

SPARKS MUSTANG, LLC

SPECIAL USE PERMIT



Prepared by:



September 8, 2021

SPARKS MUSTANG, LLC

Special Use Permit

Prepared for:

Sparks Mustang, LLC
11111 Santa Monica Boulevard
Los Angeles, California 90025

Prepared by:

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September 8, 2021

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SPARKS MUSTANG, LLC – SPECIAL USE PERMIT

Introduction

This application includes the following request:

- A **Special Use Permit** to allow for the establishment of a warehousing use within the Industrial (I) regulatory zone; to allow for Major Grading per the standards of Section 110.438.35 of the Washoe County Development Code; and to allow for modification of standards to permit 2:1 graded slopes and to reduce exterior landscaping.

Project Location

The project site (APN #'s 084-060-32, 084-090-04, 05, 12, 13, and 16) consists of 36.26± acres located on the north side of Interstate 80 in Mustang. Specifically, the site is located along the northern Interstate 80 frontage road at Exit 23, as depicted below in Figure 1.

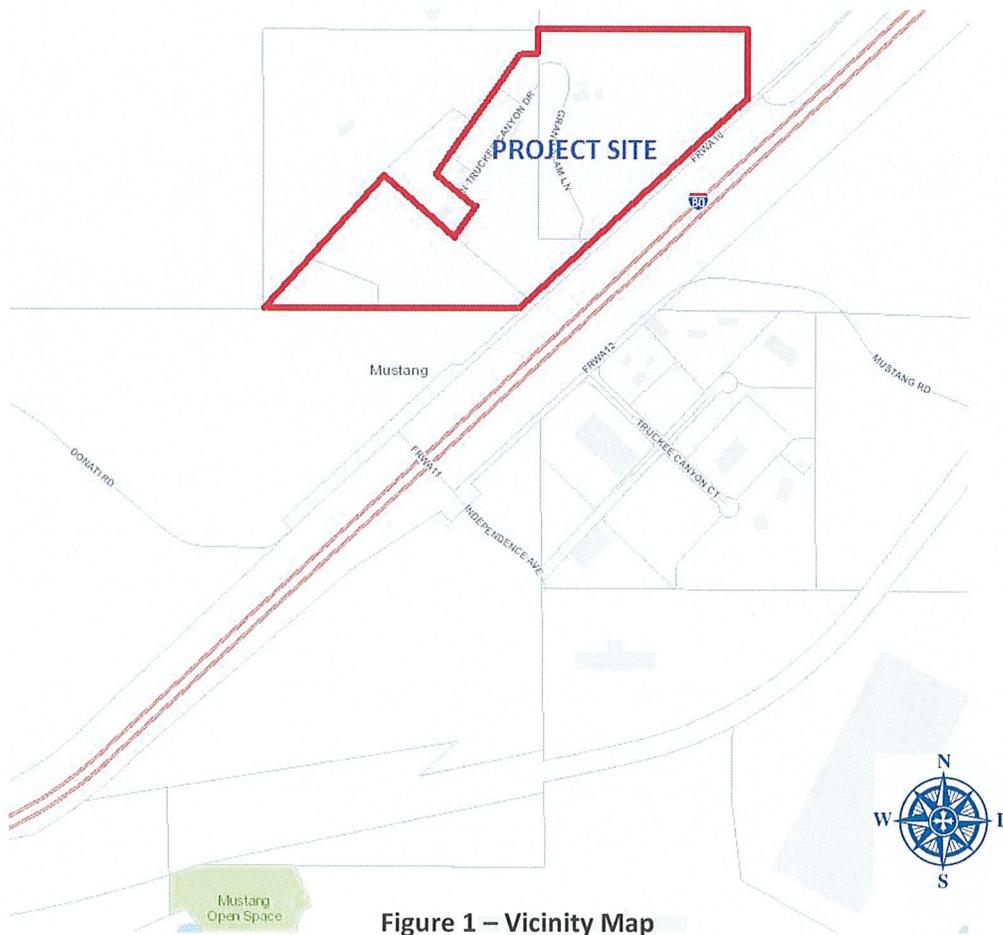


Figure 1 – Vicinity Map

SPARKS MUSTANG, LLC – SPECIAL USE PERMIT

Existing Conditions

The project site is currently developed as an industrial materials processing plant that is operated by Q&D Construction. This includes the crushing and processing of construction debris such as concrete and asphalt. Material, including large chunks of concrete and asphalt, are trucked into the site and loaded into a crusher that pulverizes the material into small pieces that can be used for other construction applications such as road base. In addition, the operation includes the storage of heavy equipment, pre-cast operations, and various industrial support services.

The project site is generally flat except for the northern boundary which includes steeper slopes as it approaches the ridgeline to the north. The existing Q&D operations have previously disturbed all developable portions of the property (approximately 85% of the total site area).

Surrounding uses include industrial and warehousing to the south (across Interstate 80) and to the north at the top of the ridge. A motorsports park also exists to the north and hosts various racing events on a limited basis throughout the year. Reno Drain Oil operates a petroleum recycling facility that abuts the site to the north at the west-central portion of the property. This facility is accessed through the Sparks Mustang, LLC site by an existing access easement.

Figure 2 (below) provides an aerial view of the site and depicts existing site disturbance along with the Reno Drain Oil facility noted previously.

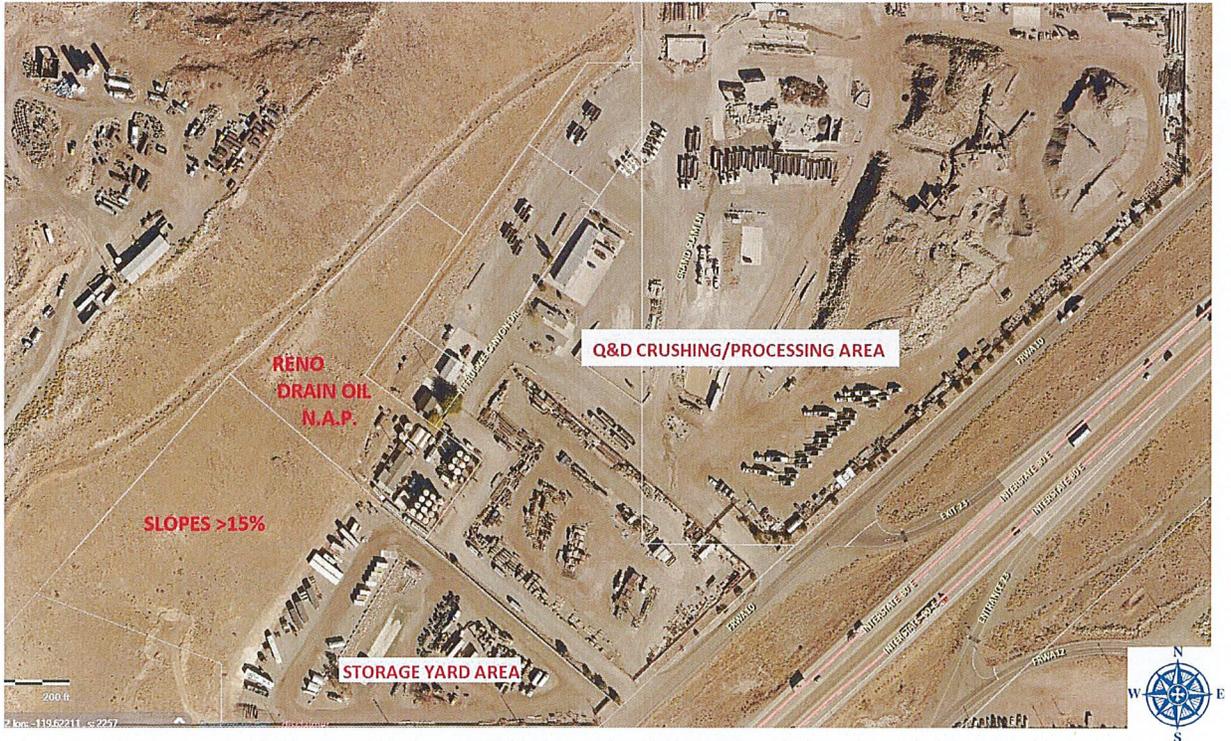


Figure 2 – Aerial View

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Figures 3 (below) and 4 through 6 (following pages) depict the existing onsite conditions.

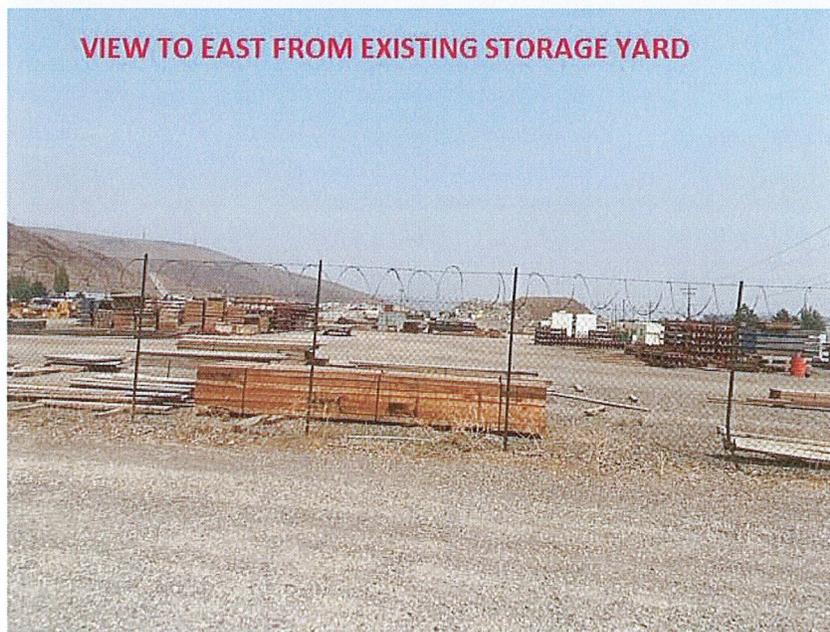
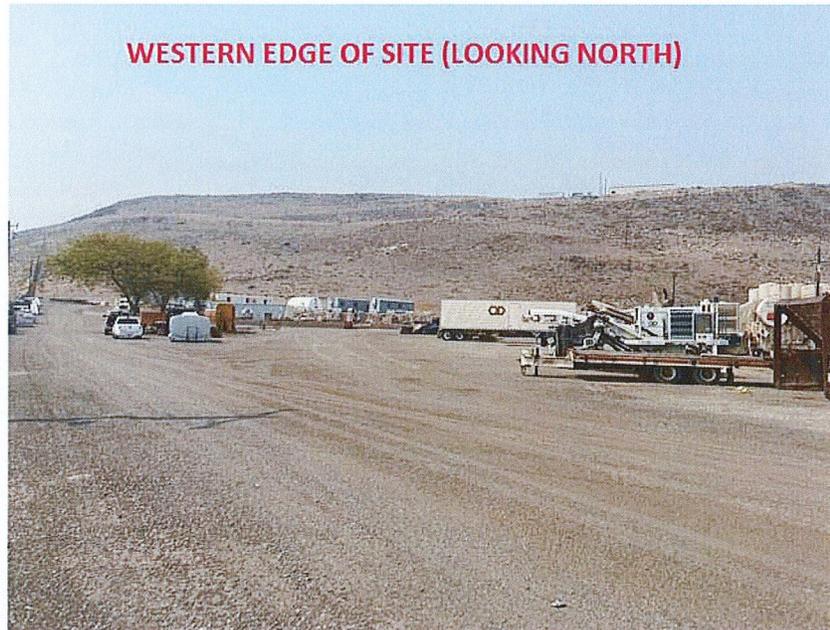


