All material not suitable for use as structural fill, shall be removed from the sites by the Contractor, or placed in non-structural fill areas. The Geotechnical Engineer shall determine the suitability of material for reuse as structural fill.
- 2.6 Ground Surface The ground surface exposed by stripping and/or excavation shall be scarified to a minimum depth of 12 inches, moisture conditioned, by aerating or adding water, to within 2 percent of optimum moisture content and compacted to 90 percent relative compaction, unless otherwise specified. Compaction of the ground surface shall be approved by the Geotechnical Engineer prior to placement of fill, structural fill, aggregate base, and/or Portland cement concrete.

2.7 <u>Backfill of test pits and trenches</u> – Our exploration pits and trenches were backfilled without mechanical compaction. In structural areas, backfill in the pits should be removed and replaced in lifts with compactive effort.

3.0 FILL MATERIAL

- **3.1** Fill material shall be free of perishable, organic material. Rock used in the fill shall be placed in such a manner that no voids are present, either between or around the rock, after compacting the layer.
- 3.2 <u>Structural Fill Material (SSPWC)</u> Material shall consist of suitable non-expansive soils having a plasticity index less than 12, and a minimum "R"-value of 30. The gradation requirements shall be as follows:

Sieve Sizes	Percentage Passing (by weight)
4"	100
3/4"	70 - 100
#40	15 - 50
#200	10 - 30

Materials not meeting the above requirements may be suitable for use as structural cap material at the discretion of the Geotechnical Engineer. Samples of imported fill proposed for use as structural cap material shall be submitted to the Geotechnical Engineer and approved before it is delivered to a site.

3.3 Rock Fill - Fill material containing over 30 percent (by weight) of rock larger than 3/4 inches in greatest dimension is defined as rock fill. Rock Fill located five or more feet below finished grade may be constructed in loose lifts up to the maximum size of the rock in the material but not exceeding diameters of 18 inches. The voids around the rock in each rock fill lift shall be filled with granular material and fines and compacted to the satisfaction of the Geotechnical Engineer. Rocks larger than 18 inches in diameter shall be placed in non-structural areas or in deep fills at the discretion of the geotechnical engineer. Care should be taken to fill all voids with finer grained materials. No nesting of larger rocks shall be allowed. Rock fill shall not be used for slab-on-grade construction without the approval of the Geotechnical Engineer. The maximum allowable particle size shall be

decreased by the Geotechnical Engineer if the achieved compaction is not satisfactory to the Geotechnical Engineer or "nesting" is observed by the Geotechnical Engineer.

4.0 EARTHWORK AND FILL PLACEMENT

- 4.1 Placement Fill material shall be placed in layers that shall not exceed 12 inches of compacted thickness, unless otherwise approved by the Geotechnical Engineer. Each layer shall be evenly spread and moisture conditioned to within 2 percent of optimum moisture content. Unless otherwise specified, each layer of earth fill shall be compacted to 90 percent relative compaction. Compaction shall be approved by the Geotechnical Engineer. Rock fill shall be placed in accordance with the appropriate sections of the Standard Specifications. Rock fill placement and compaction shall be approved by the Geotechnical Engineer. Full time inspection of fill placement is required in structural areas and areas designated as dedicated improvement for the City of Reno, unless otherwise approved by the Engineer.
- 4.2 <u>Keyways</u> Where the fill extends onto native slopes with gradients greater than 5:1, the fill shall be keyed into the native soils. The keys will have a minimum width of equipment width or 10 feet, whichever is lesser, and constructed with a minimum 5 percent slope into the hillside.
- 4.3 <u>Compaction Equipment</u> The Contractor shall provide and use equipment of a type and weight suitable for the conditions encountered in the field. The equipment shall be capable of obtaining the required degree of compaction in all areas including those that are inaccessible to ordinary rolling equipment.
- 4.4 Reworking When, in the judgment of the Geotechnical Engineer, sufficient compaction effort has not been used, or where the field density tests indicate that the required compaction or moisture content has not been obtained, subgrade and/or fill materials shall be reworked and compacted as needed to obtain the required density and moisture content. This reworking shall be accomplished prior to the placement of fill, structural fill, aggregate base, and/or Portland cement concrete.

- 4.5 <u>Unstable Areas</u> If pumping or other indications of instability are noted, fill and/or subgrade materials shall be evaluated by the Geotechnical Engineer, scarified, left to dry, and re-compacted or removed and replaced as needed to obtain the required density and moisture content. This work shall be accomplished prior to the placement of fill, structural fill, aggregate base, and/or Portland cement concrete.
- **4.6** <u>Frozen Materials</u> Fill shall not be placed on frozen materials, nor shall frozen material be utilized as fill.

5.0 EXCAVATION AND SLOPE REQUIREMENTS

- 5.1 Finished cut slopes shall not exceed 2 horizontal to 1 vertical and fill slopes should not exceed ratios of 2 horizontal to 1 vertical. Slopes steeper than three horizontal to one vertical or more than ten feet in height should be protected from erosion using riprap, vegetation, or a similar designated and acceptable means meeting the applicable standards.
- 5.2 Temporary, unsupported construction slopes less than ten feet in height may stand at a slope as steep as 1:1 (H:V) provided that the length of the unsupported slope does not exceed twenty feet. These temporary slopes should not remain unsupported for extended periods of time.

6.0 FOUNDATIONS AND FOOTING DESIGN

- 6.1 Spread type continuous and column footings should be designed, to impose a maximum net dead plus long-term live load of **2,000 pounds per square foot**. Net bearing pressures of up to one-third in excess of the given bearing value are permitted for transient live loads from wind and earthquake.
- **6.2** Exterior footings should be embedded a minimum of 24 inches below the lowest adjacent final compacted subgrade to provide adequate frost protection and confinement. Isolated interior footings should be imbedded per IBC requirements. The recommendations of this report are applicable to all footings.
- 6.3 The design coefficient of friction is 0.25. The passive soil pressure was calculated as 150 pounds per cubic foot (150 psf per foot of depth). The active soil pressure was similarly

was calculated as 45 pounds per cubic foot. The at-rest soil pressure, when walls are braced on the top and the bottom, was calculated as 60 pounds per cubic foot. These design values assume the non-expansive granular soils that meet parameters for structural fill are providing vertical and lateral support. All exterior footings shall be embedded a minimum 24 inches below adjacent finished grade for frost protection, and a minimum of four feet above groundwater.

- Backfill of footing excavations or formed footings should be moisture conditioned to within 2 percent of optimum moisture content and compacted to a minimum of 90 percent relative compaction.
- 6.5 All footing excavations should be clear of loose material prior to placement of concrete. The bottom of the footing excavation should be scarified to a depth of 12 inches, moisture conditioned to within 2 percent of optimum moisture content, and compacted to a minimum of 90 percent relative compaction.

7.0 UTILITY TRENCH BACKFILL

7.1 <u>Bedding Material</u> - Bedding material shall meet one of the following gradation requirements listed below and shall be non-plastic:

Bedding will require import to meet one of the following specifications:

	CLASS A BACKFILL	CLASS B BACKFILL	CLASS C BACKFILL
SIEVE SIZE	% PASSING	%PASSING	% PASSING
1"	-	-	100
3/4"	-	-	90-100
1/2"	-	100	-
3/8"	100	-	10-55
#4	90-100	0-15	0-10
#50	10-40	-	-
#100	3-20	-	-
#200	0-15	0-3	-

Bedding as defined in this report shall be within 6 inches of the bottom of the pipe, within 12 inches of the sides of the pipe, and within 12 inches, or to a depth required from the top of the pipe to the top of the groundwater table, whichever is greater, over the pipe. Where groundwater is encountered, filter fabric or filter material shall encapsulate the bedding, if Class B or Class C backfill is utilized. The filter fabric shall be a 10 oz./sq. yd. non-woven geotextile.

Individual utility companies may have additional specifications, which should also be followed.

- Placement and Compaction Bedding material shall first be placed so that the pipe is supported for the full length of the barrel with full bearing on the bottom segment of the pipe equal to a minimum of 0.4 times the outside diameter of the barrel. Bedding shall also extend to one foot above the top of the pipe. Pipe bedding within 6 inches of the pipe shall be placed in thin layers not exceeding 8 inches in loose thickness, conditioned to the proper moisture content for compaction. Class A backfill shall be compacted to at least 90 percent relative compaction. Class B and/or C backfill shall be compacted to the satisfaction of the Geotechnical Engineer. All other trench backfill shall be placed in thin layers not exceeding 8 inches in loose thickness, conditioned to within 2 percent of optimum moisture content, and compacted as required for adjacent fill, or if not specified, to at least 90 percent compaction in areas under structures, utilities, roadways, parking areas, and concrete flatwork.
- 7.3 <u>Drain Rock</u> Any necessary subsurface drainage systems shall use drain rock conforming to the following Class C gradation:

Sieve Sizes	Percentage Passing (by weight)
1"	100
3/4"	90-100
3/8"	10-55
#4	0-10

8.0 CONCRETE SLAB-ON-GRADE AND FLATWORK CONSTRUCTION

8.1 <u>Slab-on-grade</u> - When used in this report, slab-on-grade shall refer to all interior concrete floors.

