Exhibit B

Eagle Shadow
Mountain
Solar Project
Ute
15
15
Crystal
Las Vegas Fwy
Valley of Fire
State Park

Eagle Shadow Mountain Project -
Aerial View 2

Eagle Shadow Mountain Project -
Aerial View 3

Tracker Without Module

Tracker With Module

Module-Tracker - Earth
Truss View 1

Module-Tracker - Earth
Truss - View 2

Module-Tracker - Earth Truss
- View 3

Module-Tracker - Driven Pile - View 1

Module-Tracker - Driven Pile -
View 2

Exhibit C

April 11, 2019
Kleinfelder Project No.: 20191344.001A

Mr. Tristan Cooke, PE, LEED-AP
325MK8me, LLC
211 Sutter Street; 6th Floor
San Francisco, California 94108

SUBJECT: Geotechnical Exploration Report
Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

Dear Mr. Cooke:

We are pleased to present our geotechnical exploration report for the Eagle Shadow Mountain Solar Project, a 2,985-acre solar development located approximately 10 miles north of US-93 and I-15 Interchange in the Moapa River Indian Reservation, USA. We have prepared this report in general accordance with the geotechnical scope of services presented in our revised proposal dated May 23, 2018 (Kleinfelder Proposal No. LAS18P78699_R3). Scope items addressed in this report included subsurface exploration, field and laboratory soil testing, geotechnical engineering evaluation and geotechnical recommendations for design and construction. At the e-mail request of 325MK8me, LLC on February 5, 2019, the data report and geotechnical design criteria for the solar array and substation have been combined in this document. As also requested, load testing of prototype piles and other scope items such as dust permit support will be provided under separate covers.

We appreciate this opportunity to work with you on this project. If you have any questions regarding this report or need additional information, please do not hesitate to contact us.

Respectfully submitted,

KLEINFELDER

Marc Moncilovich, PG (AZ)
Project Manager

Jonathan Lehman-Svoboda, PE
Principal Geotechnical Engineer

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GEOTECHNICAL EXPLORATION REPORT
EAGLE SHADOW MOUNTAIN SOLAR PROJECT
MOAPA RIVER INDIAN RESERVATION, USA
KLEINFELDER PROJECT NO.: 20191344.001A

April 11, 2019

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ONLY THE CLIENT OR ITS DESIGNATED REPRESENTATIVES MAY USE THIS DOCUMENT AND ONLY FOR THE SPECIFIC PROJECT FOR WHICH THIS REPORT WAS PREPARED.

A Report Prepared for:

Mr. Tristan Cooke, PE, LEED-AP
325MK8me, LLC
211 Sutter Street; 6th Floor
San Francisco, California 94108

GEOTECHNICAL EXPLORATION REPORT
EAGLE SHADOW MOUNTAIN SOLAR PROJECT
MOAPA RIVER INDIAN RESERVATION, USA

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February 27, 2019

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B Graphics and Soil Description Keys (2 pages)
Boring and Test Pit Logs (58 pages)
C Laboratory Test Results (38 pages)
D Thermal Resistivity Results (4 pages)
E Soil Chemical Test Results (48 pages)
F Corrosion Control Recommendations (6 pages)

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GEOTECHNICAL EXPLORATION REPORT
EAGLE SHADOW MOUNTAIN SOLAR PROJECT
MOAPA RIVER INDIAN RESERVATION, USA

1 INTRODUCTION

1.1 GENERAL

Kleinfelder, Inc. (Kleinfelder) is pleased to present this geotechnical exploration report for 325MK 8me, LLC (8me) in association with the Eagle Shadow Mountain Solar Project a 2,985-acre solar development located approximately 10 miles north of US-93 and I-15 Interchange in the Moapa River Indian Reservation, USA. The location of the site is presented on Figure 1, General Site Vicinity Map.

The purposes of this evaluation were to explore the subsurface conditions, collect samples for laboratory testing, load test prototype post foundations to assess engineering performance and provide photovoltaic (PV) development-specific opinions and recommendations regarding site development, site grading and design criteria for foundations, and dust permit soil sampling and support following Clark County guidelines. The pile load testing program and dust permit sampling and support are submitted under separate covers. The services provided were in general accordance with the scope of work outlined in our proposal dated May 23, 2018 (Kleinfelder Proposal No. LAS18P78699_R3).

The conclusions and recommendations presented in this report are based on the subsurface information encountered in our explorations, the results of load testing, our site observations, and our experience with similar development. The recommendations contained in this report are subject to the provisions and requirements outlined in the Limitations sections of this report. In addition, a brochure prepared by the Geoprofessional Business Association (GBA) has been included following the text of this report. We recommend that all individuals using this report read the limitations along with the attached document.

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1.2 PROJECT DESCRIPTION

The general project location is presented on Figure 1; however, we understand that the approximate southern half of the site will be developed in this phase. PV solar arrays, a substation, and ancillary structures will be constructed along with aggregate and/or asphalt concrete paved roadways. The arrays will cover an area of approximately 2,985 acres. The substation is proposed along the eastern project boundary. We understand that a dead-end monopole tower will be located in the substation and will tie into a proposed transmission line. We anticipate an embedment of 20 to 30 feet will be required for the monopole tower foundation.

Specific equipment pad and equipment loads were not available at the time this report prepared. Based on our experience with previous projects, we anticipate transformer equipment weights of up to 260 kips which will be supported on mat foundations. We anticipate that ancillary structures will be founded on shallow foundations with maximum spread loads 4,000 psf. We understand that paved roads will be subjected to HS-20 vehicle loads with a low frequency of vehicular traffic loading.

We understand site grading in the PV array area is anticipated to generally follow the existing site topography. We assume that localized cuts and fills up to a few feet may be required.

1.3 SCOPE

Kleinfelder's geotechnical scope of services included:

- Reviewing aerial photography review and performing geological reconnaissance for earth fissures;
- Drilling twenty-nine (29) hollow stem auger borings and excavating twenty-eight (28) test pit excavations. The borings located in the PV array footprint were drilled to depths of approximately 15 or 20-feet below ground surface (bgs). One boring within the proposed substation area was advanced to 50 feet bgs. Test pits were excavated to depths of 8 feet below existing ground surface or to practical refusal;

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- Performing Wenner 4-pin soil resistivity survey arrays consisting of two perpendicular measurements with varying probe spacings at ten (10) locations provided in advance for approval by me;

- Geotechnical laboratory testing on selected samples to evaluate engineering properties. Laboratory testing included soil classification, in place moisture and unit weight determinations, moisture-density relationship (modified proctor), expansion potential under varying surcharge loads, and R-Value testing for pavement design;

- Submitting samples to an outside laboratory for chemical laboratory testing to evaluate soil corrosion potential. Corrosion potential testing included pH of soil, water soluble sulfates, chlorides, sulfides, oxidation-reduction potential, and laboratory electrical resistivity;

- Provide corrosion recommendations for buried metal;

- Submitting samples to an outside laboratory for thermal resistivity in accordance with IEEEE STD 442;

- Evaluating of the field and laboratory data to develop geotechnical recommendations and substation foundation design parameters presented in this report;

- Pre-design lateral and axial load testing on a total of sixty-eight (68) prototype pile foundations (4 piles at 17 load test locations across the site), with results and site-specific performance data for design of prototype pile foundations provided under separate cover; and

- Performing surface soil analysis per Clark County Department of Air Quality (CCDAQ) procedures, provided under a separate cover.

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2 FIELD EXPLORATION AND LABORATORY TESTING

2.1 FIELD EXPLORATION

Kleinfelder's geotechnical field exploration was conducted to evaluate subsurface conditions, obtain soil samples for laboratory testing, and evaluate the performance of foundation posts to support PV panels. The field exploration included geologic reconnaissance, borings, test pit excavations, and field resistivity testing. The approximate locations of the explorations are presented in Figure 2, Exploration Location Map. The borings and test pits were located in the field using waypoints programed into a hand-held global positioning unit (GPS).

2.2 IN-SITU SOIL APPARENT RESISTIVITY TESTING

Soil resistivity was measured using the Wenner four-electrode method at ten (10) locations. Two perpendicular measurements at varying pin spacings were performed at each test location. Measurements were obtained using a SuperSting R-1 soil resistivity meter manufactured by Advanced Geosciences, Inc. Resistivity measurements were conducted with maximum probe spacing's ranging from 20 feet to 200 feet. The approximate center of each resistivity survey is shown on Figure 2. The results are tabulated in Appendix A.

2.3 SUBSURFACE EXPLORATION

The subsurface exploration included twenty-nine (29) exploratory borings (SA-1 through SA-28) and SB-1) and twenty-eight (28) test pit excavations (TP-1 through TP-28) within the proposed project site. Kleinfelder geotechnical staff observed drilling and test pit excavation operations and maintained a log of the subsurface conditions encountered.

Exploratory borings were completed on December 3rd through 11th, 2018. Borings were drilled with a CME 1050 drill rig equipped with hollow-stem augers. Borings were generally advanced to depths of approximately 15 to 20 feet bgs. Boring SB-1 was drilled to a depth of 50 feet within the proposed substation limits to provide design information for the proposed monopole dead-end structure. At a minimum, driven samples were collected every 2.5 feet in the upper 10 feet and

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every 5 feet thereafter. Bulk samples of the auger cuttings were also obtained at selected depths. Standard Penetration Test (SPT, 1.375-inch I.D.) split spoon sampler and ring-lined, California split spoon sampler (3-inch outside diameter with 2.4-inch diameter rings) were driven using a hydraulically actuated, auto-trip hammer. The split spoon samplers were driven with a 140-pound hammer free-falling through a distance of 30 inches. Unless noted otherwise, the sampler driving resistance was recorded as number of blows per 6 inches of penetration. The penetration test results are presented on the boring logs at the corresponding sampling depth.

A Kleinfelder geotechnical professional maintained logs in the field of the subsurface conditions encountered. Soil samples from the borings were classified in the field in general accordance with ASTM D2488. Observations of the sample recovery; range of particle sizes and angularity; plasticity; color; moisture; and soil consistency or relative density were recorded in the field. Drill rig response and drill time was observed and noted on the logs during drilling. Cemented soils were identified based on the presence of cemented rinds on the gravel and sand clasts with breaks across clasts observed in the auger cuttings and samples, auger response, and resistance to driven sampling. Portions of each sample were packaged and transported to our laboratory for additional testing. The lines defining boundaries between soil types on the logs are based on Kleinfelder's field observations and interpolation between samples and are therefore approximate. Transition between soil types may be abrupt or may be gradual.

Test pit excavations were completed using a Case 580 backhoe on November 26th through 28th, 2018. Test pits TP-1 through TP-28 were excavated to approximately 8 feet bgs or to practical refusal, whichever occurred first. Representative bulk samples were obtained from the test pits.

Keys to the soil descriptions and symbols used to describe the subsurface conditions encountered are presented in Appendix B. Soil classifications, samples, and other field observations and testing are recorded on the Boring Logs and Test Pit Logs in Appendix B.

2.4 LABORATORY TESTING

Laboratory tests were performed on selected soils obtained from the explorations to evaluate their physical and engineering properties in general accordance with ASTM test procedures. The geotechnical laboratory testing consisted of:

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- Twenty-one (21) gradation analyses (ASTM C117 and C136), seventeen (17) percent passing the number 200 sieve determinations (ASTM C117), and thirty-seven (37) Atterberg limits tests (ASTM D4318) to support our field classifications.

- Three (3) R-value measurements (ASTM D2844) performed to evaluate subgrade characteristics for use in pavement design.

- Five (5) expansion tests (Clark County Building Department Procedure, modified for varying loads) performed to evaluate potential volume changes of plastic soils when saturated.

- Fourteen (14) water content determinations (ASTM D2216) and four (4) in-place dry unit weight measurements (ASTM D2397).

- Eleven (11) maximum dry unit weight and optimum moisture content determinations (ASTM D1557) performed to support thermal resistively testing and Clark County dust control specifications.

The results of the laboratory tests are presented in order as described above in Appendix C. The test results are also presented on the boring logs in Appendix B.

2.4.1 Thermal Resistivity Testing

Ten (10) bulk samples were obtained from the test pits and borings for thermal resistivity testing. The samples were sent to Geotherm USA in Livermore, California along with the proctor curve provided by Kleinfelder. The thermal resistivity test samples were compacted to approximately 85% maximum dry density at optimum moisture. The tests were performed in general accordance with IEEE Std. 442-1981. The results of the thermal resistivity testing, including graphical results of the thermal dry-out curves are presented in Appendix D.

2.4.2 Corrosivity Testing

Twenty-three (23) near-surface soil samples were tested by Veritas Laboratory for chemical analyses. The samples were tested for pH, miller box resistivity under “as received” and saturated moisture conditions, water-soluble sulfates, water-soluble sodium, water-soluble sodium sulfate,

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water-soluble chlorides, and oxidation-reduction potential. The results of corrosion testing are presented on the Veritas Laboratories test data sheets in Appendix E.

2.5 LOAD TESTING OF DESIGN PROTOTYPE PILE FOUNDATIONS

Concurrent with the geotechnical evaluation, Kleinfelder subcontracted an experienced PV contractor to procure and install a total of sixty-eight (68) prototype piles. Kleinfelder performed a preconstruction pile testing program that included laterally and axially loading prototype steel piles. The purpose of the load testing program was to obtain site-specific performance data for design of prototype pile foundations. The results of the load testing program will be provided under a separate cover.

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3 GENERAL SITE CONDITIONS

3.1 SURFACE CONDITIONS

The site is located in undeveloped desert. The site slopes overall down from the west to the east. Due to the size of the site, cultural resource restrictions, and budgeted time allotments, our field reconnaissance was limited to observations made traveling between the locations explored. Accumulation of cemented soils, cobbles, and boulders were observed at the ground surface. A cover of typical desert vegetation was also present. Several washes up to several feet deep and a few to more than 10 feet wide are present at the site. The overall surface drainage direction ranges is southeast to south-southeast, from the north to south across the site.

3.2 SUBSURFACE CONDITIONS

The near surface soils encountered in the explorations generally consisted of medium dense to very dense granular soils. The granular soils encountered had fines (material passing the No. 200 Sieve) contents ranging from approximately 20 to 40 percent with plasticity indices typically ranging from non-plastic to 15.

Near-surface, high-plasticity, fine-grained soils were present in a few of the explorations, generally located near the center and eastern portions of the site. Swell testing performed indicates that the near-surface, fine-grained soils may be subject to volume changes if wetted. Table 3.2-1 is a summary of swell testing performed.

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Table 3.2-1: Swell Testing Summary

Exploration Designation	Depth (feet)	Description	Sample Preparation	Moisture Content (%)	Dry Density (pcf)	Initial Moisture Content (%)	Final Moisture Content (%)	Surcharge (psf)	Expansion (%)
SA-21	5	Sandy ELASTIC SILT (MH)	In-place	14	107	14	20	600	2.8
			Remolded	16	112	0*	22	60	11.8
SA-26	5	Sandy LEAN CLAY (CL)	In-place	3	125	3	6	600	6.7
			Remolded	14	115	0*	26	60	21.7
SA-26	10	Lean CLAY (CL)	Remolded	15	114	0*	19	1200	3.3

**Samples oven dried prior to testing*

Near surface moderately to strongly cemented soils were encountered in 52 of the 57 explorations performed across the site. Table 3.2-2 is a summary of the depth to first moderately to strongly cemented layer encountered at in the borings.

Table 3.2-2: Summary of Cemented Soils Encountered in the Borings

Boring Designation	Approximate Depth to First Moderately to Strongly Cemented Layer (feet)	Approximate Thickness of First Moderately to Strongly Cemented Layer (feet)
SA-1	5½	15*
SA-2	7½	7½*
SA-3	½	14½*
SA-4	½	14½
SA-5	½	19½
SA-6	3	12*
SA-7	3	12*

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Table 3.2-2(Continued): Summary of Cemented Soils Encountered in the Borings

Boring Designation	Approximate Depth to First Moderately to Strongly Cemented Layer (feet)	Approximate Thickness of First Moderately to Strongly Cemented Layer (feet)
SA-8	10	5*
SA-9	1	14
SA-10	5½	9½
SA-11	3½	16½*
SA-12	1	14*
SA-13	1	19*
SA-14	2	13*
SA-15	3	17
SA-16	5	10*
SA-17	4	11*
SA-18	1	14*
SA-19	1	14*
SA-20	8	7
SA-21	Not Encountered	
SA-22	5	2½
SA-23	1	14*
SA-24	1	15*
SA-25	1	10
SA-26	Not Encountered	
SA-27	1	6½
SA-28	1	9
SB-1	1	11

**Boring terminated in cemented layer*

Weakly to moderately cemented layers were also encountered in the borings. Additional details of the cemented soils encountered are presented on the Boring Logs in Appendix B.

Backhoe refusal occurred in 25 of 28 test pits performed across the site. Table 3.2-3 is a summary of depth to backhoe refusal on cemented soils.

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Table 3.2-3: Summary of Backhoe Refusal

Test Pit Designation	Depth to Backhoe Refusal on Cemented Soils (Feet)
TP-1	4
TP-2	2½
TP-3	1
TP-4	½
TP-5	3
TP-6	1½
TP-7	1½
TP-8	2½
TP-9	1
TP-10	2
TP-11	1
TP-12	1
TP-13	2
TP-14	2
TP-15	2½
TP-16	1
TP-17	2
TP-18	2
TP-19	N/A - Excavated to 8 feet
TP-20	1½
TP-21	N/A - Excavated to 8 feet
TP-22	1½
TP-23	3
TP-24	2½
TP-25	N/A - Excavated to 8 feet
TP-26	1½
TP-27	1½
TP-28	1½

N/A – Not Applicable

Analytical chemical testing performed on near surface samples indicates water soluble sodium sulfate contents typically ranging from less than 0.001 percent to approximately 0.2 percent, with one test result greater than 0.2 percent for the material tested between 4 and 8 feet in Test Pit TP-21. Solubility and sulfates contents up to 0.32 and 0.8 percent, respectively, were measured. Table 3.2-4 is a summary of the chemical testing performed.

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Table 3.2-4: Summary of Chemical Testing

Exploration Designation	Sample Depth, feet	USCS Group Symbol	*Resistivity (as Received), Ohm-cm	Resistivity (Saturated)	Sodium, Percent	Sodium Sulfate, Percent	Solubility	pH	Sulfate, Percent	Chloride, mg/Kg	Redox, mV	Sulfides, mg/Kg
SA-4	½ - 5	N/A**	49000	4100	0.0023	0.0072	0.01	8.88	0.009	25	197	1.6
SA-20	2½ - 5	SC	8000	745	0.021	0.065	0.032	8.48	0.06	180	201	ND
SA-21	5	CL	12500	1600	0.0086	0.0089	0.0098	8.75	0.006	60	231	0.77
SA-24	2½ - 7½	N/A**	16000	1720	0.0042	0.013	0.014	8.74	0.028	45	229	2.1
SA-25	2½ - 7½	N/A**	5100	800	0.018	0.055	0.036	8.52	0.075	140	242	0.85
SA-27	2½ - 7	N/A**	26500	3100	0.005	0.013	0.017	8.87	0.009	45	246	0.64
SA-27	15	MH	1000	330	0.015	0.046	0.13	8.3	0.41	120	273	0.56
TP-1	0-1	SM	4200	2700	0.0021	0.0065	0.0074	8.7	0.008	25	251	2.5
TP-4	0-½	SC	4450	1550	0.0019	0.006	0.01	8.64	0.0045	40	277	27
TP-6	0-1	SC-SM	880	135	0.07	0.22	0.15	7.96	0.22	1200	261	ND
TP-8	0-1	GC	675	100	0.06	0.19	0.18	7.89	0.2	1800	284	1.8
TP-10	0-1	SC	9500	2650	0.0015	0.0022	0.023	8.65	0.0015	25	267	1.5
TP-12	0-1	SC	7200	1250	0.0023	0.0073	0.012	8.48	0.016	20	272	1.2
TP-13	0-1	SM	5500	2700	0.0015	0.0046	0.0098	8.73	0.0035	ND	267	1.3
TP-15	0-1	ML	9400	3000	0.0015	0.0045	0.0082	8.79	0.004	35	269	0.76
TP-19	0-1	SM	5200	2100	0.0012	0.0038	0.01	8.69	0.007	30	294	0.61
TP-20	0-1	SM	3950	3290	0.0016	0.0049	0.019	8.71	0.0035	25	176	2.3
TP-21	0-1	SC	4600	1400	0.0072	0.012	0.023	8.67	0.008	70	133	ND
TP-21	4-8	CH	900	180	0.11	0.35	0.32	8.29	0.8	520	195	ND
TP-23	0-1	SM	9800	3100	0.0011	0.0034	0.0086	8.55	0.0065	20	198	ND
TP-25	0-1	SC	26500	3200	0.0016	0.0015	0.0092	8.49	0.001	25	198	ND
TP-26	0-1	SC-SM	6650	3460	0.00097	0.003	0.016	8.66	0.0035	ND	211	4.7
TP-28	0-1	GM	10500	2750	0.0011	0.0015	0.0084	8.48	0.001	ND	220	0.84

**Samples received by the analytical laboratory at the approximate in-place moisture content.*

***N/A – Not Applicable, material tested consisted of cemented sand and gravel processed by the augers.*

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Three R-value tests were performed on near surface samples; R-values of 25 to 52 were measured.

3.3 GROUNDWATER

Groundwater was not observed during drilling or immediately following the completion of any of our subsurface explorations. It is possible that variations in groundwater elevations may occur due to seasonal changes, run-off and precipitation. Groundwater levels at other times and locations may be different from those described in this report.

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4 GENERAL SITE GEOLOGY

4.1 GEOLOGIC SETTING

Dry Lake Valley is located in the Basin and Range province, characterized by roughly parallel, north- to northeast-trending mountain ranges and intervening valleys. The site is located in the southwest end of Dry Lake Valley on an alluvial fan composed of incised sedimentary deposits of Quaternary and Quaternary- to Tertiary-aged alluvium. The Dry Lake Range is exposed on the east side of the project area and is composed predominantly of interbedded carbonates and siliciclastic sedimentary rocks. The Arrow Canyon Range borders the site to the west and is also composed of the interbedded carbonates limestone and dolomite.

The area geology as mapped by House and others (2010) is represented on Figure 3. At the subject site, the majority of surficial deposits are mapped as Quaternary old and intermediate-age alluvial fan deposits (Afi and Afo). The youngest active small alluvial fan (Afy) channel is mapped in the eastern half of the site near the center and lays on top of an east to west trending Late Quaternary unit comprised of Older Young alluvial fan deposits (Afyo). These alluvial units are typically composed of sand, and gravel with variable amounts of clay and silt with weakly to highly cemented sand and gravel (caliche). In the upper northeast section of the site a small area of Holocene to middle Pleistocene Undivided Spring deposit (Su) is mapped. Locally, this unit is typically composed of fine grained, gypsiferous, high plastic clay and underlies the alluvial fan deposits (House, 2010).

4.2 FAULTING

No Quaternary faults are mapped at the site. The nearest mapped Quaternary faults are the California Wash Fault located approximately 3.8 miles east, and the Arrow Canyon Range fault, located approximately 5 miles west of the site (USGS, 2010, Quaternary fault and fold database, accessed February 5th, 2019, earthquake.usgs.gov/hazards/qfaults/). The California Wash fault is a west dipping normal fault with a strike of approximately N15°E. This fault is believed to have moved within the last 15,000 years (Bidgoli, 2003). The Arrow Canyon Range Fault is generally believed to have last moved during early to late Pleistocene time. Two earthquakes near the project area have

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been recorded. On August 8, 1966 an earthquake occurred approximately 9.5 miles north of the site with a magnitude of 3.6, and on September 25th, 2012 an earthquake with a magnitude of 3.6 occurred approximately 4 miles southwest of the site (UNR, Nevada Seismological Lab, www.seismo.unr.edu/Earthquake).

4.3 EARTH FISSURES

As part of our scope of work described in the proposal, Kleinfelder performed an aerial photography review of the subject site, and subsequent ground reconnaissance, to look for ground cracking associated with earth fissures which are known to exist in the area. Earth fissures are cracks in the ground which originate at depth and propagate to the surface. In the Las Vegas valley, fissures form in as the result of stresses associated with subsidence due to groundwater withdrawal, often in the area of pre-existing faults. Fissures may also form due to other causes, such as due to tectonic stresses. Fissures typically manifest at the ground surface as open cracks or aligned sinkholes and depressions. A typical fissure width due to tensional stresses is thought to be on the order of a few inches or less. Where the fissures occur in erodible soils, fissures may increase to widths of several feet.

A fissure zone is located approximately 1½ miles south of the site and was first described by Keaton and Miller in 1992 (Keaton, Jeffery R., Miller, Julianne J., 1992, Dry Lake Valley Earth Fissure System, Clark County, Nevada, Association of Engineering Geologists, 35th Annual Meeting Proceedings, p. 129). The Dry Lake Valley earth fissure system, as described by Keaton and Miller, trends approximately 355°. This trend is within 5° of the Arrow Canyon Range, and within 20° of the north projection of the Dry Lake Mountain Range. Keaton and Miller concluded that although uncertainty exists as to the cause of the Dry Lake Valley fissure system, the earth fissures appear to be natural and not caused by groundwater withdrawal, rather a result of regional tectonic stresses based on the similarity of orientations to the normal-faulted mountain ranges that bound the Dry Lake Valley. Keaton and Miller also concluded that the Dry Lake Valley earth fissure system is actively forming based on the “delicate cracks and vertical to overhanging sides of prominent voids”. The location of the Keaton Miller study area in relation to the project site is shown on Figure 4.

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As part of our aerial photography review, we identified several parallel lineaments north of the project area and possibly extending into the project area, identified by linear vegetated zones on the aerial photographs. The lineaments are more clearly expressed to the north of the project site on the aerial photographs than on the project site.

On February 5, 2019 Kleinfelder visited what appeared to be the largest of the lineaments observed in the aerial imagery north of the PV array development area. Additional parallel lineaments within a zone approximately 1,000 feet in width are present on aerial photographs. Aligned hairline to open cracks greater than a foot in width were observed. The cracking was intermittent but could be traced along what we judge to be a single lineament several thousand feet in length. The locations of these fissure traces in relation to the subject site are presented on Figure 4. A photograph key for the area of reconnaissance north of the site and the Keaton Miller study area is included on Figure 4, with the referenced photographs presented on Figures 5 through 8.

The cracking was expressed as linear openings in resistant layers of cemented sand and gravel (Figure 5, Locations 1 through 4) with a few cracks observed in the sandy alluvium along the trace of the fissure (Figure 6, Locations 5 through 7), suggesting that the fissures are either actively propagating or the surface expression of cracking at depth is in varying stages of evolution. One area of ground cracking was observed within the project boundary but outside of the area proposed for development (Figures 4 and 6, Location 8). The trend of the fissure traces observed are generally similar to the Keaton and Miller fissures. The traces of the observed fissures north and south of the site are aligned and this alignment extends across the Eagle Shadow Mountain Solar site.

It is our opinion that the observed fissures south of the site (Keaton and Miller study area) and the fissures observed north of the site are related and are a manifestation of the regional stress regime underlying the site and surrounding areas. The expression of the fissures at the ground surface appears to be very dependent on the type of soil materials: the Keaton and Miller study area consists of highly eroded surface cracks connected to linear subsurface cavities, several feet wide and tens of feet deep, in fine-grained, non-cemented soils. The fissuring observed to the north of the proposed PV array consists of open cracks in strongly cemented sand and gravel.

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Although fissures were not observed within the area of the proposed PV array and substation development during the field exploration and site reconnaissance, it is possible these features may develop in the future and propagate to the surface due to natural processes. It is possible site grading or changes in drainage patterns associated with the project development could expose or facilitate the expression of pre-existing fissures. Discussion of the engineering aspects and remediation of fissures is presented in Section 5 of this report.

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5 CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendations presented below are based on the subsurface conditions observed in the explorations, laboratory test results, engineering analyses, and experience with similar solar projects as well as our general knowledge of past performance of development on sites underlain by similar soil conditions. Geotechnical considerations include the potential for ground cracking due to fissures; shallow layers of strongly cemented sand and gravel; and the presence of clayey soils with a large potential for volume change when wetted.

Fissures As described in Section 4.0, surface cracking interpreted to be earth fissures are present north and south of the site. A reconnaissance of the site was made; cracking was observed extending into the site but outside the area of proposed development. It is not possible to predict when, where or to what extent earth fissures will impact the site in the future. Most of the proposed PV array is located in areas with shallow cementation, similar to the fissured area north of the site. If ground cracking were to manifest on developed areas of the site underlain by cemented soils, it is likely that the cracking would be expressed similar to those present north of the site (hairline to approximately 1 foot widths).

Fissures have the potential to enlarge through erosion, particularly where they occur in non-cemented soils. Therefore, control of surface and subsurface flow is important to control erosion impacts of potential fissures. A grading plan was not available at the time this report was prepared. At a minimum, we recommend that grading in the area of the proposed PV array be limited to surficial disturbances and to not disturb or excavate the near surface cemented soils. As a precaution, we recommend observation for fissures be performed during grading. Additionally, we recommend that contingencies to address potential distress due to ground cracking be considered as part of the development plan, including routine inspection for cracking and evidence of fissures, as well as maintenance in the event future cracking occurs in developed areas.

If fissures develop within the developed areas of the project site, there are remediation methods commonly used in the Las Vegas area that would be applicable to this site. The alternatives for remediation will depend on the soil or ground conditions in the area the fissure is expressed and the type of improvement impacted. Fissures that occur directly under the support piles for a tracker

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row could destabilize an individual tracker, but a fissure only a few feet away could have no impact on the row. Affected trackers could be remediated through bracing, replacement or underpinning of the affected pile/columns. If fissures occur under concrete pads or other shallow foundations, loss of support and settlement of structures can occur, and underpinning or replacement pads may need to be constructed. Electrical cables could need patching or extension. For access roads, a fissure could disrupt traffic temporarily until the fissure can be bridged.