Figure 3 – Existing Conditions

SPARKS MUSTANG, LLC – SPECIAL USE PERMIT

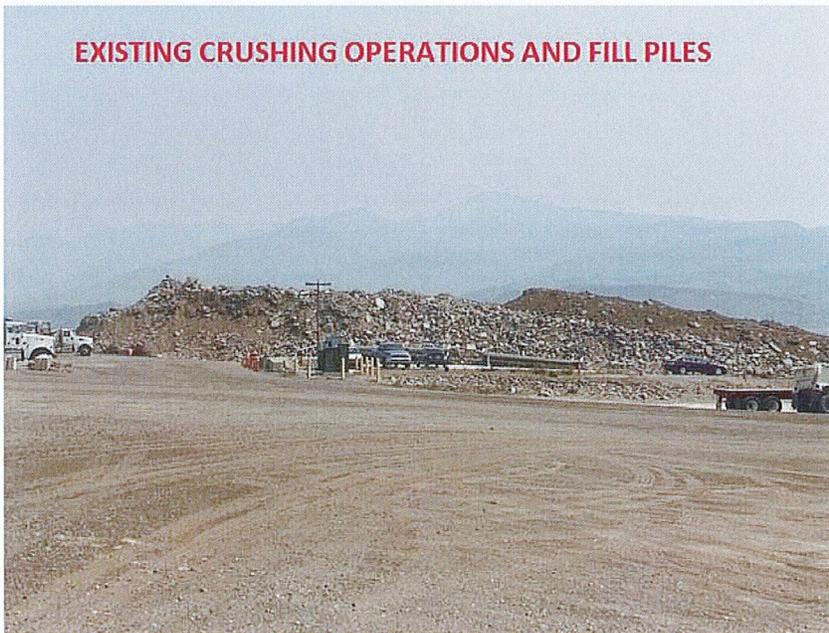
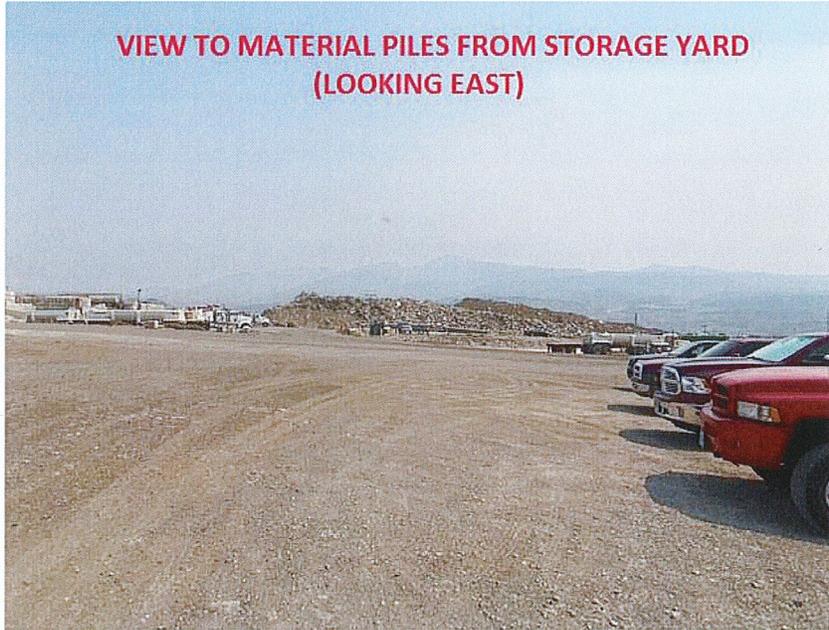


Figure 4 – Existing Conditions

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Figure 5 – Existing Conditions

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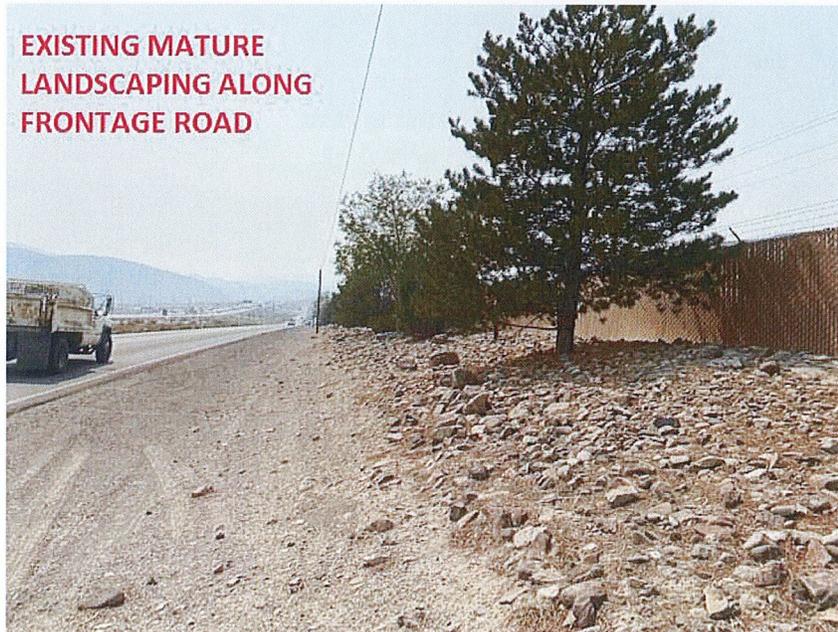
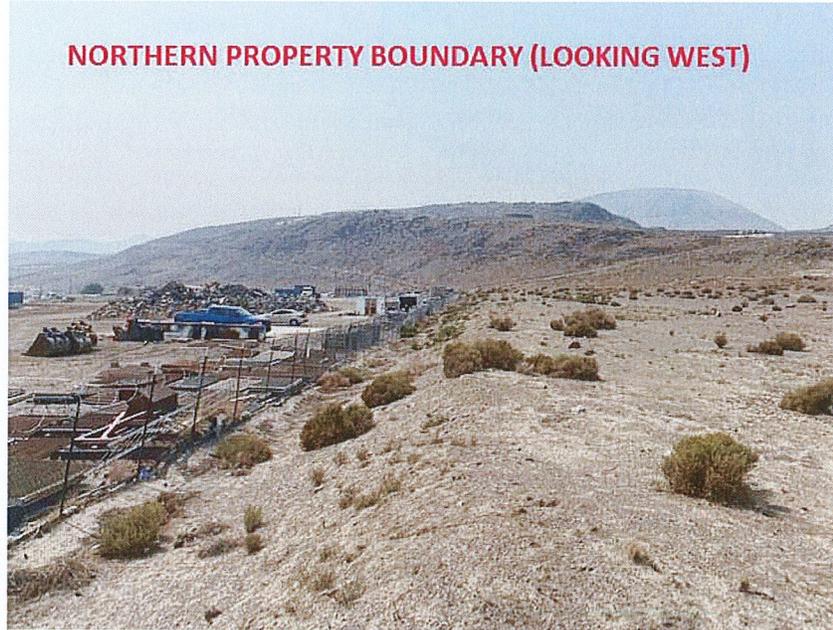


Figure 6 – Existing Conditions

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Project Description and Request

The first component of this Special Use Permit (SUP) is to allow for the establishment of a new 529,250± square foot warehousing and distribution facility to be located at the 36.26± acre site. To construct the new warehouse use, the existing Q&D operations will be vacated from the site, including removal of site debris and existing dilapidated buildings. A new single warehouse structure will be constructed at the property and will include east/west orientation.

The primary warehouse structure is proposed to be 514,250± square feet and will include two 7,500± square foot offices at the western and eastern edges. Truck bays will line the northern and southern walls of the warehouse building. Access to the site will be from an existing western access at the I-80 frontage road along with a new eastern access that will also connect to the frontage road.

Employee parking will be provided adjacent to the offices and includes 131± spaces on the west and 59± spaces on the east. Additionally, 58± truck parking spaces will be located on the north side of the parcel, adjacent to the northern drive aisle. Internal circulation will consist of a looping drive aisle that circles the building and connects at the two accesses along the frontage road. This provides for safe and efficient vehicle and truck circulation within the site and maintains access to the existing Reno Drain Oil facility to the north.

The western edge of the site may be developed with additional building area in the future but is currently proposed to remain as outdoor storage, as exists today. However, the area will be improved to include gravel base and a solid screen fence that will buffer the view into the site. This, coupled with new exterior landscaping on the west side, ensures that a much more visual pleasing appearance will occur over the current conditions.

The area proposed for development essentially consists of the areas previously disturbed by the existing Q&D operations. However, with the grading proposed (and described in the following section), a much more refined project appearance will result. In fact, it is anticipated that development of the site, as proposed, will greatly enhance the visual aesthetics of the area, especially from Interstate 80.

Stormwater detention will be provided at the southwest corner of the site, ensuring that flows off the property are equal to or less than those in the pre-development condition. The existing mature landscaping that is included in the southern streetscape will remain and will be enhanced to ensure full compliance with Washoe County standards. This will result in an immediate highly effective screen that will soften the appearance of the building from the freeway.

Steeper slopes that exist at the northwest corner of the property will continue to remain undisturbed. No cutting of the hillside will occur. Overall, it is proposed to disturb 31.01± acres (85%) of the site which essentially is the same amount of site disturbance that exists now under the current operations.

Figure 7 (following page) depicts the preliminary project site plan.

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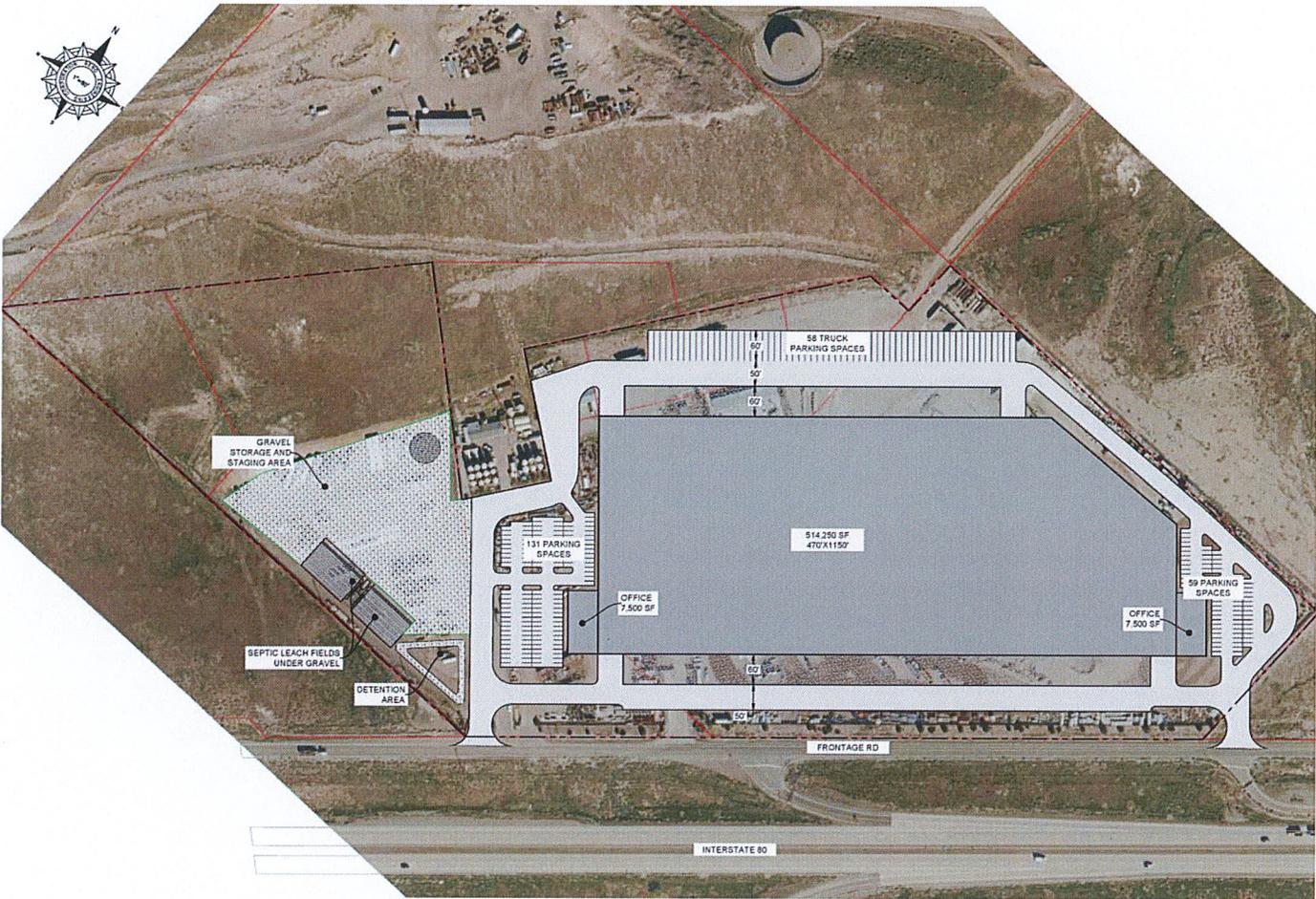


Figure 7 – Preliminary Site Plan

SPARKS MUSTANG, LLC – SPECIAL USE PERMIT

Figure 8 (below) depicts a conceptual elevation/rendering of a building comparable to what is being proposed at the Sparks Mustang, LLC site.