8.2 <u>Concrete flatwork</u> - A general term, flatwork refers to all exterior concrete site work including sidewalks, driveways, curb and gutters, and patios.

8.3 <u>Subgrade</u> - The upper twelve inches of subgrade beneath the aggregate base under concrete flatwork and slabs-on-grade shall be scarified, moisture conditioned to within 2 percent of optimum moisture content, and compacted to 90 percent relative compaction. Compaction

shall be approved by the Geotechnical Engineer.

8.4 <u>Concrete Mix Design</u> - The contractor shall submit a concrete mix design to the Geotechnical Engineer for review and approval 1 week prior to placement of any concrete. The exterior concrete mix design shall utilize a minimum of 6 sacks of Portland Cement Concrete and a maximum water cement ratio of 0.45. Exterior concrete shall also meet the following specifications:

Minimum 28 day compressive strength = 4000 psi. Air content = 4.5 - 7.5%

Maximum slump = 4 inches

Interior concrete mix designs shall comply with the structural plans and the tables included in Section G of this report.

<u>Admixtures</u> - All admixtures incorporated in the mix design shall be approved by the Geotechnical Engineer.

<u>Finishing</u> - All finishing shall be done in the absence of bleed water. No water shall be added to placed concrete during finishing.

8.5 Over-excavation - Soils within three feet of flatwork or five feet of slab-on-grade shall be over-excavated. Over-excavations should extend at least two feet laterally beyond the edge of the flatwork/slab-on-grade section.

8.6 <u>Base</u> - Base material shall be compacted to 95 percent relative compaction. Compaction shall be approved by the Geotechnical Engineer. Type II Class B aggregate base meeting the following requirements shall be used:

Gradation Requirements

Sieve Size	Percentage Passing (by weight)
1"	100
3/4"	90-100
#4	35-65
#16	15-40
#200	2-10

Plasticity Index should meet the following requirements:

Percentage Passing #200 (by weight)	Plasticity Index Maximum
0.1 to 3.0	15
3.1 to 4.0	12
4.1 to 5.0	9
5.1 to 8.0	6
8.0 to 11.0	4

Other Requirements

R-value	Minimum of 70
Fractured faces	Minimum of 35%
LA Abrasion	Maximum of 45%
Liquid Limit	Maximum of 35%

- 8.7 Concrete slab-on-grade thickness and compressive strength requirements shall be in accordance with design criteria provided by the Structural Engineer. Minimum slab thickness and compressive strength for flatwork shall be in accordance with the applicable requirements.
- **8.8** Concrete work shall conform to all requirements of ACI 301-2008, Specifications for Structural Concrete for Buildings, except as modified by supplemental requirements.
- **8.9** To facilitate curing of the slab, base materials shall be kept moist until placement of the concrete.
- **8.10** Excessive slump (high water cement ratio) of the concrete and/or improper curing procedures used during hot or cold weather could lead to excessive shrinkage, cracking or curling of slabs and other flatwork.

9.0 RETAINING WALLS

- **9.1** Retaining walls should be designed using a passive pressure calculated as 150 pounds per cubic foot and active soil pressure calculated as 45 pounds per cubic foot. A base coefficient of 0.25 should be used for resistance to sliding.
- **9.2** Footings should be placed at least 24 inches below the lowest adjacent finished grade. Subgrade shall be prepared as per these specifications.
- **9.3** In addition to active soil pressures the effects of any surcharge from adjacent structures or roadways should be included in calculating lateral pressures on retaining walls.
- **9.4** The design pressures given assume the soils retained are granular, non-expansive and free draining.
- **9.5** Retaining wall backfill should be moisture conditioned to within 2 percent of optimum and compacted to 85 percent in non-structural areas and 90 percent in structural areas. The use of heavy compaction equipment could cause excessive lateral pressures, which may cause failure of the wall.
- **9.6** Installation of weep holes or a continuous drain along the base of the wall is recommended to prevent water from being retained behind the wall.
- **9.7** An interceptor swale should be provided at the top of all retaining walls.

10.0 ASPHALTIC CONCRETE PAVEMENT

Material and Procedure - The asphalt-concrete material and placement procedures shall conform to appropriate sections of the "Standard Specifications". Aggregate materials for asphaltic concrete shall conform to the requirements listed for Type 3 aggregate in Section 200.02.02 of the "Standard Specifications, 2016". A Type 3, 50-blow, Marshall mix design with 2 to 4 percent air voids is recommended for the light traffic parking areas. A Type 2, 75-blow, Marshall mix design with 2 to 4 percent air voids is recommended for the heavy

traffic areas. PG64-28NV is also recommended for this project. The Contractor shall submit proposed asphalt-concrete mix designs to the Geotechnical Engineer for review and approval 1 week prior to paving. Asphalt materials should be compacted to a minimum of 92 percent of its theoretical maximum specific gravity or 96 percent of its Marshall density.

- Subgrade Preparation After completion of the utility trench backfill and prior to the placement of aggregate base, the upper 12 inches of finished subgrade soil or structural fill material shall be moisture conditioned to at within 2 percent of optimum and compacted to at least 90 percent. This may require scarifying, moisture conditioning and compacting.
- Aggregate Base Rock After the subgrade and/or structural fill is properly prepared, the aggregate base material shall be placed uniformly on the approved areas. Aggregate base shall be placed in such a manner as to prevent segregation of the different sizes of material and any such segregation, unless satisfactorily corrected, shall be cause for rejection at the discretion of the Geotechnical Engineer. The aggregate base material shall be spread for compaction in layers not to exceed six inches; moisture conditioned to within 2 percent of optimum, and compacted to at least 95 percent compaction. Aggregate base materials shall meet the requirements of Section 200.01.03 of the "Standard Specifications, 2012" for Type 2, Class B aggregate base. The aggregate base materials shall be approved by the Geotechnical Engineer prior to incorporation into the pavement structure.

11.0 SEISMIC DESIGN

11.1 Design of structures should include an allowance for earthquake loading. Structures should be designed in conjunction with IBC 2018/ASCE 7-16 criteria for seismic acceleration of 0.234g in soil profiles.

APPENDIX B PERCOLATION RESULTS

PROJECT NAME:	Iveson Ranch	PROJECT NUMBER:	31364
TEST SPECIFICATIONS:	NDEP fast perc	DATE	: 7/24/2025
TECHNICIAN:	J. Pursel		

Hole No.	PT-1		Perc Rate:	4	4 min/in
Depth from	Depth from native ground to gravel:	d to gravel:		3-4' BSG	
Soil Description:	tion:	Silty Sands			
Notes:	12" water per	12" water perc'd in 17 minutes	tes		
	Started test at 10:36	at 10:36			
Time	Initial	Final Depth	Inches	Time	Min/in
	Depth (in)	(in)	Drop (in)	(min.)	
10:46	9	9 5/16	3 5/16	10	3.0
10:57	9	9 7/16	3 7/16	10	5.9
11:08	9	9 7/16	3 7/16	10	2.9
11:19	9	9 3/16	3 3/16	10	3.1
11:30	9	9 2/16	3 2/16	10	3.2
11:43	9	9 4/16	3 4/16	10	3.1
11:54	9	9 2/16	3 2/16	10	3.2

Hole No.	PT-1		Perc Rate:	3	3 min/in
Depth from	Depth from native ground to gravel:	d to gravel:		8-9' BSG	
Soil Description:	tion:	Silty Sands			
Notes:	12" water per	12" water perc'd in 18 minutes	tes		
	Started test at 10:40	ıt 10:40			
i	Initial	Final Depth	Inches	Time	
Time	Depth (in)	(in)	Drop (in)	Interval (min)	Min/in
10:50	9	9 10/16	3 10/16	10	2.8
11:01	9	10	4	10	2.5
11:12	9	9 12/16	3 12/16	10	2.7
11:23	9	9 12/16	3 12/16	10	2.7
11:34	9	9 6/16	3 6/16	10	3.0
11:45	9	9 5/16	3 5/16	10	3.0
11:56	9	9 5/16	3 5/16	10	3.0

PROJECT NAME:	Iveson Ranch	PROJECT NUMBER:	31364
TEST SPECIFICATIONS:	NDEP fast perc	DATE:	7/24/2025
TECHNICIAN:	J. Pursel		