The portion of the project area that could be impacted by fissures appears to be the western array area. Based on the observed alignments, the planned substation location appears to be well away from the locations of the lineaments observed in the aerial photographs. PV development generally includes little site grading, the structures are very light, presenting little surcharge to the earth and the structures are not occupied and are very tolerant of movement and deflection. In many ways, PV development offers lower overall risks in fissure areas than most other types of development. The primary risk to a PV development in fissure area will be loss of function of one or a few rows of trackers until the foundations can be stabilized, excessive strain on electrical conductors crossing a fissure, or settlement of a power conversion station. Trackers can be stabilized and fixed if fissuring occurs. The use of messenger wire carrier systems (CAB) and strain controls (wire loops) should prevent ground effects on string wires and DC collection cables. Underground cabling can be repaired if damaged. Power conversion stations founded on piles are expected to be less affected by fissure-induced settlement than pad-mounted equipment.

It should further be noted that fissures are expected to develop slowly, rather than abruptly, especially considering the minimal surcharge a PV development imparts on the earth. Regular maintenance inspections typical for PV installations should be able to identify fissure development with adequate time to remediate problems before general failures occur.

Typical remediation methods that have been used to lessen the impact of fissures have been overexcavation and reinforcement with layers of geogrid and aggregate base in areas of vehicle travel such as below roadways and in parking areas. In areas where foundations supporting structures have been impacted, underpinning with micropiles has been used. Based on inferences made from observation of the fissures occurring in the cemented layers north of the site, it is possible that remediation of cracking related to fissures in cemented soil layers could be accomplished through periodic sealing with grout or a lean concrete mix. The infiltration of surface water into fissured areas will increase the potential for enlargement of fissures. Strict moisture

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control will be required in these areas. The site should be graded such that all surface water flows are directed well away from fissured areas. Infiltration of surface water into fissured areas will increase the potential for enlargement of fissures.

It is important to note that fissures are large-scale, through-going geologic features that cannot be eliminated; on-going observation, maintenance, and remediation will reduce the impact of these features if they develop in the future on the site.

Expansive Soils The near surface soils are generally granular and have low-plasticity fines; however, there are areas where medium to high plasticity, fine-grained soils and granular soils with high plasticity fines are present near the surface. High plasticity clayey soils are also present with depth and were encountered below cemented soils in numerous locations. Based on our experience with similar sites, there is a potential for large volume changes in the subsurface if the high plasticity soils become wet. As above, we recommend that grading in the area of the proposed PV array be limited to surficial disturbances and to not disturb or excavate the near surface cemented soils. Expansive soils should be overexcavated beneath concrete slabs on grade, flexible pavements, and structures with sustained loads less than 1,000 pounds per square foot (psf) per the recommendations in Sections 5.1.3 and 5.1.4.

Due to the widespread occurrence of thick, resistant layers of cemented sand and gravel, pre- drilling of pile test holes was performed. Following drilling, the pile excavations were backfilled with the auger returns. The piles were driven through the backfill and then tested. We anticipate this method will also be used for production. To reduce the potential for introduction of moisture into loose backfill during periods of precipitation and the resulting saturation and expansion of the subsurface soils, we recommend the backfilled pile excavations be finished with a low-permeability plug as follows:

1. Backfill the excavated hole to approximately 9 inches of the finished grade surface with the excavated materials, tamped in three to five lifts.

2. Backfill the remaining 9 inches of hole depth with bentonite powder blended with the remaining drill cuttings at a ratio of one-part bentonite to 10 parts soil.

3. Hydrate (water) the backfill by mixing at least one gallon of water into the soil/bentonite mixture.

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4. Drive the pile.

In addition, the civil design should include drainage provisions to protect PV array foundations and other foundations from exposure to sheet flow.

Cemented Soils Backhoe refusal on cemented soils occurred at depths generally less than 5 feet and as shallow as 1 foot below existing grade in 25 of the 28 test pit excavations. Although we recommend that grading be limited to surficial disturbances, excavations for utility installations will likely encounter cemented soils that will require specialized excavation equipment.

5.1 EARTHWORK

5.1.1 General

Site preparation and earthwork operations should be performed in accordance with applicable codes, safety regulations and other local, state, or federal guidelines. Compaction recommendations in this report refer to the maximum dry density and optimum moisture content values determined by the Modified Proctor compaction test (ASTM D1557).

5.1.2 Site Preparation and Demolition

The locations of equipment pads, roadways, substations, areas of fill within the PV arrays, and individual foundation locations in all areas, should be stripped of vegetation and deleterious, organic material, including tree and other roots greater than 3-inches in maximum dimension. Stripping operations should be observed by the geotechnical engineer. We recommend that locations for equipment pads, spread or mat foundations, and roadways be scarified; moisture conditioned, and recompacted at least one foot below proposed subgrade. Scarification and recompaction is not required where cemented soils area encountered. The recompacted zone should extend laterally at least one foot beyond the extents of the improvement. Stripping of the organic materials outside of individual pile areas is not required under the array area not to be filled.

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5.1.3 Subgrade Preparation

The suitability of the exposed subgrade should be evaluated by the geotechnical engineer after site preparation by observing proof rolling or probing of the subgrade under equipment pads, roadway locations, or areas of fill within the PV arrays. Proof rolling should be conducted using a fully-loaded dump truck or similar, heavy, rubber-tired construction equipment. Unstable areas identified during proof rolling should be overexcavated to exposed competent, stable subgrade and backfilled with Engineered Fill as recommended in the Engineered Fill section of this report.

Expansive soils are present at the site. Testing for expansion following the Clark County Building Department Procedure should be performed where structures with spread loads less than 1,000 psf are proposed and the subgrade soils have a plasticity index greater than 15. Flexible asphalt concrete pavement and concrete slabs on grade should be tested under a 60 psf surcharge. Table 5.1.3 provides a summary of overexcavation expansive soils beneath pavements and concrete slabs on grade.

Table 5.1.3 – Overexcavation of Expansive Soils

Percent Expansion Under a 60 psf Surcharge	Recommended Overexcavation for Concrete Slab on Grade (feet)	Recommended Overexcavation Beneath Flexible Pavement Sections (feet)
4 – 8	2	1
8 – 12	3	2
12 – 16	4	3
16 - 20	Kleinfelder should be consulted for additional recommendations	

**Overexcavation beneath slab-on-grade, pavements, pavers, and exterior flatwork begins at the bottom of the subgrade.*

An expansion testing program that considers the design foundation loads may be developed with input from Kleinfelder to aid in development of overexcavation recommendations for spread foundations with sustained loads less than 1,000 psf, if planned for the site. We should be contacted for additional recommendations if 4 percent or more expansion is measured on samples with a surcharge loads greater than 60 psf and up to 1,000 psf.

The concentration of sodium sulfate present at levels greater than 0.2 percent is an indicator of a potential for chemical heave. Chemical heave occurs due to volume change associated with mineral formation with changes in temperature. One test result indicates a sodium sulfate level greater than 0.2 percent; however, this test result is representative of a combined bulk sampled

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obtained from 4 to 8 feet in Test Pit TP-21. Shallower testing indicates sodium sulfate levels up to approximately 0.2 percent. Testing for sodium sulfate should be performed during construction beneath concrete slab on grade and structures with spread loads less than 1,000 psf. Subgrade soils with sodium sulfate levels greater than 0.2 percent should be overexcavated one foot beneath bottom of slab and replaced with a 12-inch thick thermal blanket consisting of compacted Clark County Type II aggregate base.

5.1.4 Engineered Fill

We anticipate that the near surface on-site soils can be used as Engineered Fill and utility trench backfill provided the material has a percent expansion of less than 4 percent under a 60 psf surcharge, water soluble sodium sulfate concentrations less than 0.2 percent, and free of particles larger than 4-inches in diameter, organic matter, and other deleterious materials. Cobbles and boulders area present at the site and present in the subsurface. It is likely that screening of oversized particles will be required.

5.1.4.1 Select Imported Granular Fill

Select imported granular fill should consist of granular material that is well-graded between coarse and fine sizes. It should contain no clay balls, roots, organic matter, or other deleterious materials, and have a maximum particle size of 2 inches, with less than 12 percent passing the U.S. No. 200 Sieve. Imported fill materials to be used for Engineered Fill should be sampled and tested for approval by the geotechnical engineer prior to being transported to the site. Please provide a minimum of 2 business days to allow for qualification testing.

5.1.4.2 Imported Aggregate Base Course/Crushed Rock

Aggregate base course should meet the specifications of the Clark County Type II aggregate base.

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5.1.5 Fill Placement and Compaction

Fill materials that meet the requirements for Engineered Fill or select imported granular fill should be moistened to within 2 percent of optimum moisture content, placed in loose lifts of less than 8 inches, and compacted to at least 95 percent of the maximum dry density. Compaction of fill materials in areas not underlain by structures or roadways, such as landscape areas, may be reduced to 90 percent relative compaction. We estimate a shrinkage factor of approximately 10 to 20 percent based on our estimates of in-place density, results of laboratory testing, and experience from other projects. This shrinkage factor does not include material losses due to screening of oversized particles and does not apply to uncontrolled backfill as needed for PV array and combiner box pile installations. Aggregate base course and crushed rock should be moistened to within 2 percent of optimum moisture content and compacted to at least 95 percent of maximum dry density.

Due to the prevalence of near-surface cemented soils, we anticipate that pre-drilling of pile excavations will be performed across the majority of the site. To reduce the potential for introduction of moisture into loose backfill during periods of precipitation and the resulting saturation and expansion of the subsurface soils, we recommend the backfilled pile excavations be finished with a low-permeability plug as follows:

1. Backfill the excavated hole to approximately 9 inches of the finished grade surface with the excavated materials, tamped in three to five lifts.

2. Backfill the remaining 9 inches of hole depth with bentonite powder blended with the remaining drill cuttings at a ratio of one-part bentonite to 10 parts soil.

3. Hydrate (water) the backfill by mixing at least one gallon of water into the soil/bentonite mixture.

4. Drive the pile.

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5.1.6 Temporary Excavations

Excavations must comply with applicable local, state, and federal safety regulations including the current OSHA Excavation and Trench Safety Standards. Construction site safety is the responsibility of the contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing the information below as a service to our client; under no circumstances should the information provided be interpreted to mean that Kleinfelder is assuming responsibility for construction site safety or the Contractor's activities.

On-site materials may be considered Type C soils with regard to the OSHA regulations. OSHA requires a maximum slope inclination of 1½:1 (horizontal: vertical) for Type C soils for excavations up to 20 feet deep. If groundwater is present in excavations, flatter slopes may be required to maintain stability. The Contractor's OSHA-qualified "competent person" must make the actual determination of soil type and allowable slope inclinations in the field whenever personnel exposure is anticipated.

5.1.7 Trench Backfill

Trench backfill placed beneath structures or roadway should be compacted as described in Section 5.1.5. Trench backfill placed outside structures or roadway should consist of approved, on-site or import soils placed in lifts no greater than 8 inches loose thickness and compacted to at least 90 percent of maximum dry density. Trench backfill should be mechanically compacted. Jetting is not an appropriate method for compaction and should not be used. Trench backfill may be compacted to 85 percent of maximum dry density where located outside the footprint of structures with the understanding that increased settlement may occur in these areas.

5.1.8 Earthwork Observation and Testing

We consider geotechnical observation and testing during construction a continuation of this evaluation. As the firm that provided the geotechnical evaluation for this project, Kleinfelder is the Geotechnical Engineer of Record, and should be retained to confirm that the recommendations of this report are properly incorporated in the design of this project and are properly implemented during construction. These services provide Kleinfelder the opportunity to observe the actual

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conditions encountered during construction and to evaluate the applicability of the recommendations presented in this report to the site conditions.

5.2 LIQUEFACTION AND SEISMIC DESIGN CONSIDERATIONS

Earthquake-induced soil liquefaction can be described as a significant loss of soil strength and stiffness caused by an increase in pore water pressure resulting from cyclic loading during shaking. Liquefaction is most prevalent in loose to medium dense, sandy and gravely soils below the groundwater table, but can also occur in non-plastic to low-plasticity, finer grained soils. Saturated loose granular soils were not encountered in the explorations performed at the subject site. Based on the soil classification data and lack of shallow groundwater, the potential for liquefaction at this site is judged to be low.

The following seismic site parameters for design are established by the 2018 International Building Code (2018 IBC). These parameters were calculated using the California Office of Statewide Health Planning and Development (OSHPD) online application https://seismicmaps.org/ and the approximate northeast corner of the site where the site is appears to be nearest to the California Wash Fault (N36.5583°, W114.7694°).

TABLE 5.2-1: 2018 IBC SEISMIC DESIGN PARAMETERS

Design Parameter	Parameter Value
Site Classification	D
S_S (g)	0.682
S_1 (g)	0.221
F_a	1.254
F_v	*null
S_{DS} (g)	0.587
S_{D1} (g)	*null

**null per Section 11.4.8 of ASCE 7-16*

5.3 SOIL CORROSIVITY

Results of the corrosivity testing for the samples tested are presented in Table 3.2-4 below, and also in Appendix E. Based on the corrosion testing performed on near surface soils obtained from the site, the soils are classified as providing Sulfate Exposure Class S2 as defined in

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Table 19.3.1.1 of the 2014 American Concrete Institute (ACI) Manual 318. We therefore recommend that all concrete in contact with the on-site soils be formulated with an appropriate cement type, water-cement ratio, and an appropriate minimum compressive strength to resist Sulfate Expose Class S2, as outlined in Table 19.3.1.1 of the AC) Manual 318.

The results of corrosion engineering performed for buried metals is presented in Appendix F.

5.4 SUBSTATION EQUIPMENT FOUNDATIONS

The following recommendations are for equipment pads within the PV array area and the substation structures.

5.4.1 Shallow Foundation Design

The substation equipment structures may be supported on a reinforced concrete mat slab, spread footing foundations, or drilled foundations with depth to diameter ratios less than 4. Based on the results of the field exploration, laboratory testing, our engineering analysis, and our experience with similar projects, shallow foundations may supported by native, undisturbed medium dense to dense granular soils or properly compacted Engineered Fill prepared according to recommendations presented in Section 5.1. Expansion testing should be performed beneath foundations with spread loads less than 1,000 psf per Section 5.1.3 to determine overexcavation requirements for the on-site expansive soils.

The design and construction criteria presented below should be observed.

- Foundations should be constructed on prepared native soils or on properly placed and compacted Engineered Fill, as described above. In no case should foundations for a single structure be supported by a combination of cemented and non-cemented soils. If both cemented and non-cemented soils are encountered in foundation excavations for a single structure, then the cemented soils should be overexcavated so that a minimum of 1 foot of Engineered Fill may be placed between the bottom of the footing and cemented soils in all areas.

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- Foundations a minimum of 1-foot wide, bearing as described above, with a minimum 12-inch embedment below adjacent finished grade, may be proportioned for a maximum allowable bearing pressure of 2,000 pounds per square foot (psf). An additional 400 psf for each additional foot of foundation width or embedment may be utilized up to a maximum allowable bearing pressure of 4,000 psf. The bearing capacity was calculated using a factor of safety of 3.0.

- A modulus of subgrade reaction, K_{V1}, of 200 tons per cubic foot may be used for design of mat foundations. K_{V1} refers to a 1-foot-square plate and should be adjusted for actual foundation dimensions using the following equation (B is foundation width in feet):

$$K_V = K_{V1}\left(\frac{B+1}{2B}\right)^2$$

- The friction acting along the base of the foundation may be computed using an ultimate coefficient of friction of 0.65. An appropriate factor of safety should be used during design.

- An ultimate passive earth pressure may be computed using an equivalent fluid density of 450 pounds per cubic foot (pcf) for the sides of foundations cast against undisturbed soil or properly placed and compacted Engineered Fill. An appropriate factor of safety should be used during design. Passive pressure in the upper foot should be neglected unless confined by concrete slab-on-grade.

- We estimate total settlements of foundations should be less than one inch. Total settlement of mat foundations should be evaluated with the modulus of subgrade reaction. We anticipate that differential settlement to be one half of the total settlement.

- Foundations excavations should be observed by the geotechnical engineer to confirm the subsurface conditions and foundation recommendations.

- To maintain the desired support, foundations adjacent to utility trenches or other existing foundations should be deepened as necessary so that their bearing surfaces are below an imaginary plane having an inclination of 1.5 horizontal to 1 vertical, extending upward from the bottom edge of the adjacent foundations or utility trenches.

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- Prior to placing reinforcement steel or concrete, foundation excavations should be cleaned of any debris, disturbed soil or water. All foundation excavations should be observed by a representative of Kleinfelder just prior to placing steel or concrete. The purpose of these observations is to check that the bearing soils encountered in the foundation excavations are similar to those assumed in analysis and the recommendations contained herein are implemented during construction.

5.4.2 Monopole Drilled Shaft Foundation

We anticipate that the dead-end monopole structure located in the substation will be supported on drilled shaft foundation. Boring SB-1 was used as the basis for estimating the axial and lateral resistances values presented in this Section. If the tower location is revised, we should be contacted for additional recommendations. Ultimate and allowable skin friction values are presented in Table 5.4.2-1.

TABLE 5.4.2-1: DRILLED SHAFT AXIAL CAPACITY – BORING SB-1

Bottom Layer Depth (feet)	Ultimate Downward Skin Friction (ksf)	Allowable Downward Skin Friction (ksf)	Ultimate Uplift Skin Friction (ksf)	Allowable Uplift Skin Friction (ksf)
2½	0.08	0.04	0.06	0.03
10	3.0	1.5	2.2	1.1
40	1.7	0.9	1.2	0.6

*Minimum embedment of 5 pier diameters is required
**Calculated using a factor of safety of 2

Lateral design parameters for use in lateral load analysis of drilled shaft foundations using LPILE software (by Ensoft, Inc., Version 2018) are provided in Table 5.4.2-2.

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TABLE 5.4.2-2: LPILE GEOTECHNICAL PARAMETERS – BORING SB-1

Lpile Parameters							
Bottom Layer Depth (feet)	**P-Y Model**	**Effective Unit Weight (pcf)**	**Initial K-value (pci)**	**Friction Angle (degrees)**	**Uniaxial Compressive Strength (psi)**	**Undrained Shear Strength (psf)**	**Strain at 50% of Strength (e50)**
2½	Sand (Reese)	125	225	34	--	--	--
10	Vuggy Limestone	130	--	--	4,000	--	--
40	Stiff Clay without Free Water	120	--	--	--	3,000	(use default)

Additional considerations for drilled pier foundations include:

- Piers should be designed by a qualified structural engineer.
- Reduction of axial and lateral capacity is required for group effects where drilled shafts are spaced closer than 3 and 6 diameters, respectively. Kleinfelder should be contacted for additional recommendations if drilled shafts are proposed that are closer than the above spacings.
- We recommend pier foundation concrete be designed and placed at a slump between 5- and 7-inches.
- Concrete placement should occur immediately after pier hole drilling, cleaning, and installation of reinforcement and observation. Concrete should be placed in one continuous placement without any cold joints.
- A minimum pier diameter of 24 inches is recommended to allow for pier cleaning and observation.
- The installation of the drilled piers should be observed by a Kleinfelder representative to observe the construction techniques and confirm the subsurface conditions are as anticipated from our exploratory borings.
- For foundations constructed in accordance to the recommendations presented herein, total foundation settlement should be less than 1-inch.

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5.4.3 Concrete Slab on Grade

Support for concrete slab-on-grade may be provided by 4 inches of Clark County Type II aggregate base compacted to 95 percent maximum dry density underlain completely by structural fill or native soils with an expansion potential less than 4 percent under a 60 psf surcharge. In no case should slabs-on-grade be underlain by soils with an expansion potential greater than 4 percent under a 60 psf surcharge without remediation as described in Section 5.1. The thickness of aggregate base should be increased to a minimum of 6 inches where slabs are thickened for support of heavy vehicle or machinery loads.

As described previously, testing for chemical heave should be performed. Where sodium sulfate levels are greater than 0.2 are present in the subgrade for support of concrete slab on grade, the thickness of the Clark County Type II aggregate base should be increased to 12 inches.

All concrete slabs should be designed to minimize cracking as a result of shrinkage. The concrete section and reinforcement should be designed by a structural engineer.

Special precautions must be taken during the placement and curing of the proposed concrete slabs. Excessive slump of the concrete and/or improper curing procedures used during either hot or cold weather conditions could lead to excessive shrinkage, cracking, or curling in the pads. We recommend that all concrete design, placement, and curing operations be performed in accordance with the most current ACI Manual.

5.5 ACCESS ROADS

Near surface soils encountered in the explorations were predominately silty sand with gravel. An R-Value of 25 was selected for design. Subgrades for access roads should be prepared in accordance with the recommendations of Section 5.1.2 and 5.1.3.

The on-site access roads during construction will be subjected to heavy equipment and equipment (lowboy) loads of up to 90 tons for step-up transformers. However, after the construction period, the traffic volumes will be light, with only occasional trucks weighing up to 75,000 lbs. The road sections are designed based on post-construction traffic volumes, with the assumption that frequent maintenance of the aggregate base roads will occur during construction. Loading

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information provided by the project team indicates up to five passenger cars/day and one HS-20 loading every 2 weeks. We assumed a design life of 20 years. Based on the design life and loading provided, the loading is defined by AASHTO as “low” equivalent single axle loads.

Based on the findings, we recommend that gravel roads be surfaced with a 4-inch thick section of aggregate base course over compacted subgrade. As stated above, this design based on post-construction traffic and is not sufficient for the anticipated construction traffic loading. During construction, aggregate-surfaced roads will require periodic maintenance to maintain the surface. Routine grading of the surface should be anticipated to remediate rutting and washboard surfaces. Periodic addition of aggregate base course material may be required throughout the life of the roadway.

Table 5.5-1 presents recommended minimum asphalt concrete pavement sections.

TABLE 5.5.1-1: RECOMMENDED MINIMUM ASPHALT CONCRETE PAVEMENT SECTIONS (For Granular Subgrade Soils)

Use	Asphalt Concrete (inches)	Aggregate Base (inches)
On-site access roadway	3.0	4.0

Aggregate Base

Aggregate base materials should meet current Clark County specifications for Type II aggregate base.

Pavement Maintenance

A crack sealing program should be performed annually to slow pavement deterioration. Any areas where surface water stands on the surface should be remediated. Over time as cracking becomes more pronounced, a slurry seal coat should be applied.

Construction Recommendations

The pavement sections provided above are contingent on the following recommendations being implemented during construction:

- Subgrade should be prepared as recommended in Section 5.1 of this report.

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- Subgrade soils should be in a stable, non-pumping condition at the time the aggregate base materials are placed and compacted.

- Aggregate base materials should be compacted to at least 95 percent relative compaction (ASTM D1557).

- Asphalt paving materials and placement methods should meet current Clark County specifications.

- Adequate drainage (both surface and subsurface) should be provided such that the subgrade soils and aggregate base materials are not allowed to become wet.

The performance of roads will be affected by the drainage provisions constructed. We recommend road surfaces and subgrades be provided with cross-slope of at least 2 percent to move water off of the roadway. The use of drainage ditches along the sides of road should be considered to drain the base course and improve road stability in wet conditions.

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6 CLOSURE

6.1 LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

The scope of services was limited to 29 borings, 28 test pits, and 10 field resistivity locations. It should be recognized that definition and evaluation of subsurface conditions are difficult. Judgments leading to conclusions and recommendations are generally made with incomplete knowledge of the subsurface conditions present due to the limitations of data from field studies.

This report may be used only by the Client and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than two (2) years from the date of the report. Kleinfelder is not responsible for the use of this report for purposes other than those stated for this specific engagement.

The work performed was based on project information provided by Client. If Client does not retain Kleinfelder to review any plans and specifications, including any revisions or modifications to the plans and specifications, Kleinfelder assumes no responsibility for the suitability of our recommendations. In addition, if there are any changes in the field to the plans and specifications, Client must obtain written approval from Kleinfelder's engineer that such changes do not affect our recommendations. Failure to do so will vitiate Kleinfelder's recommendations.

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Recommendations contained in this report are based on field observations and subsurface explorations, limited laboratory tests, and our present knowledge of the proposed construction. It is likely that soil, rock or groundwater conditions will vary between or beyond the points explored. If soil, rock, or groundwater conditions are encountered during construction that differ from those described herein, the Client is responsible for notifying Kleinfelder immediately so that we may reevaluate the recommendations of this report. If the scope of the proposed construction, including the estimated building loads, and the design depths or locations of the foundations changes from that described in this report, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions of this report are modified or approved in writing, by Kleinfelder.

Kleinfelder offers various levels of investigative and engineering services to suit the varying needs of different clients. Although risk can never be eliminated, more detailed and extensive studies yield more information, which may help understand and manage the level of risk. Since detailed study and analysis involves greater expense, our clients participate in determining levels of service, which provide information for their purposes at acceptable levels of risk. The client and key members of the design team should discuss the issues covered in this report with Kleinfelder, so that the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk and expectations for future performance and maintenance.

Kleinfelder cannot be responsible for interpretation by others of this report or the conditions encountered in the field.

The scope of services for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

6.2 ADDITIONAL SERVICES

As the geotechnical engineering firm that performed the geotechnical evaluation for this project, Kleinfelder should be retained to confirm that the recommendations of this report are properly incorporated in the design of this project, and properly implemented during construction. This may avoid misinterpretation of the information by other parties and will allow us to review and modify

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our recommendations if variations in the soil conditions are encountered. As a minimum Kleinfelder should be retained to provide the following continuing services for the project:

- Review the project plans and specifications, including any revisions or modifications;
- Observe and evaluate the site earthwork operations to confirm subgrade soils are suitable for construction of foundations, slabs-on-grade, pavements, and placement of engineered fill;
- Confirm engineered fill for the structure and other improvements is placed and compacted per the project specifications;
- Observe foundation bearing soils to confirm conditions are as anticipated; and

Additional information concerning the scope and cost of these services can be obtained from our office. We appreciate the opportunity to be of service on this project. Should you have any questions regarding this report or wish to discuss additional services, please do not hesitate to contact us.