Figure 8 – Typical Building Elevation/Rendering

The second component of this SUP request is to allow for Major Grading, as defined in Section 110.438.35 of the Washoe County Development Code. Specifically, the Major Grading Permit Thresholds triggered by this application include those outlined in Section 110.4.8.35(a)(1)(i) and (ii).

The Development Code sections noted above refer to grading on slopes 15% or less. Per 110.438.35(1)(i), a SUP is triggered for grading of an area more than 4 acres in size. As proposed, 31.01± acres will be graded with the project. However, this grading is essentially a recontouring of the existing areas of disturbance and will have very limited visual impact.

The second SUP “trigger” is to allow for the excavation of 5,000 cubic yards or more at the site (110.438.35(1)(ii)). As proposed, the Sparks Mustang, LLC project will include approximately 450,000 cubic yards of cut and 103,000 cubic yards of fill. Once again, the area proposed for disturbance is already highly disturbed and the proposed grading is tailored for the specific use being developed at the site. Once complete, the Sparks Mustang, LLC project will result in a much more visually appealing project than what is occurring onsite now.

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Grading proposed is consistent with an industrial site of this scale and density. The project is highly consistent with other warehousing/distribution uses in the area directly complements those located across Interstate 80 to the south. Most importantly, grading will occur in areas previously disturbed and will not encroach upon hillside areas to the north, ensuring that visual degradation of the site, including hillside scarring, will not occur.

A detailed grading and drainage plan, prepared by Reno Engineering, is included as an attachment to this report.

The final component of this request is to allow for the modification of standards related to graded slopes and landscaping. First, it is requested to allow for the implementation of 2:1 slopes along the northern project boundary, as depicted on the attached grading plan. The use of 2:1 slopes is beneficial as it will ensure that visual scarring along the northern hillside will not occur. If typical County standards (3:1 slopes) were implemented in these areas, daylighting of graded slopes would extend significantly further to the north and would result in visual impact.

The 2:1 slopes proposed are consistent with grading that has already occurred onsite and will be fully screened by the intervening building. Allowing 2:1 slopes in this area will not result in any negative visual impacts. In fact, it ensures that they will not occur. Slopes will be stabilized with the use of native revegetation and will be supported by a geotechnical investigation at the time of final permitting.

The second modification request is to eliminate the northern and eastern perimeter landscaping. Landscaping of these setback areas serves no functional purpose as it cannot be seen outside of the project site. The intervening Sparks Mustang, LLC project site will fully screen this area from view of the frontage road and freeway. Additionally, locating landscaping in the northern and eastern setback would be in stark contrast to the native hillside vegetation and would result in an awkward, out-of-place appearance.

The western perimeter will include code-required perimeter landscaping to ensure a visually pleasing appearance from the freeway and further screen outside storage areas. The southern landscape setback already includes mature trees (as depicted in Figure 6) and will include additional shrubs to ensure full compliance with Washoe County standards. A highly effective and attractive landscape screen will exist along the project frontage from day-one which is highly beneficial since this is the frontage visible from Interstate 80.

The requested modifications are entirely permissible per Development Code standards and procedures and will not result in negative impacts to surrounding properties or the overall area. The modifications are consistent with other industrial properties in the area and will not detract from the overall project design and appearance.

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Special Use Permit Findings

In order to approve a Special Use Permit, the following findings must be made. Responses are provided in **bold**.

1. Consistency. The granting of the special use permit is consistent with the policies and maps of the Comprehensive Plan Elements and the Area Plan in which the property is located.

The Sparks Mustang project is consistent with the existing Industrial Master Plan and Regulatory Zone designations and is a permissible use per Development Code standards. The East Truckee Canyon Area Plan supports the project by encouraging industrial development in the Mustang area, including the adaptive reuse of existing properties in the area.

2. Adequate Public Facilities. Adequate utilities, roadway improvements, sanitation, water supply, drainage, and other necessary facilities must exist or will be provided.

The site is already developed and operating as an industrial use. Utilities are in place and appropriate access on and off of Interstate 80 is already occurring and has proven to function well with industrial truck traffic. The Truckee Meadows Water Authority (TMWA) owns and operates the tank abutting the project site and will provide municipal water service. A TMWA Discovery verifying water service has been completed. A commercial septic system will be installed (subject to Health Department approval).

3. Site Suitability. The site must be physically suitable for the proposed use and for the intensity of development.

As noted previously, the site area proposed for development is basically flat and already developed with an industrial use type(s). The Sparks Mustang, LLC project is an excellent adaptive reuse of the site and will allow for a much more attractive project than what exists today. Infrastructure and services needed to serve the project are already in place or can easily be extended at the developer's expense.

4. Issuance Not Detrimental. Issuance of the permit may not be significantly detrimental to the public health, safety or welfare; have a detrimental impact on adjacent properties; or be detrimental to the character of the surrounding area.

Issuance of this SUP will allow for the site to come into full compliance with Washoe County Development Code standards and will not result in any negative impacts to the surrounding area. The use proposed is consistent with the existing Industrial zoning and is complementary to other warehousing uses in the Mustang area. Furthermore, site improvements will greatly enhance the aesthetics of the area above and beyond what currently exists today.

APPENDICES

Washoe County Development Application

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

Project Information		Staff Assigned Case No.: _____	
Project Name: Sparks Mustang, LLC			
Project Description: A SUP to allow for the establishment of a warehousing use in the Industrial zone; major grading per Section 110.438.35; and modifications to standards related to slopes and landscaping.			
Project Address: 11998 Interstate 80 East, Mustang, NV 89434			
Project Area (acres or square feet): 36.26 acres			
Project Location (with point of reference to major cross streets AND area locator): The site is located north of Interstate 80, along the frontage road at Exit 23 in Mustang.			
Assessor's Parcel No.(s):	Parcel Acreage:	Assessor's Parcel No.(s):	Parcel Acreage:
084-060-32	17.66 acres		
084-090-04, 05, 12, 13, and 16	18.6 acres		
Indicate any previous Washoe County approvals associated with this application: Case No.(s).			
Applicant Information (attach additional sheets if necessary)			
Property Owner:		Professional Consultant:	
Name: Sparks Mustang, LLC		Name: Christy Corporation, LTD	
Address: 11111 Santa Monica Blvd.		Address: 1000 Kiley Pkwy.	
Los Angeles, CA	Zip: 90025	Sparks, NV	Zip: 89436
Phone: 805-207-1830	Fax:	Phone: 775-502-8552	Fax:
Email: jlichter@industrialrealtygroup.com		Email: mike@christynv.com	
Cell: 805-207-1830	Other:	Cell: 775-250-3455	Other:
Contact Person: Justin Lichter		Contact Person: Mike Railey	
Applicant/Developer:		Other Persons to be Contacted:	
Name: Industrial Realty Group		Name:	
Address: 11111 Santa Monica Blvd.		Address:	
Los Angeles, CA	Zip: 90025		Zip:
Phone: 775-772-6923	Fax:	Phone:	Fax:
Email: rmassey@irga.com		Email:	
Cell: 775-772-6923	Other:	Cell:	Other:
Contact Person: Rex Massey		Contact Person:	
For Office Use Only			
Date Received:	Initial:	Planning Area:	
County Commission District:		Master Plan Designation(s):	
CAB(s):		Regulatory Zoning(s):	

Property Owner Affidavit

Applicant Name: SPARKS MUSTANG, LLC

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

STATE OF NEVADA)
COUNTY OF WASHOE)

I, JUSTIN LICHTER (please print name)

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

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

Assessor Parcel Number(s): 084-060-32, 084-090-04, 05, 12, 13, & 16

Printed Name JUSTIN LICHTER

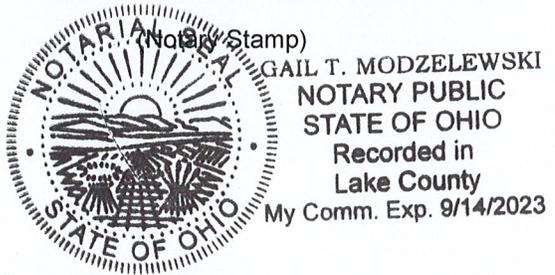
Signed [Signature]

Address 4020 KINROSS LAKES PARKWAY
SUITE 200
RICHFIELD, OH 44286

Subscribed and sworn to before me this 10th day of SEPTEMBER, 2021

Gail T. Modzelewski
Notary Public in and for said county and state

My commission expires: 9/14/2023



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

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

Community Services Department

Planning and Building

SPECIAL USE PERMIT

(see page 7)

SPECIAL USE PERMIT FOR GRADING

(see page 9)

SPECIAL USE PERMIT FOR STABLES

(see page 12)

APPLICATION



Community Services Department
Planning and Building
1001 E. Ninth St., Bldg. A
Reno, NV 89512-2845

Telephone: 775.328.6100

Special Use Permit Application Supplemental Information

(All required information may be separately attached)

1. What is the project being requested?

A Special Use Permit to allow for the establishment of a warehousing use within the Industrial (I) regulatory zone; to allow for Major Grading per the standards of Section 110.438.35 of the Washoe County Development Code; and to allow for modification of standards to permit 2:1 graded slopes and to reduce exterior landscaping.

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.)

Refer to attached preliminary site plan.

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

Pad development is anticipated to commence early 2022 with vertical construction to follow (anticipated summer 2022).

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?

The project is an adaptive reuse of an existing disturbed site. The property is well suited for the type of use and density proposed. Refer to attached report for a detailed analysis.

5. What are the anticipated beneficial aspects or affects your project will have on adjacent properties and the community?

Redevelopment of this site will eliminate concrete recycling operation and heavy equipment storage and replace current use with a new industrial building which will greatly improve visual quality of the I-80 corridor. Much of the site will be paved and reduce dust and particulates. Remaining older buildings will be torn down and existing on-site groundwater wells plugged.

6. What are the anticipated negative impacts or affect your project will have on adjacent properties? How will you mitigate these impacts?

None, access to the site will be maintained. Existing easement will be paved. Site drainage will be greatly improved. Adjacent property may have opportunity to obtain a domestic water source and fire protection will be greatly enhanced. Refer to attached report for additional details.

7. 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.