Hole No.	PT-2		Perc Rate:	5	5 min/in
Depth from	Depth from native ground to gravel:	d to gravel:		3-4' BSG	
Soil Description:	tion:	Silty Sands			
Notes:	12" water pe	12" water perc'd in 15 minutes	rtes		
	Started test at 14:40	at 14:40			
Time	Initial Depth (in)	Final Depth (in)	Inches Drop (in)	Time Interval	Min/in
14:50	9	9 3/16	3 3/16	10	3.1
15:02	9	8 11/16	2 11/16	10	3.7
15:12	9	8 12/16	2 12/16	10	3.6
15:22	9	8 8/16	2 8/16	10	4.0
15:32	9	8 6/16	2 6/16	10	4.2
15:43	9	8 5/16	2 5/16	10	4.3

Hole No.	PT-2		Perc Rate:	27	27 min/in
Depth from	Depth from native ground to gravel:	d to gravel:		5.5-6.5' BSG	
Soil Description:	tion:	Clayey sands			
Notes:	Started test at 14:55	at 14:55			
Time	Initial Depth (in)	Final Depth (in)	Inches Drop (in)	Time Interval (min.)	Min/in
15:05	9	9/16	9/16	10	17.8
15:15	9	6 7/16	2/16	10	22.9
15:26	9	6 9/16	9/16	10	17.8
15:36	9	6 7/16	2/16	10	22.9
15:46	9	6 6/16	91/9	10	26.7
15:56	9	6 6/16	6/16	10	26.7

PROJECT NAME:	Iveson Ranch PR	PROJECT NUMBER:	31364	
TEST SPECIFICATIONS:	NDEP fast perc	DATE:	: 8/21/2025	2
TECHNICIAN:	J. Pursel			

Hole No.	PT-3		Perc Rate:	4	4 min/in
Depth from	Depth from native ground to gravel:	d to gravel:		3.5-4.5	
Soil Description:	tion:	Silty sands			
Notes:	12" Water pe	12" Water perc'd in 17 minutes	utes		
	Started test at 13:35	at 13:35			
i	Initial	Final Depth	Inches	Time	
Іше	Depth (in)	(in)	Drop (in)	Interval (min)	MIn/In
13:45	9	10 15/16	4 15/16	10	2.0
13:55	9	10 2/16	4 2/16	10	2.4
14:05	9	10	4	10	2.5
14:15	9	9 12/16	3 12/16	10	2.7
14:25	9	9 8/16	3 8/16	10	2.9
14:35	9	9 4/16	3 4/16	10	3.1
14:45	9	9 4/16	3 4/16	10	3.1

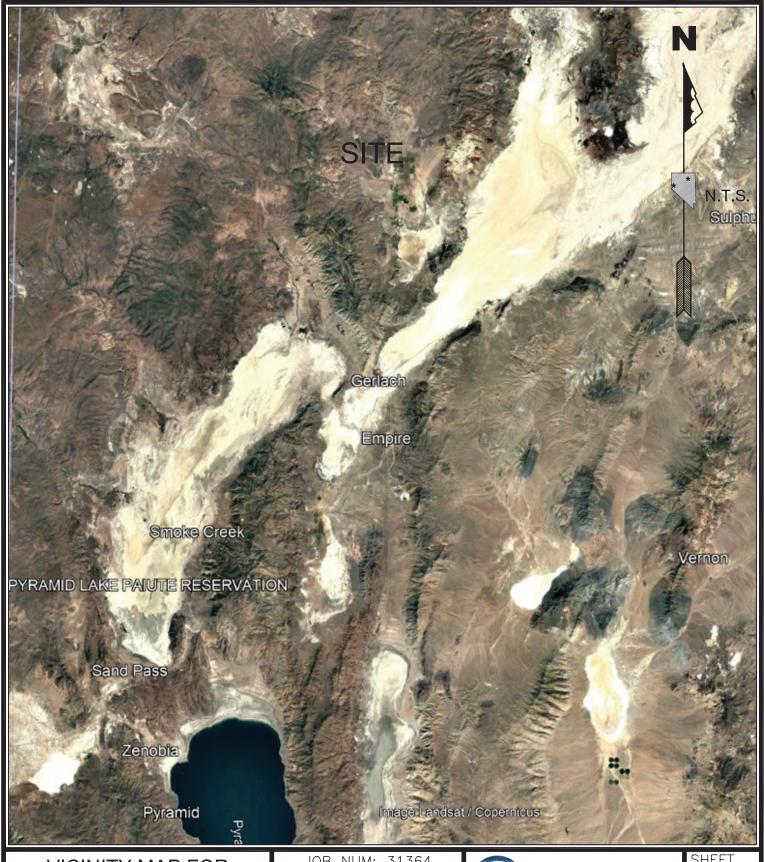
Hole No.	PT-3		Perc Rate: >1	<u>^</u>	min/in
Depth from I	Depth from native ground to gravel:	d to gravel:		9-10' BSG	
Soil Description:	tion:	Sandy Gravels	ls		
Notes:	12" Water pe	12" Water perc'd in 3 minutes	ies		
	Started test at 13:40	at 13:40			
Time	Initial Depth (in)	Final Depth (in)	Inches Drop (in)	Time Interval (min)	Min/in
13:40	9	12	9	1.83	0.3
13:52	9	12	9	1.75	0.3
14:02	9	12	9	1.83	0.3
14:12	9	12	9	1.92	0.3
14:22	9	12	9	1.92	0.3
14:32	9	12	9	1.78	0.3
14:42	9	12	9	1.82	0.3

PROJECT NAME:	Iveson Ranch	PROJECT NUMBER:	31364
TEST SPECIFICATIONS:	NDEP fast perc	DATE:	
TECHNICIAN:	J. Pursel		

Depth from native ground to gravel: 2-3' BSG Soil Description: Silty sand with gravel Notes: 12" Water perc'd in 17 minutes Started test at 13:48 Final Depth Inches Time Time 12 6 8 8 14:08 6 11 2/16 5 2/16 10 14:18 6 11 2/16 5 2/16 10 14:38 6 10 15/16 4 15/16 10 14:48 6 10 12/16 4 12/16 10 14:58 6 10 12/16 4 13/16 10 14:58 6 10 12/16 4 13/16 10 15:08 6 10 12/16 4 13/16 10	Hole No.	PT-4		Perc Rate:	3	3 min/in
Silty sand with gravel Nater percd in 17 minutes ed test at 13:48 titial oth (in) Inches of (in) 12 6 11 2/16 11 4/16 11 5/16 11 5/16 11 5/16 11 4/16 10 4/15/16 10 4/12/16 10 4/13/16 10 4/13/16 10 4/13/16	Depth from	native groun	d to gravel:		2-3' BSG	
12" Water perc'd in 17 minutes Started test at 13:48 le	Soil Descrip	tion:	Silty sand wit	h gravel		
Initial Final Depth Inches	Notes:	12" Water pe	rc'd in 17 min	rtes		
Initial Depth (in) Final Depth (in) Inches (in) 6 12 6 6 11 2/16 5 2/16 6 11 4/16 5 4/16 6 11 2/16 5 2/16 6 10 15/16 4 15/16 6 10 15/16 4 12/16 6 10 13/16 4 13/16 6 10 12/16 4 13/16 6 10 12/16 4 12/16		Started test a	at 13:48			
Depth (in) (in) Drop (in) 6 12 6 6 11 2/16 5 2/16 6 11 4/16 5 4/16 6 11 2/16 5 2/16 6 10 15/16 4 15/16 6 10 12/16 4 12/16 6 10 13/16 4 13/16 6 10 12/16 4 12/16	Time	Initial	Final Depth	Inches	Time Interval	Min/in
6 12 6 6 11 2/16 5 2/16 6 11 4/16 5 4/16 6 11 2/16 5 2/16 6 10 15/16 4 15/16 6 10 12/16 4 12/16 6 10 13/16 4 13/16 6 10 13/16 4 13/16		Depth (in)	(in)	Drop (in)	(min)	
6 11 2/16 5 2/16 6 11 4/16 5 4/16 6 11 2/16 5 2/16 6 10 15/16 4 15/16 6 10 12/16 4 12/16 6 10 13/16 4 13/16 6 10 12/16 4 13/16	13:56	9	12	9	8	1.3
6 11 4/16 5 4/16 6 11 2/16 5 2/16 6 10 15/16 4 15/16 6 10 12/16 4 12/16 6 10 13/16 4 13/16 6 10 12/16 4 12/16	14:08	9			10	2.0
6 11 2/16 5 2/16 6 10 15/16 4 15/16 6 10 12/16 4 12/16 6 10 13/16 4 13/16 6 10 12/16 4 12/16	14:18	9	11 4/16	5 4/16	10	1.9
6 10 15/16 4 15/16 6 10 12/16 4 12/16 6 10 13/16 4 13/16 6 10 12/16 4 12/16	14:28	9	11 2/16		10	2.0
6 10 12/16 4 12/16 6 10 13/16 4 13/16 6 10 12/16 4 12/16	14:38	9	10 15/16	4 15/16	10	2.0
6 10 13/16 4 13/16 6 10 12/16 4 12/16	14:48	9	10 12/16	4 12/16	10	2.1
6 10 12/16 4 12/16	14:58	9	10 13/16	4 13/16	10	2.1
	15:08	9	10 12/16	4 12/16	10	2.1