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Figures

Date: 2/22/2019 BY: KHagan

ARROW CANYON

APPROXIMATE PROJECT LOCATION

Moapa River Indian Reservation

Great Basin Hwy

7

93

6

DRY LAKE VALLEY

Dry Lake

LAKE RANGE

Spanish Trail Rd

Legend

Approximate Project Location

N

Basemap: ESRI's National Geographic World Map

0 1 2 Miles

Locations are Approximate

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FILE: L:\2019\20191344.001A - Eagle Shadow Mountain Solar\2.0 Technical Information\2.8 GIS

LAS VEGAS, NV

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PROJECT:	20191344
DRAWN:	JAN 2019
DRAWN BY:	KFH
CHECKED BY:	MM
FILE NAME:	Fissures_F1.mxd

GENERAL SITE VICINITY MAP

EAGLE SHADOW MOUNTAIN SOLAR PROJECT
MOAPA RIVER INDIAN RESERVATION, USA

FIGURE

1

PLOTTED: 2/22/2019, KHagan

FILE: L:\2019\20191344.001A - Eagle Shadow Mountain Solar\2.0 Technical Information\2.8 GIS

LAS VEGAS, NV

SA-1
SA-6
TP-1
SA-2
R-7 (20')
TP-5
SA-11
TP-14
SA-7
TP-8
SA-19
SA-15
TP-2
TP-6
TP-18
TP-21
SA-23
SA-3
TP-15
R-10 (20')
SA-12
TP-23
TP-10
SA-8
SA-25
TP-3
SA-16
SA-20
R-9 (20')
TP-19
TP-7
TP-16
SA-4
SA-13
R-5 (20')
SA-21
TP-11
SA-9
SA-17
TP-4
TP-20
TP-22
TP-9
TP-17
SA-5
SA-14
R-3 (200')
R-8 (20')
TP-13
TP-12
SA-22
SA-10
SA-18
TP-27
SA-26
R-6 (20')
SA-27
TP-25
TP-28
SA-28
R-4 (60')
TP-26
SA-24
R-1 (200')
SB-1
TP-24
R-2 (200')

0 1,000 2,000
Feet

Locations are Approximate

Aerial: ESRI World Imagery, DigitalGlobe, images dated 7/4/2016, 7/4/2017

Legend

- Boring Location
- Test Pit Location
- Field Resistivity Line (maximum electrode spacing, feet)
- Approximate Proposed Substation Area
- Approximate Project Area

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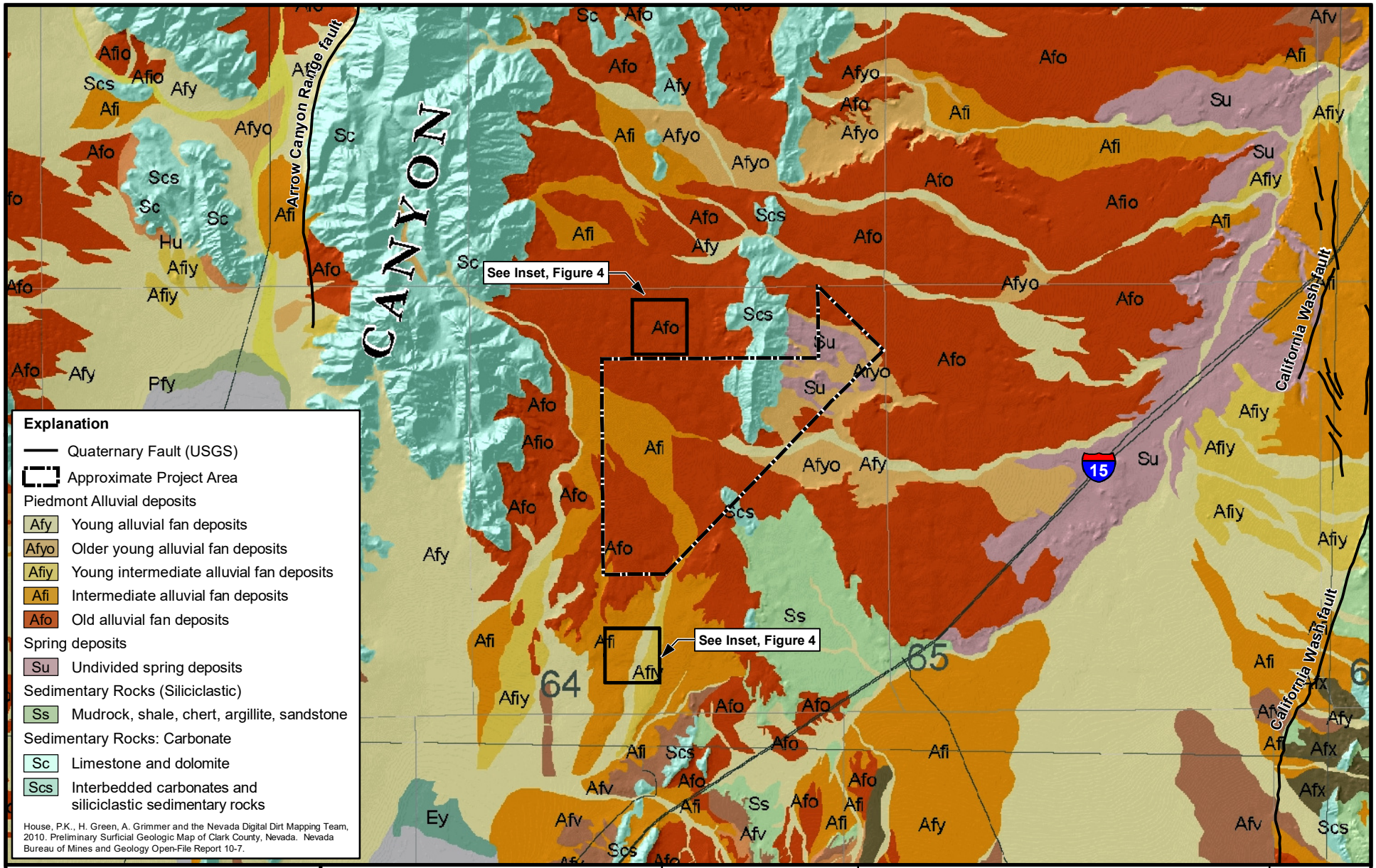
FILE NAME:	Fig2_Array.mxd

EXPLORATION LOCATION MAP

EAGLE SHADOW MOUNTAIN SOLAR PROJECT
MOAPA RIVER INDIAN RESERVATION, USA

FIGURE
2



0 5,000 10,000
Feet
Locations are Approximate

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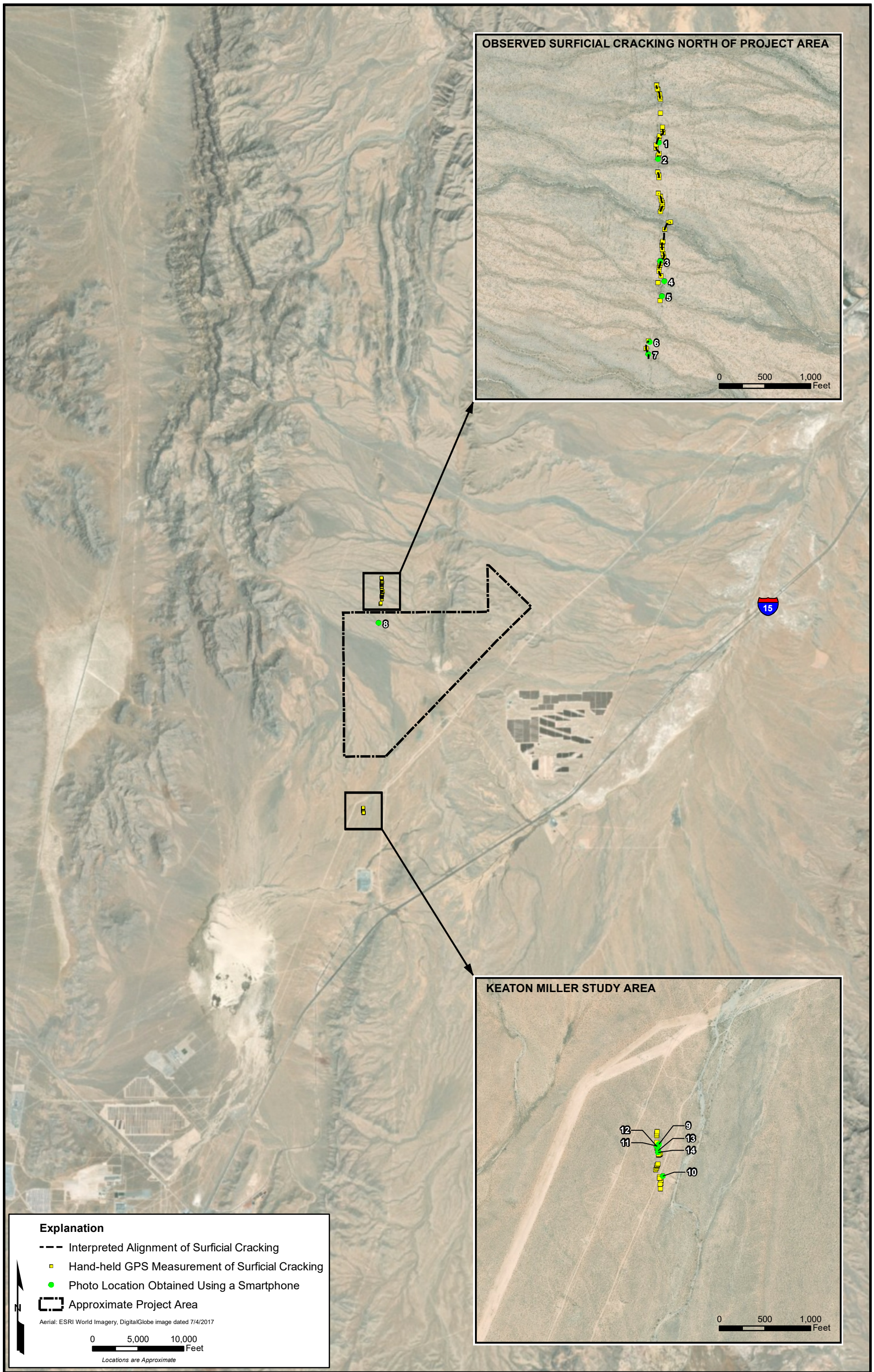
FILE NAME:	Fissures_F3.mxd

SURFICIAL GEOLOGY

EAGLE SHADOW MOUNTAIN
SOLAR PROJECT
MOAPA RIVER INDIAN RESERVATION, USA

FIGURE
3



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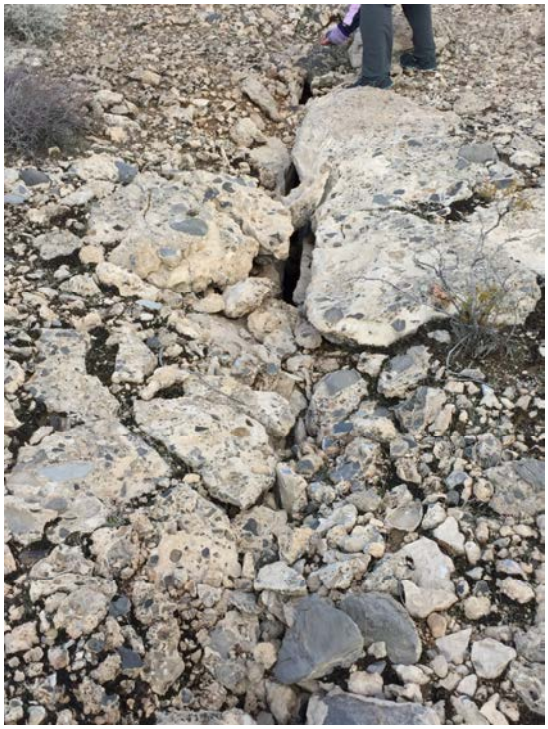
FILE NAME:	Fissures_F4.mxd

SURFACE CRACKING MAPPING DETAIL AND PHOTO KEY

EAGLE SHADOW MOUNTAIN SOLAR PROJECT
MOAPA RIVER INDIAN RESERVATION, USA

FIGURE
4

Location 1



Location 2

Location 3

Location 4

See Figure 4 for photograph locations

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT: 20191344 DRAWN: FEB 2019 DRAWN BY: KFH CHECKED BY: JLS FILE NAME: Fissures_F5to8.ppt	**PHOTOGRAPHS OF SURFICIAL CRACKING OBSERVED – NORTH OF PROJECT AREA** EAGLE SHADOW MOUNTAIN SOLAR PROJECT MOAPA RIVER INDIAN RESERVATION, USA	FIGURE **5**

Location 5

Location 6

Location 7

Location 8

See Figure 4 for photograph locations

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PHOTOGRAPHS OF SURFICIAL CRACKING OBSERVED – NORTH OF PROJECT AREA

EAGLE SHADOW MOUNTAIN SOLAR PROJECT
MOAPA RIVER INDIAN RESERVATION, USA

FIGURE

6

Location 9

Location 10

Location 11

Location 12

See Figure 4 for photograph locations

Original in Color

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Location 13

Location 14

See Figure 4 for photograph locations

Original in Color

KLEINFELDER *Bright People. Right Solutions.* www.kleinfelder.com	PROJECT: 20191344 DRAWN: FEB 2019 DRAWN BY: KFH CHECKED BY: JLS FILE NAME: Fissures_F5to8.ppt	**PHOTOGRAPHS OF SURFICIAL CRACKING OBSERVED – KEATON MILLER STUDY AREA** EAGLE SHADOW MOUNTAIN SOLAR PROJECT MOAPA RIVER INDIAN RESERVATION, USA	FIGURE **8**

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Appendix A

APPENDIX A

Apparent Soil Resistivity Measurements (7 pages)

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Project Name: Eagle Shadow Mountain Solar
Project Number: 20191344
Test Location: R-1
Lat., long.: 36.53943, -114.79841

Line Orientation	Spacing (feet)	2*π*a	Soil Resistance (Ω)	*Apparent Resistivity (Ω-ft)
N-S	2.5	15.7	464.90	7303
	5	31.4	113.40	3563
	7.5	47.1	44.72	2107
	10	62.8	21.63	1359
	15	94.2	7.18	677
	20	125.7	3.92	493
	25	157.1	2.18	343
	30	188.5	1.42	267
	40	251.3	0.73	183
	50	314.2	0.49	155
	60	377.0	0.37	138
	70	439.8	0.25	109
	80	502.7	0.19	93
	90	565.5	0.14	77
	100	628.3	0.11	69
	125	785.4	0.08	61
	150	942.5	0.05	50
	175	1099.6	0.04	48
	200	1256.6	0.04	48
E-W	2.5	15.7	423.40	6651
	5	31.4	122.30	3842
	7.5	47.1	46.77	2204
	10	62.8	19.48	1224
	15	94.2	7.70	726
	20	125.7	4.47	561
	25	157.1	2.82	443
	30	188.5	1.72	324
	40	251.3	0.88	222
	50	314.2	0.53	165
	60	377.0	0.33	124
	70	439.8	0.24	106
	80	502.7	0.19	97
	90	565.5	0.15	87
	100	628.3	0.13	81
	125	785.4	0.08	66
	150	942.5	0.06	61
	175	1099.6	0.05	57
	200	1256.6	0.05	57

***Apparent Resistivity = 2*π*a*Resistance**

Project Name: Eagle Shadow Mountain Solar
Project Number: 20191344
Test Location: R-2
Lat., long.: 36.53697, -114.80172

Line Orientation	Spacing (feet)	2*π*a	Soil Resistance (Ω)	*Apparent Resistivity (Ω-ft)
NE-SW	2.5	15.7	577.70	9074
	5	31.4	124.00	3896
	7.5	47.1	30.44	1434
	10	62.8	8.92	560
	15	94.2	3.45	325
	20	125.7	1.75	220
	25	157.1	0.95	149
	30	188.5	0.63	118
	40	251.3	0.28	70
	50	314.2	0.17	54
	60	377.0	0.12	44
	70	439.8	0.09	39
	80	502.7	0.07	37
	90	565.5	0.06	34
	100	628.3	0.05	33
	125	785.4	0.04	32
	150	942.5	0.03	27
	175	1099.6	0.03	29
	200	1256.6	0.02	27
NW-SE	2.5	15.7	502.90	7900
	5	31.4	97.93	3077
	7.5	47.1	24.74	1166
	10	62.8	9.68	608
	15	94.2	3.37	318
	20	125.7	1.82	229
	25	157.1	1.11	175
	30	188.5	0.66	125
	40	251.3	0.32	80
	50	314.2	0.18	57
	60	377.0	0.13	48
	70	439.8	0.10	43
	80	502.7	0.08	40
	90	565.5	0.07	38
	100	628.3	0.06	36
	125	785.4	0.04	33
	150	942.5	0.03	30
	175	1099.6	0.03	28
	200	1256.6	0.02	27

***Apparent Resistivity = 2*π*a*Resistance**

Project Name: Eagle Shadow Mountain Solar
Project Number: 20191344
Test Location: R-3
Lat., long.: 36.529872, -114.811939

Line Orientation	Spacing (feet)	2*π*a	Soil Resistance (Ω)	*Apparent Resistivity (Ω-ft)
NE-SW	2.5	15.7	259.60	4078
	5	31.4	48.60	1527
	7.5	47.1	8.37	394
	10	62.8	3.90	245
	15	94.2	1.16	109
	20	125.7	0.82	103
	25	157.1	0.64	101
	30	188.5	0.57	107
	40	251.3	0.48	121
	50	314.2	0.43	134
	60	377.0	0.39	147
	70	439.8	0.37	162
	80	502.7	0.34	171
	90	565.5	0.32	181
	100	628.3	0.30	188
	125	785.4	0.26	207
	150	942.5	0.23	214
	175	1099.6	0.19	213
	200	1256.6	0.16	206
NW-SE	2.5	15.7	199.20	3129
	5	31.4	56.59	1778
	7.5	47.1	16.76	790
	10	62.8	5.48	344
	15	94.2	1.34	127
	20	125.7	0.81	102
	25	157.1	0.66	104
	30	188.5	0.59	111
	40	251.3	0.51	128
	50	314.2	0.47	146
	60	377.0	0.42	159
	70	439.8	0.39	174
	80	502.7	0.34	173
	90	565.5	0.33	188
	100	628.3	0.31	192
	125	785.4	0.26	200
	150	942.5	0.21	201
	175	1099.6	0.18	198
	200	1256.6	0.15	193

***Apparent Resistivity = 2*π*a*Resistance**

Project Name Eagle Shadow Mountain Solar
Project Number: 20191344
Test Location: R-4
Lat., long.: 36.54314, -114.7990

Line Orientation	Spacing (feet)	2*π*a	Soil Resistance (Ω)	*Apparent Resistivity (Ω-ft)
NE-SW	2.5	15.7	831.60	13063
	5	31.4	200.85	6310
	7.5	47.1	67.24	3169
	10	62.8	29.55	1857
	15	94.2	12.95	1221
	20	125.7	6.63	833
	25	157.1	5.92	930
	30	188.5	4.26	802
	40	251.3	1.61	404
	50	314.2	0.88	276
	60	377.0	0.48	180
NW-SE	2.5	15.7	814.30	12791
	5	31.4	179.25	5631
	7.5	47.1	69.96	3297
	10	62.8	24.23	1522
	15	94.2	15.49	1460
	20	125.7	7.74	972
	25	157.1	5.19	815
	30	188.5	3.40	641
	40	251.3	1.56	393
	50	314.2	0.73	230
	60	377.0	0.37	138

***Apparent Resistivity = 2*π*a*Resistance**

Project Name: Eagle Shadow Mountain Solar
Project Number: 20191344
Test Location: R-5
Lat., long.: 36.53464, -114.81501

Line Orientation	Spacing (feet)	2*π*a	Soil Resistance (Ω)	*Apparent Resistivity (Ω-ft)
N-S	2.5	15.7	287.00	4508
	5	31.4	30.10	946
	7.5	47.1	424.00	900
	10	62.8	3.33	209
	15	94.2	1.47	138
	20	125.7	0.93	117
E-W	2.5	15.7	502.50	7893
	5	31.4	30.73	965
	7.5	47.1	7.47	352
	10	62.8	3.98	250
	15	94.2	1.94	183
	20	125.7	0.88	111

***Apparent Resistivity = 2*π*a*Resistance**

Test Location: R-6
Lat., long.: 36.55534, -114.78503

Line Orientation	Spacing (feet)	2*π*a	Soil Resistance (Ω)	*Apparent Resistivity (Ω-ft)
N-S	2.5	15.7	59.74	938
	5	31.4	22.68	713
	7.5	47.1	9.02	425
	10	62.8	5.22	328
	15	94.2	1.64	154
	20	125.7	0.69	87
E-W	2.5	15.7	47.64	748
	5	31.4	19.42	610
	7.5	47.1	9.91	467
	10	62.8	5.33	335
	15	94.2	1.54	145
	20	125.7	0.65	82

***Apparent Resistivity = 2*π*a*Resistance**

Project Name: Eagle Shadow Mountain Solar
Project Number: 20191344
Test Location: R-7
Lat., long.: 36.82754, -114.82753

Line Orientation	Spacing (feet)	2*π*a	Soil Resistance (Ω)	*Apparent Resistivity (Ω-ft)
N-S	2.5	15.7	1442.00	22651
	5	31.4	496.00	15582
	7.5	47.1	141.80	6682
	10	62.8	96.61	6070
	15	94.2	29.32	2763
	20	125.7	11.72	1473
E-W	2.5	15.7	1462.00	22965
	5	31.4	401.90	12626
	7.5	47.1	148.30	6988
	10	62.8	77.35	4860
	15	94.2	24.77	2335
	20	125.7	11.55	1451

***Apparent Resistivity = 2*π*a*Resistance**

Test Location: R-8
Lat., long.: 36.52863, -114.83217

Line Orientation	Spacing (feet)	2*π*a	Soil Resistance (Ω)	*Apparent Resistivity (Ω-ft)
N-S	2.5	15.7	635.50	9982
	5	31.4	92.80	2915
	7.5	47.1	25.32	1193
	10	62.8	10.17	639
	15	94.2	5.26	495
	20	125.7	3.83	481
E-W	2.5	15.7	665.20	10449
	5	31.4	88.03	2766
	7.5	47.1	23.22	1094
	10	62.8	10.12	636
	15	94.2	5.41	509
	20	125.7	4.10	515

***Apparent Resistivity = 2*π*a*Resistance**

Project Name: Eagle Shadow Mountain Solar
Project Number: 20191344
Test Location: R-9
Lat., long.: 36.53781, -114.82583

Line Orientation	Spacing (feet)	2*π*a	Soil Resistance (Ω)	*Apparent Resistivity (Ω-ft)
N-S	2.5	15.7	348.50	5474
	5	31.4	184.70	5803
	7.5	47.1	91.11	4293
	10	62.8	58.56	3679
	15	94.2	19.97	1882
	20	125.7	5.74	722
E-W	2.5	15.7	854.80	13427
	5	31.4	228.30	7172
	7.5	47.1	51.90	2446
	10	62.8	18.32	1151
	15	94.2	8.66	816
	20	125.7	2.18	274

***Apparent Resistivity = 2*π*a*Resistance**

Test Location: R-10
Lat., long.: 36.54234, -114.81667

Line Orientation	Spacing (feet)	2*π*a	Soil Resistance (Ω)	*Apparent Resistivity (Ω-ft)
N-S	2.5	15.7	65.87	1035
	5	31.4	12.28	386
	7.5	47.1	5.16	243
	10	62.8	2.23	140
	15	94.2	1.18	111
	20	125.7	0.86	108
E-W	2.5	15.7	166.20	2611
	5	31.4	10.74	337
	7.5	47.1	4.85	228
	10	62.8	2.44	153
	15	94.2	1.14	107
	20	125.7	0.74	92

***Apparent Resistivity = 2*π*a*Resistance**

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Appendix B

APPENDIX B

Graphics and Soil Description Keys (2 pages)
Boring and Test Pit Logs (58 pages)

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SAMPLER AND DRILLING METHOD GRAPHICS

BULK / GRAB / BAG SAMPLE

MODIFIED CALIFORNIA SAMPLER
(2 or 2-1/2 in. (50.8 or 63.5 mm.) outer diameter)

CALIFORNIA SAMPLER
(3 in. (76.2 mm.) outer diameter)

STANDARD PENETRATION SPLIT SPOON SAMPLER
(2 in. (50.8 mm.) outer diameter and 1-3/8 in. (34.9 mm.) inner diameter)

SHELBY TUBE SAMPLER

NQ CORE SAMPLE
(1.874 in. (47.6 mm.) core diameter)

HOLLOW STEM AUGER

SOLID STEM AUGER

WASH BORING

VANE SHEAR

GROUND WATER GRAPHICS

WATER LEVEL (level where first observed)

WATER LEVEL (level after exploration completion)

WATER LEVEL (additional levels after exploration)

OBSERVED SEEPAGE

NOTES

- The report and graphics key are an integral part of these logs. All data and interpretations in this log are subject to the explanations and limitations stated in the report.
- Lines separating strata on the logs represent approximate boundaries only. Actual transitions may be gradual or differ from those shown.
- No warranty is provided as to the continuity of soil or rock conditions between individual sample locations.
- Logs represent general soil or rock conditions observed at the point of exploration on the date indicated.
- In general, Unified Soil Classification System designations presented on the logs were based on visual classification in the field and were modified where appropriate based on gradation and index property testing.
- Fine grained soils that plot within the hatched area on the Plasticity Chart, and coarse grained soils with between 5% and 12% passing the No. 200 sieve require dual USCS symbols, ie., GW-GM, GP-GM, GW-GC, GP-GC, GC-GM, SW-SM, SP-SM, SW-SC, SP-SC, SC-SM.
- If sampler is not able to be driven at least 6 inches then 50/X indicates number of blows required to drive the identified sampler X inches with a 140 pound hammer falling 30 inches.

ABBREVIATIONS
WOH - Weight of Hammer
WOR - Weight of Rod

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D 2487)

COARSE GRAINED SOILS (More than half of material is larger than the #200 sieve)	**GRAVELS** (More than half of coarse fraction is larger than the #4 sieve)	CLEAN GRAVEL WITH <5% FINES	Cu≥4 and 1≤Cc≤3		**GW**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
			Cu<4 and/ or 1>Cc>3		**GP**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE OR NO FINES
		GRAVELS WITH 5% TO 12% FINES	Cu≥4 and 1≤Cc≤3		**GW-GM**	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GW-GC	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
			Cu<4 and/ or 1>Cc>3		**GP-GM**	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE FINES
					GP-GC	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES WITH LITTLE CLAY FINES
		GRAVELS WITH > 12% FINES			**GM**	SILTY GRAVELS, GRAVEL-SILT-SAND MIXTURES
					GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
					GC-GM	CLAYEY GRAVELS, GRAVEL-SAND-CLAY-SILT MIXTURES
	SANDS (Half or more of coarse fraction is smaller than the #4 sieve)	CLEAN SANDS WITH <5% FINES	Cu≥6 and 1≤Cc≤3		**SW**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
			Cu<6 and/ or 1>Cc>3		**SP**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE OR NO FINES
		SANDS WITH 5% TO 12% FINES	Cu≥6 and 1≤Cc≤3		**SW-SM**	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SW-SC	WELL-GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
			Cu<6 and/ or 1>Cc>3		**SP-SM**	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE FINES
					SP-SC	POORLY GRADED SANDS, SAND-GRAVEL MIXTURES WITH LITTLE CLAY FINES
		SANDS WITH > 12% FINES			**SM**	SILTY SANDS, SAND-GRAVEL-SILT MIXTURES
					SC	CLAYEY SANDS, SAND-GRAVEL-CLAY MIXTURES
					SC-SM	CLAYEY SANDS, SAND-SILT-CLAY MIXTURES

FINE GRAINED SOILS (Half or more of material is smaller than the #200 sieve)	SILTS AND CLAYS (Liquid Limit less than 50)	**ML**	INORGANIC SILTS AND VERY FINE SANDS, SILTY OR CLAYEY FINE SANDS, SILTS WITH SLIGHT PLASTICITY
		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		CL-ML	INORGANIC CLAYS-SILTS OF LOW PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
		OL	ORGANIC SILTS & ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS (Liquid Limit 50 or greater)	**MH**	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILT
		CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
		OH	ORGANIC CLAYS & ORGANIC SILTS OF MEDIUM-TO-HIGH PLASTICITY

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GRAPHICS KEY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

B-1

PLOTTED: 02/26/2019 02:28 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[LEGEND 1 (GRAPHICS KEY) USCS_NOR_WES]
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gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB

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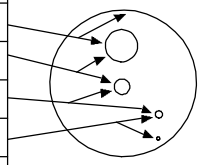
GRAIN SIZE

DESCRIPTION		SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders		>12 in. (304.8 mm.)	>12 in. (304.8 mm.)	Larger than basketball-sized
Cobbles		3 - 12 in. (76.2 - 304.8 mm.)	3 - 12 in. (76.2 - 304.8 mm.)	Fist-sized to basketball-sized
Gravel	coarse	3/4 -3 in. (19 - 76.2 mm.)	3/4 -3 in. (19 - 76.2 mm.)	Thumb-sized to fist-sized
	fine	#4 - 3/4 in. (#4 - 19 mm.)	0.19 - 0.75 in. (4.8 - 19 mm.)	Pea-sized to thumb-sized
Sand	coarse	#10 - #4	0.079 - 0.19 in. (2 - 4.9 mm.)	Rock salt-sized to pea-sized
	medium	#40 - #10	0.017 - 0.079 in. (0.43 - 2 mm.)	Sugar-sized to rock salt-sized
	fine	#200 - #40	0.0029 - 0.017 in. (0.07 - 0.43 mm.)	Flour-sized to sugar-sized
Fines		Passing #200	<0.0029 in. (<0.07 mm.)	Flour-sized and smaller



SECONDARY CONSTITUENT

	AMOUNT	
Term of Use	Secondary Constituent is Fine Grained	Secondary Constituent is Coarse Grained
Trace	<5%	<15%
With	≥5 to <15%	≥15 to <30%
Modifier	≥15%	≥30%

MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually soil is below water table

CEMENTATION

DESCRIPTION	FIELD TEST
Weakly	Crumbles or breaks with handling or slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumble or break with finger pressure

CONSISTENCY - FINE-GRAINED SOIL

CONSISTENCY	SPT - N_{60} (# blows / ft)	Pocket Pen (tsf)	UNCONFINED COMPRESSIVE STRENGTH (Q_u)(psf)	VISUAL / MANUAL CRITERIA
Very Soft	<2	PP < 0.25	<500	Thumb will penetrate more than 1 inch (25 mm). Extrudes between fingers when squeezed.
Soft	2 - 4	0.25 ≤ PP <0.5	500 - 1000	Thumb will penetrate soil about 1 inch (25 mm). Remolded by light finger pressure.
Medium Stiff	4 - 8	0.5 ≤ PP <1	1000 - 2000	Thumb will penetrate soil about 1/4 inch (6 mm). Remolded by strong finger pressure.
Stiff	8 - 15	1 ≤ PP <2	2000 - 4000	Can be imprinted with considerable pressure from thumb.
Very Stiff	15 - 30	2 ≤ PP <4	4000 - 8000	Thumb will not indent soil but readily indented with thumbnail.
Hard	>30	4 ≤ PP	>8000	Thumbnail will not indent soil.

FROM TERZAGHI AND PECK, 1948; LAMBE AND WHITMAN, 1969; FHWA, 2002; AND ASTM D2488

REACTION WITH HYDROCHLORIC ACID

DESCRIPTION	FIELD TEST
None	No visible reaction
Weak	Some reaction, with bubbles forming slowly
Strong	Violent reaction, with bubbles forming immediately

APPARENT / RELATIVE DENSITY - COARSE-GRAINED SOIL

APPARENT DENSITY	SPT-N_{60} (# blows/ft)	MODIFIED CA SAMPLER (# blows/ft)	CALIFORNIA SAMPLER (# blows/ft)	RELATIVE DENSITY (%)
Very Loose	<4	<4	<5	0 - 15
Loose	4 - 10	5 - 12	5 - 15	15 - 35
Medium Dense	10 - 30	12 - 35	15 - 40	35 - 65
Dense	30 - 50	35 - 60	40 - 70	65 - 85
Very Dense	>50	>60	>70	85 - 100

FROM TERZAGHI AND PECK, 1948

PLASTICITY

DESCRIPTION	LL	FIELD TEST
Non-plastic	NP	A 1/8-in. (3 mm.) thread cannot be rolled at any water content.
Low (L)	< 30	The thread can barely be rolled and the lump or thread cannot be formed when drier than the plastic limit.
Medium (M)	30 - 50	The thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. The lump or thread crumbles when drier than the plastic limit.
High (H)	> 50	It takes considerable time rolling and kneading to reach the plastic limit. The thread can be rerolled several times after reaching the plastic limit. The lump or thread can be formed without crumbling when drier than the plastic limit.

STRUCTURE

DESCRIPTION	CRITERIA
Stratified	Alternating layers of varying material or color with layers at least 1/4-in. thick, note thickness.
Laminated	Alternating layers of varying material or color with the layer less than 1/4-in. thick, note thickness.
Fissured	Breaks along definite planes of fracture with little resistance to fracturing.
Slickensided	Fracture planes appear polished or glossy, sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay; note thickness.

ANGULARITY

DESCRIPTION	CRITERIA
Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces.
Subangular	Particles are similar to angular description but have rounded edges.
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges.
Rounded	Particles have smoothly curved sides and no edges.