Approximately 450,000 cubic yards of cut and 103,000 cubic yards of fill. Refer to attached report.

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.)

<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
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9. Utilities:

a. Sewer Service	Private Commercial Septic
b. Electrical Service	NV Energy
c. Telephone Service	AT&T
d. LPG or Natural Gas Service	LPG
e. Solid Waste Disposal Service	Waste Management
f. Cable Television Service	AT&T or Charter Communications
g. Water Service	TMWA

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 #	19042,66825,66827,74927	acre-feet per year	20.0027 (underground)
j. Surface Claim #		acre-feet per year	
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).

Existing mature landscaping, fencing, and the proposed building will all serve to screen disturbed areas.

10. Community Services (provided and nearest facility):

a. Fire Station	TMFPD Station 46 (reciprocal from City of Sparks and Storey County)
b. Health Care Facility	Renown Regional Medical Center
c. Elementary School	N/A
d. Middle School	N/A
e. High School	N/A
f. Parks	Lockwood River Trail/Interpretive Park
g. Library	Washoe County - Sparks Branch
h. Citifare Bus Stop	N/A

**Special Use Permit Application
for Grading
Supplemental Information**
(All required information may be separately attached)

1. What is the purpose of the grading?

Grading will be used to create a building pad for a new industrial building, parking, driveways, and fire suppression storage tank.

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

Approximately 450,000 cubic yards of cut and 103,000 cubic yards of fill. Refer to attached report.

3. How many square feet of surface of the property are you disturbing?

A total of 31.01 acres will be disturbed.

4. How many cubic yards of material are you exporting or importing? If none, how are you managing to balance the work on-site?

Approximately 450,000 cubic yards of cut and 103,000 cubic yards of fill. Refer to attached report.

5. Is it possible to develop your property without surpassing the grading thresholds requiring a Special Use Permit? (Explain fully your answer.)

Given the size of the site and existing disturbance that has already occurred, it is not possible to grade below the established SUP thresholds.

6. Has any portion of the grading shown on the plan been done previously? (If yes, explain the circumstances, the year the work was done, and who completed the work.)

The area proposed to be graded is 100% disturbed. The grading proposed allows for redevelopment of the property, as described in the attached report.

7. Have you shown all areas on your site plan that are proposed to be disturbed by grading? (If no, explain your answer.)

Yes.

8. Can the disturbed area be seen from off-site? If yes, from which directions and which properties or roadways?

The proposed building and landscape improvements will screen all onsite grading. Refer to attached report for additional details.

9. Could neighboring properties also be served by the proposed access/grading requested (i.e. if you are creating a driveway, would it be used for access to additional neighboring properties)?

Neighboring property (Reno Drain Oil) will continue to be served by existing access easement.

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

As described in the attached report, a modification to standards to allow for 2:1 slopes is requested. Native revegetation will be used to stabilize slopes.

11. Are you planning any berms?

Yes	NoXX	If yes, how tall is the berm at its highest?
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12. If your property slopes and you are leveling a pad for a building, are retaining walls going to be required? If so, how high will the walls be and what is their construction (i.e. rockery, concrete, timber, manufactured block)?

No retaining walls are proposed.

13. What are you proposing for visual mitigation of the work?

Existing mature landscaping, fencing, and the proposed building will all serve to screen disturbed areas.

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

No.

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

Areas to be revegetated will include a native seed mix to the approval of the WSCD.

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

If deemed necessary, temporary irrigation will be provided at revegetation locations.

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

Revegetation (as necessary) will include a WSCD approved seed mix.

18. Are there any restrictive covenants, recorded conditions, or deed restrictions (CC&Rs) that may prohibit the requested grading?

Yes	NoXX	If yes, please attach a copy.
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**PROJECT Y – MUSTANG
WASHOE COUNTY, NEVADA**

PRELIMINARY DRAINAGE DESIGN REPORT

Prepared by:
Reno Engineering Corporation
Justin Farley, PE
One East First Street, Ste 1400 • Reno, Nevada 89501

September 7th, 2021

PREFACE

This preliminary report determines required storm drain improvements for the proposed design of a new +/-515,000 SF industrial use building. The site is identified as APNs: 084-090-03, 04, 05, 12, 13, 16 & 084-060-32.



The entire site is located within FEMA Flood Zone X per FEMA FIRM Panels 32031C3069G and 32031C3088G dated March 16, 2009.

This report is prepared in compliance with Washoe County Developments guidelines and Truckee Meadows Regional Drainage Manual.

The following narrative details the drainage design concepts, and the assumptions made to complete the design.

PROJECT DESCRIPTION

The proposed development consists of one industrial building totaling ~515,000 SF and paving/site improvements typical of the proposed use. The total project area is 36.26 acres. Development surrounding the parcel is non-existent, outside of small commercial and industrial developments south of I-80. Currently the site is undeveloped, and the parcel generally slopes southwest to northeast at approximately 2.8% grade.

Proposed private storm drainage infrastructure will be the discharge points of all runoff contributed by the proposed development. Peak runoff is expected to increase based on the addition of impervious surfaces for the development, which will be mitigated by proposed onsite detention.

A preliminary soils investigation has been included from the NRCS database and shows a large majority of the site consists of stony loams and clays at 2-3 inches below the surface. Based on the preliminary investigation, little to no soil infiltration is expected. Final design to defer to onsite geotechnical report for site composition.

ONSITE RUNOFF AND DRAINAGE SYSTEM IMPROVEMENTS

The contributing area to the proposed detention area was evaluated in the existing and proposed area for the 5 and 100-year event and the detention structure sized to accommodate the post development flow increase. The existing condition has been calculated based on an undeveloped site. Based on the preliminary grading plan, NOAA Atlas 14 values and a rational coefficient of 0.90 for the industrial building, all contributories are increased in the proposed condition and are to be mitigated by the proposed onsite detention basin. Refer to attached calculations for further analysis.

Onsite flows are designed to convey to the proposed detention facility which will be sized to accommodate the increase in 100-year runoff from the existing condition. The existing condition 100-year flow rate has been calculated at 38.4 cfs with the proposed calculated at 115.3 cfs. The proposed onsite detention will be sized to detain the increase in calculated 100-year design flow (76.9 cfs) and is designed to have a minimum volume of 1,740 cy with 1' of freeboard.

Onsite storm drainage shall be based on either the 5-year or 100-year flow, depending on the inlet condition. On grade conditions are typically sized to the 5-year event, while sag conditions without 100-year releases are sized for the 100-year event flow.

EXISTING DRAINAGE FACILITIES

The existing site layout includes an undeveloped parcel with sheet flow across the site from the existing terrain to the north. Onsite runoff is proposed to be collected in the proposed detention basins with storms including the 100-year event detained prior to discharging to the existing drainage route along the Frontage Rd and eventually crossing under I-80 to the Truckee River. No adverse effects are anticipated on the downstream storm system. Refer to attached calculations for further analysis.

LOW IMPACT DEVELOPMENT

Low Impact Development will be addressed with the final drainage report. The proposed detention basins may double as a low impact development features and will be designed as such with the final drainage report, if feasible. In addition, ditches and swales may be used to divert surface flows through open space areas where applicable.

IMPACTS OF DEVELOPMENT CONCLUSIONS AND RECOMMENDATIONS.

- The proposed development would increase peak flow. Total peak flow for the site is estimated as 46.6 cfs and 115.3 cfs, from an existing of 15.5 cfs and 38.4 cfs, 5-year and 100-year peak flows.
- The proposed detention basin is designed to detain the increase in flows from the project site based on the increase in impervious surfaces.
- Preliminary analysis of the onsite drainage system has been conducted and included with this report.
- LID features shall be included in the final design if feasible.

Exhibits and Supports Information

- **NOAA Atlas 14 Data**
- **NRCS Soils Data**
- **Drainage summary calculation.** Runoff Summary. Preliminary hydrology calculations for onsite runoff of the 5- and 100-year events

NOAA ATLAS 14



NOAA Atlas 14, Volume 1, Version 5
Location name: Sparks, Nevada, USA*
Latitude: 39.5231°, Longitude: -119.6275°
Elevation: 4439.5 ft**
 * source: ESRI Maps
 ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

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

NOAA, National Weather Service, Silver Spring, Maryland

[PF_tabular](#) | [PF_graphical](#) | [Maps_&_aerials](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.16 (0.972-1.34)	1.44 (1.21-1.70)	1.93 (1.63-2.30)	2.40 (2.02-2.87)	3.17 (2.59-3.83)	3.89 (3.07-4.74)	4.73 (3.62-5.84)	5.75 (4.25-7.25)	7.40 (5.14-9.64)	8.93 (5.90-11.9)
10-min	0.882 (0.738-1.03)	1.09 (0.924-1.30)	1.47 (1.25-1.75)	1.82 (1.54-2.18)	2.41 (1.97-2.91)	2.95 (2.34-3.60)	3.59 (2.76-4.44)	4.37 (3.23-5.51)	5.64 (3.91-7.33)	6.80 (4.50-9.02)
15-min	0.728 (0.612-0.848)	0.904 (0.764-1.07)	1.22 (1.03-1.45)	1.51 (1.27-1.80)	1.99 (1.63-2.40)	2.44 (1.94-2.98)	2.97 (2.28-3.67)	3.62 (2.67-4.56)	4.66 (3.23-6.06)	5.62 (3.72-7.46)
30-min	0.492 (0.412-0.570)	0.610 (0.516-0.722)	0.820 (0.694-0.976)	1.02 (0.854-1.21)	1.34 (1.10-1.62)	1.64 (1.30-2.00)	2.00 (1.54-2.47)	2.43 (1.80-3.07)	3.14 (2.18-4.08)	3.78 (2.50-5.02)
60-min	0.304 (0.255-0.353)	0.377 (0.319-0.447)	0.507 (0.429-0.604)	0.629 (0.528-0.751)	0.831 (0.680-1.00)	1.02 (0.806-1.24)	1.24 (0.951-1.53)	1.51 (1.11-1.90)	1.94 (1.35-2.53)	2.34 (1.55-3.11)
2-hr	0.199 (0.174-0.232)	0.248 (0.218-0.290)	0.320 (0.277-0.374)	0.382 (0.326-0.446)	0.476 (0.396-0.560)	0.560 (0.455-0.668)	0.658 (0.521-0.796)	0.781 (0.598-0.956)	0.998 (0.731-1.27)	1.20 (0.848-1.57)
3-hr	0.158 (0.140-0.181)	0.198 (0.176-0.228)	0.250 (0.219-0.287)	0.291 (0.253-0.336)	0.351 (0.300-0.406)	0.402 (0.338-0.471)	0.464 (0.383-0.551)	0.544 (0.439-0.656)	0.685 (0.536-0.857)	0.814 (0.621-1.06)
6-hr	0.111 (0.098-0.126)	0.139 (0.123-0.159)	0.173 (0.153-0.198)	0.200 (0.175-0.228)	0.235 (0.203-0.270)	0.262 (0.223-0.303)	0.289 (0.243-0.338)	0.323 (0.266-0.383)	0.380 (0.305-0.457)	0.437 (0.345-0.534)
12-hr	0.073 (0.064-0.082)	0.091 (0.081-0.104)	0.116 (0.102-0.131)	0.135 (0.118-0.153)	0.160 (0.139-0.184)	0.180 (0.154-0.208)	0.200 (0.168-0.233)	0.220 (0.182-0.260)	0.247 (0.199-0.298)	0.270 (0.213-0.331)
24-hr	0.045 (0.041-0.051)	0.057 (0.051-0.064)	0.073 (0.065-0.081)	0.085 (0.076-0.095)	0.103 (0.092-0.115)	0.117 (0.103-0.132)	0.132 (0.115-0.149)	0.147 (0.127-0.167)	0.169 (0.143-0.193)	0.186 (0.155-0.215)
2-day	0.027 (0.024-0.031)	0.034 (0.030-0.039)	0.044 (0.039-0.050)	0.052 (0.046-0.059)	0.063 (0.055-0.071)	0.072 (0.063-0.082)	0.081 (0.070-0.093)	0.091 (0.078-0.106)	0.105 (0.088-0.123)	0.117 (0.095-0.138)
3-day	0.020 (0.018-0.022)	0.025 (0.022-0.028)	0.032 (0.029-0.037)	0.038 (0.034-0.044)	0.047 (0.041-0.053)	0.054 (0.047-0.062)	0.062 (0.053-0.070)	0.069 (0.059-0.080)	0.081 (0.067-0.094)	0.090 (0.073-0.106)
4-day	0.016 (0.014-0.018)	0.020 (0.018-0.023)	0.027 (0.024-0.030)	0.032 (0.028-0.036)	0.039 (0.034-0.044)	0.045 (0.039-0.051)	0.052 (0.044-0.059)	0.058 (0.049-0.067)	0.068 (0.057-0.079)	0.076 (0.062-0.089)
7-day	0.011 (0.010-0.012)	0.014 (0.012-0.016)	0.018 (0.016-0.021)	0.022 (0.019-0.025)	0.027 (0.023-0.031)	0.031 (0.026-0.035)	0.035 (0.030-0.040)	0.040 (0.033-0.046)	0.046 (0.038-0.054)	0.052 (0.042-0.061)
10-day	0.008 (0.007-0.010)	0.011 (0.010-0.012)	0.014 (0.013-0.016)	0.017 (0.015-0.020)	0.021 (0.018-0.024)	0.024 (0.021-0.027)	0.027 (0.023-0.031)	0.030 (0.026-0.035)	0.035 (0.029-0.041)	0.039 (0.032-0.046)
20-day	0.005 (0.005-0.006)	0.007 (0.006-0.008)	0.009 (0.008-0.010)	0.010 (0.009-0.012)	0.013 (0.011-0.014)	0.014 (0.012-0.016)	0.016 (0.014-0.018)	0.018 (0.015-0.021)	0.020 (0.017-0.024)	0.022 (0.018-0.026)
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 (0.008-0.011)	0.011 (0.009-0.013)	0.012 (0.011-0.014)	0.014 (0.012-0.016)	0.015 (0.013-0.018)	0.017 (0.014-0.020)
45-day	0.003 (0.003-0.004)	0.004 (0.004-0.005)	0.005 (0.005-0.006)	0.006 (0.006-0.007)	0.008 (0.007-0.009)	0.009 (0.007-0.010)	0.010 (0.008-0.011)	0.011 (0.009-0.012)	0.012 (0.010-0.014)	0.013 (0.011-0.015)
60-day	0.003 (0.002-0.003)	0.004 (0.003-0.004)	0.005 (0.004-0.005)	0.005 (0.005-0.006)	0.006 (0.006-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.009 (0.007-0.010)	0.010 (0.008-0.011)	0.010 (0.009-0.012)