Hole No.	PT-4		Perc Rate:	5	5 min/in
Depth from	Depth from native ground to gravel:	d to gravel:		5.5-6.5' BSG	
Soil Description:	tion:	Silty Sands			
Notes:	12" water pe	12" water perc'd in 22 minutes	ıtes		
	Started test at 13:47	at 13:47			
Time	Initial	Final Depth	Inches	Time	Min/in
	Depth (in)	(in)	Drop (in)	(min)	
13:57	9	9 1/16	3 1/16	10	3.3
14:07	9	8 8/16	2 8/16	10	4.0
14:17	9	8 9/16	2 9/16	10	3.9
14:27	9	8 5/16	2 5/16	10	4.3
14:37	9	8 5/16	2 5/16	10	4.3
14:47	9	8 4/16	2 4/16	10	4.4
14:57	9	8 3/16	2 3/16	10	4.6
15:07	9	8 4/16	2 4/16	10	4.4

SHEETS



VICINITY MAP FOR **IVESON RANCH** GERLACH, NV

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5405 MAE ANNE AVENUE, RENO, NV. 89523 MAPPDWODE∻(77**5**):**047-8316**0 **FAX:(F7-5):[787-82192**5



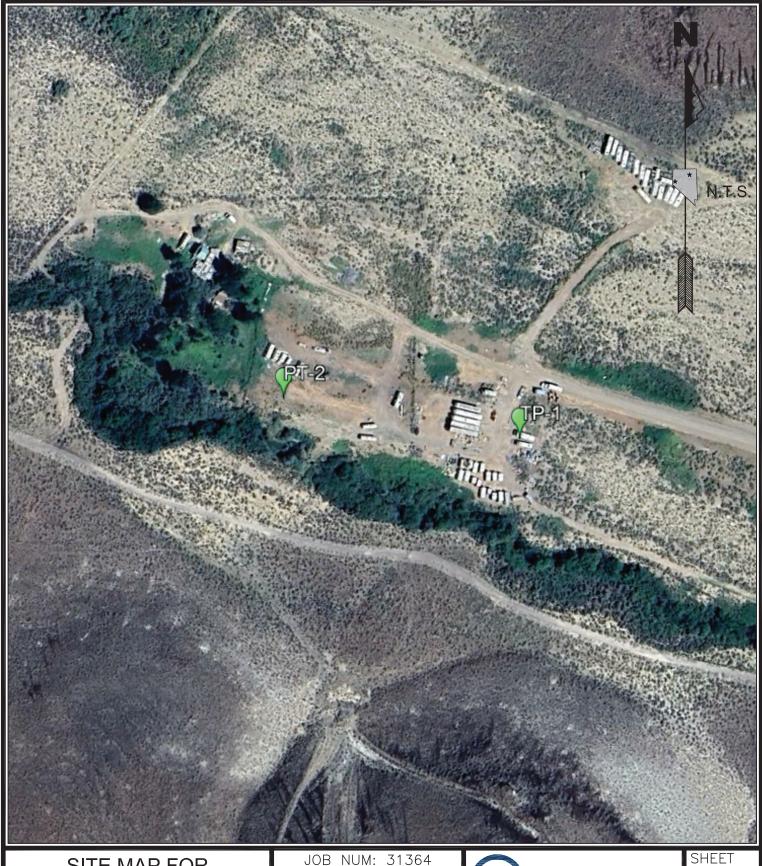
OVERALL SITE MAP FOR IVESON RANCH GERLACH, NV JOB NUM: 31364
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SITE MAP FOR **IVESON RANCH** GERLACH, NV

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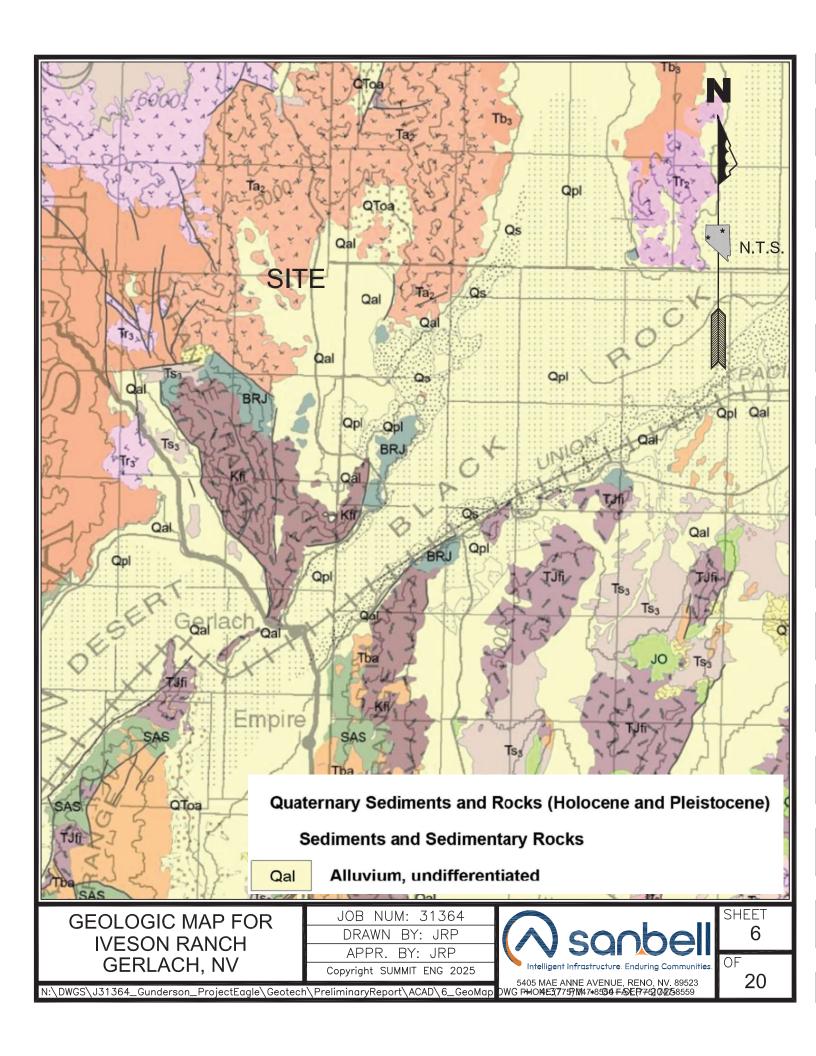
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5405 MAE ANNE AVENUE, RENO, NV. 89523 FL**POPOED(W/G)** 747**-8559 FRM**(7¥5)**0747-8559**—20



										ı
	DEX	#200	ENT			Z				LOG OF TP-1
	PLASTICITY INDEX		CONTENT WT.	>		SAMPLE LOCATION			TYPE	EQUIPMENT: CAT 315
		PASSING	MOISTURE CON % OF DRY WT.	DRY DENSITY (PCF)	(FT.)	Ö				_EQUITMENT. CAT 313
	ASTI	PAS	STUF OF D	, DE F)	DEPTH	1PLE			MATERIAL	_DATE: 07-24-25 ELEV
	7	%	₩ 	DR)	DEF	SAN			MAT	
									SM SC	0-1.5' BSG: SILTY SANDS SILTY SANDS. SOME SURFACE GRAVELS ESTIMATE 70% SANDS, 30% FINES. DRY. GRAY TO TAN. SOME MINOR ORGANICS FIRST 12". 1.5-7.5' BSG: CLAYEY SANDS
					- 2				30	INCREASE IN MOISTURE AND FINES AT 1.5' BSG. CLAYEY SANDS. ESTIMATE 60% SANDS, 40% SLIGHTLY PLASTIC FINES. DARK BROWN. DAMP DENSE.
					- 4					
					- 6					
					- 8				SC	7.5-14' BSG: CLAYEY SANDS FURTHER INCREASE IN MOISTURE AND FINES AT 7.5' BSG. CLAYEY SANDS. ESTIMATE 55% FINE SANDS, 45% SEMI- PLASTIC FINES. BROWN. DAMP DENSE.
					- 10					
					12					GROUNDWATER AT 12' BSG
					14					BOH @ 14' BSG. GROUNDWATER @ 12' BSG.
	1 11/11/11/1	DV TF	CT DIT	10050	VB T	ال	DB NUN	M: 3	1364	SHEET
PKE			RAN	LOG FO	אל 📙	D	RAWN	BY:	JRP	
			PIT 1				APPR. right SUM			OF.
N·/ DWG				ectEagle\Ge	otech\					5405 MAE ANNE AVENUE RENO NV 89523 19