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SOIL DESCRIPTION KEY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

B-2

BORING LOG SA-1

Date Begin - End:	12/05/2018	**Drilling Company:**	Cascade		
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.55507°
Longitude: -114.83572°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Poorly Graded GRAVEL with Silt and Sand (GP-GM): fine to coarse-grained gravel, non-plastic, light brown, slightly moist, medium dense to dense											Drill rig chatter to maximum depth explored
		- dense below 2.5 feet		BC=28 20 23	18"								1.5 ft/min drill rate between 2.5 and 5 feet
5		**Cemented SAND and GRAVEL**: tan, slightly moist, moderately to strongly cemented		BC=26 50/4"	10"								1 ft/min drill rate between 5 and 7.5 feet
				BC=50/2"	2"								0.6 ft/min drill rate between 7.5 and 10 feet
10				BC=50/3"	3"								3.75 ft/min drill rate between 10 and 15 feet
15		- interlayered weakly to moderately cemented zones below 15 feet		BC=28 50/3"	9"								1.7 ft/min drill rate between 15 and 20 feet
20				BC=50/3"	NR								
25													
30													

LABORATORY RESULTS

The boring was terminated at approximately 20.3 ft. below ground surface. The boring was backfilled on December 05, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
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DATE:	2/22/2019
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BORING LOG SA-1

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-1

gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
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Date Begin - End:	12/05/2018	**Drilling Company:**	Cascade	**BORING LOG SA-2**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.54864°
Longitude: -114.83544°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, low to medium plasticity, light brown, slightly moist, medium dense to dense, with probable cobbles			
		- very dense below 2.5 feet		BC=50/5"	4"
5				BC=49 43 46	17"
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/5"	5"
10				BC=50/3"	3"
15				BC=50/4"	4"
20					
25					
30					

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
							Drill rig chatter below 3 inches
							0.8 ft/min drill rate between 3 inches and 2.5 feet
							0.8 ft/min drill rate between 2.5 and 5 feet
							1.25 ft/min drill rate between 5 and 7.5 feet
							1 ft/min drill rate between 7.5 and 10 feet
							0.8 ft/min drill rate between 10 and 15 feet

The boring was terminated at approximately 15.3 ft. below ground surface. The boring was backfilled on December 05, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-2

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-2

OFFICE FILTER: LAS VEGAS
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Date Begin - End:	12/04/2018	**Drilling Company:**	Cascade	**BORING LOG SA-3**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.54253°
Longitude: -114.83561°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, light brown, slightly moist, medium dense to dense, with caliche nodules											Drill rig chatter below 0.5 feet 0.3 ft/min drill rate between 0.5 and 2.5 feet
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/3"	3"								
5		- interlayered weakly to moderately cemented zones below 5 feet		BC=14 32 50/3"	15"								0.7 ft/min drill rate between 5 and 7.5 feet
				BC=50/4"	4"								0.5 ft/min drill rate between 7.5 and 10 feet
10				BC=50/2"	2"								0.2 ft/min drill rate between 10 and 15 feet
15				BC=50/0"	NR								

The boring was terminated at approximately 15.1 ft. below ground surface. The boring was backfilled on December 04, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

20
25
30

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BORING LOG SA-3

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING
SA-3
PAGE: 1 of 1

gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS

Date Begin - End:	12/04/2018	**Drilling Company:**	Cascade	**BORING LOG SA-4**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	4.25 in. O.D.		

Latitude: 36.53633°
Longitude: -114.83556°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0	**Silty SAND with Gravel (SM)**: fine to coarse-grained sand, non-plastic, light brown, slightly moist, medium dense to dense							84	28	22	5	*__Resistivity (as Received)=__49000 Ohm-cm __Resistivity (Saturated)=__4100 Ohm-cm __Sodium=__ 0.0023% __Sodium Sulfate=__ 0.0072% __Solubility=__ 0.01% __pH=__ 8.88 __Sulfates=__ 0.009% __Chlorides=__ 25 mg/Kg __Redox=__ 197 mV __Sulfides=__ 1.6 mg/Kg __ASTM D1557 Method A=__ Max. Dry Unit Wt.: 129.7 pcf Opt. Water Content: 8.5% Drill rig chatter below 0.5 feet 0.1 ft/min drill rate between 0.5 and 2.5 feet 0.7 ft/min drill rate between 2.5 and 5 feet 1.25 ft/min drill rate between 5 and 7.5 feet 0.8 ft/min drill rate between 7.5 and 10 feet 0.7 ft/min drill rate between 10 and 15 feet
	Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/5"	5"								
5	- interlayered weakly to moderately cemented zones below 5 feet		BC=22 50/6"	12"								
			BC=50/5"	5"								
10			BC=50/4"	4"								
15	**Sandy Elastic SILT (MH)**: high plasticity, brown, slightly moist, hard		BC=21 33 48	18"	MH	16.9			67	69	31	
20			BC=20 44 50/5"	15"								
25												
30												

The boring was terminated at approximately 21.4 ft. below ground surface. The boring was backfilled on December 04, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
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DATE:	2/22/2019
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BORING LOG SA-4

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING
SA-4
PAGE: 1 of 1

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OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[_KLF_BORING/TEST PIT SOIL LOG]
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
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Date Begin - End:	12/04/2018	**Drilling Company:**	Cascade	**BORING LOG SA-5**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

Latitude: 36.53009°
Longitude: -114.83562°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, light brown, slightly moist, medium dense to dense											Drill rig chatter below 0.5 feet 0.4 ft/min drill rate between 0.5 and 2.5 feet
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/5"	5"								0.8 ft/min drill rate between 2.5 and 5 feet
5		- interlayered weakly to moderately cemented zones below 5 feet		BC=28 50/5"	13"								1.25 ft/min drill rate between 5 and 7.5 feet
				BC=50/5"	7"								0.8 ft/min drill rate between 7.5 and 10 feet
10				BC=50/5"	5"								1.1 ft/min drill rate between 10 and 15 feet
15				BC=50/4"	5"								1.4 ft/min drill rate between 15 and 20 feet
20		**Fat CLAY (CH)**: high plasticity, brown, slightly moist, very stiff		BC=10 11 14	18"								
		- hard below 21.5 feet		BC=15 25 37	16"		19.5	103.9					
25													
30													

The boring was terminated at approximately 23 ft. below ground surface. The boring was backfilled on December 04, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
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BORING LOG SA-5

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING
SA-5
PAGE: 1 of 1

PLOTTED: 02/26/2019 02:29 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[_KLF_BORING/TEST PIT SOIL LOG]
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BORING LOG SA-6

Date Begin - End:	12/05/2018	**Drilling Company:**	Cascade		
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.55139°
Longitude: -114.83021°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)
		Poorly Graded GRAVEL with Silt and Sand (GP-GM): fine to coarse-grained gravel, non-plastic, light brown, slightly moist, medium dense to dense			
				BC=45 50/3"	9"
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented			
5				BC=50/3"	NR
				BC=50/5"	5"
10				BC=50/1"	1"
15				BC=50/4"	4"
20					
25					
30					

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
							Drill rig chatter below 0.5 feet
							1 ft/min drill rate between 5 and 7.5 feet
							0.6 ft/min drill rate between 7.5 and 10 feet
							0.7 ft/min drill rate between 10 and 15 feet

The boring was terminated at approximately 15.3 ft. below ground surface. The boring was backfilled on December 05, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-6

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-6

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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS

Date Begin - End:	12/05/2018	**Drilling Company:**	Cascade	**BORING LOG SA-7**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.54563°
Longitude: -114.82996°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)
		Poorly Graded GRAVEL with Silt and Sand (GP-GM): fine to coarse-grained gravel, non-plastic, light brown, slightly moist, medium dense to dense			
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=23 50/5"	11"
5				BC=50/4"	4"
				BC=44 50/2"	8"
10				BC=50/3"	3"
15				BC=50/4"	4"
20					
25					
30					

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
							Drill rig chatter below 1 foot
							0.5 ft/min drill rate between 2.5 and 5 feet
							1 ft/min drill rate between 5 and 7.5 feet
							1.25 ft/min drill rate between 7.5 and 10 feet
							1 ft/min drill rate between 10 and 15 feet

The boring was terminated at approximately 15.3 ft. below ground surface. The boring was backfilled on December 05, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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DATE:	2/22/2019
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BORING LOG SA-7

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-7

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PROJECT NUMBER: 20191344.001A
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BORING LOG SA-8

Date Begin - End:	12/06/2018	**Drilling Company:**	Cascade		
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

Latitude: 36.53925°
Longitude: -114.82997°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, light brown, slightly moist, medium dense to dense, with caliche nodules											
		- dense below 2.5 feet		BC=15 15 22	15"		5.8						
5		- very dense, with interlayered weakly to moderately cemented zones below 5 feet		BC=29 50/5"	10"								2.5 ft/min drill rate between 5 and 7.5 feet Drill rig chatter below 5.5 feet
				BC=16 48 50/5"	17"								2.5 ft/min drill rate between 7.5 and 10 feet
10		**Cemented SAND and GRAVEL**: tan, slightly moist, moderately to strongly cemented		BC=50/6"	6"								1.1 ft/min drill rate between 10 and 15 feet
15				BC=50/3"	NR								
20													
25													
30													

The boring was terminated at approximately 15.3 ft. below ground surface. The boring was backfilled on December 06, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
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DATE:	2/22/2019
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BORING LOG SA-8

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-8

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BORING LOG SA-9

Date Begin - End:	12/06/2018	**Drilling Company:**	Cascade		
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.53330°
Longitude: -114.82997°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)
0		**Silty SAND with Gravel (SM)**: fine to coarse-grained sand, light brown, slightly moist, medium dense to dense, with caliche nodules			
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/6"	6"
5		- interlayered weakly to moderately cemented zones below 5 feet		BC=46 50/5"	11"
				BC=50/4"	4"
10				BC=50/5"	5"
15				BC=50/2"	2"
20					
25					
30					

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
							Drill rig chatter below 1 foot 1 ft/min drill rate between 1 and 2.5 feet 2.5 ft/min drill rate between 2.5 and 5 feet 2.5 ft/min drill rate between 5 and 7.5 feet 1.7 ft/min drill rate between 7.5 and 10 feet 0.4 ft/min drill rate between 10 and 15 feet, louder drill rig chatter

The boring was terminated at approximately 15.2 ft. below ground surface. The boring was backfilled on December 06, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
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DATE:	2/22/2019
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BORING LOG SA-9

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-9

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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS

Date Begin - End:	12/03/2018	**Drilling Company:**	Cascade	**BORING LOG SA-10**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.52689°
Longitude: -114.83007°
Surface Condition: Typical cover of desert vegetation, adjacent to wash up to 5 feet wide and 3 feet deep

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, light brown, slightly moist, medium dense to dense			
		- dense to very dense below 2.5 feet		BC=21 25 24	18"
5		**Cemented SAND and GRAVEL**: tan, slightly moist, moderately to strongly cemented		BC=33 50/5"	11"
				BC=50/6"	6"
10				BC=50/5"	5"
15		**Sandy Fat CLAY (CH)**: high plasticity, brown, slightly moist, hard		BC=12 22 33	18"
20				BC=21 35 50/5"	15"
25					
30					

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
							0.1 ft/min drill rate between surface and 2.5 feet Drill rig chatter from 0.5 to 14.5 feet 1.25 ft/min drill rate between 2.5 and 5 feet
							1.7 ft/min drill rate between 5 and 7.5 feet
							0.6 ft/min drill rate between 7.5 and 10 feet
							1.7 ft/min drill rate between 10 and 15 feet
	19.3						

The boring was terminated at approximately 21.4 ft. below ground surface. The boring was backfilled on December 03, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-10

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
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BORING LOG SA-11

Date Begin - End:	12/07/2018	**Drilling Company:**	Cascade		
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy/ Rainy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.54827°
Longitude: -114.82423°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)
0		**Clayey SAND with Gravel (SC)**: fine to coarse-grained sand, low to medium plasticity, brown, slightly moist, medium dense to dense - with probable cobbles below 1 foot			
				BC=15 28 50/5"	16"
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented			
5				BC=50/4"	4"
				BC=50/4"	4"
10				BC=50/3"	3"
15				BC=50/4"	4"
20				BC=50/3"	NR
25					
30					

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)
	0.9					

Additional Tests/ Remarks

- Drill rig chatter below 1 foot
- 0.5 ft/min drill rate between 1 and 2.5 feet
- 0.8 ft/min drill rate between 2.5 and 5 feet
- Louder drill rig chatter, slower drill rate below 5 feet
- 0.25 ft/min drill rate between 5 and 7.5 feet
- 0.3 ft/min drill rate between 7.5 and 10 feet
- 0.5 ft/min drill rate between 10 and 15 feet
- 1 ft/min drill rate between 15 and 20 feet

The boring was terminated at approximately 20.3 ft. below ground surface. The boring was backfilled on December 07, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-11

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-11

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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS

Date Begin - End:	12/06/2018	**Drilling Company:**	Cascade	**BORING LOG SA-12**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.54229°
Longitude: -114.82439°
Surface Condition: Typical cover of desert vegetation, with cobbles and boulders present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0		**Clayey SAND with Gravel (SC)**: fine to coarse-grained sand, low to medium plasticity, brown, slightly moist, medium dense to dense											Drill rig chatter below 4 inches 0.4 ft/min drill rate between 4 inches and 2.5 feet
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/2"	2"								2.5 ft/min drill rate between 2.5 and 5 feet
5				BC=50/3"	3"								1.7 ft/min drill rate between 5 and 7.5 feet
				BC=50/3"	3"								0.8 ft/min drill rate between 7.5 and 10 feet
10				BC=50/4"	4"								1.7 ft/min drill rate between 10 and 15 feet
15				BC=50/5"	3"								
20													
25													
30													

The boring was terminated at approximately 15.4 ft. below ground surface. The boring was backfilled on December 06, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
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BORING LOG SA-12

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING
SA-12
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Date Begin - End:	12/06/2018	**Drilling Company:**	Cascade	**BORING LOG SA-13**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.53601°
Longitude: -114.82405°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, low to medium plasticity, brown, slightly moist, medium dense to dense											1 ft/min drill rate between 5 inches and 2.5 feet Drill rig chatter below 0.5 feet
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/3"	3"								0.4 ft/min drill rate between 2.5 and 5 feet
5				BC=50/5"	5"								0.4 ft/min drill rate between 0.5 and 2.5 feet
				BC=38 50/4"	10"								0.4 ft/min drill rate between 0.5 and 2.5 feet
10				BC=50/4"	3"								Louder drill rig chatter, slower drilling below 10 feet 0.7 ft/min drill rate between 10 and 15 feet
15				BC=50/3"	3"								0.4 ft/min drill rate between 0.5 and 2.5 feet
20				BC=50/4"	4"								
25													
30													

LABORATORY RESULTS

The boring was terminated at approximately 20.3 ft. below ground surface. The boring was backfilled on December 06, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
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BORING LOG SA-13

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-13

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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
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Date Begin - End:	12/03/2018	**Drilling Company:**	Cascade	**BORING LOG SA-14**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.52990°
Longitude: -114.82432°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)
		Poorly Graded GRAVEL with Silt and Sand (GP-GM): fine to coarse-grained gravel, non-plastic, light brown, slightly moist, medium dense to dense, probable cobbles			
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/3"	3"
5				BC=50/3"	3"
				BC=50/4"	4"
10				BC=50/3"	3"
15				BC=50/3"	3"
20					
25					
30					

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
							Drill rig chatter below 1 foot
							0.2 ft/min drill rate between 2.5 and 5 feet
							0.8 ft/min drill rate between 5 and 7.5 feet
							1 ft/min drill rate between 7.5 and 10 feet
							0.9 ft/min drill rate between 10 and 15 feet

The boring was terminated at approximately 15.3 ft. below ground surface. The boring was backfilled on December 03, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
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DATE:	2/22/2019
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BORING LOG SA-14

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-14

PLOTTED: 02/26/2019 02:30 PM BY: MPalmer
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PROJECT NUMBER: 20191344.001A
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gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
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Date Begin - End:	12/07/2018	**Drilling Company:**	Cascade	**BORING LOG SA-15**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

Latitude: 36.54483°
Longitude: -114.81890°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
	Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, brown, slightly moist, medium dense to dense											1 ft/min drill rate between 4 inches and 2.5 feet Drill rig chatter from 1 to 20 feet
	Clayey SAND with Gravel (SC): fine to coarse-grained sand, low to medium plasticity, brown, slightly moist, medium dense to dense		BC=29 50/5"	9"								1.25 ft/min drill rate between 2.5 and 5 feet
5	**Cemented SAND and GRAVEL**: tan, slightly moist, moderately to strongly cemented		BC=50/6"	6"								1.7 ft/min drill rate between 5 and 7.5 feet
	- interlayered weakly to moderately cemented zones below 7.5 feet		BC=12 50/4"	10"								1.25 ft/min drill rate between 7.5 and 10 feet
10			BC=50/5"	5"								1.7 ft/min drill rate between 10 and 15 feet
15			BC=50/3"	NR								2 ft/min drill rate between 15 and 20 feet
20	**Lean CLAY (CL)**: low to medium plasticity, brown, moist, hard		BC=11 19 26	18"		17.8						
25			BC=13 21 50/5"	17"								
30	- very stiff below 30 feet		BC=10 13 16	18"								

The boring was terminated at approximately 31.5 ft. below ground surface. The boring was backfilled on December 07, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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CHECKED BY:	JLS
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BORING LOG SA-15

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING
SA-15
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BORING LOG SA-16

Date Begin - End:	12/07/2018	**Drilling Company:**	Cascade		
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

Latitude: 36.53903°
Longitude: -114.81878°
Surface Condition: Typical cover of desert vegetation, with cobbles and boulders present

Depth (feet)	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0	**Clayey SAND with Gravel (SC)**: fine to coarse-grained sand, non-plastic, brown, slightly moist, medium dense to dense, with probable cobbles and/or boulders, with caliche nodules - very dense, with interlayered weakly to moderately cemented zones below 2.5 feet		BC=11 27 50/5"	16"								Drill rig chatter below 4 inches 0.4 ft/min drill rate between 4 inches and 2.5 feet 0.5 ft/min drill rate between 2.5 and 5 feet
5	**Cemented SAND and GRAVEL**: tan, slightly moist, moderately to strongly cemented		BC=50/4"	4"								1.7 ft/min drill rate between 5 and 7.5 feet
			BC=50/5"	8"								1.25 ft/min drill rate between 7.5 and 10 feet
10			BC=50/4"	6"								1.7 ft/min drill rate between 10 and 15 feet
15			BC=50/4"	5"								
20												
25												
30												

The boring was terminated at approximately 15.3 ft. below ground surface. The boring was backfilled on December 07, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-16

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-16

PLOTTED: 02/26/2019 02:30 PM BY: MPalmer

Date Begin - End:	12/07/2018	**Drilling Company:**	Cascade	**BORING LOG SA-17**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.53282°
Longitude: -114.81895°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, brown, slightly moist, medium dense to dense, with caliche nodules											Drill rig chatter below 0.5 feet
				BC=9 16 30	16"								1.25 ft/min drill rate between 2.5 and 5 feet
5		**Cemented SAND and GRAVEL**: tan, slightly moist, moderately to strongly cemented		BC=50/5"	6"								Drill rig chatter louder, slower drilling below 4 feet 1.25 ft/min drill rate between 5 and 7.5 feet
				BC=50/5"	5"								0.6 ft/min drill rate between 7.5 and 10 feet
10				BC=50/4"	4"								2 ft/min drill rate between 10 and 15 feet
15				BC=50/4"	4"								
20													
25													
30													

The boring was terminated at approximately 15.3 ft. below ground surface. The boring was backfilled on December 07, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-17

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-17

Date Begin - End:	12/03/2018	**Drilling Company:**	Cascade	**BORING LOG SA-18**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.52660°
Longitude: -114.81887°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)
0		**Silty SAND with Gravel (SM)**: fine to coarse-grained sand, non-plastic, brown, slightly moist, medium dense to dense			
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/2"	2"
5				BC=50/5"	3"
				BC=50/2"	2"
10				BC=50/2"	2"
15				BC=50/1"	1"
20					
25					
30					

LABORATORY RESULTS

USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
							Drill rig chatter below 1 foot 0.15 ft/min drill rate between 1 and 2.5 feet 0.25 ft/min drill rate between 2.5 and 5 feet 0.13 ft/min drill rate between 5 and 7.5 feet 0.14 ft/min drill rate between 7.5 and 10 feet 1 ft/min drill rate between 10 and 15 feet

The boring was terminated at approximately 15.1 ft. below ground surface. The boring was backfilled on December 03, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-18

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

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Date Begin - End:	12/08/2018	**Drilling Company:**	Cascade	**BORING LOG SA-19**	
Logged By:	J. Andreini	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	4.25 in. O.D.		

Latitude: 36.54559°
Longitude: -114.81314°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, light brown, slightly moist, medium dense to dense											Drill rig chatter below 0.5 feet 0.4 ft/min drill rate between 6 inches and 2.5 feet
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/3"	5"								0.5 ft/min drill rate between 2.5 and 5 feet
5				BC=50/5"	2"								1.7 ft/min drill rate between 5 and 7.5 feet Less drill rig chatter, faster drill rate below 6 feet
				BC=50/5"	12"								1.7 ft/min drill rate between 7.5 and 10 feet Increased drill rig chatter below 8 feet
10		- interlayered weakly to moderately cemented zones below 10 feet		BC=40 48 50/5"	16"								1.7 ft/min drill rate between 10 and 15 feet
15				BC=50/5"	6"								
20													
25													
30													

The boring was terminated at approximately 15.4 ft. below ground surface. The boring was backfilled on December 08, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-19

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

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Date Begin - End:	12/08/2018	**Drilling Company:**	Cascade	**BORING LOG SA-20**	
Logged By:	J. Andreini	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	4.25 in. O.D.		

Latitude: 36.53953°
Longitude: -114.81305°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, high plasticity, light brown, slightly moist, medium dense to dense											Drill rig chatter from 1 to 15 feet 0.75 ft/min drill rate between 1 and 2.5 feet
		- very dense below 2.5 feet		BC=22 41 49	12"	SC			77	26	81	48	**Resistivity (as Received)=**8000 Ohm-cm **Resistivity (Saturated)=**745 Ohm-cm **Sodium=** 0.021% **Sodium Sulfate=** 0.065% **Solubility=** 0.032% **pH=** 8.48 **Sulfates=** 0.06% **Chlorides=** 180 mg/Kg **Redox=** 201 mV **Sulfides=** <0.5 mg/Kg **ASTM D1557 Method A=** Max. Dry Unit Wt.: 115.0 pcf Opt. Water Content: 13.3%
5				BC=14 21 26	17"								1.25 ft/min drill rate between 2.5 and 5 feet 2.5 ft/min drill rate between 5 and 7.5 feet
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=27 50/2"									
10				BC=50/1"									
15		**Clayey SAND (SC)**: high plasticity, light brown, slightly moist, very dense - gypsum in sample at 15 feet		BC=20 43 50/6"	17"	SC				35	86	58	1.25 ft/min drill rate between 7.5 and 10 feet 1.7 ft/min drill rate between 10 and 15 feet
20		**Fat CLAY (CH)**: high plasticity, brown, slightly moist, hard		BC=20 33 50/5"		CH				89	64	45	
25													
30													

The boring was terminated at approximately 21.4 ft. below ground surface. The boring was backfilled on December 08, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-20

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

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Date Begin - End:	12/08/2018	**Drilling Company:**	Cascade	**BORING LOG SA-21**	
Logged By:	J. Andreini	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.53340°
Longitude: -114.81335°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty, Clayey SAND with Gravel (SC-SM): fine to coarse-grained sand, low plasticity, brown, slightly moist, medium dense to dense											
				BC=8 10 16	16"								
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, brown, slightly moist, medium dense											
5		**Sandy Lean CLAY (CL)**: fine-grained sand, low plasticity, light brown, slightly moist, very stiff to hard - gypsum in sample at 5 feet - interlayered weakly to moderately cemented zone between 6 and 7 feet - gypsum in sample at 7.5 feet		BC=16 35 50/5"	16"	CL				69	43	19	**Expansion/Compression=** Expansion= 2.8% under 600 psf when wetted. **Expansion/Compression=** Expansion= 11.8% under 60 psf when wetted. **Resistivity (as Received)=**12500 Ohm-cm **Resistivity (Saturated)=**1600 Ohm-cm **Sodium=** 0.0086% **Sodium Sulfate=** 0.0089% **Solubility=** 0.0098% **pH=** 8.75 **Sulfates=** 0.006% **Chlorides=** 60 mg/Kg **Redox=** 231 mV **Sulfides=** 0.77 mg/Kg
				BC=10 15 27	18"								
10		**Elastic SILT (MH)**: high plasticity, brown, slightly moist, hard - gypsum in sample at 10 feet		BC=9 27 50/5"	14"	MH				95	63	31	
15		- gypsum in sample at 15 feet - very stiff below 15 feet		BC=8 10 13	18"								
20				BC=14 18 27	18"								
25													
30													

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled on December 08, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-21

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SA-21

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BORING LOG SA-22

Date Begin - End:	12/08/2018	**Drilling Company:**	Cascade		
Logged By:	J. Andreini	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.52770°
Longitude: -114.81530°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, light brown, slightly moist, medium dense to dense											Drill rig chatter below 0.5 feet
		- interlayered weakly to moderately cemented zones below 2.5 feet		BC=30 50/3"	4"								
5		**Cemented SAND and GRAVEL**: slightly moist, weakly to moderately cemented		BC=50/4"	5"								
		Sandy Elastic SILT (MH): fine-grained sand, high plasticity, light brown, slightly moist, hard - gypsum in sample at 7.5 feet		BC=8 16 23	16"								Less drill rig chatter below 7.5 feet
10		**Silty SAND (SM)**: fine-grained sand, high plasticity, light brown, slightly moist, very dense - gypsum in sample at 10 feet		BC=16 50/6"	10"	SM			93	49	58	26	
15		- gypsum in sample at 15 feet - very dense below 15 feet		BC=15 20 35	12"		6.4						
20													
25													
30													

The boring was terminated at approximately 16.5 ft. below ground surface. The boring was backfilled on December 08, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-22

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

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PROJECT NUMBER: 20191344.001A
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Date Begin - End:	12/08/2018	**Drilling Company:**	Cascade	**BORING LOG SA-23**	
Logged By:	J. Andreini	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	4.25 in. O.D.		

Latitude: 36.54348°
Longitude: -114.80693°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty, Clayey SAND with Gravel (SC-SM): fine to coarse-grained sand, low to medium plasticity, brown, slightly moist, medium dense to dense											0.5 ft/min drill rate between 2 inches and 2.5 feet Drill rig chatter, slow drill rate below 0.5 feet 1.25 ft/min drill rate between 2.5 and 5 feet Faster drill rate below 4 feet
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/3"	3"								
5				BC=50/4"	4"								1 ft/min drill rate between 5 and 7.5 feet
				BC=50/4"	4"								1 ft/min drill rate between 7.5 and 10 feet
10				BC=50/5"	4"								2.2 ft/min drill rate between 10 and 15 feet
15				BC=50/5"	5"								
20													
25													
30													

The boring was terminated at approximately 15.4 ft. below ground surface. The boring was backfilled on December 08, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-23

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Moapa River Indian Reservation, USA

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Date Begin - End:	12/11/2018	**Drilling Company:**	Cascade	**BORING LOG SA-24**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.54069°
Longitude: -114.79764°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey SAND with Gravel (SC): low to medium plasticity, brown, slightly moist, medium dense to dense, with caliche nodules											Drill rig chatter from 0.5 to 16 feet
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/3"	3"				78	23	28	6	0.4 ft/min drill rate between 6 inches and 2.5 feet
5				BC=50/5"	5"								*__Resistivity (as Received)=__16000 Ohm-cm
				BC=50/5"	5"								__Resistivity (Saturated)=__1720 Ohm-cm
10				BC=50/5"	5"								__Sodium=__ 0.0042%
													__Sodium Sulfate=__ 0.013%
													__Solubility=__ 0.014%
													__pH=__ 8.74
15				BC=50/4"	4"								__Sulfates=__ 0.028%
													__Chlorides=__ 45 mg/Kg
													__Redox=__ 229 mV
													__Sulfides=__ 2.1 mg/Kg
													__ASTM D1557 Method A=__
													Max. Dry Unit Wt.: 130.1 pcf
													Opt. Water Content: 8.9%
													0.6 ft/min drill rate between 2.5 and 5 feet
													1.25 ft/min drill rate between 5 and 7.5 feet
													1 ft/min drill rate between 7.5 and 10 feet
													1.25 ft/min drill rate between 10 and 15 feet
		Elastic SILT (MH): high plasticity, brown, slightly moist, hard											
20				BC=12 19 28		MH	14.2			98	70	34	
25				BC=23 31 43			13.5	114.2					
30													

The boring was terminated at approximately 26.5 ft. below ground surface. The boring was backfilled on December 11, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.
Latitude and longitude obtained using a hand held GPS unit.