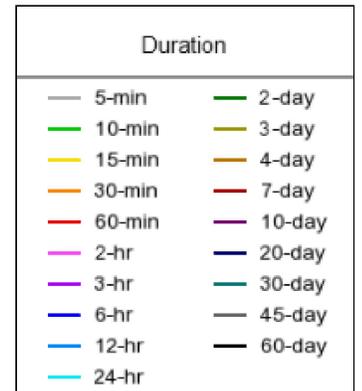
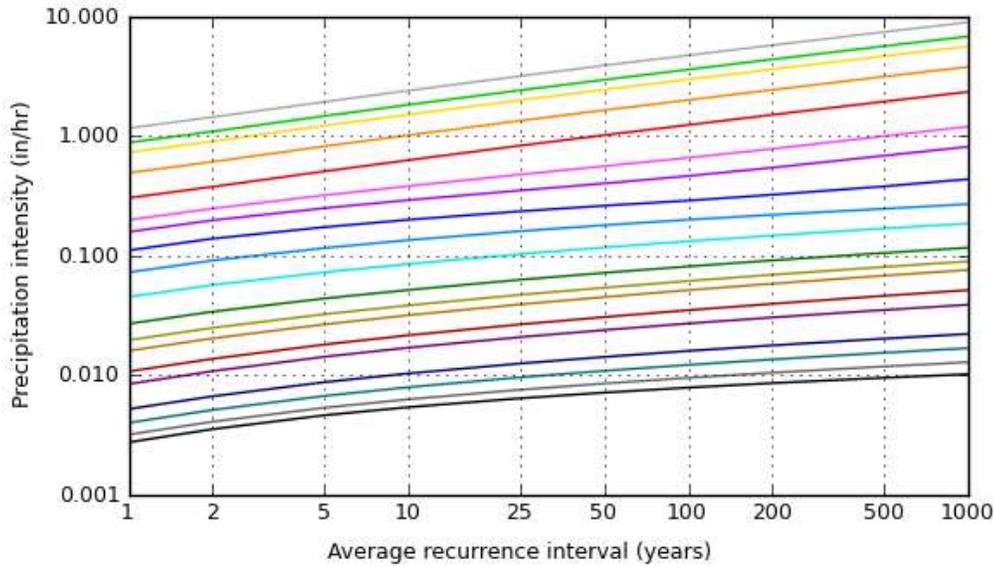
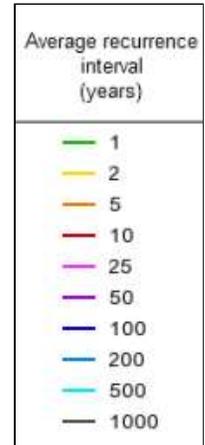
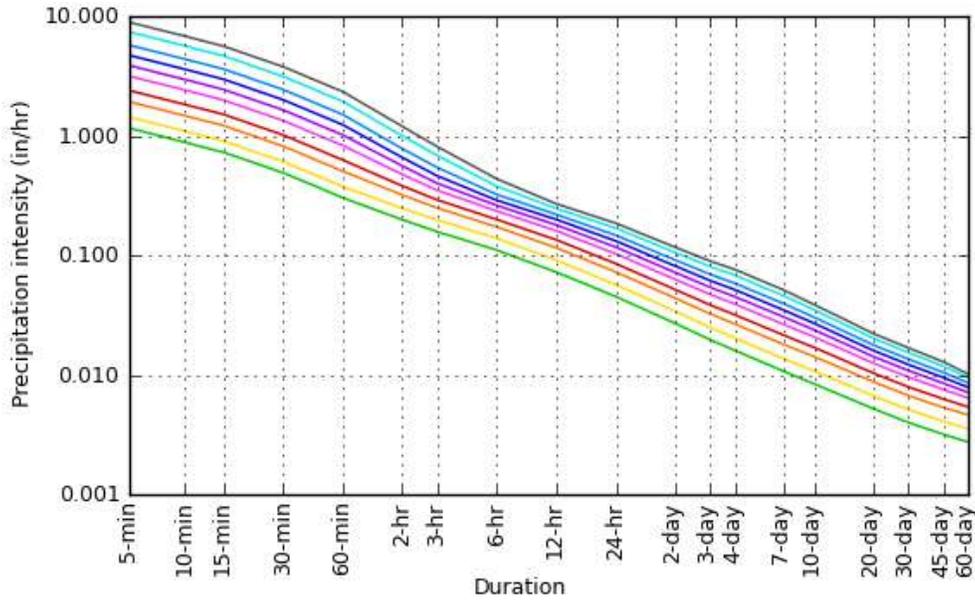
¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

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PF graphical

PDS-based intensity-duration-frequency (IDF) curves

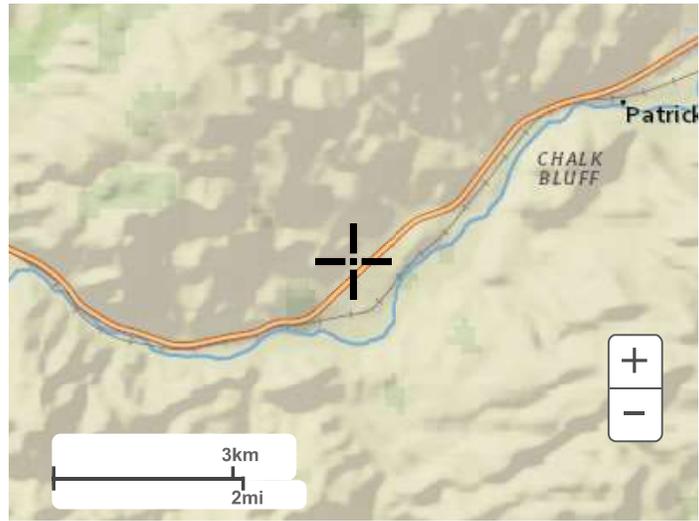
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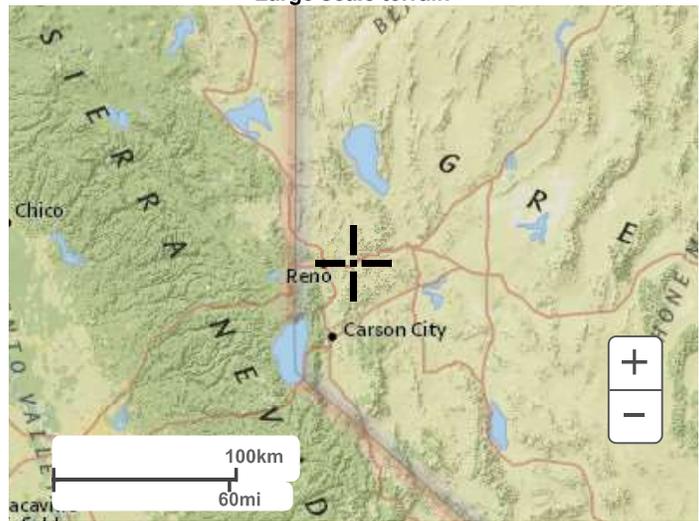
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Maps & aerials