	XDEX	#200	L Z L			NOI			1.1	LOG OF TP-2
	<u></u>		CON XY WT.	SITY	() H	LOCAT			TYPE	EQUIPMENT: CAT 317
	PLASTICITY INDEX	PASSING	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION			MATERIAL	DATE: 08-21-25 ELEV.
-	<u> </u>	8	× × ×	H A	DE	S AS			≱ SM	0-10' BSG: SILT SANDS
										SILTY SANDS. SOME LENSES OF CEMENTATION. MINOR ORGANICS FIRST 6". ESTIMATE 60% SANDS, 40% FINES. DRY. GRAY, DENSE.
										o, week, rest riving server.
-					- 3					
_					- 6					
_					- 9					
									SM	10-14' BSG: SILTY SANDS INCREASE IN COARSENESS AT 10' BSG.
_					- 12					SILTY SANDS. ESTIMATE 75% SANDS, 25% FINES. BROWN. DAMP DENSE.
					12					
									SM	14-16' BSG: SILTY SANDS
-					- 15	X				INCREASE IN GRAVELS AT 14' BSG. SILTY SANDS. ESTIMATE 65% SANDS, 25% FINES, 10% GRAVELS.
										BROWN. DENSE. DAMP BOH @ 16' BSG. NO GROUNDWATER.
-					- 18					
-					- 21					
					_	1	AR NI	1) 4 - 7	74704	. SHFFT

PRELIMINARY TEST PIT LOG FOR IVESON RANCH
TEST PIT 2

JOB NUM: 31364

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	ZDEX	#200	TENT			Z 0.				LOG OF TP-3
	<u></u>		CON X WT.	SITY	Ć.	LOCAT			TYPE	EQUIPMENT: CAT 317
	PLASTICITY INDEX	PASSING	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION			MATERIAL	DATE: 08-21-25 ELEV.
-		K	% ∑ ∑	H C .	DE	- S			≸ SM	0-1' BSG: SILTY SANDS
										SILTY SANDS. MINOR SURFACE GRAVELS. SPARSE VEGETATION.
					- 2				SP	1-10' BSG: POORLY GRADED SANDS INCREASE IN COARSENESS AT 10' BSG. POORLY GRADED SANDS. ESTIMATE 80% COARSE SANDS, 10% FINES, 10% GRAVELS. DRY. TAN TO BROWN. DENSE.
										DRY. TAN TO BROWN. DENSE. SOILS BECOME DAMP
					- 4					
					- 6					
-					- 8					
					- 10					BOH @ 10' BSG. NO GROUNDWATER
					- 12					
					- 14					
							OR NI	11.4 5	11701	SHEFT

PRELIMINARY TEST PIT LOG FOR IVESON RANCH
TEST PIT 3

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5405 MAE ANNE AVENUE, RENO, NV. 89523
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	NDEX	#200	ONTENT /T.			ATION		ТҮРЕ	LOG OF TP-4
	PLASTICITY INDEX	% PASSING	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION		MATERIAL TYI	DATE: 08-21-25 ELEV.
_		61	> 8%					SM	0-3' BSG: SILTY SANDS SILTY SANDS. SOME SURFACE GRAVELS. SPARSE VEGETATION. SOME LENSES OF CEMENTATION. ESTIMATE 60% SANDS, 40% FINES. GRAY TO TAN. DRY. MODERATELY DENSE.
_					- 2				
_					- 4			SP	3-8' BSG: POORLY GRADED SANDS INCREASE IN COARSENESS AT 3' BSG. POORLY GRADED SANDS. ESTIMATE 90% SANDS, 10% FINES. DAMP. TAN
_					- 6				
_					- 8			SM	8-11.5' BSG: SILTY SANDS
									8-11.5' BSG: SILTY SANDS INCREASE IN FINES AND MOISTURE AT 8' BSG. SILTY SANDS. ESTIMATE 55% SANDS, 45% FINES. BROWN. DENSE. DAMP
					- 10				BOH @ 11.5' BSG. NO GROUNDWATER
_					- 12				BOIL & II.S BSG. NO GROUNDWAIER
PRELI			0.7.		- 14	.10	B NUM: 3	1 3 6 <i>A</i>	SHEET

PRELIMINARY TEST PIT LOG FOR IVESON RANCH
TEST PIT 4

JOB NUM: 31364

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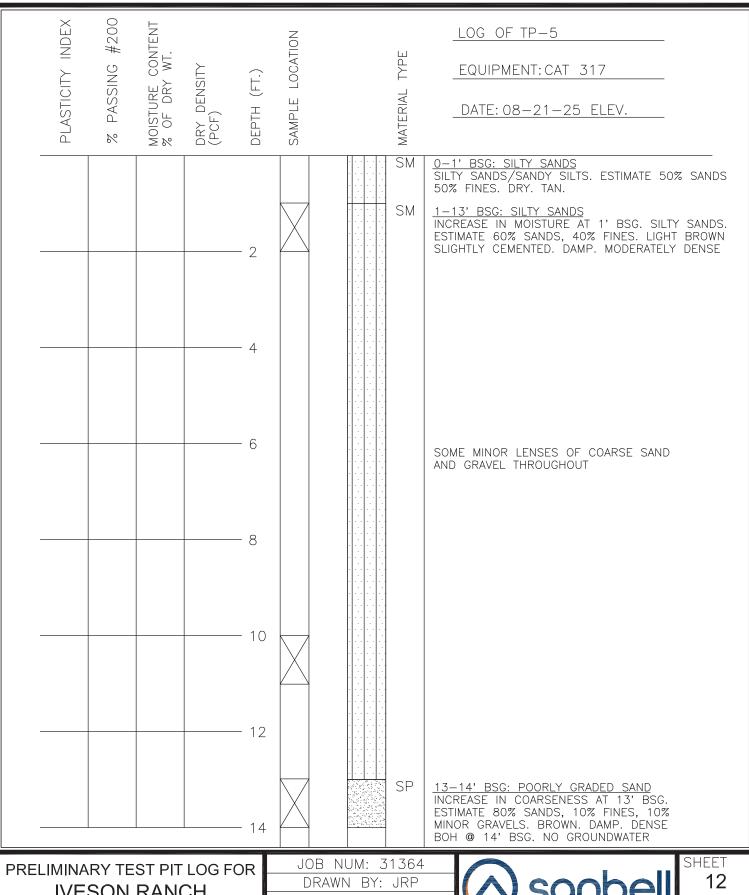
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IVESON RANCH TEST PIT 5

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5405 MAE ANNE AVENUE, RENO, NV. 89523 WG PHGNE3(775)(1747-8356-154XP.(7725)) 2457-8559

	PLASTICITY INDEX	70 # 500	CONTENT WT.	<u></u>	$\widehat{}$	OCATION	LOG OF TP-6 EQUIPMENT: CAT 317	-
	PLASTICII	% PASSING	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION	DATE: 08-21-25 ELEV.	-
_					- 2		SM 0-3' BSG: SILTY SANDS SILTY SANDS, SOME GRAVELS. ESTIMATE 60% SANDS, 30% FINES, 10% GRAVELS. TAN. DRY. MODERATELY	/ DENSE.
_					- 4		3-8.5' BSG: SILTY SANDS DECREASE IN GRAVELS AT 3' BSG. SI ESTIMATE 65% SANDS, 35% FINES. SO OF SLIGHT CEMENTATION. TAN TO BRO	DME LENSES
_					- 6			
_					- 8		SP 8.5-11.5' BSG: POORLY GRADED SAN DECREASE IN FINES AT 8.5' BSG. POORLY GRADED SANDS. ESTIMATE 90 10% FINES, GRAY. DRY. SLIGHTLY LOO	% SANDS,
_					- 12		BOH @ 11.5' BSG. NO GROUNDWATER	8.
-	INAINIA	DV TF	et Dit	LOG FO	- 14	JO	NUM: 31364	SHEET

IVESON RANCH
TEST PIT 6

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5405 MAE ANNE AVENUE, RENO, NV. 89523 WG PHGME3[778]M747-8540-15452P(7720)2457-8559