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DRAWN BY:	AB, MAP
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DATE:	2/22/2019
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BORING LOG SA-24

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING
SA-24
PAGE: 1 of 1

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OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[_KLF_BORING/TEST PIT SOIL LOG]
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB

Date Begin - End:	12/10/2018	**Drilling Company:**	Cascade	**BORING LOG SA-25**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.54046°
Longitude: -114.80298°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, low to medium plasticity, brown, slightly moist, medium dense to dense, with caliche nodules											Drill rig chatter from 4 inches to 11 feet 0.5 ft/min drill rate between 4 inches and 2.5 feet
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/2"	3"				82	25	29	9	*__Resistivity (as Received)=__5100 Ohm-cm __Resistivity (Saturated)=__800 Ohm-cm __Sodium=__ 0.018% __Sodium Sulfate=__ 0.055% __Solubility=__ 0.036% __pH=__ 8.52 __Sulfates=__ 0.075% __Chlorides=__ 140 mg/Kg __Redox=__ 242 mV __Sulfides=__ 0.85 mg/Kg __ASTM D1557 Method A=__ Max. Dry Unit Wt.: 127.6 pcf Opt. Water Content: 9.6%
5				BC=50/3"	4"								
				BC=27 50/2"	8"								
10				BC=50/5"	5"								0.2 ft/min drill rate between 2.5 and 5 feet 1 ft/min drill rate between 5 and 7.5 feet 1.25 ft/min drill rate between 7.5 and 10 feet
		Lean CLAY with Sand (CL): low to medium plasticity, brown, slightly moist, very stiff to hard											
15		- hard below 15 feet		BC=8 19 25	18"								
				BC=33 50/4"	10"								
20													
25													
30													

The boring was terminated at approximately 17.3 ft. below ground surface. The boring was backfilled on December 10, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
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BORING LOG SA-25

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING
SA-25

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PROJECT NUMBER: 20191344.001A
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gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
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Date Begin - End:	12/10/2018	**Drilling Company:**	Cascade	**BORING LOG SA-26**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

Latitude: 36.55596°
Longitude: -114.78310°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Sandy Lean CLAY with Gravel (CL): medium plasticity, brown, slightly moist, stiff											
				BC=9 12 15	15"								
5		- gypsum in sample at 5 feet - hard below 5 feet		BC=8 19 24	18"	CL				70	30	13	**Expansion/Compression=** Expansion= 6.7% under 600 psf when wetted.
		- gypsum in sample at 7.5 feet		BC=11 25 45	18"								**Expansion/Compression=** Expansion= 21.7% under 60 psf when wetted.
10		**Lean CLAY (CL)**: medium plasticity, brown, slightly moist, stiff, interlayered weakly to moderately cemented zone between 10 and 11 feet - gypsum in sample at 10 feet		BC=24 50/5"	11"	CL				97	38	17	**Expansion/Compression=** Expansion= 3.3% under 1,200 psf when wetted.
15		- gypsum in sample at 15 feet		BC=19 17 23	18"		13.3						
20		- gypsum in sample at 20 feet		BC=18 50/4"	10"								
25													
30													

The boring was terminated at approximately 20.8 ft. below ground surface. The boring was backfilled on December 10, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
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BORING LOG SA-26

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING
SA-26
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PROJECT NUMBER: 20191344.001A
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Date Begin - End:	12/10/2018	**Drilling Company:**	Cascade	**BORING LOG SA-27**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.55322°
Longitude: -114.78859°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, brown, slightly moist, medium dense to dense											
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/4"	4"				70	21	32	7	Drill rig chatter from 0.5 to 7.5 feet 1.3 ft/min drill rate between 6 inches and 2.5 feet *__Resistivity (as Received)=__26500 Ohm-cm __Resistivity (Saturated)=__3100 Ohm-cm __Sodium=__ 0.005% __Sodium Sulfate=__ 0.013% __Solubility=__ 0.017% __pH=__ 8.87 __Sulfates=__ 0.009% __Chlorides=__ 45 mg/Kg __Redox=__ 246 mV __Sulfides=__ 0.64 mg/Kg __ASTM D1557 Method B=__ Max. Dry Unit Wt.: 129.3 pcf Opt. Water Content: 9.3% 0.8 ft/min drill rate between 2.5 and 5 feet 1.7 ft/min drill rate between 5 and 7.5 feet
5				BC=50/4"	4"								
		Clayey SAND (SC): low to medium plasticity, brown, slightly moist, very dense, with caliche nodules		BC=34 49 36	16"								
10		- medium dense below 10 feet		BC=6 6 6	9"					28			
15		**Elastic SILT (MH)**: high plasticity, brown, slightly moist, stiff - gypsum in sample at 15 feet		BC=9 22 29	18"	MH	13.3			73	62	28	__Resistivity (as Received)=__1000 Ohm-cm __Resistivity (Saturated)=__330 Ohm-cm __Sodium=__ 0.015% __Sodium Sulfate=__ 0.046% __Solubility=__ 0.13% __pH=__ 8.3 __Sulfates=__ 0.41% __Chlorides=__ 120 mg/Kg __Redox=__ 273 mV __Sulfides=__ 0.56 mg/Kg
20		- gypsum in sample at 20 feet		BC=8 10 23	18"								
25													
30													

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled on December 10, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SA-27

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING
SA-27

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PROJECT NUMBER: 20191344.001A
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Date Begin - End:	12/10/2016	**Drilling Company:**	Cascade	**BORING LOG SA-28**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Cloudy	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION | LABORATORY RESULTS

Latitude: 36.54789°
Longitude: -114.79116°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, brown, slightly moist, medium dense to dense											2.3 ft/min drill rate between 3 inches and 2.5 feet Drill rig chatter from 0.5 to 10 feet 0.8 ft/min drill rate between 2.5 and 5 feet
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/4"	7"								
5				BC=50/6"	6"								1.7 ft/min drill rate between 5 and 7.5 feet
		- interlayered weakly to moderately cemented zones below 7.5 feet		BC=25 50/3"	9"								2.5 ft/min drill rate between 7.5 and 10 feet
10		**Lean CLAY with Sand (CL)**: medium plasticity, brown, slightly moist, hard		BC=18 26 21	18"	CL				81	31	13	
15		**Lean CLAY (CL)**: low to medium plasticity, brown, slightly moist, hard		BC=16 32 45	18"		16.2						
20				BC=13 22 32	18"								
25													
30													

The boring was terminated at approximately 21.5 ft. below ground surface. The boring was backfilled on December 05, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
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BORING LOG SA-28

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING
SA-28
PAGE: 1 of 1

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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/26/2019 02:30 PM BY: MPalmer

Date Begin - End:	12/11/2018	**Drilling Company:**	Cascade	**BORING LOG SB-1**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION

Latitude: 36.53904°
Longitude: -114.79850°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, light brown, slightly moist, medium dense to dense, with caliche nodules											0.8 ft/min drill rate between 5 inches and 2.5 feet Drill rig chatter from 0.5 to 12 feet 0.3 ft/min drill rate between 2.5 and 5 feet
		Cemented SAND and GRAVEL: tan, slightly moist, moderately to strongly cemented		BC=50/4"	6"								
5				BC=50/3"	4"								1 ft/min drill rate between 5 and 7.5 feet
				BC=50/6"	6"								1.25 ft/min drill rate between 7.5 and 10 feet
10				BC=50/4"	4"								
		Silty SAND (SM): high plasticity, brown, slightly moist, dense											
15				BC=9 13 17	18"	SM				46	56	25	
20		**Sandy Elastic SILT (MH)**: high plasticity, brown, slightly moist, hard		BC=18 36 50/5"	16"	MH	12.1	117.7		50	61	28	
25				BC=14 24 31	18"								
30		**Fat CLAY with Sand (CH)**: high plasticity, brown, slightly moist, hard		BC=13 24 37	16"	CH	17.3			84	68	43	

LABORATORY RESULTS

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DRAWN BY:	AB, MAP
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BORING LOG SB-1

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING

SB-1

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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
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Date Begin - End:	12/11/2018	**Drilling Company:**	Cascade	**BORING LOG SB-1**	
Logged By:	A. Bajramovic	**Drill Crew:**	T.Sakaida		
Hor.-Vert. Datum:	WGS84	**Drilling Equipment:**	CME 1050	**Hammer Type - Drop:**	140 lb. Auto - 30 in.
Plunge:	-90 degrees	**Drilling Method:**	Hollow Stem Auger		
Weather:	Sunny	**Bore Diameter:**	4.25 in. O.D.		

FIELD EXPLORATION | LABORATORY RESULTS

Latitude: 36.53904°
Longitude: -114.79850°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	Blow Counts(BC)= Uncorr. Blows/6 in.	Recovery (NR=No Recovery)	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Fat CLAY with Sand (CH): high plasticity, brown, slightly moist, hard		BC=12 26 32	18"								
40				BC=14 32 50/4"	16"								
45		**Lean CLAY with Sand (CL)**: low to medium plasticity, brown, slightly moist, hard		BC=13 18 20	18"	CL				76	49	22	
50		- increasing sand below 50 feet		BC=23 50/5"	11"								
55													
60													
65													

The boring was terminated at approximately 50.9 ft. below ground surface. The boring was backfilled on December 11, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during drilling or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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BORING LOG SB-1

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

BORING
SB-1
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gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/26/2019 02:30 PM BY: MPalmer

Date Begin - End: 11/26/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3.5 ft x 8 ft

Weather: Sunny

TEST PIT LOG TP-1

Depth (feet)	Graphical Log	FIELD EXPLORATION Latitude: 36.55151° Longitude: -114.83361° Surface Condition: Typical cover of desert vegetation, with cobbles present Lithologic Description	Sample Type	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles		SM			74	27	NP	NP	Easy to excavate to 4 feet **Resistivity (as Received)=**4200 Ohm-cm **Resistivity (Saturated)=**2700 Ohm-cm **Sodium=** 0.0021% **Sodium Sulfate=** 0.0065% **Solubility=** 0.0074% **pH=** 8.7 **Sulfates=** 0.008% **Chlorides=** 25 mg/Kg **Redox=** 251 mV **Sulfides=** 2.5 mg/Kg **R-Value=** 52 Very difficult to excavate below 4 feet

The test pit was terminated at approximately 4 ft. below ground surface. Backhoe refusal on cemented soils at approximately 4 ft. below ground surface. The test pit was backfilled on November 26, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

5

10

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PROJECT NO.:	20191344
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TEST PIT LOG TP-1

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-1

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
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PROJECT NUMBER: 20191344.001A
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TEST PIT LOG TP-2

Date Begin - End:	11/26/2018	**Excavation Company:**	Pearson Excavation
Logged By:	A. Bajramovic	**Excavation Crew:**	Matt T.
Hor.-Vert. Datum:	WGS84	**Excavation Equip.:**	CASE 580, 18" Bucket
Plunge:	N/A degrees	**Excav. Dimensions:**	3 ft x 8 ft
Weather:	Sunny		

Depth (feet)	Graphical Log	FIELD EXPLORATION Latitude: 36.54449° Longitude: -114.83383° Surface Condition: Typical cover of desert vegetation, with cobbles present Lithologic Description	Sample Type	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, non-plastic, brown, slightly moist, with cobbles									Easy to excavate
		- weakly to moderately cemented below 1.5 feet									Difficult to excavate below 1.5 feet Very difficult to excavate below 2.5 feet
5											
10											

The test pit was terminated at approximately 2.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 2.8 ft. below ground surface. The test pit was backfilled on November 26, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]

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DATE:	2/22/2019
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TEST PIT LOG TP-2

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-2

Date Begin - End: 11/26/2018 **Excavation Company:** Pearson Excavation

TEST PIT LOG TP-3

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 7 ft

Weather: Sunny

Depth (feet)	Graphical Log	FIELD EXPLORATION Latitude: 36.53935° Longitude: -114.83417° Surface Condition: Typical cover of desert vegetation, with cobbles present Lithologic Description	Sample Type	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles									Easy to excavate Very difficult to excavate below 1 foot
5											
10											

The test pit was terminated at approximately 1 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1 ft. below ground surface. The test pit was backfilled on November 26, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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TEST PIT LOG TP-3

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-3

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer

Date Begin - End: 11/26/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 2 ft x 1 ft

Weather: Sunny

TEST PIT LOG TP-4

FIELD EXPLORATION

Latitude: 36.53266°
Longitude: -114.83389°
Surface Condition: Typical cover of desert vegetation, with cobbles present

LABORATORY RESULTS

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, slightly moist, low plasticity, brown, with cobbles		SC			82	41	23	9	**Resistivity (as Received)=**4450 Ohm-cm **Resistivity (Saturated)=**1550 Ohm-cm **Sodium=** 0.0019% **Sodium Sulfate=** 0.006% **Solubility=** 0.01% **pH=** 8.64 **Sulfates=** 0.0045% **Chlorides=** 40 mg/Kg **Redox=** 277 mV **Sulfides=** 27 mg/Kg **ASTM D1557 Method A=** Max. Dry Unit Wt.: 121.1 pcf Opt. Water Content: 11.7% Very difficult to excavate below 0.5 feet
5		The test pit was terminated at approximately 0.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 0.5 ft. below ground surface. The test pit was backfilled on November 26, 2018.									
10											

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

TEST PIT LOG TP-4

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-4

OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer

Date Begin - End: 11/26/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 8 ft

Weather: Sunny

TEST PIT LOG TP-5

Depth (feet)	Graphical Log	FIELD EXPLORATION Latitude: 36.54877° Longitude: -114.83014° Surface Condition: Typical cover of desert vegetation, with cobbles present Lithologic Description	Sample Type	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles									Easy to excavate Very difficult to excavate below 3 feet

The test pit was terminated at approximately 3 ft. below ground surface. Backhoe refusal on cemented soils at approximately 3 ft. below ground surface. The test pit was backfilled on November 26, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
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CHECKED BY:	MNM, JLS
DATE:	2/22/2019
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TEST PIT LOG TP-5

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-5

gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS

Date Begin - End: 11/27/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 6 ft

Weather: Sunny

TEST PIT LOG TP-6

Latitude: 36.54327°
Longitude: -114.83009°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty, Clayey SAND with Gravel (SC-SM): fine to coarse-grained sand, slightly moist, low plasticity, brown, with cobbles		SC-SM			74	41	25	5	Easy to excavate **Resistivity (as Received)=**880 Ohm-cm **Resistivity (Saturated)=**135 Ohm-cm **Sodium=** 0.07% **Sodium Sulfate=** 0.22% **Solubility=** 0.15% **pH=** 7.96 **Sulfates=** 0.22% **Chlorides=** 1200 mg/Kg **Redox=** 261 mV **Sulfides=** <0.5 mg/Kg Very difficult to excavate below 1.5 feet
5											
10											

The test pit was terminated at approximately 1.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1.5 ft. below ground surface. The test pit was backfilled on November 27, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
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TEST PIT LOG TP-6

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-6

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
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gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer

Date Begin - End: 11/26/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 7 ft

Weather: Sunny

TEST PIT LOG TP-7

Depth (feet)	Graphical Log	FIELD EXPLORATION Latitude: 36.53694° Longitude: -114.82986° Surface Condition: Typical cover of desert vegetation, with cobbles and boulders present Lithologic Description	Sample Type	LABORATORY RESULTS USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, slightly moist, low to medium plasticity, brown, with cobbles and boulders									Easy to excavate Very difficult to excavate below 1.5 feet

The test pit was terminated at approximately 1.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1.5 ft. below ground surface. The test pit was backfilled on November 26, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

TEST PIT LOG TP-7

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-7

gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS

Date Begin - End: 11/27/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 9 ft

Weather: Sunny

TEST PIT LOG TP-8

FIELD EXPLORATION

Latitude: 36.54626°
Longitude: -114.82438°
Surface Condition: Typical cover of desert vegetation, with cobbles and boulders present

LABORATORY RESULTS

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey GRAVEL with Sand (GC): fine to coarse-grained gravel, slightly moist, low plasticity, brown, with cobbles and boulders		GC			50	21	25	10	Easy to excavate **Resistivity (as Received)=**675 Ohm-cm **Resistivity (Saturated)=**100 Ohm-cm **Sodium=** 0.06% **Sodium Sulfate=** 0.19% **Solubility=** 0.18% **pH=** 7.89 **Sulfates=** 0.2% **Chlorides=** 1800 mg/Kg **Redox=** 284 mV **Sulfides=** 1.8 mg/Kg Very difficult to excavate below 2.5 feet

The test pit was terminated at approximately 2.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 2.5 ft. below ground surface. The test pit was backfilled on November 27, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
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TEST PIT LOG TP-8

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-8

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
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gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
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TEST PIT LOG TP-9

Date Begin - End:	11/26/2018	**Excavation Company:**	Pearson Excavation
Logged By:	A. Bajramovic	**Excavation Crew:**	Matt T.
Hor.-Vert. Datum:	WGS84	**Excavation Equip.:**	CASE 580, 18" Bucket
Plunge:	N/A degrees	**Excav. Dimensions:**	3 ft x 6 ft
Weather:	Sunny		

FIELD EXPLORATION

Latitude: 36.53067°
Longitude: -114.82995°
Surface Condition: Typical cover of desert vegetation, with cobbles and boulders present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, slightly moist, low to medium plasticity, brown, with cobbles and boulders									Very difficult to excavate below 1 foot

The test pit was terminated at approximately 1 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1 ft. below ground surface. The test pit was backfilled on November 26, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

5

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
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TEST PIT LOG TP-9

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-9

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
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gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB

Date Begin - End: 11/27/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 37 ft

Weather: Cloudy

TEST PIT LOG TP-10

Latitude: 36.54019°
Longitude: -114.82403°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, slightly moist, medium plasticity, brown, with cobbles		SC			67	27	30	13	Easy to excavate **Resistivity (as Received)=**9500 Ohm-cm **Resistivity (Saturated)=**2650 Ohm-cm **Sodium=** 0.0015% **Sodium Sulfate=** 0.0022% **Solubility=** 0.023% **pH=** 8.65 **Sulfates=** 0.0015% **Chlorides=** 25 mg/Kg **Redox=** 267 mV **Sulfides=** 1.5 mg/Kg Very difficult to excavate below 2 feet
5		The test pit was terminated at approximately 2 ft. below ground surface. Backhoe refusal on cemented soils at approximately 2 ft. below ground surface. The test pit was backfilled on November 27, 2018.									
10											

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
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DATE:	2/22/2019
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TEST PIT LOG TP-10

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-10

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
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PLOTTED: 02/26/2019 02:31 PM BY: MPalmer

Date Begin - End: 11/26/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 8 ft

Weather: Sunny

TEST PIT LOG TP-11

Depth (feet)	Graphical Log	FIELD EXPLORATION	Sample Type	LABORATORY RESULTS							
		Latitude: 36.53391° Longitude: -114.82417° Surface Condition: Typical cover of desert vegetation, with cobbles and boulders present Lithologic Description		USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles and boulders	X								Very difficult to excavate below 1 foot
5											
10											

The test pit was terminated at approximately 1 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1 ft. below ground surface. The test pit was backfilled on November 26, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
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DATE:	2/22/2019
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TEST PIT LOG TP-11

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-11

OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
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PLOTTED: 02/26/2019 02:31 PM BY: MPalmer

Date Begin - End: 11/26/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** N/A ft

Weather: Sunny

TEST PIT LOG TP-12

FIELD EXPLORATION

Latitude: 36.52817°
Longitude: -114.82722°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, slightly moist, low plasticity, brown, with cobbles		SC			79	35	29	12	**Resistivity (as Received)=**7200 Ohm-cm **Resistivity (Saturated)=**1250 Ohm-cm **Sodium=** 0.0023% **Sodium Sulfate=** 0.0073% **Solubility=** 0.012% **pH=** 8.48 **Sulfates=** 0.016% **Chlorides=** 20 mg/Kg **Redox=** 272 mV **Sulfides=** 1.2 mg/Kg **R-Value=** 25 Very difficult to excavate below 1 foot

The test pit was terminated at approximately 1 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1 ft. below ground surface. The test pit was backfilled on November 26, 2018.

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GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
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PROJECT NO.:	20191344
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CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

TEST PIT LOG TP-12

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-12

Date Begin - End: 11/26/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 6 ft

Weather: Sunny

TEST PIT LOG TP-13

FIELD EXPLORATION

Latitude: 36.52799°
Longitude: -114.82217°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles		SM			68	22	NP	NP	Easy to excavate **Resistivity (as Received)=**5500 Ohm-cm **Resistivity (Saturated)=**2700 Ohm-cm **Sodium=** 0.0015% **Sodium Sulfate=** 0.0046% **Solubility=** 0.0098% **pH=** 8.73 **Sulfates=** 0.0035% **Chlorides=** 0.0 mg/Kg **Redox=** 267 mV **Sulfides=** 1.3 mg/Kg Very difficult to excavate below 2 feet

The test pit was terminated at approximately 2 ft. below ground surface. Backhoe refusal on cemented soils at approximately 2 ft. below ground surface. The test pit was backfilled on November 26, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
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TEST PIT LOG TP-13

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-13

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
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TEST PIT LOG TP-14

Date Begin - End:	11/28/2018	**Excavation Company:**	Pearson Excavation
Logged By:	A. Bajramovic	**Excavation Crew:**	Matt T.
Hor.-Vert. Datum:	WGS84	**Excavation Equip.:**	CASE 580, 18" Bucket
Plunge:	N/A degrees	**Excav. Dimensions:**	3 ft x 7 ft
Weather:	Sunny		

FIELD EXPLORATION

Latitude: 36.54831°
Longitude: -114.81896°
Surface Condition: Typical cover of desert vegetation, with cobbles and boulders present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles and boulders									Easy to excavate Very difficult to excavate below 2 feet

The test pit was terminated at approximately 2 ft. below ground surface. Backhoe refusal on cemented soils at approximately 2 ft. below ground surface. The test pit was backfilled on November 28, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

TEST PIT LOG TP-14

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-14

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[_KLF_BORING/TEST PIT SOIL LOG]
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
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PLOTTED: 02/26/2019 02:31 PM BY: MPalmer

TEST PIT LOG TP-15

Date Begin - End:	11/28/2018	**Excavation Company:**	Pearson Excavation
Logged By:	A. Bajramovic	**Excavation Crew:**	Matt T.
Hor.-Vert. Datum:	WGS84	**Excavation Equip.:**	CASE 580, 18" Bucket
Plunge:	N/A degrees	**Excav. Dimensions:**	3 ft x 8 ft
Weather:	Sunny		

FIELD EXPLORATION

Latitude: 36.54273°
Longitude: -114.81884°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Sandy SILT (ML): slightly moist, non-plastic, brown		ML			95	67	NP	NP	Easy to excavate **Resistivity (as Received)=**9400 Ohm-cm **Resistivity (Saturated)=**3000 Ohm-cm **Sodium=** 0.0015% **Sodium Sulfate=** 0.0045% **Solubility=** 0.0082% **pH=** 8.79 **Sulfates=** 0.004% **Chlorides=** 35 mg/Kg **Redox=** 269 mV **Sulfides=** 0.76 mg/Kg **ASTM D1557 Method A=** Max. Dry Unit Wt.: 110.5 pcf Opt. Water Content: 14.7% **R-Value=** 50 Very difficult to excavate below 2.5 feet

The test pit was terminated at approximately 2.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 2.5 ft. below ground surface. The test pit was backfilled on November 28, 2018.

5

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GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

TEST PIT LOG TP-15

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-15

OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [L_KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer

Date Begin - End: 11/27/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 6 ft

Weather: Sunny

TEST PIT LOG TP-16

Depth (feet)	Graphical Log	FIELD EXPLORATION	Sample Type	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Latitude: 36.53655° Longitude: -114.81881° Surface Condition: Typical cover of desert vegetation									
		Lithologic Description									
		Poorly Graded GRAVEL with Silt and Sand (GP-GM): fine to coarse-grained gravel, slightly moist, non-plastic, brown, with cobbles and boulders	X								Very difficult to excavate below 1 foot
5											
10											

The test pit was terminated at approximately 1 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1 ft. below ground surface. The test pit was backfilled on November 27, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

TEST PIT LOG TP-16

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-16

OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End:	11/27/2018	**Excavation Company:**	Pearson Trencher	**TEST PIT LOG TP-17**
Logged By:	A. Bajramovic	**Excavation Crew:**	Matt T.	
Hor.-Vert. Datum:	WGS84	**Excavation Equip.:**	CASE 580, 18" Bucket	
Plunge:	N/A degrees	**Excav. Dimensions:**	3 ft x 8 ft	
Weather:	Sunny			

FIELD EXPLORATION

Latitude: 36.53042°
Longitude: -114.81882°
Surface Condition: Typical cover of desert vegetation, with cobbles and boulders present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles and boulders									Easy to excavate Very difficult to excavate below 2 feet

The test pit was terminated at approximately 2 ft. below ground surface. Backhoe refusal on cemented soils at approximately 2 ft. below ground surface. The test pit was backfilled on November 27, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

TEST PIT LOG TP-17

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-17

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer

Date Begin - End: 11/28/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 9 ft

Weather: Sunny

TEST PIT LOG TP-18

FIELD EXPLORATION

Latitude: 36.34312°
Longitude: -114.81441°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles									Easy to excavate Very difficult to excavate below 2 feet

The test pit was terminated at approximately 2 ft. below ground surface. Backhoe refusal on cemented soils at approximately 2 ft. below ground surface. The test pit was backfilled on November 28, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

5

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

TEST PIT LOG TP-18

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-18

OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_BORING/TEST PIT SOIL LOG]

TEST PIT LOG TP-19

Date Begin - End:	11/27/2018	**Excavation Company:**	Pearson Excavation
Logged By:	A. Bajramovic	**Excavation Crew:**	Matt T.
Hor.-Vert. Datum:	WGS84	**Excavation Equip.:**	CASE 580, 18" Bucket
Plunge:	N/A degrees	**Excav. Dimensions:**	3 ft x 13 ft
Weather:	Sunny		

FIELD EXPLORATION

Latitude: 36.53674°
Longitude: -114.81325°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0		**Silty SAND with Gravel (SM)**: fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles		SM			80	23	NP	NP	Easy to excavate to 8 feet **Resistivity (as Received)=**5200 Ohm-cm **Resistivity (Saturated)=**2100 Ohm-cm **Sodium=** 0.0012% **Sodium Sulfate=** 0.0038% **Solubility=** 0.01% **pH=** 8.69 **Sulfates=** 0.007% **Chlorides=** 30 mg/Kg **Redox=** 294 mV **Sulfides=** 0.61 mg/Kg **ASTM D1557 Method A=** Max. Dry Unit Wt.: 121.4 pcf Opt. Water Content: 12.5%
5											
10											

The test pit was terminated at approximately 8 ft. below ground surface.
The test pit was backfilled on November 27, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

TEST PIT LOG TP-19

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-19

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[_KLF_BORING/TEST PIT SOIL LOG]
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer

Date Begin - End: 11/27/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 7 ft

Weather: Sunny

TEST PIT LOG TP-20

Latitude: 36.53116°
Longitude: -114.81512°
Surface Condition: Typical cover of desert vegetation, with cobbles present

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND with Gravel (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles		SM			60	18	NP	NP	**Resistivity (as Received)=**3950 Ohm-cm **Resistivity (Saturated)=**3290 Ohm-cm **Sodium=** 0.0016% **Sodium Sulfate=** 0.0049% **Solubility=** 0.019% **pH=** 8.71 **Sulfates=** 0.0035% **Chlorides=** 25 mg/Kg **Redox=** 176 mV **Sulfides=** 2.3 mg/Kg Very difficult to excavate below 1.5 feet

The test pit was terminated at approximately 1.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1.5 ft. below ground surface. The test pit was backfilled on November 27, 2018.

5

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GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
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TEST PIT LOG TP-20

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-20

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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS

TEST PIT LOG TP-21

Date Begin - End:	11/28/2018	**Excavation Company:**	Pearson Excavation
Logged By:	A. Bajramovic	**Excavation Crew:**	Matt T.
Hor.-Vert. Datum:	WGS84	**Excavation Equip.:**	CASE 580, 18" Bucket
Plunge:	N/A degrees	**Excav. Dimensions:**	3 ft x 14 ft
Weather:	Sunny		

FIELD EXPLORATION

Latitude: 36.54320°
Longitude: -114.80993°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, slightly moist, low plasticity, brown		SC			73	23	28	10	Easy to excavate to 8 feet **Resistivity (as Received)=**4600 Ohm-cm **Resistivity (Saturated)=**1400 Ohm-cm **Sodium=** 0.0072% **Sodium Sulfate=** 0.012% **Solubility=** 0.023% **pH=** 8.67 **Sulfates=** 0.008% **Chlorides=** 70 mg/Kg **Redox=** 133 mV **Sulfides=** <0.5 mg/Kg
5		**Fat CLAY (CH)**: slightly moist, high plasticity, brown, with gypsum		CH				96	74	54	**Resistivity (as Received)=**900 Ohm-cm **Resistivity (Saturated)=**180 Ohm-cm **Sodium=** 0.11% **Sodium Sulfate=** 0.35% **Solubility=** 0.32% **pH=** 8.29 **Sulfates=** 0.8% **Chlorides=** 520 mg/Kg **Redox=** 195 mV **Sulfides=** <0.5 mg/Kg
10											

The test pit was terminated at approximately 8 ft. below ground surface.
The test pit was backfilled on November 28, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
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TEST PIT LOG TP-21

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-21

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[_KLF_BORING/TEST PIT SOIL LOG]
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB

Date Begin - End: 11/27/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 6 ft

Weather: Sunny

TEST PIT LOG TP-22

Depth (feet)	Graphical Log	FIELD EXPLORATION	Sample Type	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Latitude: 36.53146° Longitude: -114.81001° Surface Condition: Typical cover of desert vegetation, with cobbles present									
		Lithologic Description									
		Silty SAND with Gravel (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles									Very difficult to excavate below 1.5 feet
5											
10											

The test pit was terminated at approximately 1.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1.5 ft. below ground surface. The test pit was backfilled on November 27, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
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TEST PIT LOG TP-22

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-22

PLOTTED: 02/26/2019 02:31 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[_KLF_BORING/TEST PIT SOIL LOG]
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB

Date Begin - End: 11/28/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 8 ft

Weather: Sunny

TEST PIT LOG TP-23

Latitude: 36.54145°
Longitude: -114.80707°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty SAND (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown		SM			88	33	NP	NP	Easy to excavate **Resistivity (as Received)=**9800 Ohm-cm **Resistivity (Saturated)=**3100 Ohm-cm **Sodium=** 0.0011% **Sodium Sulfate=** 0.0034% **Solubility=** 0.0086% **pH=** 8.55 **Sulfates=** 0.0065% **Chlorides=** 20 mg/Kg **Redox=** 198 mV **Sulfides=** <0.5 mg/Kg **ASTM D1557 Method A=** Max. Dry Unit Wt.: 106.3 pcf Opt. Water Content: 14.3% Very difficult to excavate below 3 feet

The test pit was terminated at approximately 3 ft. below ground surface. Backhoe refusal on cemented soils at approximately 3 ft. below ground surface. The test pit was backfilled on November 28, 2018.