Small scale terrain



Large scale terrain



Large scale map



Large scale aerial



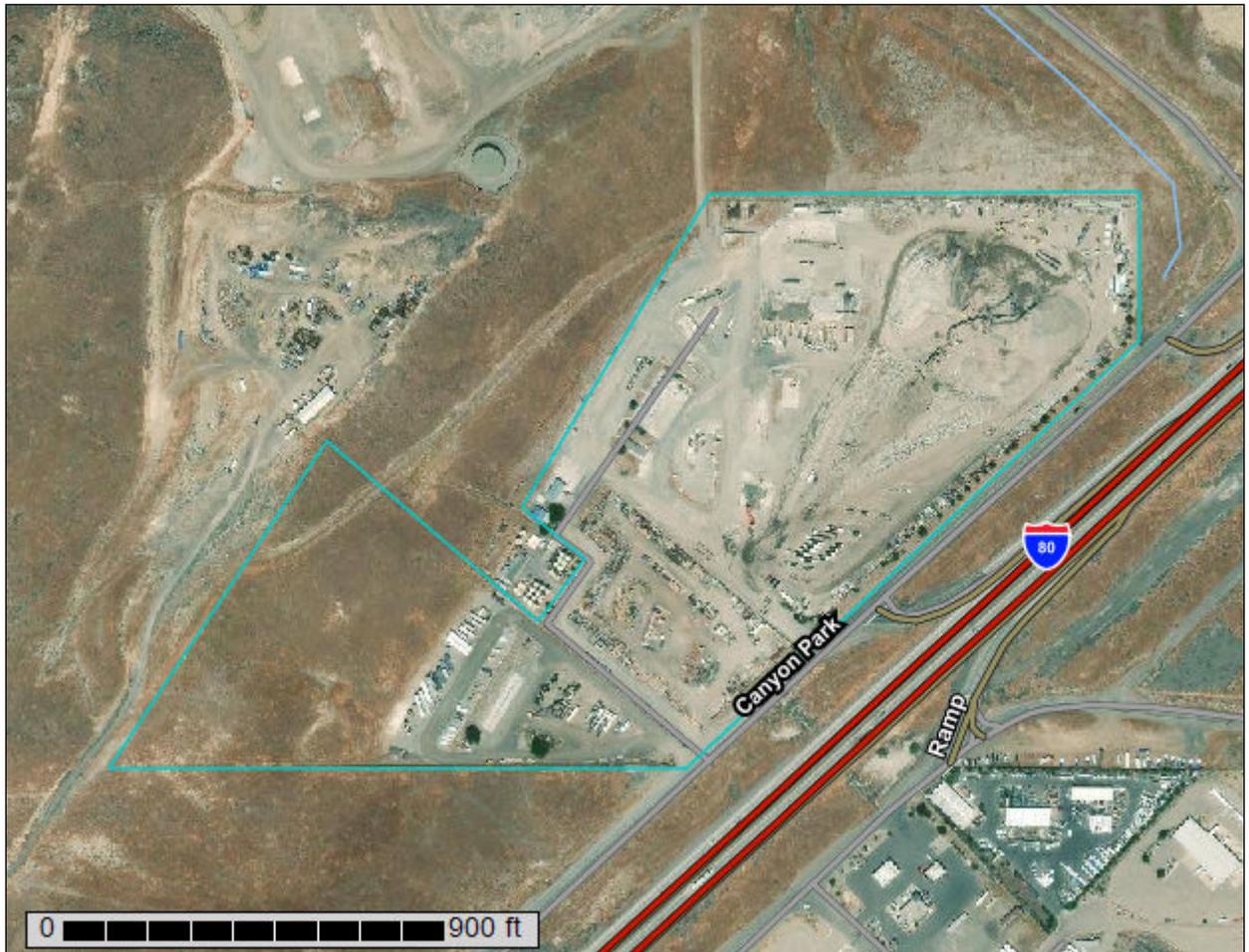
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NRCS Soils Report

Custom Soil Resource Report for Washoe County, Nevada, South Part



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

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

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

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

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

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

Custom Soil Resource Report

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

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

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

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

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

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

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

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

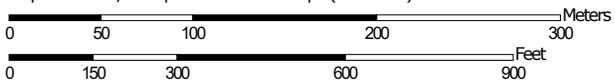
Soil Map

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

Custom Soil Resource Report Soil Map



Map Scale: 1:4,090 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Washoe County, Nevada, South Part
 Survey Area Data: Version 17, Aug 26, 2020

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

Date(s) aerial images were photographed: Aug 2, 2015—Oct 26, 2017

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
174	Indian Creek extremely stony sandy loam, 2 to 8 percent slopes	27.4	68.9%
360	Pits	4.1	10.3%
876	Xman-Oppio-Old Camp association	8.3	20.8%
Totals for Area of Interest		39.7	100.0%

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

Custom Soil Resource Report

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Washoe County, Nevada, South Part

174—Indian Creek extremely stony sandy loam, 2 to 8 percent slopes

Map Unit Setting

National map unit symbol: hxgw
Elevation: 4,500 to 5,500 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 51 degrees F
Frost-free period: 90 to 110 days
Farmland classification: Not prime farmland

Map Unit Composition

Indian creek and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Indian Creek

Setting

Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Mixed alluvium

Typical profile

H1 - 0 to 3 inches: very stony sandy loam
H2 - 3 to 20 inches: clay
H3 - 20 to 25 inches: cemented material
H4 - 25 to 60 inches: stratified extremely gravelly loamy coarse sand to gravelly sandy clay loam

Properties and qualities

Slope: 2 to 8 percent
Surface area covered with cobbles, stones or boulders: 23.0 percent
Depth to restrictive feature: 14 to 20 inches to duripan
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R026XY025NV - CLAYPAN 8-10 P.Z.
Hydric soil rating: No

Minor Components

Leviathan

Percent of map unit: 5 percent
Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R026XY010NV - LOAMY 10-12 P.Z.
Hydric soil rating: No

Verdico

Percent of map unit: 5 percent
Landform: Pediments
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R026XY023NV - CLAYPAN 10-12 P.Z.
Hydric soil rating: No

Washoe

Percent of map unit: 5 percent
Landform: Fan remnants
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R026XY016NV - LOAMY 8-10 P.Z.
Hydric soil rating: No

360—Pits

Map Unit Composition

Pits: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Convex

Typical profile

H1 - 0 to 60 inches: variable

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

876—Xman-Oppio-Old Camp association

Map Unit Setting

National map unit symbol: hxn5
Elevation: 4,400 to 6,000 feet
Mean annual precipitation: 8 to 12 inches
Mean annual air temperature: 48 to 50 degrees F
Frost-free period: 100 to 110 days
Farmland classification: Not prime farmland

Map Unit Composition

Xman and similar soils: 35 percent
Oppio and similar soils: 30 percent
Old camp and similar soils: 20 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Xman

Setting

Landform: Hills
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum derived from volcanic rocks

Typical profile

H1 - 0 to 2 inches: very stony loam
H2 - 2 to 14 inches: clay
Cr - 14 to 29 inches: bedrock
R - 29 to 39 inches: bedrock

Properties and qualities

Slope: 15 to 50 percent
Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: 10 to 20 inches to paralithic bedrock; 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Very low (about 2.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R026XY025NV - CLAYPAN 8-10 P.Z.
Hydric soil rating: No

Description of Oppio

Setting

Landform: Hills
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum derived from volcanic rocks

Typical profile

H1 - 0 to 3 inches: very stony fine sandy loam
H2 - 3 to 21 inches: gravelly clay
H3 - 21 to 31 inches: unweathered bedrock

Properties and qualities

Slope: 15 to 50 percent
Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R026XY025NV - CLAYPAN 8-10 P.Z.
Hydric soil rating: No

Description of Old Camp

Setting

Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum and colluvium derived from volcanic rocks

Typical profile

H1 - 0 to 2 inches: very stony sandy loam
H2 - 2 to 14 inches: very cobbly clay loam
R - 14 to 24 inches: bedrock

Properties and qualities

Slope: 15 to 50 percent
Surface area covered with cobbles, stones or boulders: 23.0 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low (0.00 to 0.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None

Custom Soil Resource Report

Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Very low (about 1.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: R026XY022NV - STONY SLOPE 8-10 P.Z.
Hydric soil rating: No

Minor Components

Skedaddle

Percent of map unit: 5 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R023XY030NV - SOUTH SLOPE 8-12 P.Z.
Hydric soil rating: No

Yuko

Percent of map unit: 4 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R026XY011NV - SOUTH SLOPE 8-12 P.Z.
Hydric soil rating: No

Rock outcrop

Percent of map unit: 4 percent
Landform: Peaks
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Reywat

Percent of map unit: 2 percent
Landform: Hills
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R026XY015NV - SHALLOW LOAM 10-12 P.Z.
Hydric soil rating: No

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Custom Soil Resource Report

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United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

DRAINAGE CALCULATIONS

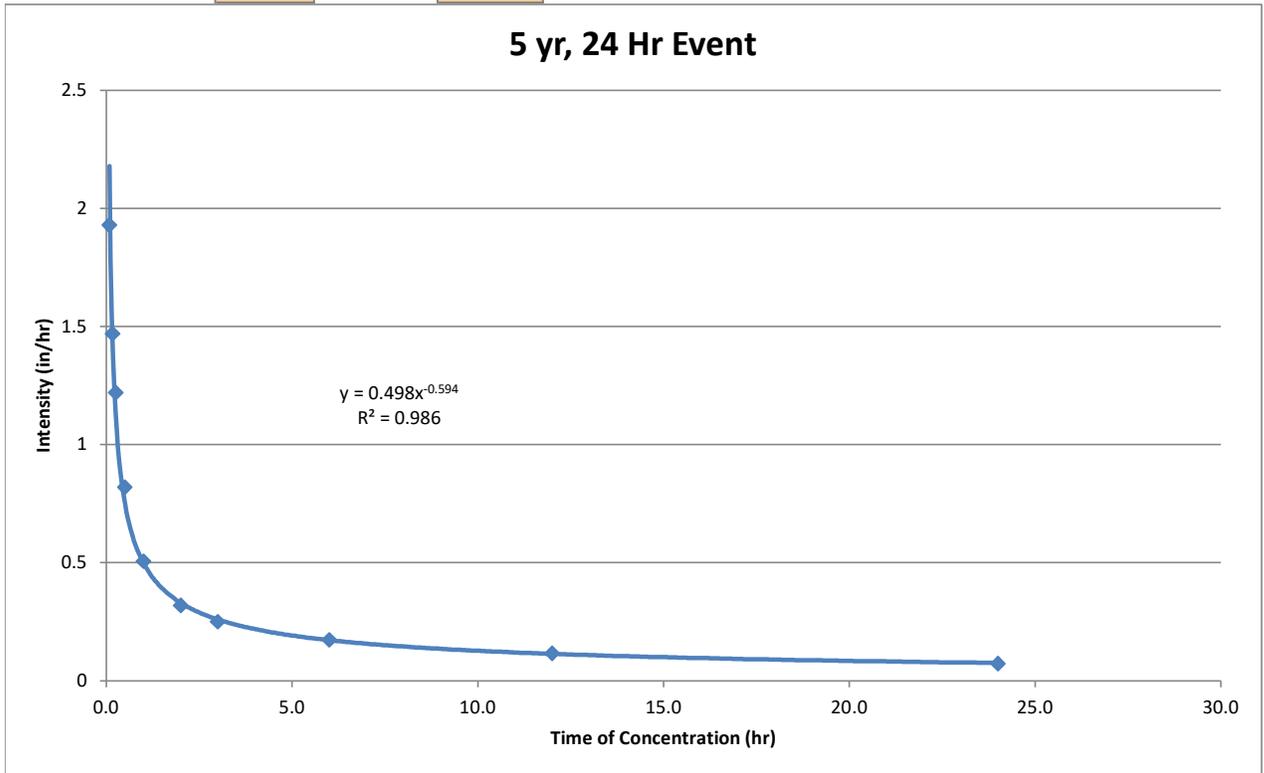
Client **IRG**
 Project **PROJECT Y**

Calcs By **JF**
 Checked By **JF**

PRECIPITATION FREQUENCY ESTIMATES

by duration for ARI:	1	2	5	10	25	50	100	200	500	1000
0.1	1.16	1.44	1.93	2.4	3.17	3.89	4.73	5.75	7.4	8.93
0.2	0.882	1.09	1.47	1.82	2.41	2.95	3.59	4.37	5.64	6.8
0.3	0.728	0.904	1.22	1.51	1.99	2.44	2.97	3.62	4.66	5.62
0.5	0.492	0.61	0.82	1.02	1.34	1.64	2	2.43	3.14	3.78
1.0	0.304	0.377	0.507	0.629	0.831	1.02	1.24	1.51	1.94	2.34
2.0	0.199	0.248	0.32	0.382	0.477	0.561	0.659	0.781	0.998	1.2
3.0	0.158	0.198	0.25	0.291	0.351	0.402	0.464	0.544	0.685	0.814
6.0	0.111	0.139	0.173	0.2	0.235	0.262	0.289	0.323	0.38	0.437
12.0	0.073	0.091	0.116	0.135	0.16	0.18	0.2	0.22	0.247	0.27
24.0	0.045	0.057	0.073	0.085	0.103	0.117	0.132	0.147	0.169	0.186
46.7	0.027	0.034	0.044	0.052	0.063	0.072	0.081	0.091	0.105	0.117
72.0	0.02	0.025	0.032	0.038	0.047	0.054	0.062	0.069	0.081	0.09
93.3	0.016	0.02	0.027	0.032	0.039	0.045	0.052	0.058	0.068	0.076
168.0	0.011	0.014	0.018	0.022	0.027	0.031	0.035	0.04	0.046	0.052
240.0	0.008	0.011	0.014	0.017	0.021	0.024	0.027	0.03	0.035	0.039
480.0	0.005	0.007	0.009	0.01	0.013	0.014	0.016	0.018	0.02	0.022
720.0	0.004	0.005	0.007	0.008	0.01	0.011	0.012	0.014	0.015	0.017
1080.0	0.003	0.004	0.005	0.006	0.008	0.009	0.01	0.011	0.012	0.013
1440.0	0.003	0.004	0.005	0.005	0.006	0.007	0.008	0.009	0.01	0.01