	DEX	#200	ENT			N C				LOG OF TP-7
	PLASTICITY INDEX		CONTENT WT.	≽		SAMPLE LOCATION			TYPE	EQUIPMENT: CAT 317
	TICIT	PASSING	JRE DRY	ENSI.	(FT	E C				
	LAST		MOISTURE CON % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	MPL			MATERIAL	DATE: 08-21-25 ELEV.
		<i>∞</i>	> % ≤			\ T	I I.I.		≥ SM	0-1' BSG: SILTY SANDS WITH GRAVEL
									١٧١	SILTY SANDS WITH GRAVEL SILTY SANDS WITH GRAVEL GRAY. DRY. DENSE.
									SM	<u>1-10' BSG: SILTY SANDS</u> INCREASE IN MOISTURE AND FINES AT 1' BSG.
					- 2					SILTY SANDS. ESTIMATE 65% FINE SANDS, 35% FINES. DRY. TAN TO BROWN. SOME LENSES
					_					OF CEMENTATION.
					- 4					
					- 6					
					- 8					
					1.0					
					- 10				SM	10-13' BSG: SILTY SANDS INCREASE IN COARSENESS AT 10' BSG.
										SILTY SANDS. ESTIMATE 70% SANDS, 30% FINES. BROWN. MODERATELY DENSE.
-					- 12					
										DOLL 0. 471 DOO. NO. ODOUNGWITED
										BOH @ 13' BSG. NO GROUNDWATER.
					- 14					
DDE	INJINIA	DV TF	CT DIT	1005)B	<u> </u> J(JB NUM	И: З	1364	. SHEET
PKEL	PRELIMINARY TEST PIT LOG FOR IVESON RANCH)K		DRAWN	BY:	JRP	Sanbell 14	
			PIT 7				APPR. { yright SUM			\

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	NDEX	#200	NTENT			NOIL		Ш	LOG OF TP-8
	<u></u>	SING	E COI	XSITY	Œ.	LOCA		TYPE	EQUIPMENT: CAT 317
	PLASTICITY INDEX	% PASSING	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	ОЕРТН (FT.)	SAMPLE LOCATION		MATERIAL	DATE: 08-21-25 ELEV.
					_			SM	0-3' BSG: SILTY SANDS SILTY SANDS/SANDY SILTS. SOME ORGANICS FIRST 12". ESTIMATE 50% FINE SANDS, 50% FINES.
					- 3			SP	3-9' BSG: POORLY GRADED SANDS INCREASE IN MOISTURE AND COARSENESS AT 3' BSG. POORLY GRADED SANDS. ESTIMATE 90% SANDS, 10% FINES. TAN TO BROWN. SLIGHTLY DAMP. DENSE.
					- 6				
					- 9			SP	9-12' BSG: POORLY GRADED SANDS FURTHER INCREASE IN SAND COARSENESS AT 9' BSG. POORLY GRADED SANDS. ESTIMATE 90% COARSE SANDS, 10% FINES. TAN TO BROWN. DENSE. DAMP.
					- 12			SM	12-15' BSG: SILTY SANDS DECREASE IN COARSENESS AT 12' BSG. SILTY SANDS. ESTIMATE 60% SANDS, 40% FINES. TAN. DRY.
					- 15				BOH @ 15' BSG. NO GROUNDWATER.
					- 18				
					- 21				
PRE	LIMINA	RY TE	ST PIT	LOG F	OR _	JOB	NUM: 3	1364	SHEET

PRELIMINARY TEST PIT LOG FOR IVESON RANCH
TEST PIT 8

JOB NUM: 31364

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)EX	#200	L Z			z			LOG OF PT-1
	IJ ≻		CONTE WT.	≽	$\widehat{}$	OCATIO		TYPE	EQUIPMENT: CAT 315
	PLASTICITY INDEX	% PASSING	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION		MATERIAL	DATE: 07-24-25 ELEV.
			2 01					SM	0-3' BSG: SILTY SANDS SILTY SANDS, MINOR ORGANICS FIRST 12". ESTIMATE 55% FINE SANDS, 45% FINES. SLIGHTLY CEMENTED. TAN. DRY. DENSE.
					- 2				
					- 4			SM	3-7.5' BSG: SILTY SANDS DECREASE IN CEMENTATION AT 3' BSG. SILTY SANDS. ESTIMATE 60% SANDS, 40% FINES. DRY. TAN. MODERATELY DENSE PERCOLATION TEST AT 3-4' BSG. PERCOLATION RATE 4 MPI.
					- 6				PERCULATION RATE 4 MPT.
								SM	7.5-13.5' BSG: SILTY SANDS
					- 8			<i>3</i> ,,,	FURTHER DECREASE IN CEMENTATION AT 7.5' BSG SILTY SANDS. ESTIMATE 75% SANDS, 25% FINES. TAN. DRY. MODERATELY DENSE. PERCOLATION TEST AT 8-9' BSG. PERCOLATION RATE 3 MPI.
					- 10				
					- 12				
					- 14		11		BOH @ 14' BSG. NO GROUNDWATER
PRELI	PRELIMINARY PERCOLATION TRENCH LOG			.og_		NUM: 3 VN BY:		SHEET 16	

IVESON RANCH PERCOLATION TRENCH 1

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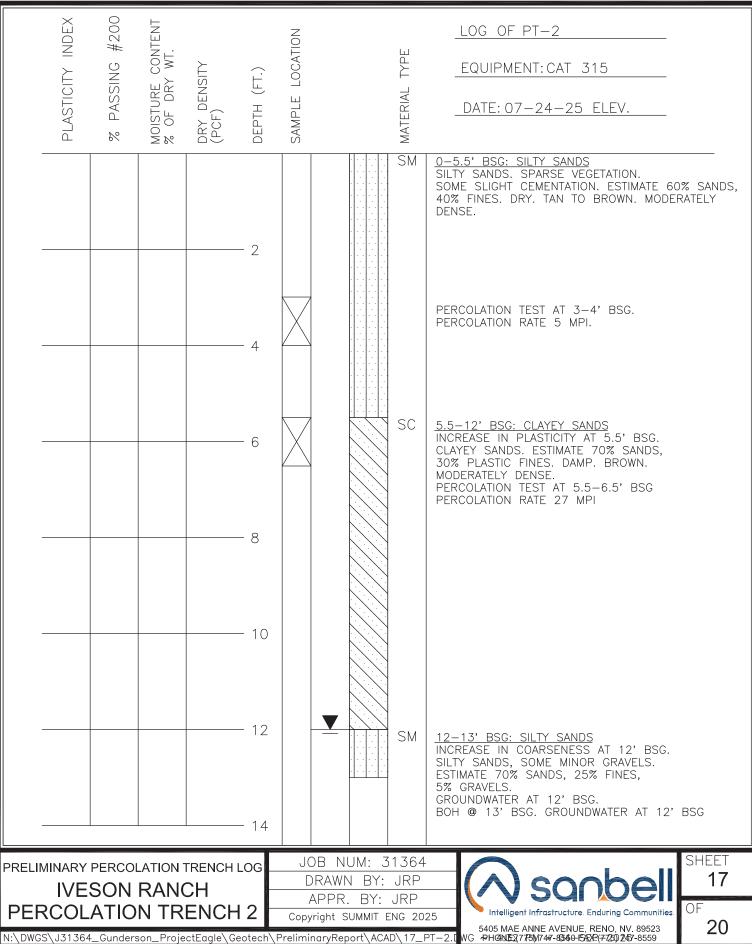


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	DEX	#200	LENT			N O			LOG OF PT-3
	<u>Z</u> <u></u>		CONT	∑IIS	<u>(</u> :	OCATI		TYPE	EQUIPMENT: CAT 317
	PLASTICITY INDEX	% PASSING	MOISTURE CONTENT % OF DRY WT.	DRY DENSITY (PCF)	DEPTH (FT.)	SAMPLE LOCATION		MATERIAL	DATE: 08-21-25 ELEV.
-								ML SM	0-2' BSG: SANDY SILTS SANDY SILTS. SOME SURFACE GRAVELS. MINOR ORGANICS TO 8" BSG. ESTIMATE 40% SANDS, 60% FINES. TAN. DRY. 2-9' BSG: SILTY SANDS
-					- 3				INCREASE IN SANDS AT 2' BSG. SILTY SANDS. SLIGHTLY CEMENTED. ESTIMATE 65% SANDS, 35% FINES. TAN. DRY. MODERATELY DENSE. PERCOLATION TEST AT 3-4' BSG. PERCOLATION RATE 4 MPI
-					- 6 - 9			SM	O 15' DCC. CHTV CAND W/CDAVEL
-					- 12			5 M	9-15' BSG: SILTY SAND W/GRAVEL INCREASE IN COARSENESS AT 9' BSG. SILTY SAND WITH GRAVEL. ESTIMATE 40% SANDS, 25% FINES, 35% GRAVELS TO 2" MINUS. SLIGHTLY DAMP. SLIGHTLY LOOSE. TAN TO BROWN. PERCOLATION TEST AT 8-9' BSG. PERCOLATION RATE >1 MPI
-					- 15				BOH @ 15' BSG. NO GROUNDWATER.
-					- 18				
-					- 21				
	AINIADV	DEBCO	LATION	TRENCH	00		OB NUM:	31364	4 SHEET