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GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
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DATE:	2/22/2019
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TEST PIT LOG TP-23

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-23

PLOTTED: 02/26/2019 02:32 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
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gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
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TEST PIT LOG TP-24

Date Begin - End:	11/28/2018	**Excavation Company:**	Pearson Excavation
Logged By:	A. Bajramovic	**Excavation Crew:**	Matt T.
Hor.-Vert. Datum:	WGS84	**Excavation Equip.:**	CASE 580, 18" Bucket
Plunge:	N/A degrees	**Excav. Dimensions:**	3 ft x 8 ft
Weather:	Sunny		

FIELD EXPLORATION | LABORATORY RESULTS

Latitude: 36.53772°
Longitude: -114.80322°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0		**Silty SAND with Gravel (SM)**: fine to coarse-grained sand, slightly moist, non-plastic, brown									Easy to excavate
		Poorly Graded GRAVEL with Silt and Sand (GP-GM): fine to coarse-grained sand, slightly moist, non-plastic, brown									Very difficult to excavate below 2.5 feet
5											
10											

The test pit was terminated at approximately 2.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 2.5 ft. below ground surface. The test pit was backfilled on November 28, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.
GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

TEST PIT LOG TP-24

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-24

PLOTTED: 02/26/2019 02:32 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[L_KLF_BORING/TEST PIT SOIL LOG]
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB

Date Begin - End: 11/28/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** N/A ft

Weather: Sunny

TEST PIT LOG TP-25

Latitude: 36.55183°
Longitude: -114.78456°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Clayey SAND with Gravel (SC): fine to coarse-grained sand, slightly moist, medium plasticity, brown		SC			69	21	37	13	Easy to excavate to 8 feet **Resistivity (as Received)=**26500 Ohm-cm **Resistivity (Saturated)=**3200 Ohm-cm **Sodium=** 0.0016% **Sodium Sulfate=** 0.0015% **Solubility=** 0.0092% **pH=** 8.49 **Sulfates=** 0.001% **Chlorides=** 25 mg/Kg **Redox=** 198 mV **Sulfides=** <0.5 mg/Kg
5		**Fat CLAY (CH)**: slightly moist, high plasticity, brown, with gypsum		CH				86	72	55	
10											

The test pit was terminated at approximately 8 ft. below ground surface.
The test pit was backfilled on November 28, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
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TEST PIT LOG TP-25

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-25

PLOTTED: 02/26/2019 02:32 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
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gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB

Date Begin - End:	11/28/2018	**Excavation Company:**	Pearson Excavation	**TEST PIT LOG TP-26**
Logged By:	A. Bajramovic	**Excavation Crew:**	Matt T.	
Hor.-Vert. Datum:	WGS84	**Excavation Equip.:**	CASE 580, 18" Bucket	
Plunge:	N/A degrees	**Excav. Dimensions:**	2.5 ft x 7 ft	
Weather:	Sunny			

FIELD EXPLORATION

Latitude: 36.54161°
Longitude: -114.79876°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Silty, Clayey SAND with Gravel (SC-SM): fine to coarse-grained sand, slightly moist, low plasticity, brown		SC-SM			85	39	25	6	**Resistivity (as Received)=**6650 Ohm-cm **Resistivity (Saturated)=**3460 Ohm-cm **Sodium=** 0.00097% **Sodium Sulfate=** 0.003% **Solubility=** 0.016% **pH=** 8.66 **Sulfates=** 0.0035% **Chlorides=** 0.0 mg/Kg **Redox=** 211 mV **Sulfides=** 4.7 mg/Kg **ASTM D1557 Method A=** Max. Dry Unit Wt.: 117.4 pcf Opt. Water Content: 12.6% Very difficult to excavate below 1.5 feet

The test pit was terminated at approximately 1.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1.5 ft. below ground surface. The test pit was backfilled on November 28, 2018.

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GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

TEST PIT LOG TP-26

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-26

PLOTTED: 02/26/2019 02:32 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [L_KLF_BORING/TEST PIT SOIL LOG]

Date Begin - End: 11/28/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 7 ft

Weather: Sunny

TEST PIT LOG TP-27

Depth (feet)	Graphical Log	FIELD EXPLORATION	Sample Type	LABORATORY RESULTS: USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
		Latitude: 36.55564° Longitude: -114.78935° Surface Condition: Typical cover of desert vegetation									
		Lithologic Description									
		Silty SAND with Gravel (SM): fine to coarse-grained sand, slightly moist, non-plastic, brown, with cobbles									Very difficult to excavate below 1.5 feet

The test pit was terminated at approximately 1.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1.5 ft. below ground surface. The test pit was backfilled on November 28, 2018.

GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
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TEST PIT LOG TP-27

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-27

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PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/26/2019 02:32 PM BY: MPalmer

PLOTTED: 02/26/2019 02:32 PM BY: MPalmer

Date Begin - End: 11/28/2018 **Excavation Company:** Pearson Excavation

Logged By: A. Bajramovic **Excavation Crew:** Matt T.

Hor.-Vert. Datum: WGS84 **Excavation Equip.:** CASE 580, 18" Bucket

Plunge: N/A degrees **Excav. Dimensions:** 3 ft x 8 ft

Weather: Sunny

TEST PIT LOG TP-28

Latitude: 36.55103°
Longitude: -114.79032°
Surface Condition: Typical cover of desert vegetation

Depth (feet)	Graphical Log	Lithologic Description	Sample Type	USCS Symbol	Water Content (%)	Dry Unit Wt. (pcf)	Passing #4 (%)	Passing #200 (%)	Liquid Limit	Plasticity Index (NP=NonPlastic)	Additional Tests/ Remarks
0		**Silty GRAVEL with Sand (GM)**: fine to coarse-grained gravel, slightly moist, non-plastic, brown		GM			59	24	NP	NP	**Resistivity (as Received)=**10500 Ohm-cm **Resistivity (Saturated)=**2750 Ohm-cm **Sodium=** 0.0011% **Sodium Sulfate=** 0.0015% **Solubility=** 0.0084% **pH=** 8.48 **Sulfates=** 0.001% **Chlorides=** 0.0 mg/Kg **Redox=** 220 mV **Sulfides=** 0.84 mg/Kg **ASTM D1557 Method C=** Max. Dry Unit Wt.: 114.3 pcf Opt. Water Content: 13.5% Very difficult to excavate below 1.5 feet

The test pit was terminated at approximately 1.5 ft. below ground surface. Backhoe refusal on cemented soils at approximately 1.5 ft. below ground surface. The test pit was backfilled on November 28, 2018.

5

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GROUNDWATER LEVEL INFORMATION:
Groundwater was not observed during excavation or after completion.

GENERAL NOTES:
Latitude and longitude obtained using a hand held GPS unit.

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DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
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TEST PIT LOG TP-28

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TEST PIT

TP-28

OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.001a.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [L_KLF_BORING/TEST PIT SOIL LOG]

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Appendix C

APPENDIX C

Laboratory Test Results (38 pages)

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Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
SA-4	0.5 - 5.0	CEMENTED SAND AND GRAVEL			95	84	28	22	17	5	*__Resistivity (as Received)=__49000 Ohm-cm
											__Resistivity (Saturated)=__4100 Ohm-cm
											__Sodium=__ 0.0023%
											__Sodium Sulfate=__ 0.0072%
											__Solubility=__ 0.01%
											__pH=__ 8.88
											__Sulfates=__ 0.009%
											__Chlorides=__ 25 mg/Kg
											__Redox=__ 197 mV
											__Sulfides=__ 1.6 mg/Kg
											ASTM D1557 Method A=
											Uncorrected Maximum Dry Unit Weight: 129.7 pcf
											Uncorrected Optimum Water Content: 8.5%
											Corrected Maximum Dry Unit Weight: 136.6
											Corrected Optimum Water Content: 6.6
SA-4	15.0	SANDY ELASTIC SILT (MH)	16.9				67	69	38	31	
SA-5	21.5	FAT CLAY (CH)	19.5	103.9							
SA-8	2.5	SILTY SAND WITH GRAVEL (SM)	5.8								
SA-10	15.0	SANDY FAT CLAY (CH)	19.3								
SA-11	2.5	CLAYEY SAND WITH GRAVEL (SC)	0.9								
SA-15	20.0	LEAN CLAY (CL)	17.8								

NOTE:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-1

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
SA-20	2.5 - 5.0	CLAYEY SAND WITH GRAVEL (SC)			89	77	26	81	33	48	**Resistivity (as Received)=**8000 Ohm-cm
											Resistivity (Saturated)=745 Ohm-cm
											Sodium= 0.021%
											Sodium Sulfate= 0.065%
											Solubility= 0.032%
											pH= 8.48
											Sulfates= 0.06%
											Chlorides= 180 mg/Kg
											Redox= 201 mV
											Sulfides= <0.5 mg/Kg
											ASTM D1557 Method A=
											Uncorrected Maximum Dry Unit Weight: 115.0 pcf
											Uncorrected Optimum Water Content: 13.3%
											Corrected Maximum Dry Unit Weight: 124.0
											Corrected Optimum Water Content: 10.1
SA-20	15.0	CLAYEY SAND (SC)					35	86	28	58	
SA-20	20.0	FAT CLAY (CH)					89	64	19	45	

NOTE:
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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-2

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
SA-21	5.0	SANDY LEAN CLAY (CL)					69	43	24	19	**Expansion/Compression=**
											Expansion= 2.8% under 600 psf when wetted.
											Expansion/Compression=
											Expansion= 11.8% under 60 psf when wetted.
											Resistivity (as Received)=12500 Ohm-cm
											Resistivity (Saturated)=1600 Ohm-cm
											Sodium= 0.0086%
											Sodium Sulfate= 0.0089%
											Solubility= 0.0098%
											pH= 8.75
											Sulfates= 0.006%
											Chlorides= 60 mg/Kg
											Redox= 231 mV
											Sulfides= 0.77 mg/Kg
SA-21	10.0	ELASTIC SILT (MH)					95	63	32	31	
SA-22	10.0 - 15.0	SILTY SAND (SM)			95	93	49	58	32	26	
SA-22	15.0	SILTY SAND (SM)	6.4								

NOTE:
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NP = NonPlastic

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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-3

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
SA-24	2.5 - 7.5	CEMENTED SAND AND GRAVEL			98	78	23	28	22	6	*__Resistivity (as Received)=__16000 Ohm-cm
											__Resistivity (Saturated)=__1720 Ohm-cm
											__Sodium=__ 0.0042%
											__Sodium Sulfate=__ 0.013%
											__Solubility=__ 0.014%
											__pH=__ 8.74
											__Sulfates=__ 0.028%
											__Chlorides=__ 45 mg/Kg
											__Redox=__ 229 mV
											__Sulfides=__ 2.1 mg/Kg
											__ASTM D1557 Method A=__
											Uncorrected Maximum Dry Unit Weight: 130.1 pcf
											Uncorrected Optimum Water Content: 8.9%
											Corrected Maximum Dry Unit Weight: 136.7
											Corrected Optimum Water Content: 6.7
SA-24	20.0	ELASTIC SILT (MH)	14.2				98	70	36	34	
SA-24	25.0	ELASTIC SILT (MH)	13.5	114.2							

NOTE:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.

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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-4

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
SA-25	2.5 - 7.5	CEMENTED SAND AND GRAVEL			100	82	25	29	20	9	*__Resistivity (as Received)=__5100 Ohm-cm
											__Resistivity (Saturated)=__800 Ohm-cm
											__Sodium=__ 0.018%
											__Sodium Sulfate=__ 0.055%
											__Solubility=__ 0.036%
											__pH=__ 8.52
											__Sulfates=__ 0.075%
											__Chlorides=__ 140 mg/Kg
											__Redox=__ 242 mV
											__Sulfides=__ 0.85 mg/Kg
											__ASTM D1557 Method A=__
											Uncorrected Maximum Dry Unit Weight: 127.6 pcf
											Uncorrected Optimum Water Content: 9.6%
											Corrected Maximum Dry Unit Weight: 133.4
											Corrected Optimum Water Content: 7.8
SA-26	5.0	SANDY LEAN CLAY (CL)					70	30	17	13	__Expansion/Compression=__
											Expansion= 6.7% under 600 psf when wetted.
											__Expansion/Compression=__
											Expansion= 21.7% under 60 psf when wetted.
SA-26	10.0	LEAN CLAY (CL)					97	38	21	17	__Expansion/Compression=__
											Expansion= 3.3% under 1,200 psf when wetted.
SA-26	15.0	LEAN CLAY (CL)	13.3								

NOTE:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.

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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
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TABLE
C-5

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
SA-27	2.5 - 7.0	CEMENTED SAND AND GRAVEL			94	70	21	32	25	7	*__Resistivity (as Received)=__26500 Ohm-cm
											__Resistivity (Saturated)=__3100 Ohm-cm
											__Sodium=__ 0.005%
											__Sodium Sulfate=__ 0.013%
											__Solubility=__ 0.017%
											__pH=__ 8.87
											__Sulfates=__ 0.009%
											__Chlorides=__ 45 mg/Kg
											__Redox=__ 246 mV
											__Sulfides=__ 0.64 mg/Kg
											__ASTM D1557 Method B=__
											Uncorrected Maximum Dry Unit Weight: 129.3 pcf
											Uncorrected Optimum Water Content: 9.3%
											Corrected Maximum Dry Unit Weight: 138.5
											Corrected Optimum Water Content: 6.6
SA-27	10.0	CLAYEY SAND (SC)					28				
SA-27	15.0	ELASTIC SILT WITH SAND (MH)	13.3				73	62	34	28	__Resistivity (as Received)=__1000 Ohm-cm
											__Resistivity (Saturated)=__330 Ohm-cm
											__Sodium=__ 0.015%
											__Sodium Sulfate=__ 0.046%
											__Solubility=__ 0.13%
											__pH=__ 8.3
											__Sulfates=__ 0.41%
											__Chlorides=__ 120 mg/Kg
											__Redox=__ 273 mV
											__Sulfides=__ 0.56 mg/Kg
SA-28	10.0	LEAN CLAY WITH SAND (CL)					81	31	18	13	
SA-28	15.0	LEAN CLAY (CL)	16.2								

NOTE:
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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-6

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
SB-1	15.0	SILTY SAND (SM)					46	56	31	25	
SB-1	20.0	SANDY ELASTIC SILT (MH)	12.1	117.7			50	61	33	28	
SB-1	30.0	FAT CLAY WITH SAND (CH)	17.3				84	68	25	43	
SB-1	45.0	LEAN CLAY WITH SAND (CL)					76	49	27	22	
TP-1	0.0 - 1.0	SILTY SAND WITH GRAVEL (SM)			96	74	27	NP	NP	NP	**Resistivity (as Received)=**4200 Ohm-cm
											Resistivity (Saturated)=2700 Ohm-cm
											Sodium= 0.0021%
											Sodium Sulfate= 0.0065%
											Solubility= 0.0074%
											pH= 8.7
											Sulfates= 0.008%
											Chlorides= 25 mg/Kg
											Redox= 251 mV
											Sulfides= 2.5 mg/Kg
											R-Value= 52

NOTE:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.

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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-7

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
TP-4	0.0 - 0.5	CLAYEY SAND WITH GRAVEL (SC)			92	82	41	23	14	9	**Resistivity (as Received)=**4450 Ohm-cm
											Resistivity (Saturated)=1550 Ohm-cm
											Sodium= 0.0019%
											Sodium Sulfate= 0.006%
											Solubility= 0.01%
											pH= 8.64
											Sulfates= 0.0045%
											Chlorides= 40 mg/Kg
											Redox= 277 mV
											Sulfides= 27 mg/Kg
											ASTM D1557 Method A=
											Uncorrected Maximum Dry Unit Weight: 121.1 pcf
											Uncorrected Optimum Water Content: 11.7%
											Corrected Maximum Dry Unit Weight: 127.2
											Corrected Optimum Water Content: 9.5
TP-6	0.0 - 1.0	SILTY, CLAYEY SAND WITH GRAVEL (SC-SM)			84	74	41	25	20	5	**Resistivity (as Received)=**880 Ohm-cm
											Resistivity (Saturated)=135 Ohm-cm
											Sodium= 0.07%
											Sodium Sulfate= 0.22%
											Solubility= 0.15%
											pH= 7.96
											Sulfates= 0.22%
											Chlorides= 1200 mg/Kg
											Redox= 261 mV
											Sulfides= <0.5 mg/Kg

NOTE:
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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-8

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
TP-8	0.0 - 1.0	CLAYEY GRAVEL WITH SAND (GC)			79	50	21	25	15	10	**Resistivity (as Received)=**675 Ohm-cm
											Resistivity (Saturated)=100 Ohm-cm
											Sodium= 0.06%
											Sodium Sulfate= 0.19%
											Solubility= 0.18%
											pH= 7.89
											Sulfates= 0.2%
											Chlorides= 1800 mg/Kg
											Redox= 284 mV
											Sulfides= 1.8 mg/Kg
TP-10	0.0 - 1.0	CLAYEY SAND WITH GRAVEL (SC)			83	67	27	30	17	13	**Resistivity (as Received)=**9500 Ohm-cm
											Resistivity (Saturated)=2650 Ohm-cm
											Sodium= 0.0015%
											Sodium Sulfate= 0.0022%
											Solubility= 0.023%
											pH= 8.65
											Sulfates= 0.0015%
											Chlorides= 25 mg/Kg
											Redox= 267 mV
											Sulfides= 1.5 mg/Kg

NOTE:
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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-9

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
TP-12	0.0 - 1.0	CLAYEY SAND WITH GRAVEL (SC)			91	79	35	29	17	12	**Resistivity (as Received)=**7200 Ohm-cm
											Resistivity (Saturated)=1250 Ohm-cm
											Sodium= 0.0023%
											Sodium Sulfate= 0.0073%
											Solubility= 0.012%
											pH= 8.48
											Sulfates= 0.016%
											Chlorides= 20 mg/Kg
											Redox= 272 mV
											Sulfides= 1.2 mg/Kg
											R-Value= 25
TP-13	0.0 - 1.0	SILTY SAND WITH GRAVEL (SM)			82	68	22	NP	NP	NP	**Resistivity (as Received)=**5500 Ohm-cm
											Resistivity (Saturated)=2700 Ohm-cm
											Sodium= 0.0015%
											Sodium Sulfate= 0.0046%
											Solubility= 0.0098%
											pH= 8.73
											Sulfates= 0.0035%
											Chlorides= 0.0 mg/Kg
											Redox= 267 mV
											Sulfides= 1.3 mg/Kg

NOTE:
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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-10

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
TP-15	0.0 - 1.0	SANDY SILT (ML)			100	95	67	NP	NP	NP	**Resistivity (as Received)=**9400 Ohm-cm
											Resistivity (Saturated)=3000 Ohm-cm
											Sodium= 0.0015%
											Sodium Sulfate= 0.0045%
											Solubility= 0.0082%
											pH= 8.79
											Sulfates= 0.004%
											Chlorides= 35 mg/Kg
											Redox= 269 mV
											Sulfides= 0.76 mg/Kg
											R-Value= 50
											ASTM D1557 Method A=
											Uncorrected Maximum Dry Unit Weight: 110.5 pcf
											Uncorrected Optimum Water Content: 14.7%
											Corrected Maximum Dry Unit Weight: 112.5
											Corrected Optimum Water Content: 13.9

NOTE:
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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-11

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
TP-19	0.0 - 1.0	SILTY SAND WITH GRAVEL (SM)			93	80	23	NP	NP	NP	**Resistivity (as Received)=**5200 Ohm-cm
											Resistivity (Saturated)=2100 Ohm-cm
											Sodium= 0.0012%
											Sodium Sulfate= 0.0038%
											Solubility= 0.01%
											pH= 8.69
											Sulfates= 0.007%
											Chlorides= 30 mg/Kg
											Redox= 294 mV
											Sulfides= 0.61 mg/Kg
											ASTM D1557 Method A=
											Uncorrected Maximum Dry Unit Weight: 121.4 pcf
											Uncorrected Optimum Water Content: 12.5%
											Corrected Maximum Dry Unit Weight: 128.3
											Corrected Optimum Water Content: 10.1
TP-20	0.0 - 1.0	SILTY SAND WITH GRAVEL (SM)			83	60	18	NP	NP	NP	**Resistivity (as Received)=**3950 Ohm-cm
											Resistivity (Saturated)=3290 Ohm-cm
											Sodium= 0.0016%
											Sodium Sulfate= 0.0049%
											Solubility= 0.019%
											pH= 8.71
											Sulfates= 0.0035%
											Chlorides= 25 mg/Kg
											Redox= 176 mV
											Sulfides= 2.3 mg/Kg

NOTE:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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PROJECT NO.: 20191344
DRAWN BY: AB
CHECKED BY: MM
DATE: 2/22/2019
REVISED: -

LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-12

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
TP-21	0.0 - 1.0	CLAYEY SAND WITH GRAVEL (SC)			90	73	23	28	18	10	**Resistivity (as Received)=**4600 Ohm-cm
											Resistivity (Saturated)=1400 Ohm-cm
											Sodium= 0.0072%
											Sodium Sulfate= 0.012%
											Solubility= 0.023%
											pH= 8.67
											Sulfates= 0.008%
											Chlorides= 70 mg/Kg
											Redox= 133 mV
											Sulfides= <0.5 mg/Kg
TP-21	4.0 - 8.0	FAT CLAY (CH)					96	74	20	54	**Resistivity (as Received)=**900 Ohm-cm
											Resistivity (Saturated)=180 Ohm-cm
											Sodium= 0.11%
											Sodium Sulfate= 0.35%
											Solubility= 0.32%
											pH= 8.29
											Sulfates= 0.8%
											Chlorides= 520 mg/Kg
											Redox= 195 mV
											Sulfides= <0.5 mg/Kg

NOTE:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-13

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
TP-23	0.0 - 1.0	SILTY SAND (SM)			96	88	33	NP	NP	NP	**Resistivity (as Received)=**9800 Ohm-cm
											Resistivity (Saturated)=3100 Ohm-cm
											Sodium= 0.0011%
											Sodium Sulfate= 0.0034%
											Solubility= 0.0086%
											pH= 8.55
											Sulfates= 0.0065%
											Chlorides= 20 mg/Kg
											Redox= 198 mV
											Sulfides= <0.5 mg/Kg
											ASTM D1557 Method A=
											Uncorrected Maximum Dry Unit Weight: 106.3 pcf
											Uncorrected Optimum Water Content: 14.3%
											Corrected Maximum Dry Unit Weight: 111.1
											Corrected Optimum Water Content: 12.9
TP-25	0.0 - 1.0	CLAYEY SAND WITH GRAVEL (SC)			87	69	21	37	24	13	**Resistivity (as Received)=**26500 Ohm-cm
											Resistivity (Saturated)=3200 Ohm-cm
											Sodium= 0.0016%
											Sodium Sulfate= 0.0015%
											Solubility= 0.0092%
											pH= 8.49
											Sulfates= 0.001%
											Chlorides= 25 mg/Kg
											Redox= 198 mV
											Sulfides= <0.5 mg/Kg
TP-25	3.0 - 4.0	FAT CLAY (CH)					86	72	17	55	

NOTE:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-14

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
TP-26	0.0 - 1.0	SILTY, CLAYEY SAND WITH GRAVEL (SC-SM)			92	85	39	25	19	6	**Resistivity (as Received)=**6650 Ohm-cm
											Resistivity (Saturated)=3460 Ohm-cm
											Sodium= 0.00097%
											Sodium Sulfate= 0.003%
											Solubility= 0.016%
											pH= 8.66
											Sulfates= 0.0035%
											Chlorides= 0.0 mg/Kg
											Redox= 211 mV
											Sulfides= 4.7 mg/Kg
											ASTM D1557 Method A=
											Uncorrected Maximum Dry Unit Weight: 117.4 pcf
											Uncorrected Optimum Water Content: 12.6%
											Corrected Maximum Dry Unit Weight: 122.7
											Corrected Optimum Water Content: 10.8

NOTE:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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DRAWN BY:	AB
CHECKED BY:	MM
DATE:	2/22/2019
REVISED:	-

LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-15

Exploration ID	Depth (ft.)	Sample Description	Water Content (%)	Dry Unit Wt. (pcf)	Sieve Analysis (%)			Atterberg Limits			Additional Tests
					Passing 3/4"	Passing #4	Passing #200	Liquid Limit	Plastic Limit	Plasticity Index	
TP-28	0.0 - 1.0	SILTY GRAVEL WITH SAND (GM)			77	59	24	NP	NP	NP	**Resistivity (as Received)=**10500 Ohm-cm
											Resistivity (Saturated)=2750 Ohm-cm
											Sodium= 0.0011%
											Sodium Sulfate= 0.0015%
											Solubility= 0.0084%
											pH= 8.48
											Sulfates= 0.001%
											Chlorides= 0.0 mg/Kg
											Redox= 220 mV
											Sulfides= 0.84 mg/Kg
											ASTM D1557 Method C=
											Uncorrected Maximum Dry Unit Weight: 114.3 pcf
											Uncorrected Optimum Water Content: 13.5%
											Corrected Maximum Dry Unit Weight: 123.1
											Corrected Optimum Water Content: 10.6

NOTE:
*Gradation, Atterberg Limits, Chemical Test, and Modified Proctor test data is representative of Cemented Sand and Gravel broken by the augers and sampled from the returns.

Refer to the Geotechnical Evaluation Report or the supplemental plates for the method used for the testing performed above.
NP = NonPlastic

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PROJECT NO.:	20191344
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CHECKED BY:	MM
DATE:	2/22/2019
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LABORATORY TEST RESULT SUMMARY

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

TABLE
C-16

PLOTTED: 02/22/2019 12:14 PM BY: MPalmer
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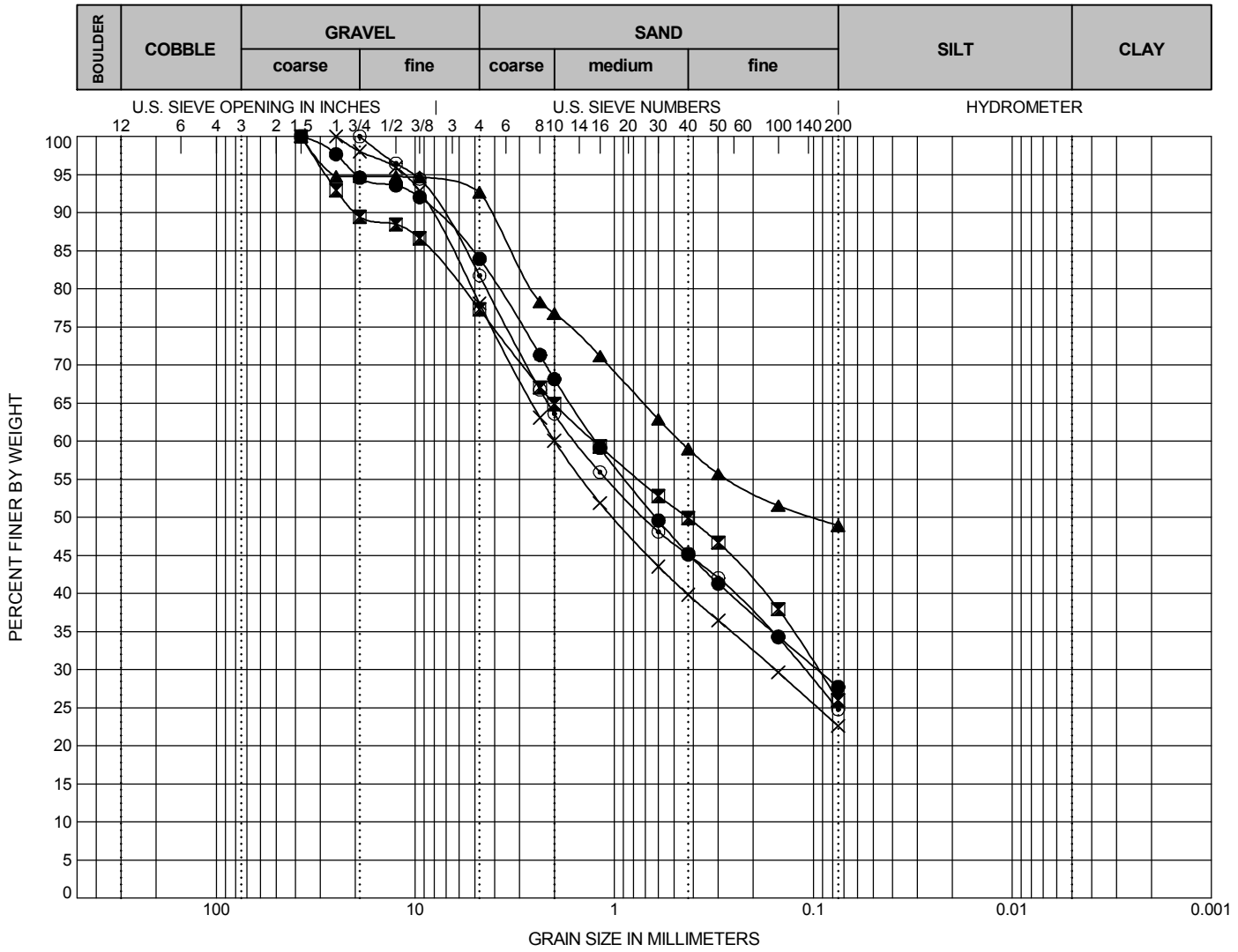

Exploration ID		Depth (ft.)	Sample Description	LL	PL	PI
●	SA-4	0.5 - 5	CEMENTED SAND AND GRAVEL	22	17	5
⊠	SA-20	2.5 - 5	CLAYEY SAND with GRAVEL (SC)	81	33	48
▲	SA-22	10 - 15	SILTY SAND (SM)	58	32	26
×	SA-24	2.5 - 7.5	CEMENTED SAND AND GRAVEL	28	22	6
⊙	SA-25	2.5 - 7.5	CEMENTED SAND AND GRAVEL	29	20	9

Exploration ID		Depth (ft.)	D_{100}	D_{60}	D_{30}	D_{10}	Cc	Cu	Passing 3/4"	Passing #4	Passing #200	%Silt	%Clay
●	SA-4	0.5 - 5	37.5	1.243	0.095	NM	NM	NM	95	84	28	NM	NM
⊠	SA-20	2.5 - 5	37.5	1.263	0.095	NM	NM	NM	89	77	26	NM	NM
▲	SA-22	10 - 15	37.5	0.466	NM	NM	NM	NM	95	93	49	NM	NM
×	SA-24	2.5 - 7.5	25	1.996	0.156	NM	NM	NM	98	78	23	NM	NM
⊙	SA-25	2.5 - 7.5	19	1.563	0.11	NM	NM	NM	100	82	25	NM	NM

Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D422.
NP = Nonplastic
NM = Not Measured

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
Coefficients of Curvature - $C_C = (D_{30})^2 / D_{60} D_{10}$
D_{60} = Grain diameter at 60% passing
D_{30} = Grain diameter at 30% passing
D_{10} = Grain diameter at 10% passing

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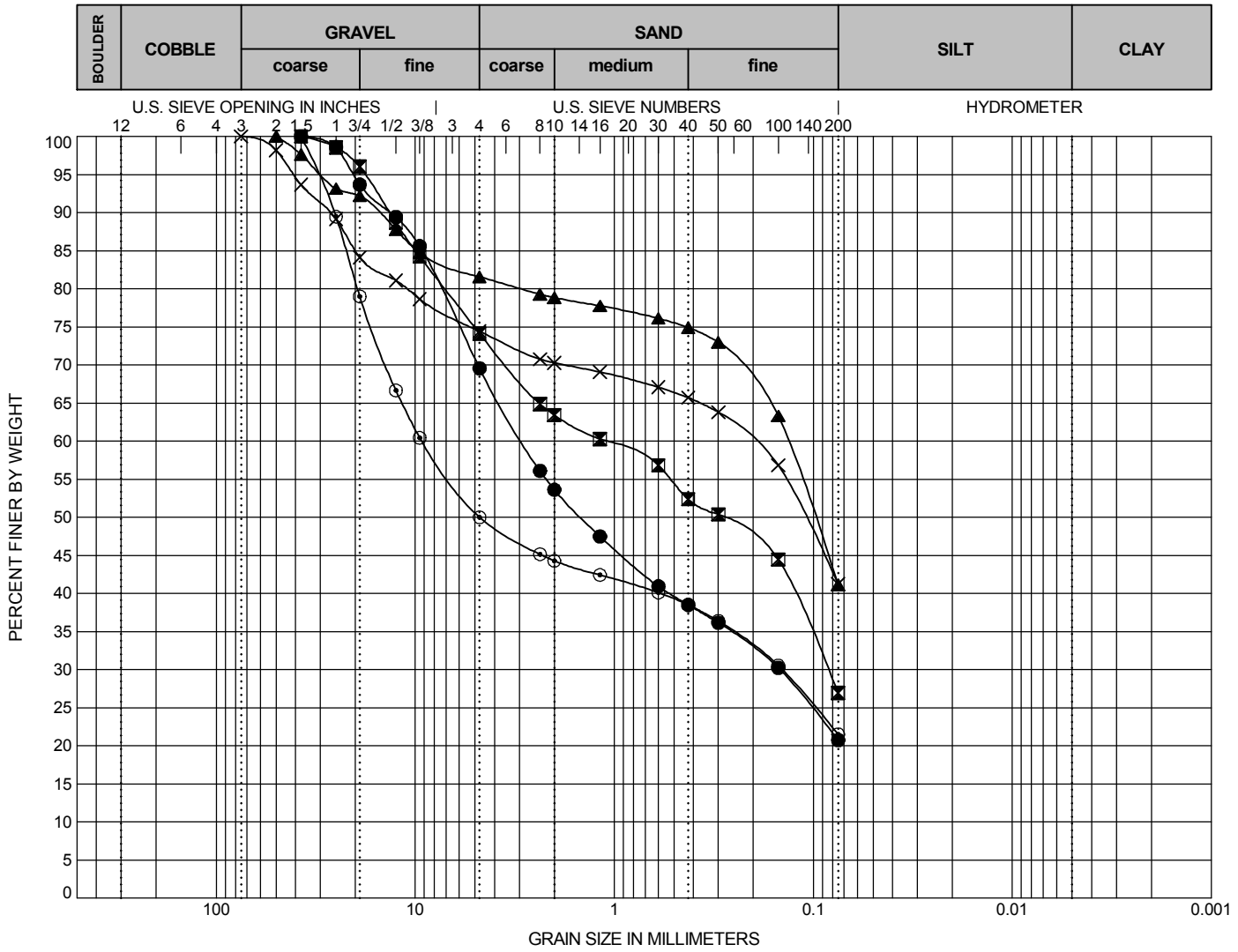
PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	JLS
DATE:	2/22/2019
REVISED:	-

SIEVE ANALYSIS

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE
C-17



Exploration ID		Depth (ft.)	Sample Description	LL	PL	PI
●	SA-27	2.5 - 7	CEMENTED SAND AND GRAVEL	32	25	7
⊠	TP-1	0 - 1	SILTY SAND with GRAVEL (SM)	NP	NP	NP
▲	TP-4	0 - 0.5	CLAYEY SAND with GRAVEL (SC)	23	14	9
×	TP-6	0 - 1	SILTY, CLAYEY SAND with GRAVEL (SC-SM)	25	20	5
⊙	TP-8	0 - 1	CLAYEY GRAVEL with SAND (GC)	25	15	10

Exploration ID		Depth (ft.)	D_{100}	D_{60}	D_{30}	D_{10}	Cc	Cu	Passing 3/4"	Passing #4	Passing #200	%Silt	%Clay
●	SA-27	2.5 - 7	37.5	2.892	0.148	NM	NM	NM	94	70	21	NM	NM
⊠	TP-1	0 - 1	37.5	1.119	0.085	NM	NM	NM	96	74	27	NM	NM
▲	TP-4	0 - 0.5	50	0.135	NM	NM	NM	NM	92	82	41	NM	NM
×	TP-6	0 - 1	75	0.206	NM	NM	NM	NM	84	74	41	NM	NM
⊙	TP-8	0 - 1	37.5	9.238	0.144	NM	NM	NM	79	50	21	NM	NM

Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D422.
NP = Nonplastic
NM = Not Measured

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
Coefficients of Curvature - $C_C = (D_{30})^2 / D_{60} D_{10}$
D_{60} = Grain diameter at 60% passing
D_{30} = Grain diameter at 30% passing
D_{10} = Grain diameter at 10% passing

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SIEVE ANALYSIS

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE
C-18

PLOTTED: 02/22/2019 12:14 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[KLF_SIEVE ANALYSIS]
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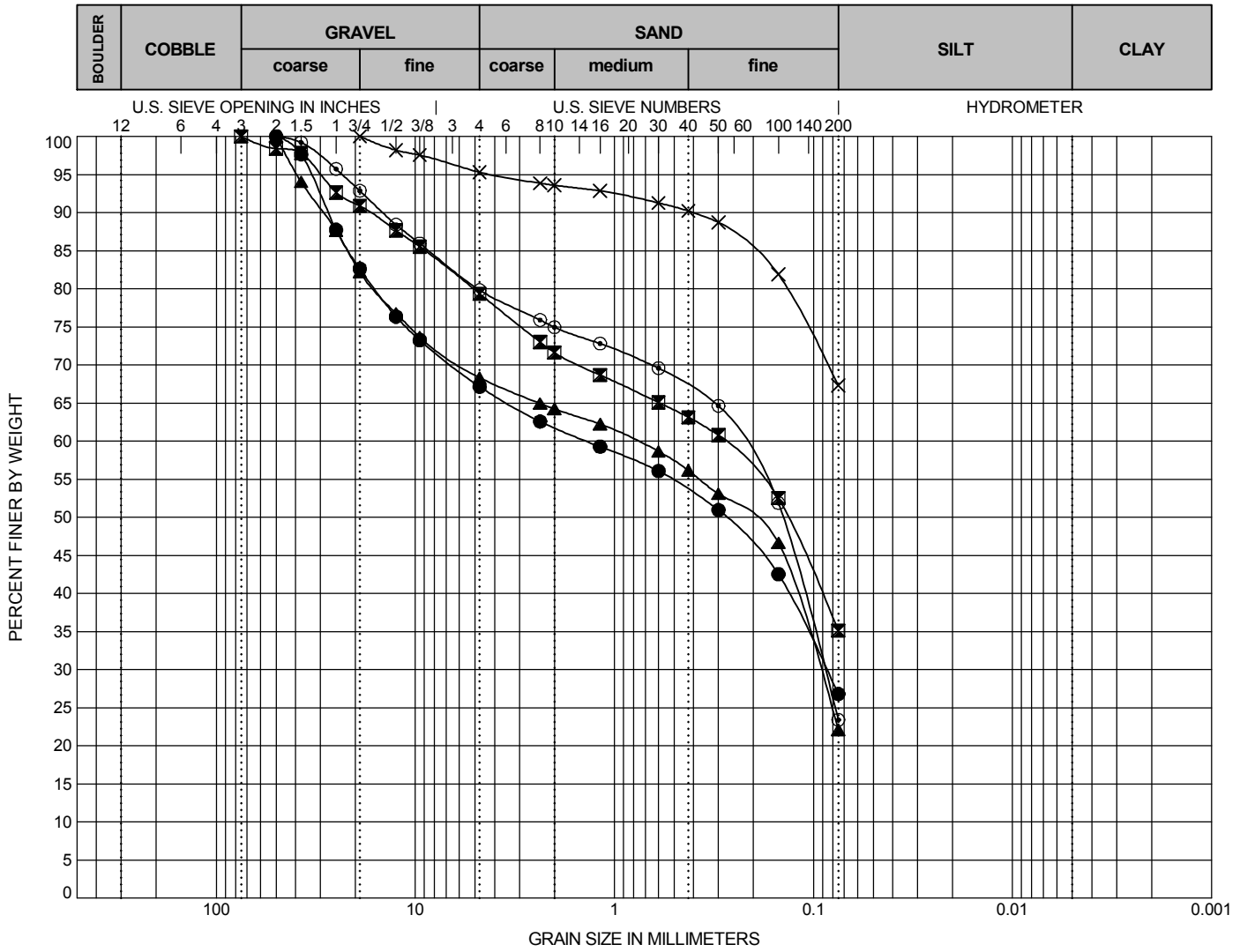

Exploration ID		Depth (ft.)	Sample Description	LL	PL	PI
●	TP-10	0 - 1	CLAYEY SAND with GRAVEL (SC)	30	17	13
⊠	TP-12	0 - 1	CLAYEY SAND with GRAVEL (SC)	29	17	12
▲	TP-13	0 - 1	SILTY SAND with GRAVEL (SM)	NP	NP	NP
×	TP-15	0 - 1	SANDY SILT (ML)	NP	NP	NP
⊙	TP-19	0 - 1	SILTY SAND with GRAVEL (SM)	NP	NP	NP

Exploration ID		Depth (ft.)	D_{100}	D_{60}	D_{30}	D_{10}	Cc	Cu	Passing 3/4"	Passing #4	Passing #200	%Silt	%Clay
●	TP-10	0 - 1	50	1.377	0.086	NM	NM	NM	83	67	27	NM	NM
⊠	TP-12	0 - 1	75	0.281	NM	NM	NM	NM	91	79	35	NM	NM
▲	TP-13	0 - 1	50	0.775	0.094	NM	NM	NM	82	68	22	NM	NM
×	TP-15	0 - 1	19	NM	NM	NM	NM	NM	100	95	67	NM	NM
⊙	TP-19	0 - 1	50	0.233	0.088	NM	NM	NM	93	80	23	NM	NM

Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D422.
NP = Nonplastic
NM = Not Measured

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
Coefficients of Curvature - $C_C = (D_{30})^2 / D_{60} D_{10}$
D_{60} = Grain diameter at 60% passing
D_{30} = Grain diameter at 30% passing
D_{10} = Grain diameter at 10% passing

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PROJECT NO.:	20191344
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SIEVE ANALYSIS

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-19

PLOTTED: 02/22/2019 12:15 PM BY: MPalmer
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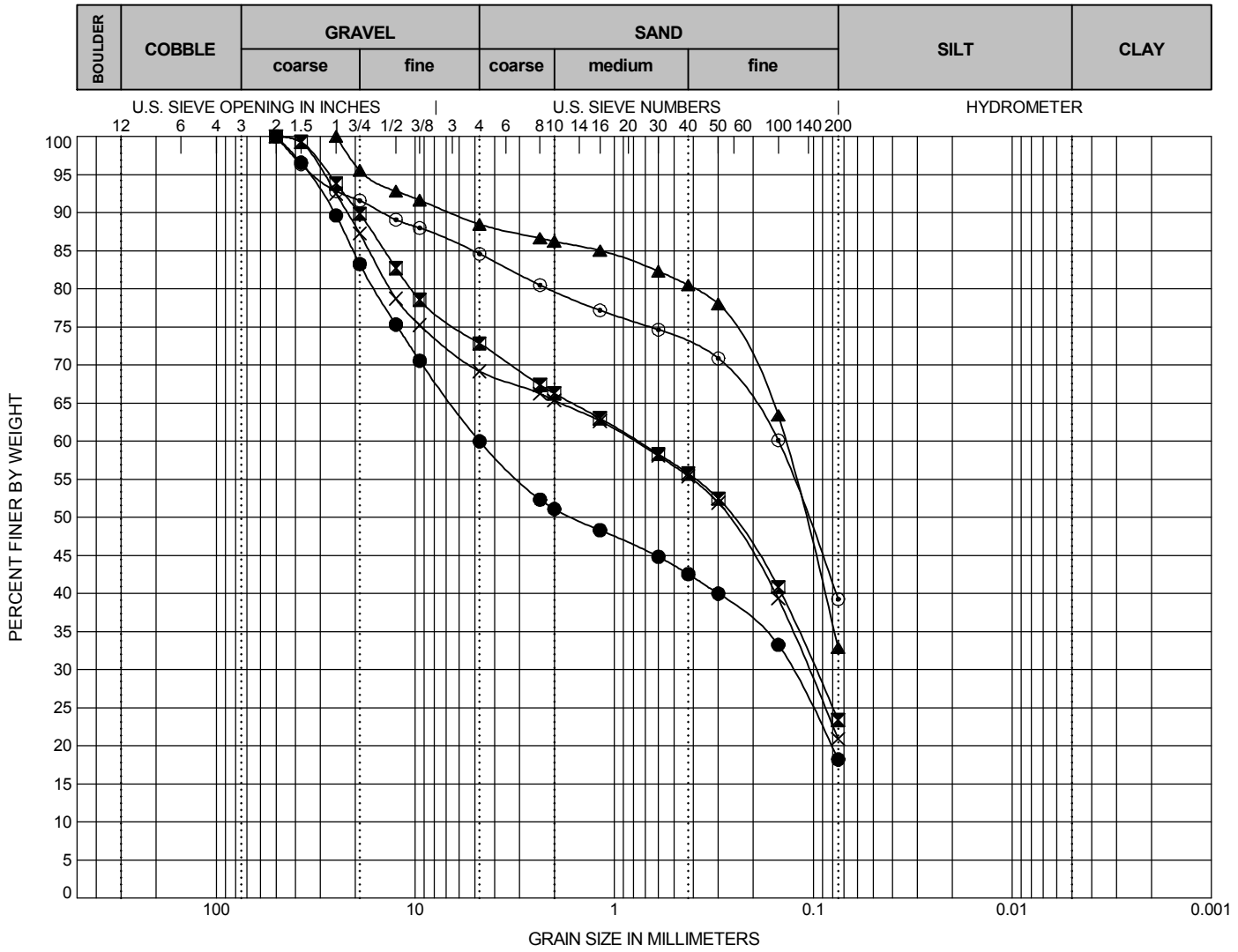

Exploration ID		Depth (ft.)	Sample Description	LL	PL	PI
●	TP-20	0 - 1	SILTY SAND with GRAVEL (SM)	NP	NP	NP
⊠	TP-21	0 - 1	CLAYEY SAND with GRAVEL (SC)	28	18	10
▲	TP-23	0 - 1	SILTY SAND (SM)	NP	NP	NP
×	TP-25	0 - 1	CLAYEY SAND with GRAVEL (SC)	37	24	13
⊙	TP-26	0 - 1	SILTY, CLAYEY SAND with GRAVEL (SC-SM)	25	19	6

Exploration ID		Depth (ft.)	D_{100}	D_{60}	D_{30}	D_{10}	Cc	Cu	Passing 3/4"	Passing #4	Passing #200	%Silt	%Clay
●	TP-20	0 - 1	50	4.761	0.129	NM	NM	NM	83	60	18	NM	NM
⊠	TP-21	0 - 1	50	0.767	0.098	NM	NM	NM	90	73	23	NM	NM
▲	TP-23	0 - 1	25	0.139	NM	NM	NM	NM	96	88	33	NM	NM
×	TP-25	0 - 1	50	0.799	0.106	NM	NM	NM	87	69	21	NM	NM
⊙	TP-26	0 - 1	50	0.15	NM	NM	NM	NM	92	85	39	NM	NM

Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D422.
NP = Nonplastic
NM = Not Measured

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
Coefficients of Curvature - $C_C = (D_{30})^2 / D_{60} D_{10}$
D_{60} = Grain diameter at 60% passing
D_{30} = Grain diameter at 30% passing
D_{10} = Grain diameter at 10% passing

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DATE:	2/22/2019
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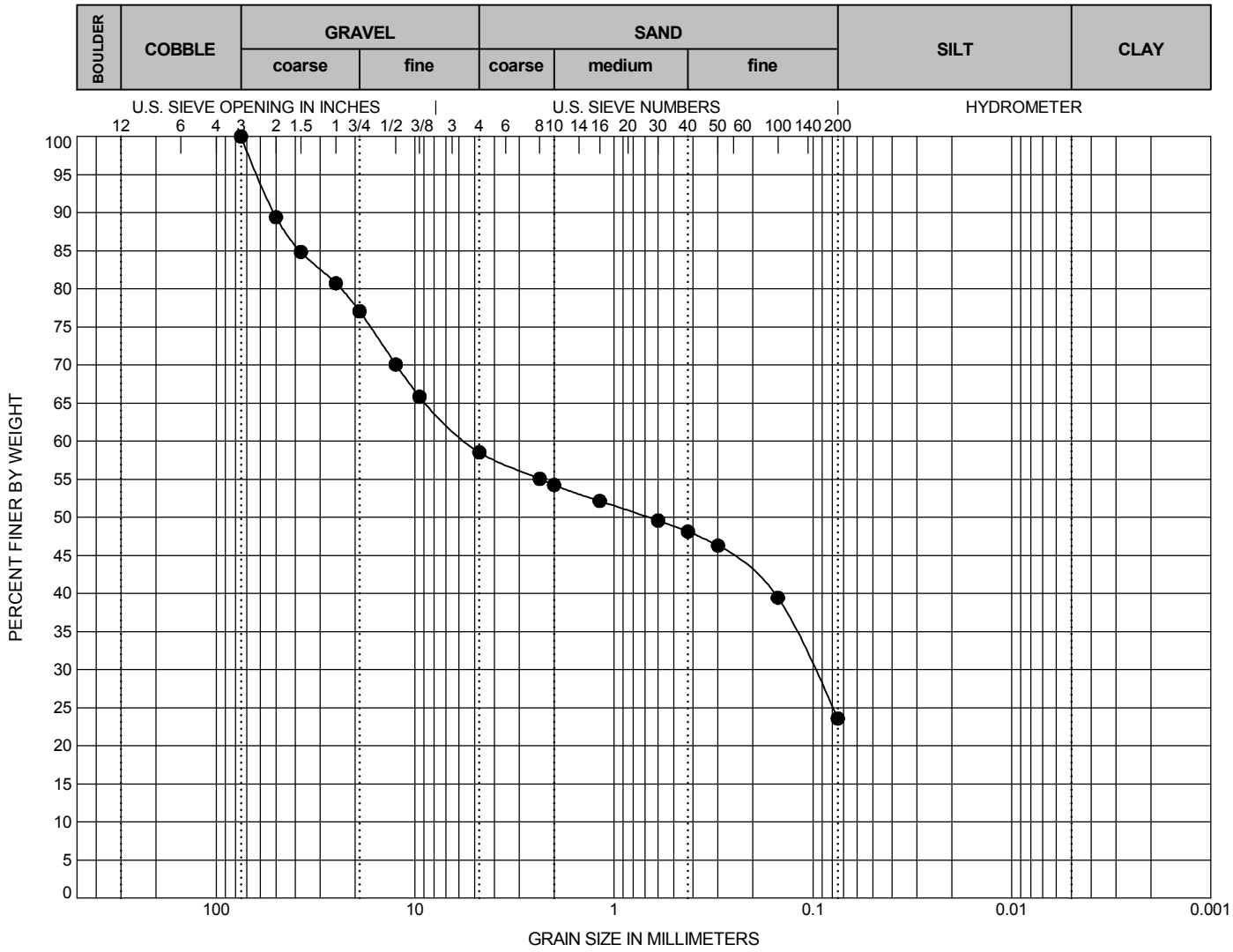
SIEVE ANALYSIS

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE
C-20



Exploration ID	Depth (ft.)	Sample Description	LL	PL	PI
● TP-28	0 - 1	SILTY GRAVEL with SAND (GM)	NP	NP	NP

Exploration ID	Depth (ft.)	D_{100}	D_{60}	D_{30}	D_{10}	Cc	Cu	Passing 3/4"	Passing #4	Passing #200	%Silt	%Clay
● TP-28	0 - 1	75	5.466	0.099	NM	NM	NM	77	59	24	NM	NM

Sieve Analysis and Hydrometer Analysis testing performed in general accordance with ASTM D422.
NP = Nonplastic
NM = Not Measured

Coefficients of Uniformity - $C_u = D_{60} / D_{10}$
Coefficients of Curvature - $C_C = (D_{30})^2 / D_{60} D_{10}$
D_{60} = Grain diameter at 60% passing
D_{30} = Grain diameter at 30% passing
D_{10} = Grain diameter at 10% passing

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DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
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SIEVE ANALYSIS

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-21

PLOTTED: 02/22/2019 12:15 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
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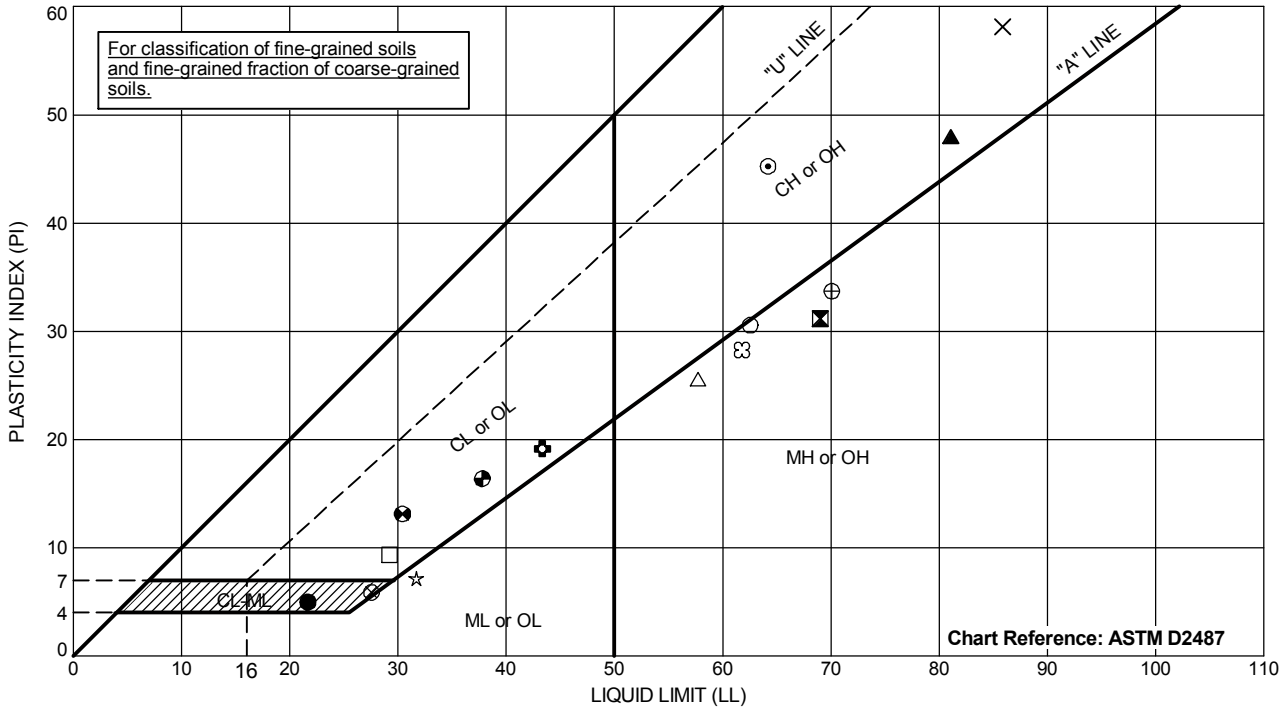

Exploration ID		Depth (ft.)	Sample Description	Passing #200	LL	PL	PI
●	SA-4	0.5 - 5	CEMENTED SAND AND GRAVEL	28	22	17	5
⊠	SA-4	15	SANDY ELASTIC SILT (MH)	67	69	38	31
▲	SA-20	2.5 - 5	CLAYEY SAND with GRAVEL (SC)	26	81	33	48
×	SA-20	15	CLAYEY SAND (SC)	35	86	28	58
⊙	SA-20	20	FAT CLAY (CH)	89	64	19	45
✿	SA-21	5	SANDY LEAN CLAY (CL)	69	43	24	19
○	SA-21	10	ELASTIC SILT (MH)	95	63	32	31
△	SA-22	10 - 15	SILTY SAND (SM)	49	58	32	26
⊗	SA-24	2.5 - 7.5	CEMENTED SAND AND GRAVEL	23	28	22	6
⊕	SA-24	20	ELASTIC SILT (MH)	98	70	36	34
□	SA-25	2.5 - 7.5	CEMENTED SAND AND GRAVEL	25	29	20	9
◕	SA-26	5	SANDY LEAN CLAY (CL)	70	30	17	13
◕	SA-26	10	LEAN CLAY (CL)	97	38	21	17
☆	SA-27	2.5 - 7	CEMENTED SAND AND GRAVEL	21	32	25	7
⊠	SA-27	15	ELASTIC SILT with SAND (MH)	73	62	34	28

Testing performed in general accordance with ASTM D4318.
NP = Nonplastic
NM = Not Measured

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	JLS
DATE:	2/22/2019
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ATTERBERG LIMITS

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-22

PLOTTED: 02/22/2019 12:15 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[KLF_ATTERBERG (ASTM)]
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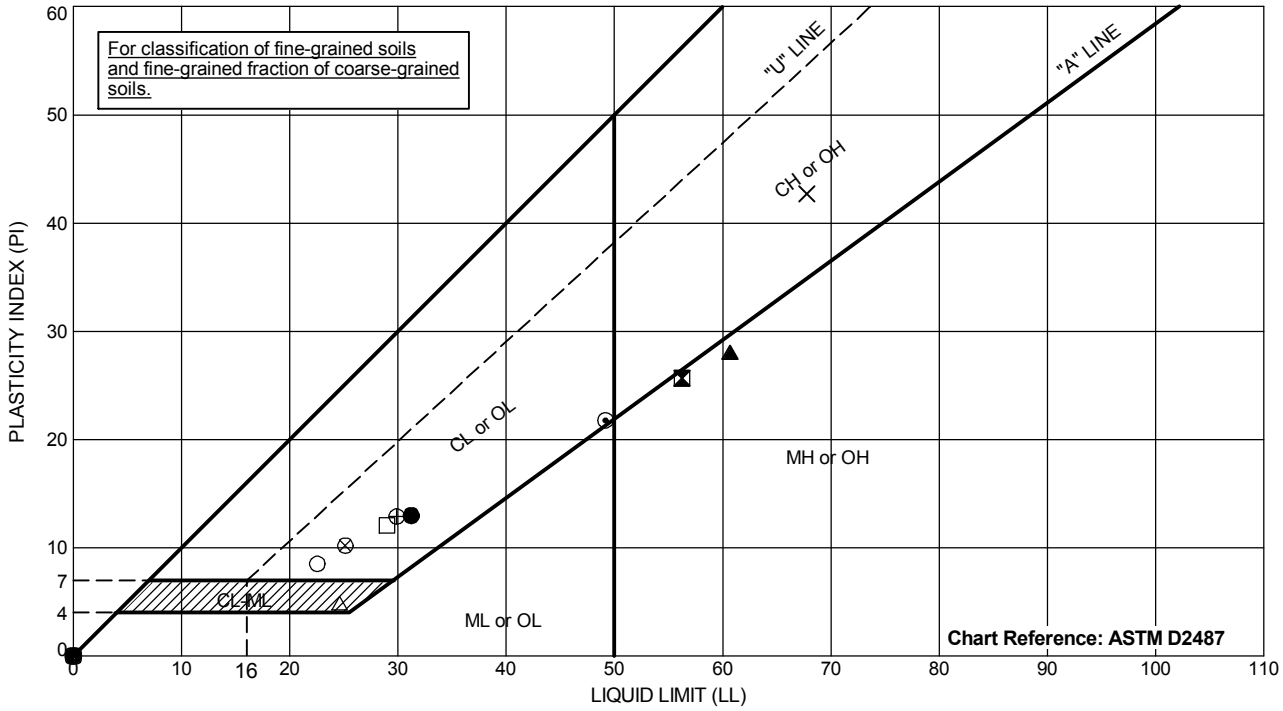