Graph the : **5 yr,** **24 Hr Storm**



Client : **IRG**
 Project : **PROJECT Y**

Calced By : **JF**
 Checked By : **JF**

IDF Storm Event: **5 yr, 24 Hr Event**

IDF Parameters: b : **0.498** m : **-0.5939** $i = b \cdot (x^m)$

Storm Factor : **1**

Basin ID	A (ac.)	C	ToC (hr)	i (in/hr)	A*C	Q (cfs)
EXISTING	36.3	0.30	0.17	1.43	10.878	15.5
PROPOSED	36.3	0.90	0.17	1.43	32.67	46.6

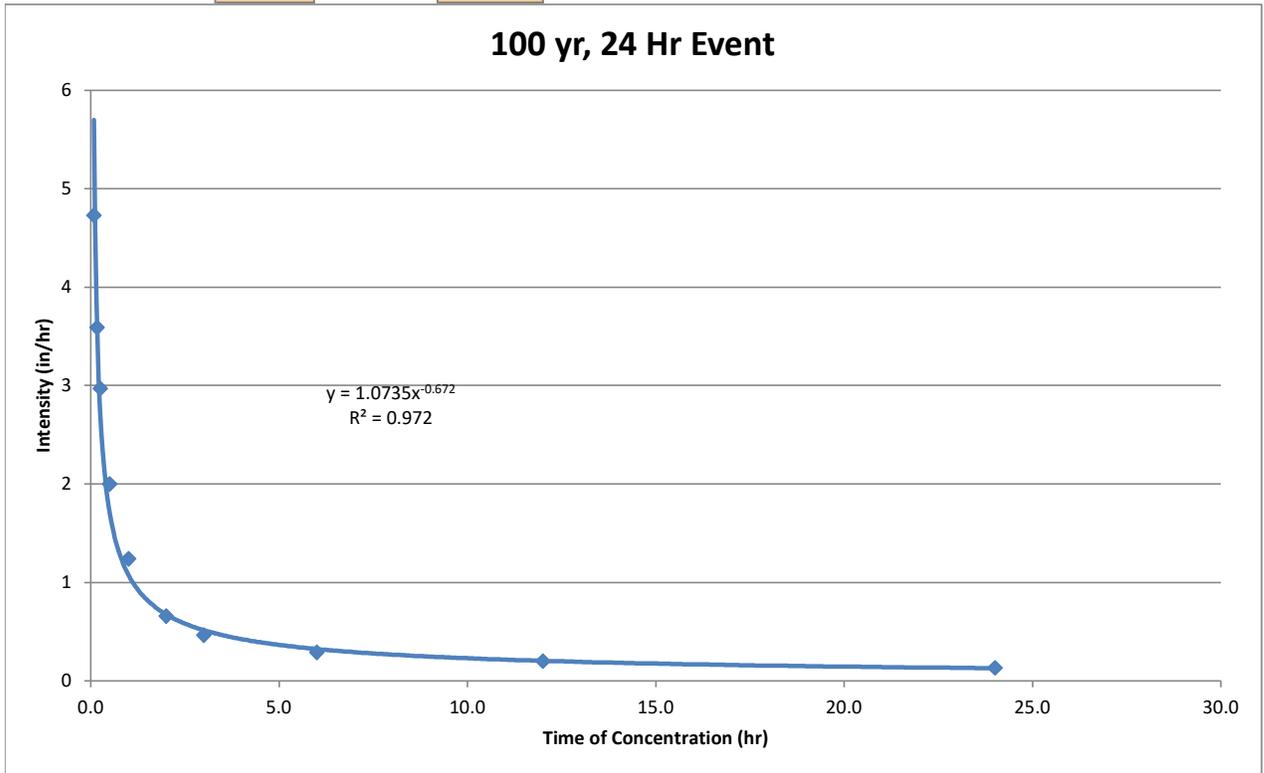
Client **IRG**
 Project **PROJECT Y**

Calcs By **JF**
 Checked By **JF**

PRECIPITATION FREQUENCY ESTIMATES

by duration for ARI:	1	2	5	10	25	50	100	200	500	1000
0.1	1.16	1.44	1.93	2.4	3.17	3.89	4.73	5.75	7.4	8.93
0.2	0.882	1.09	1.47	1.82	2.41	2.95	3.59	4.37	5.64	6.8
0.3	0.728	0.904	1.22	1.51	1.99	2.44	2.97	3.62	4.66	5.62
0.5	0.492	0.61	0.82	1.02	1.34	1.64	2	2.43	3.14	3.78
1.0	0.304	0.377	0.507	0.629	0.831	1.02	1.24	1.51	1.94	2.34
2.0	0.199	0.248	0.32	0.382	0.477	0.561	0.659	0.781	0.998	1.2
3.0	0.158	0.198	0.25	0.291	0.351	0.402	0.464	0.544	0.685	0.814
6.0	0.111	0.139	0.173	0.2	0.235	0.262	0.289	0.323	0.38	0.437
12.0	0.073	0.091	0.116	0.135	0.16	0.18	0.2	0.22	0.247	0.27
24.0	0.045	0.057	0.073	0.085	0.103	0.117	0.132	0.147	0.169	0.186
46.7	0.027	0.034	0.044	0.052	0.063	0.072	0.081	0.091	0.105	0.117
72.0	0.02	0.025	0.032	0.038	0.047	0.054	0.062	0.069	0.081	0.09
93.3	0.016	0.02	0.027	0.032	0.039	0.045	0.052	0.058	0.068	0.076
168.0	0.011	0.014	0.018	0.022	0.027	0.031	0.035	0.04	0.046	0.052
240.0	0.008	0.011	0.014	0.017	0.021	0.024	0.027	0.03	0.035	0.039
480.0	0.005	0.007	0.009	0.01	0.013	0.014	0.016	0.018	0.02	0.022
720.0	0.004	0.005	0.007	0.008	0.01	0.011	0.012	0.014	0.015	0.017
1080.0	0.003	0.004	0.005	0.006	0.008	0.009	0.01	0.011	0.012	0.013
1440.0	0.003	0.004	0.005	0.005	0.006	0.007	0.008	0.009	0.01	0.01

Graph the : **100 yr,** **24 Hr Storm**



Client : **IRG**
 Project : **PROJECT Y**

Calced By : **JF**
 Checked By : **JF**

IDF Storm Event: **100 yr, 24 Hr Event**

IDF Parameters: b : **1.0735** m : **-0.6717** $i = b \cdot (x^m)$

Storm Factor : **1**

Basin ID	A (ac.)	C	ToC (hr)	i (in/hr)	A*C	Q (cfs)
EXISTING	36.3	0.30	0.17	3.53	10.878	38.4
PROPOSED	36.3	0.90	0.17	3.53	32.67	115.3

APPLICANT / DEVELOPER

INDUSTRIAL REALTY GROUP, LLC
 Care of: Rex Massey
 Phone: 775-772-6923
 Email: rmassey@irgra.com

JURISDICTIONS:

WASHOE COUNTY - PLANNING DEPARTMENT
 Department of Planning and Building
 1001 E Ninth St, Reno NV
 Phone (775) 328-6100, Fax (775) 328-6133

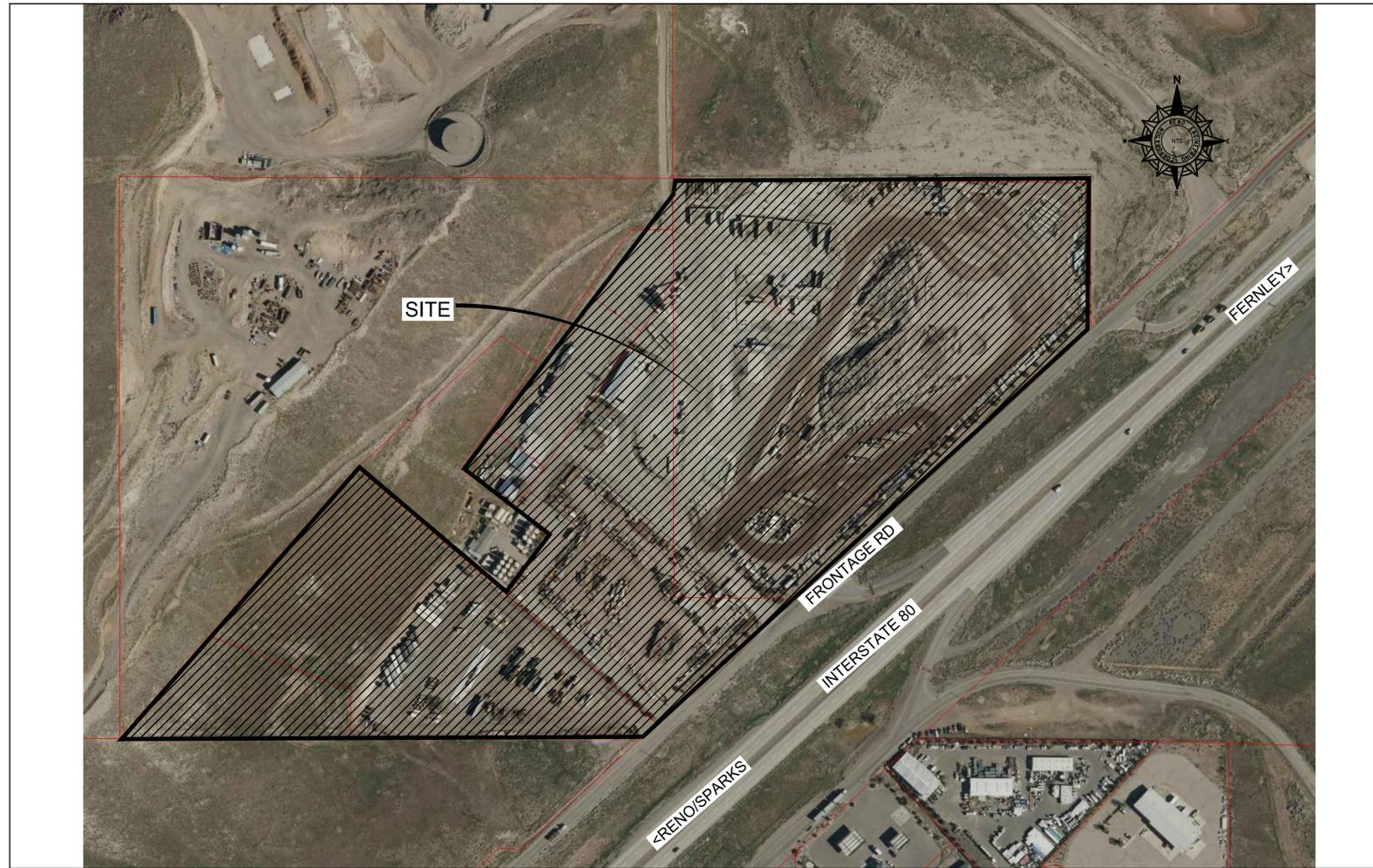
WASHOE COUNTY - DUST CONTROL PERMIT
 Washoe County Health District (WCHD) Air Quality Management Division
 Administrative Health Services (AHS) 1001 E. 9th Street, Building B, Reno NV 89512
 Phone (775) 785-4110, Fax (775) 784-7225

STATE OF NEVADA - STORM WATER POLLUTION PREVENTION PLAN (SWPPP)
 NEVADA DIVISION OF ENVIRONMENTAL PROTECTION (NDEP)
 901 South Stewart Street, Suite 4001, Carson County, Nevada 89701-5249
 Phone (775) 687-9520, Fax (775) 687-5699

AT&T COMMUNICATION
 Chip Lyles, OSP Design Engineer
 AT&T Nevada, 745 W. Moana Lane, Room 220, Reno, NV
 Phone (775) 448-9248

NV ENERGY - ELECTRIC AND GAS SERVICE
 P.O. Box 10100, Reno, Nevada 89520

TRUCKEE MEADOWS WATER AUTHORITY (TMWA)
 1355 Capital Blvd., Reno, NV 89502



VICINITY MAP

GENERAL NOTE

THESE PLANS, HAVE BEEN PREPARED IN ACCORDANCE WITH ACCEPTED ENGINEERING PROCEDURES AND GUIDELINES, AND ARE BELIEVED TO BE IN SUBSTANTIAL COMPLIANCE WITH APPLICABLE STATUES, COUNTY ORDINANCES, AND FOR CITY STANDARDS. IN THE EVENT OF A CONFLICT BETWEEN ANY PORTION OF THESE PLANS AND COUNTY STANDARDS PROMPTLY NOTIFY ENGINEER, THE COUNTY STANDARDS SHALL APPLY. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTORS SHALL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.