IVESON RANCH PERCOLATION TRENCH 3

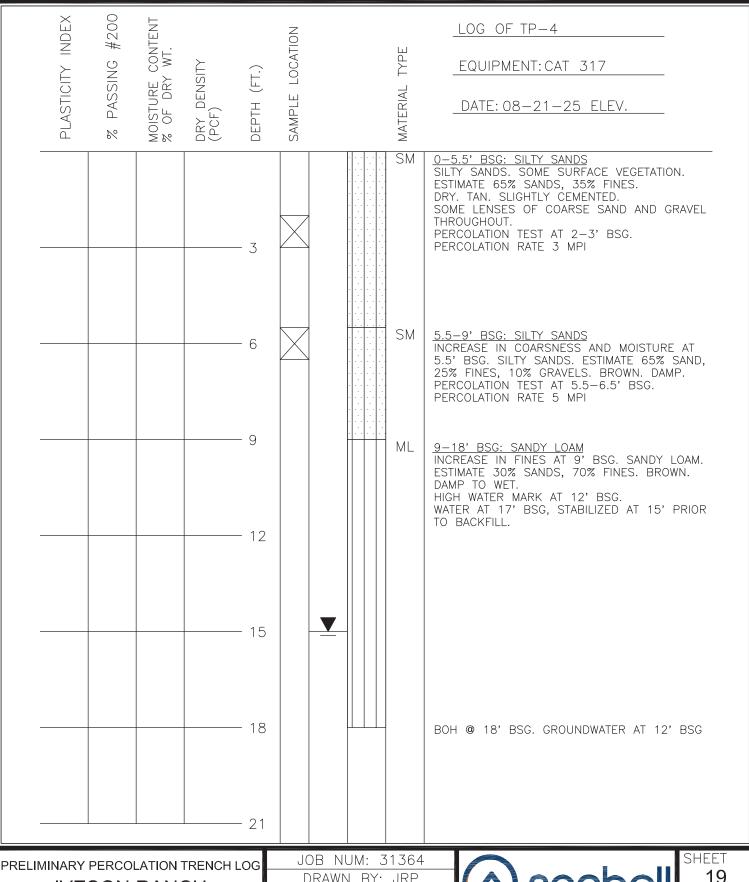
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5405 MAE ANNE AVENUE, RENO, NV. 89523 WG PHOINE 37751/1747-8540-1545/P(7-725) 2457-8559



IVESON RANCH PERCOLATION TRENCH 4

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OF

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	MAJOR D	IVISIONS	GRAPHOL GRAPHOL	STUROL STUROL	TYPICAL NAMES
	GRAVELS	CLEAN GRAVELS		GW	WELL GRADED GRAVELS, GRAVEL/SAND MIXTURE
D SOILS	LESS THAN 50%	WITH LITTLE OR NO FINES		GP	POORLY GRADED GRAVELS, GRAVEL/SAND MIXTURE
	PASSES THE No.4	CDAVEL CAVITA		GM	SILTY GRAVEL, POORLY GRADED GRAVEL/SAND/SILT MIXTURE
AINE 0% PAS SIEVE	SIEVE	GRAVELS WITH OVER 12% FINES		GC	CLAYEY GRAVEL, POORLY GRADED GRAVEL/SAND/CLAY MIXTURE
GR/ HAN 50	SANDS	CLEAN SANDS		SW	WELL GRADED SANDS, GRAVELLY SANDS
SS TI	MORE THAN 50% COARSE FRACTION	WITH LITTLE OR NO FINES		SP	POORLY GRADED SANDS, GRAVELLY SANDS
COARS	PASSES THE No.4			SM	SILTY SANDS, POORLY GRADED SAND/CLAY MIXTURES
Ö	SIEVE	SANDS WITH OVER 12% FINES		sc	CLAYEY SAND, POORLY GRADED SAND/CLAY MIXTURES
S				ML	INORGANIC SILTS & VERY FINE SANDS OF LOW PLASTICITY
SOII	SILTS AN	D CLAYS		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, LEAN CLAYS
IED SIEVE	LIQUID LIMIT L	LESS THAN 50		OL	ORGANIC CLAYS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
ZAIN HAN 5(MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS
EGF PRE TI	SILTS ANI	D CLAYS		СН	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
HINE MOM	Шō Z [≥] LIQUID LIMIT GREATER THAN 50 LL				ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
(ORGANIC RIG	CH SOILS		PT	TOPSOIL, PEAT, ORGANIC RICH SOILS
	OTHER S	SOILS		F	FILL MATERIALS
	UNIFIED	SOIL CLAS	SIFI	CA	TION SYSTEM

UNIFIED SOIL CLASSIFICATION SYSTEM





BULK SAMPLE



NO RECOVERY



WATER LEVEL AT TIME OF DRILLING



STATIC WATER LEVEL AFTER DRILLING

SOILS KEY FOR **IVESON RANCH** GERLACH, NV

JOB NUM: 31364 DRAWN BY: JRP APPR. BY: JRP Copyright SUMMIT ENG 2025



SHEET 20

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OF

5405 MAE ANNE AVENUE, RENO, NV. 89523 Y.D**\Y:0O**E:**(47.5**\\$7.4**7**\$5\$0 **D\(\X:(3.EF)**) **742(38.5**9



Preliminary Hydrology Letter for Iveson Ranch Energetics & Runway Special Use Permit

Date: September 4th, 2025

Prepared for: BRDR Properties LLC, Attn: Mike Arth

Prepared by: Sanbell, Sebastian De La Torre

This letter serves the purpose of showing the difference in runoff between proposed and existing conditions. Time of concentration will be 10-minutes or less throughout the site. Manning's coefficient C's are as follows: 0.20 & 0.50 for existing conditions and 0.25 & 0.50 for proposed conditions. The rainfall intensities were acquired from NOAA Atlas 14 and the corresponding table has been included within this letter.

	C-Values (unitless)			nsities n/hr)	Area (Acres)	Runoff Flow (cfs)	
	5	100	5	100	(A0103)	5 year	100 Year
	year	year	year	year			
Existing	0.20	0.50	1.58	4.07	2.64	0.83	5.37
Proposed	0.25	0.50	1.58	4.07	2.64	1.04	5.37
				n Runoff	0.21	0.00	

As shown in the table above, the increase in runoff produced on-site is negligible. At the 5-year storm event, there is a very slight increase in runoff and at the 100-year storm event, there is no increase at all. This letter only analyzes proposed energetics area and access road. Any other developments not included in this letter should be reanalyzed.

Sebastian De La Torre



NOAA Atlas 14, Volume 1, Version 5 Location name: Gerlach, Nevada, USA* Latitude: 40.9511°, Longitude: -119.4681° Elevation: 7016 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				Avera	ige recurren	ce interval ((years)			
Buration	1	2	5	10	25	50	100	200	500	1000
5-min	1.21 (1.03-1.40)	1.54 (1.28-1.79)	2.08 (1.76-2.45)	2.60 (2.18-3.07)	3.47 (2.83-4.14)	4.32 (3.43-5.18)	5.35 (4.10-6.49)	6.62 (4.87-8.16)	8.80 (6.07-11.1)	10.9 (7.13-13.9)
10-min	0.918 (0.786-1.07)	1.16 (0.984-1.36)	1.58 (1.34-1.87)	1.98 (1.67-2.34)	2.65 (2.16-3.14)	3.29 (2.62-3.95)	4.07 (3.12-4.94)	5.04 (3.70-6.21)	6.69 (4.62-8.42)	8.29 (5.43-10.6)
15-min	0.760 (0.648-0.884)	0.964 (0.812-1.12)	1.31 (1.11-1.54)	1.64 (1.38-1.93)	2.19 (1.78-2.60)	2.72 (2.16-3.26)	3.36 (2.58-4.08)	4.16 (3.06-5.13)	5.53 (3.82-6.96)	6.85 (4.49-8.76)
30-min	0.512 (0.436-0.596)	0.648 (0.546-0.758)	0.880 (0.748-1.04)	1.10 (0.928-1.30)	1.47 (1.20-1.75)	1.83 (1.45-2.20)	2.27 (1.74-2.75)	2.80 (2.06-3.45)	3.72 (2.57-4.69)	4.61 (3.02-5.90)
60-min	0.317 (0.270-0.369)	0.402 (0.338-0.469)	0.545 (0.462-0.642)	0.682 (0.574-0.806)	0.911 (0.744-1.08)	1.13 (0.900-1.36)	1.40 (1.08-1.70)	1.74 (1.28-2.14)	2.30 (1.59-2.90)	2.86 (1.87-3.65)
2-hr	0.207 (0.184-0.239)	0.261 (0.230-0.299)	0.340 (0.298-0.391)	0.412 (0.357-0.473)	0.524 (0.445-0.605)	0.622 (0.519-0.724)	0.742 (0.604-0.873)	0.898 (0.711-1.07)	1.16 (0.883-1.46)	1.43 (1.04-1.84)
3-hr	0.165 (0.148-0.187)	0.207 (0.186-0.235)	0.263 (0.234-0.298)	0.311 (0.275-0.352)	0.381 (0.332-0.434)	0.441 (0.379-0.507)	0.519 (0.438-0.603)	0.623 (0.515-0.733)	0.800 (0.641-0.984)	0.972 (0.759-1.24)
6-hr	0.117 (0.107-0.130)	0.147 (0.133-0.164)	0.183 (0.165-0.205)	0.212 (0.190-0.238)	0.252 (0.223-0.284)	0.282 (0.247-0.319)	0.314 (0.273-0.359)	0.360 (0.309-0.415)	0.451 (0.380-0.528)	0.537 (0.445-0.635)
12-hr	0.077 (0.069-0.086)	0.097 (0.087-0.108)	0.123 (0.111-0.138)	0.144 (0.129-0.161)	0.173 (0.153-0.194)	0.196 (0.172-0.222)	0.220 (0.191-0.250)	0.244 (0.209-0.281)	0.277 (0.232-0.324)	0.314 (0.259-0.373)
24-hr	0.046 (0.040-0.052)	0.058 (0.051-0.066)	0.075 (0.066-0.085)	0.089 (0.078-0.102)	0.110 (0.096-0.125)	0.127 (0.109-0.144)	0.145 (0.124-0.165)	0.164 (0.139-0.188)	0.191 (0.160-0.221)	0.214 (0.176-0.249)
2-day	0.027 (0.024-0.030)	0.034 (0.030-0.039)	0.045 (0.040-0.051)	0.054 (0.047-0.062)	0.067 (0.059-0.077)	0.079 (0.068-0.090)	0.091 (0.078-0.105)	0.105 (0.088-0.121)	0.124 (0.103-0.145)	0.141 (0.114-0.166)
3-day	0.019 (0.017-0.022)	0.025 (0.022-0.028)	0.033 (0.029-0.037)	0.040 (0.035-0.045)	0.050 (0.044-0.057)	0.058 (0.050-0.066)	0.068 (0.058-0.077)	0.078 (0.066-0.090)	0.093 (0.077-0.108)	0.105 (0.086-0.124)
4-day	0.016 (0.014-0.018)	0.020 (0.018-0.023)	0.027 (0.024-0.031)	0.033 (0.029-0.037)	0.041 (0.036-0.047)	0.048 (0.042-0.055)	0.056 (0.048-0.064)	0.065 (0.054-0.074)	0.077 (0.064-0.090)	0.088 (0.071-0.103)
7-day	0.011 (0.009-0.012)	0.014 (0.012-0.016)	0.018 (0.016-0.021)	0.022 (0.020-0.025)	0.028 (0.024-0.032)	0.033 (0.028-0.037)	0.038 (0.033-0.044)	0.044 (0.037-0.051)	0.053 (0.043-0.061)	0.060 (0.048-0.070)
10-day	0.008 (0.007-0.009)	0.011 (0.009-0.012)	0.014 (0.013-0.016)	0.017 (0.015-0.020)	0.022 (0.019-0.024)	0.025 (0.022-0.028)	0.029 (0.025-0.033)	0.033 (0.028-0.038)	0.039 (0.032-0.045)	0.044 (0.036-0.051)
20-day	0.005 (0.005-0.006)	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 (0.015-0.019)	0.019 (0.016-0.022)	0.022 (0.019-0.025)	0.024 (0.020-0.028)
30-day	0.004 (0.004-0.005)	0.005 (0.005-0.006)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.010 (0.009-0.011)	0.012 (0.010-0.013)	0.013 (0.011-0.015)	0.015 (0.013-0.017)	0.017 (0.014-0.019)	0.019 (0.016-0.022)
45-day	0.003 (0.003-0.004)	0.004 (0.004-0.005)	0.006 (0.005-0.006)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.011)	0.011 (0.009-0.012)	0.012 (0.010-0.014)	0.014 (0.011-0.016)	0.015 (0.012-0.017)
60-day	0.003 (0.002-0.003)	0.004 (0.003-0.004)	0.005 (0.004-0.005)	0.006 (0.005-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.008-0.011)	0.011 (0.009-0.013)	0.012 (0.010-0.014)

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

THOMAS H. GALLAGHER

IVESON RANCH DEVELOPMENT TRAFFIC GENERATION

The access to the Iveson Ranch is north from Gerlach, Nevada on County Road 34, approximately 24 miles to its intersection with BLM access NVN 060581 (serial number NVNV106176576) then along said 25' access to the west approximately 2,800 feet to the eastern Iveson property line. BRDR is currently in the process of preparing an SF 299 application to expand the width of this access to 40 feet in conjunction with a 40-foot access license between the northern boundary of Iveson and the southern boundary of the recently acquired Troy Ranch parcel approximately 480 feet to the North.

Washoe County does not have any traffic data available for County Road 34 to Iveson Ranch other than that associated with the Burning Man event. Therefore, the best data comes from talking to locals regarding trip numbers. Roxy Dee, the Ranch Manager of Iveson Ranch, estimates that approximately 12 to 15 vehicles per day access the Ranch, including full time ranch employees, delivery vehicles, and other vehicles.

At full anticipated development, the Ranch and associated facilities would have a maximum of 75 people on site. The research teams could consist of approximately 36 members staying in monthly team housing and 18 team members in weekly housing units. Full-time ranch employees will constitute the balance of the occupants on-site.

The unique challenge in generating trip data to this site is that the majority of the employees (75%) that will occupy the new housing will be flown into the private landing strip located on the site and transported to housing, therefore not increasing traffic on CR 34.

At full development of the project, the anticipated impact to traffic on CR 34 should not be over 25 vehicles per day. This project in no way approaches the need for a full traffic analysis as required by Washoe County Code.

Thomas H. Gattagher, P.E. A.S., W.R.S.



Account Information

Parcel/Identifier: 06603005

Owner: BRDR PROPERTIES LLC

Status: Active

Property Address: 2001 STATE ROUTE 34

WCTY

Last Update: 8/31/2025 4:26:46 PM



Add to cart then select cart icon (alpha) above to checkout.

For **PAST DUE** accounts there is a 10-day grace period before penalties will be applied.

Total Payable: \$0.00

• Recently Paid

Installment	Due Date	Installment Tax Due	Payment Status
1	8/18/25	+ \$0.00	● Paid
2	10/6/25	± \$0.00	● Paid
3	1/5/26	± \$0.00	● Paid
4	3/2/26	+ \$0.00	● Paid

⁺ Account Payment History (Select to Expand)

- **1** Attention: Important Information, please be advised:
- 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.
- If payment confirmation is not received, please check the "SPAM" folder in your e-mail account. Add "Payments@Bill2Pay.com" to your safesenders list in order to ensure that the payment confirmation is routed to your inbox.

Project Name:	Iveson Ranch	Neighborhood Meeting
Meeting Location:	Zoom	SUMMARY
Meeting Date:	July 28, 2025	
riosted by (Name).	n Provided: YES NO Catherine Reichenberg (Company): creichenberg@gundersonlaw.com (Phone):	Gunderson Law Firm 7758291222
Public Concerns: 1. What are y	you doing	
2. Are drone	s going over private property	
_{3.} How close	is it to owned property/hunting lo	ocations
How large a	are the explosives and are they being	dropped by drones
Will it be lo	oud	
Changes Made to Pro	oposal (if applicable):	
2		
3		
5		
Any Additional Comr Attendees were C	nents: Catherine Reichenberg and Mike Arth fr	om Iveson. We had
noticed the meet	ting for 5pm. The County noticed it a	t 5:30pm. We had
two meetings: o	ne with Chuck Jeannes and one wit	h a woman named
Tina who is the	closest neighbor. Received a few c	omments in emails

that individuals had a hard time getting on the call.