THE ENGINEER SHALL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE ENGINEER.

OBTAIN LATEST ELECTRONIC FILE FROM REC PRIOR TO STAKING & CONSTRUCTION. THE ORIGINAL SET WET-STAMPED & DATED TBD AND APPROVED AS NOTED BY CITY OF RENO BLDG DEPT & FIRE DEPT IS "PERMIT SET". REFER ALSO TO FD'S PLAN REVIEW COMMENTS.

TOPOGRAPHY

CONTOURS AND SPOT GRADES SHOWN ON THESE PLANS WERE TAKEN FROM AERIAL MAPPING AND CONFORM TO THE FOLLOWING STANDARDS.

XY ACCURACY = 1/50" AT MAP SCALE

Z ACCURACY = 1/2 CONTOUR INTERVAL

SPOTS = 1/4 CONTOUR INTERVAL

MAPS MUST BE FIELD CHECKED BEFORE USE

CONTRACTOR TO VERIFY WITH ENGINEER AND/OR SURVEYOR FOR THE LATEST SITE MAP

FEATURES IN SHADOW AND VEGETATION AREAS OR NEAR TALL OBJECTS MAY BE OBSCURED DUE TO PHOTOGRAPHIC ANGLE

MAPPING OUTSIDE OF CONTROL PERIMETER MAY NOT MEET MAP ACCURACY STANDARDS

SMALL SHADOW AREAS ARE NOT SHOWN FOR CLARITY

BASIS OF BEARING & ELEVATION

BASIS OF BEARING

NEVADA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983 / 1994, (NAD 83 / 94) DETERMINED USING REAL TIME KINEMATIC (RTK) GPS OBSERVATIONS OF WASHOE COUNTY SURVEY CONTROL. COMBINED GRID TO GROUND FACTOR = 1.000197939. ALL DISTANCES SHOWN HEREIN ARE GROUND.

BASIS OF ELEVATION

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), AS TAKEN FROM CONTRACTOR TO VERIFY & COORD W/ LATEST MAP, BOUNDARY INFO, SITE LAYOUT PRIOR TO STAKING & CONSTRUCTION.

CIVIL ENGINEER OF RECORD

RENO ENGINEERING CORPORATION
 Attn: Justin Farley, PE
 One East 1st Street, Suite 1400
 Reno, NV 89501
 Phone: 775-815-7172
 Email: justin@recnv.com

SHEET INDEX

CV	COVER SHEET
CM	PRELIMINARY CONSTRAINTS MAP
SP	PRELIMINARY SITE PLAN
GP	PRELIMINARY GRADING PLAN
XS	PRELIMINARY GRADING X-SECTIONS

REVISIONS	BY	DATE

ONE EAST FIRST STREET #400
 Phone: (775) 852-5700 Fax: (775) 852-5707
 WWW.RECNV.COM
REC
 Reno Engineering A Development Services Company



**PROJECT Y - MUSTANG
 COVER SHEET**

CV

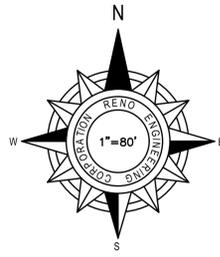
***** IMPORTANT *****

THE ORIGINAL SET WET-STAMPED & DATED _____ AND APPROVED AS NOTED BY CITY OF RENO BLDG DEPT & FIRE DEPT IS "PERMIT SET". REFER ALSO TO FD'S PLAN REVIEW COMMENTS.

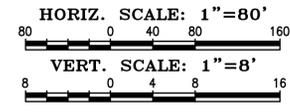
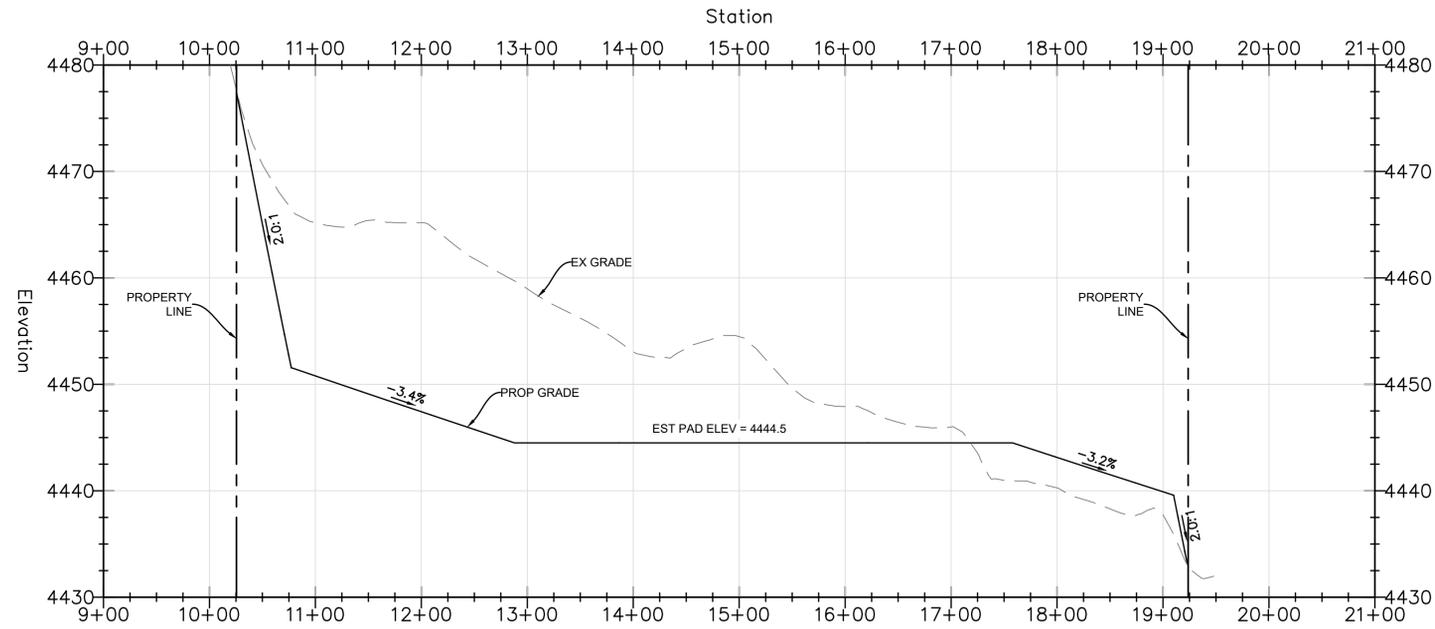
"PERMIT SET" GOVERNS AT ALL TIMES. CONTRACTOR TO MAINTAIN A CLEAN COPY OF "PERMIT SET" FOR CONSTRUCTION AND CITY OF RENO'S INSPECTION.

DO NOT REFER TO ANY PLAN IF NOT WET-STAMPED & DATED BY ENGINEER.

THE PROFESSIONAL ENGINEERS SEAL AFFIXED TO THIS SHEET APPLIES ONLY TO THE MATERIAL AND ITEMS SHOWN ON THIS SHEET. ALL DRAWINGS, INSTRUMENTS OR OTHER DOCUMENTS NOT EXHIBITING THIS SEAL SHALL NOT BE CONSIDERED PREPARED BY THIS ENGINEER, AND THIS ENGINEER EXPRESSLY DISCLAIMS ANY AND ALL RESPONSIBILITY FOR SUCH PLAN, DRAWING OR DOCUMENT NOT EXHIBITING THIS SEAL.



NW TO SE PROFILE

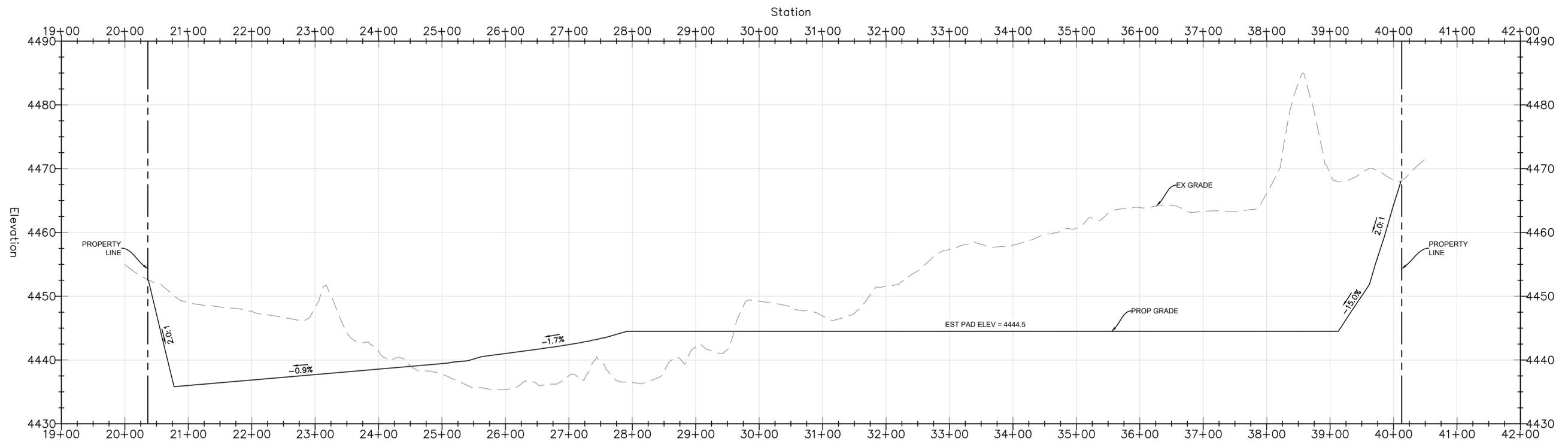


NO.	DATE	REVISIONS

ONE EAST FIRST STREET #1400
 Reno, NV 89502
 Phone: (775) 855-5700 Fax: (775) 855-5707
 WWW.RECNV.COM

RENO
 Reno Engineering A Development Services Company

SW TO NE PROFILE



PROJECT Y - MUSTANG
 PRELIMINARY GRADING
 X-SECTIONS

XS