Exploration ID		Depth (ft.)	Sample Description	Passing #200	LL	PL	PI
●	SA-28	10	LEAN CLAY with SAND (CL)	81	31	18	13
⊠	SB-1	15	SILTY SAND (SM)	46	56	31	25
▲	SB-1	20	SANDY ELASTIC SILT (MH)	50	61	33	28
×	SB-1	30	FAT CLAY with SAND (CH)	84	68	25	43
⊙	SB-1	45	LEAN CLAY with SAND (CL)	76	49	27	22
✿	TP-1	0 - 1	SILTY SAND with GRAVEL (SM)	27	NP	NP	NP
○	TP-4	0 - 0.5	CLAYEY SAND with GRAVEL (SC)	41	23	14	9
△	TP-6	0 - 1	SILTY, CLAYEY SAND with GRAVEL (SC-SM)	41	25	20	5
⊗	TP-8	0 - 1	CLAYEY GRAVEL with SAND (GC)	21	25	15	10
⊕	TP-10	0 - 1	CLAYEY SAND with GRAVEL (SC)	27	30	17	13
□	TP-12	0 - 1	CLAYEY SAND with GRAVEL (SC)	35	29	17	12
◓	TP-13	0 - 1	SILTY SAND with GRAVEL (SM)	22	NP	NP	NP
◔	TP-15	0 - 1	SANDY SILT (ML)	67	NP	NP	NP
☆	TP-19	0 - 1	SILTY SAND with GRAVEL (SM)	23	NP	NP	NP
⊠	TP-20	0 - 1	SILTY SAND with GRAVEL (SM)	18	NP	NP	NP

Testing performed in general accordance with ASTM D4318.
NP = Nonplastic
NM = Not Measured

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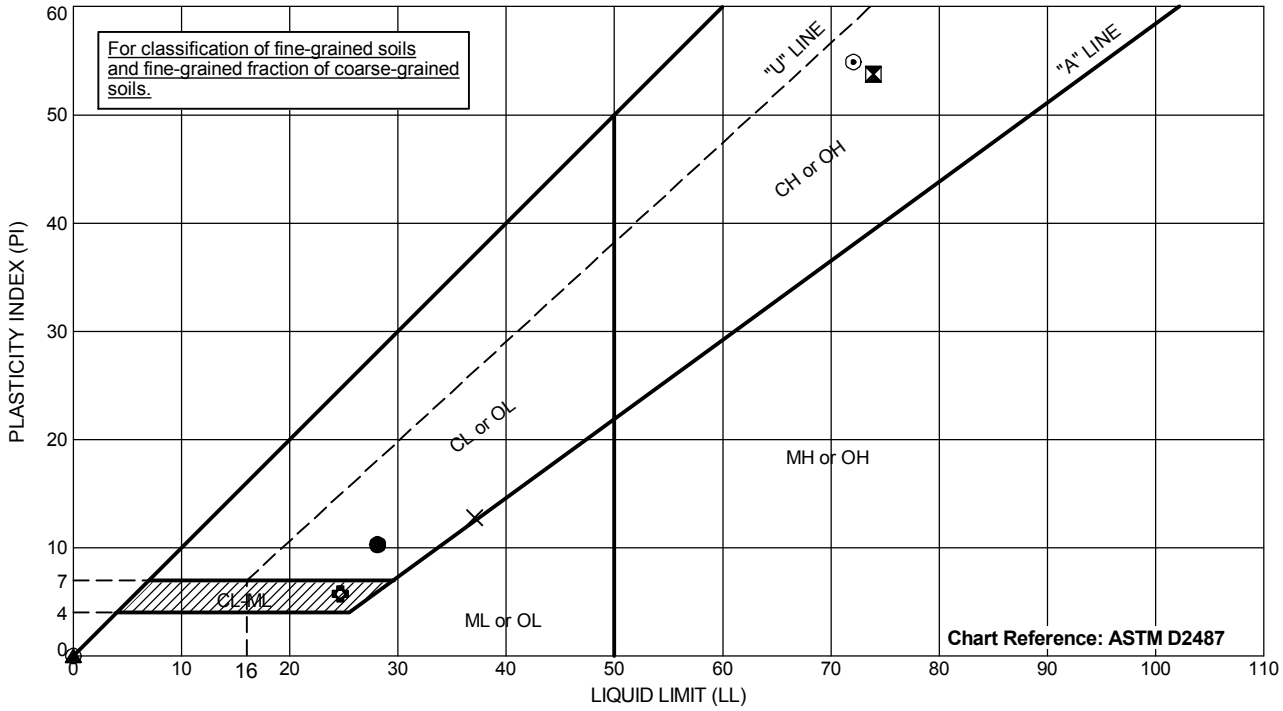
ATTERBERG LIMITS

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-23

PLOTTED: 02/22/2019 12:15 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
[KLF_ATTERBERG (ASTM)]
gINT FILE: C:\users\mpalmer\desktop\20191344.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB



Exploration ID		Depth (ft.)	Sample Description	Passing #200	LL	PL	PI
●	TP-21	0 - 1	CLAYEY SAND with GRAVEL (SC)	23	28	18	10
⊠	TP-21	4 - 8	FAT CLAY (CH)	96	74	20	54
▲	TP-23	0 - 1	SILTY SAND (SM)	33	NP	NP	NP
×	TP-25	0 - 1	CLAYEY SAND with GRAVEL (SC)	21	37	24	13
⊙	TP-25	3 - 4	FAT CLAY (CH)	86	72	17	55
✿	TP-26	0 - 1	SILTY, CLAYEY SAND with GRAVEL (SC-SM)	39	25	19	6
○	TP-28	0 - 1	SILTY GRAVEL with SAND (GM)	24	NP	NP	NP

Testing performed in general accordance with ASTM D4318.
NP = Nonplastic
NM = Not Measured

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DATE:	2/22/2019
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ATTERBERG LIMITS

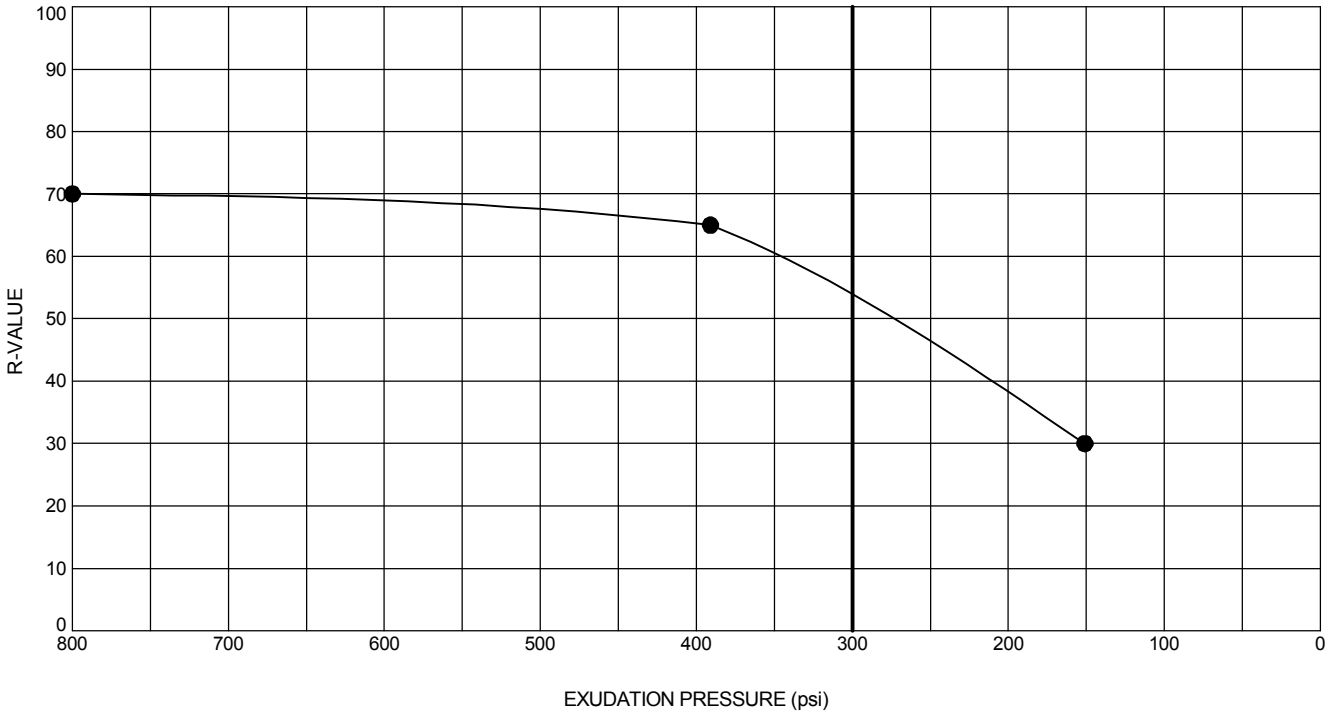
Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-24

PLOTTED: 02/22/2019 12:15 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.gpj [KLF_ATTERBERG (ASTM)]
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB

PLOTTED: 02/22/2019 12:16 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [KLF_R-VALUE (REVERSED)]



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
TP-1	0 - 1	SILTY SAND with GRAVEL (SM)	52

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	11.9	121.2	0	151	30
2	8.0	128.7	0	391	65
3	4.0	142.4	0	800	70

Testing performed in general accordance with ASTM D2844.

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DATE:	2/22/2019
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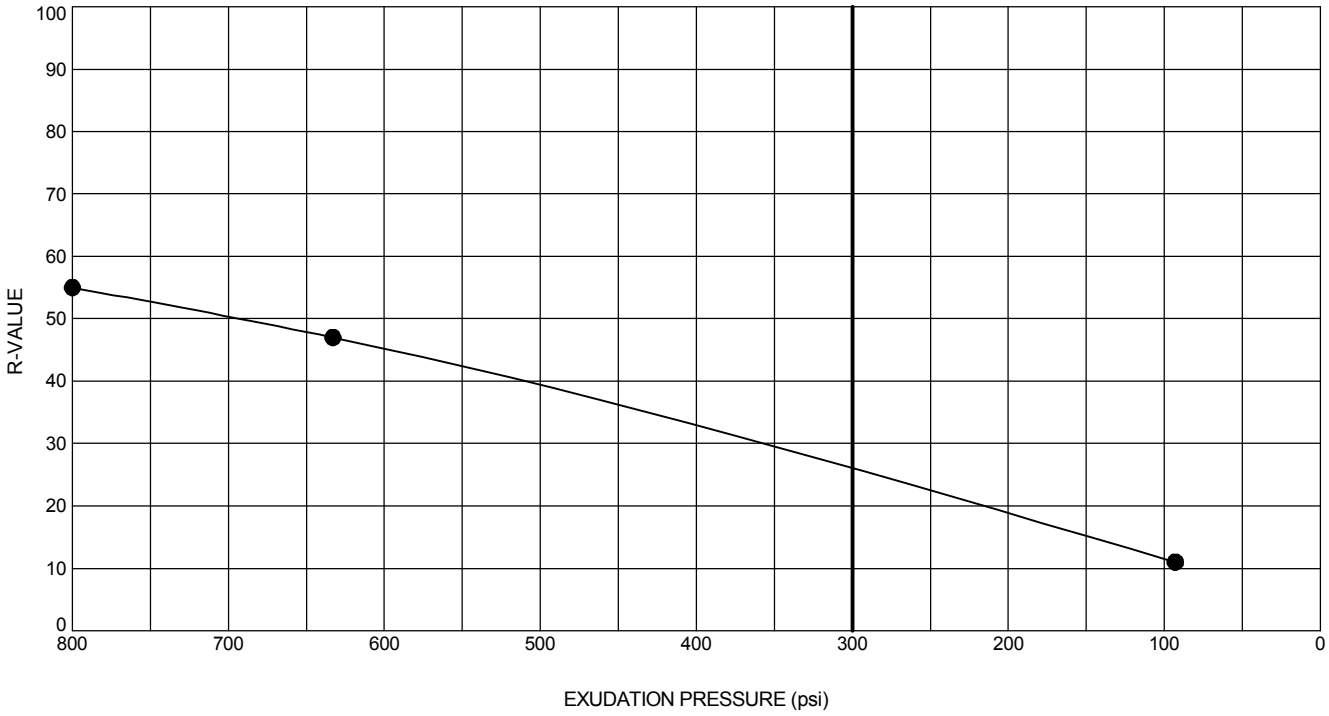
R-VALUE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-25

PLOTTED: 02/22/2019 12:16 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [KLF_R-VALUE (REVERSED)]



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
TP-12	0 - 1	CLAYEY SAND with GRAVEL (SC)	25

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	11.0	120.0	0	633	47
2	8.0	128.3	0	800	55
3	13.9	113.9	0	93	11

Testing performed in general accordance with ASTM D2844.

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CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

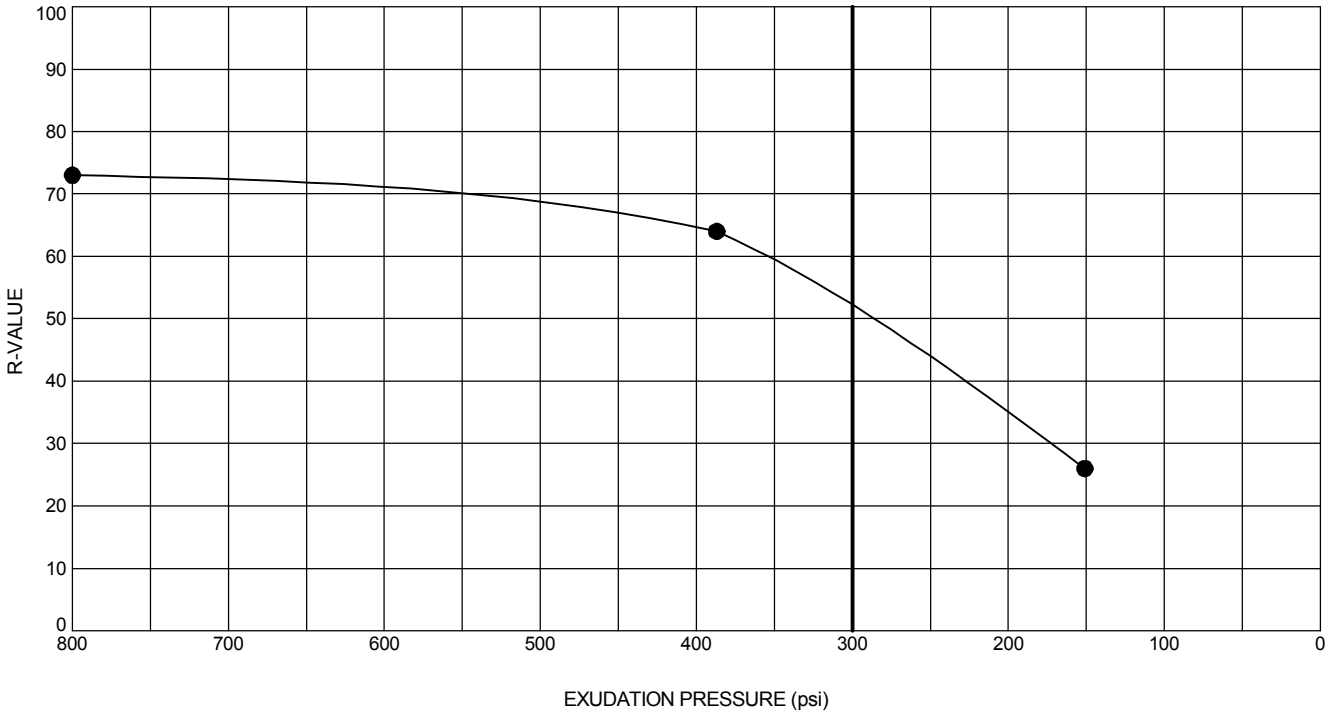
R-VALUE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-26

PLOTTED: 02/22/2019 12:16 PM BY: MPalmer
OFFICE FILTER: LAS VEGAS
PROJECT NUMBER: 20191344.001A
gINT FILE: C:\users\mpalmer\desktop\20191344.gpj
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [KLF_R-VALUE (REVERSED)]



Exploration ID	Depth (ft.)	Sample Description	R-Value @ 300 psi Exudation Pressure
TP-15	0 - 1	SANDY SILT (ML)	50

Specimen No.	Moisture at Time of Test (%)	Dry Unit Weight (pcf)	Expansion Pressure (psi)	Exudation Pressure (psi)	Corrected Resistance Value
1	12.0	118.5	0	151	26
2	10.0	121.2	0	387	64
3	8.0	124.0	0	800	73

Testing performed in general accordance with ASTM D2844.

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DATE:	2/22/2019
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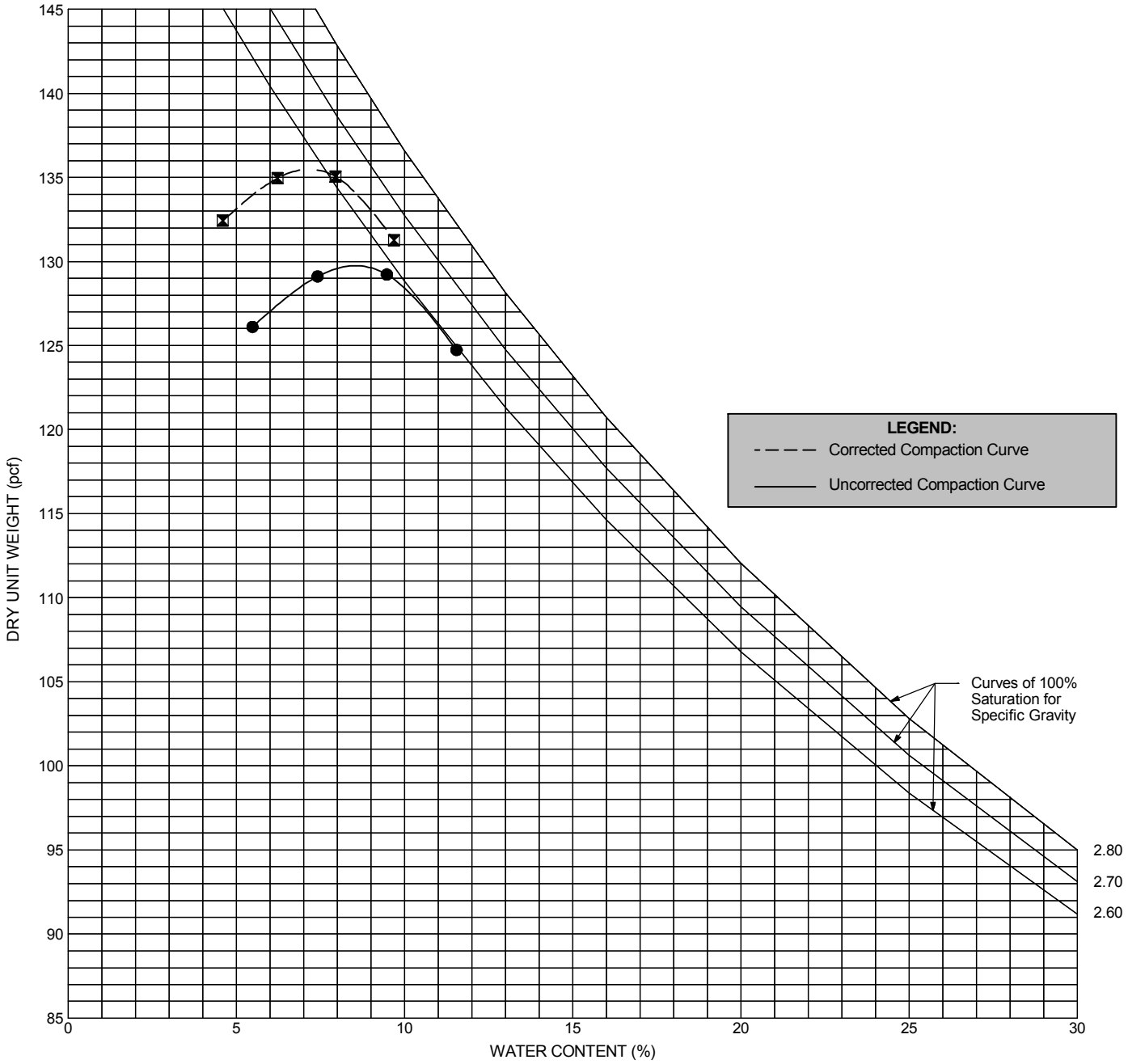
R-VALUE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-27



Exploration ID			Depth (ft.)	Sample Description			
●	SA-4		0.5 - 5	CEMENTED SAND AND GRAVEL			
Passing 3/4"	**Passing #4**	**Passing #200**	**LL**	**PL**	**PI**	**Uncorrected Max Dry Unit Wt. (pcf)**	**Uncorrected Opt. Water Content (%)**
95	84	28	22	17	5	129.7	8.5
Exploration ID			**Depth (ft.)**	**Fraction > #4 sieve (%)**		**Corrected Max Dry Unit Wt. (pcf)**	**Corrected Opt. Water Content (%)**
⊠	SA-4		0.5 - 5	16.1		136.6	6.6

Testing performed in general accordance with ASTM D1557 Method A.
Oversized correction method performed in general accordance with ASTM D4718.
NP = Nonplastic
NM = Not Measured

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DRAWN BY:	AB, MAP
CHECKED BY:	JLS
DATE:	2/22/2019
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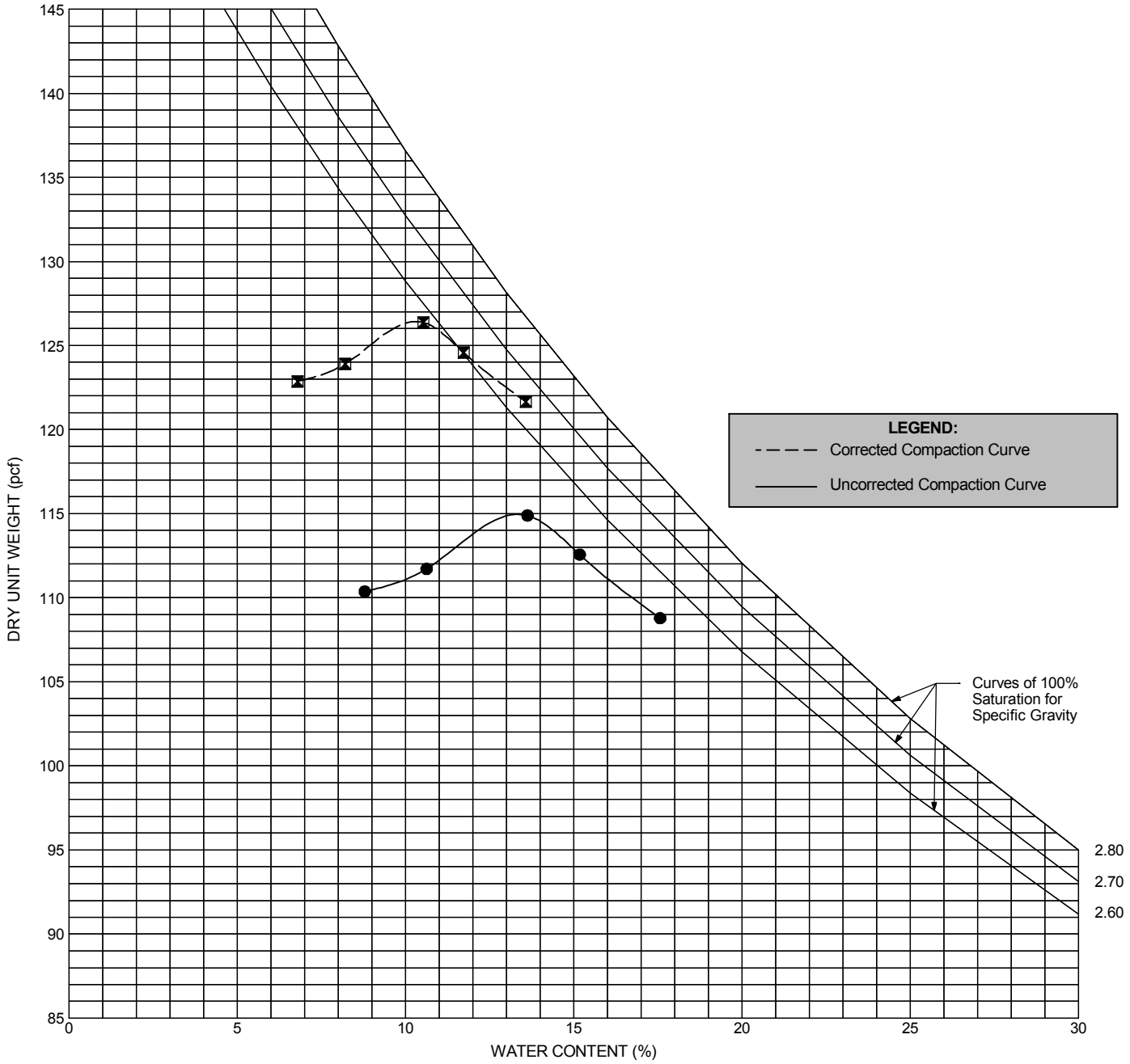
COMPACTION CURVE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-28

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [KLF_COMP CURVE (2.6 - 2.8 AV)RC]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/22/2019 01:17 PM BY: MPalmer



Exploration ID	Depth (ft.)	Sample Description
● SA-20	2.5 - 5	CLAYEY SAND with GRAVEL (SC)

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Uncorrected Max Dry Unit Wt. (pcf)	Uncorrected Opt. Water Content (%)
89	77	26	81	33	48	115.0	13.3

Exploration ID	Depth (ft.)	Fraction > #4 sieve (%)	Corrected Max Dry Unit Wt. (pcf)	Corrected Opt. Water Content (%)
⧓ SA-20	2.5 - 5	22.7	124.0	10.1

Testing performed in general accordance with ASTM D1557 Method A.
Oversized correction method performed in general accordance with ASTM D4718.
NP = Nonplastic
NM = Not Measured

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PROJECT NO.:	20191344
DRAWN BY:	JG, MAP
CHECKED BY:	JLS
DATE:	2/22/2019
REVISED:	-

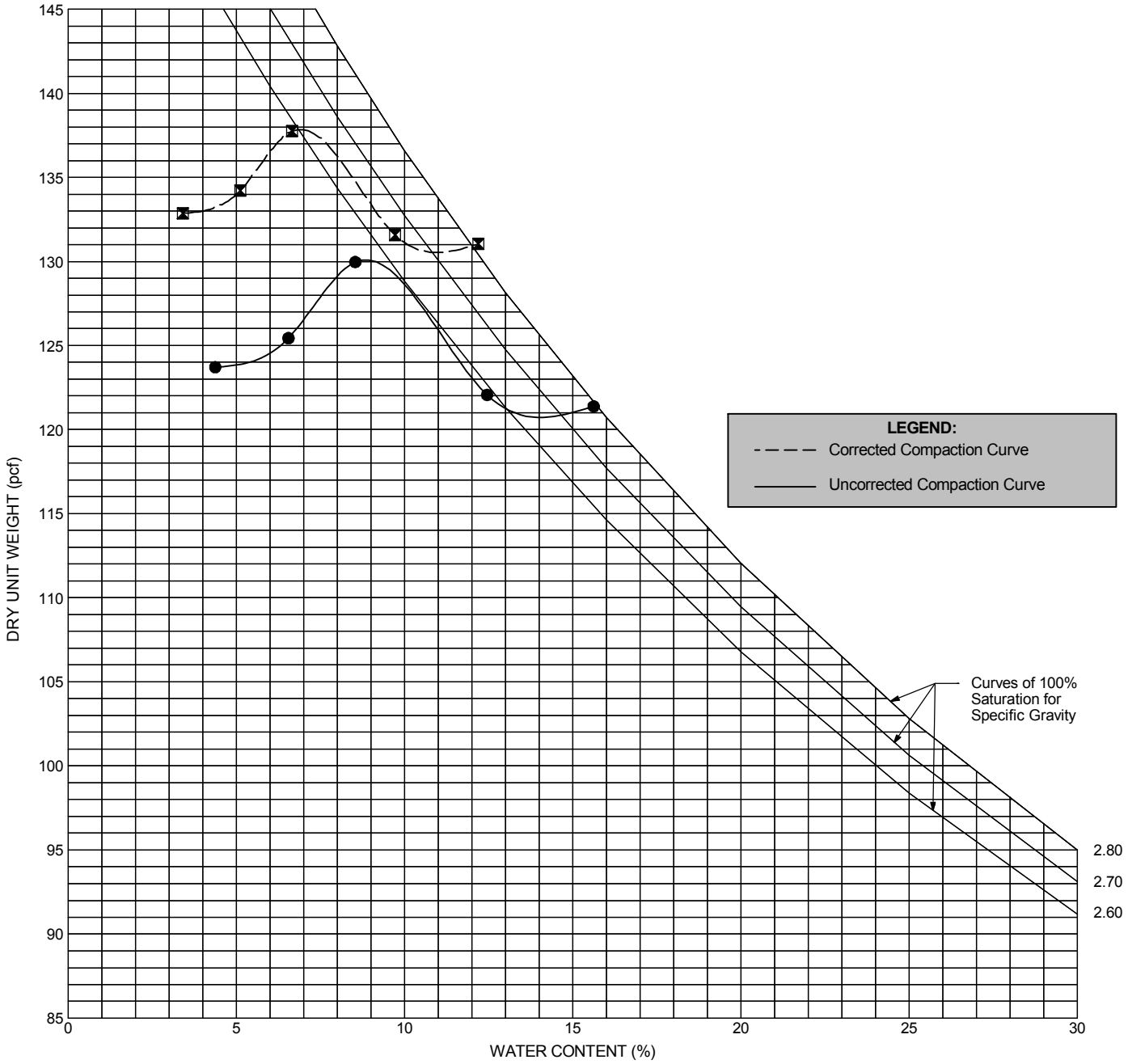
COMPACTION CURVE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-29

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_COMP CURVE (2.6 - 2.8 AV)RC]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/22/2019 01:17 PM BY: MPalmer



Exploration ID	Depth (ft.)	Sample Description
● SA-24	2.5 - 7.5	CEMENTED SAND AND GRAVEL

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Uncorrected Max Dry Unit Wt. (pcf)	Uncorrected Opt. Water Content (%)
98	78	23	28	22	6	130.1	8.9

Exploration ID	Depth (ft.)	Fraction > #4 sieve (%)	Corrected Max Dry Unit Wt. (pcf)	Corrected Opt. Water Content (%)
⧓ SA-24	2.5 - 7.5	21.9	136.7	6.7

Testing performed in general accordance with ASTM D1557 Method A.
Oversized correction method performed in general accordance with ASTM D4718.
NP = Nonplastic
NM = Not Measured

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COMPACTION CURVE

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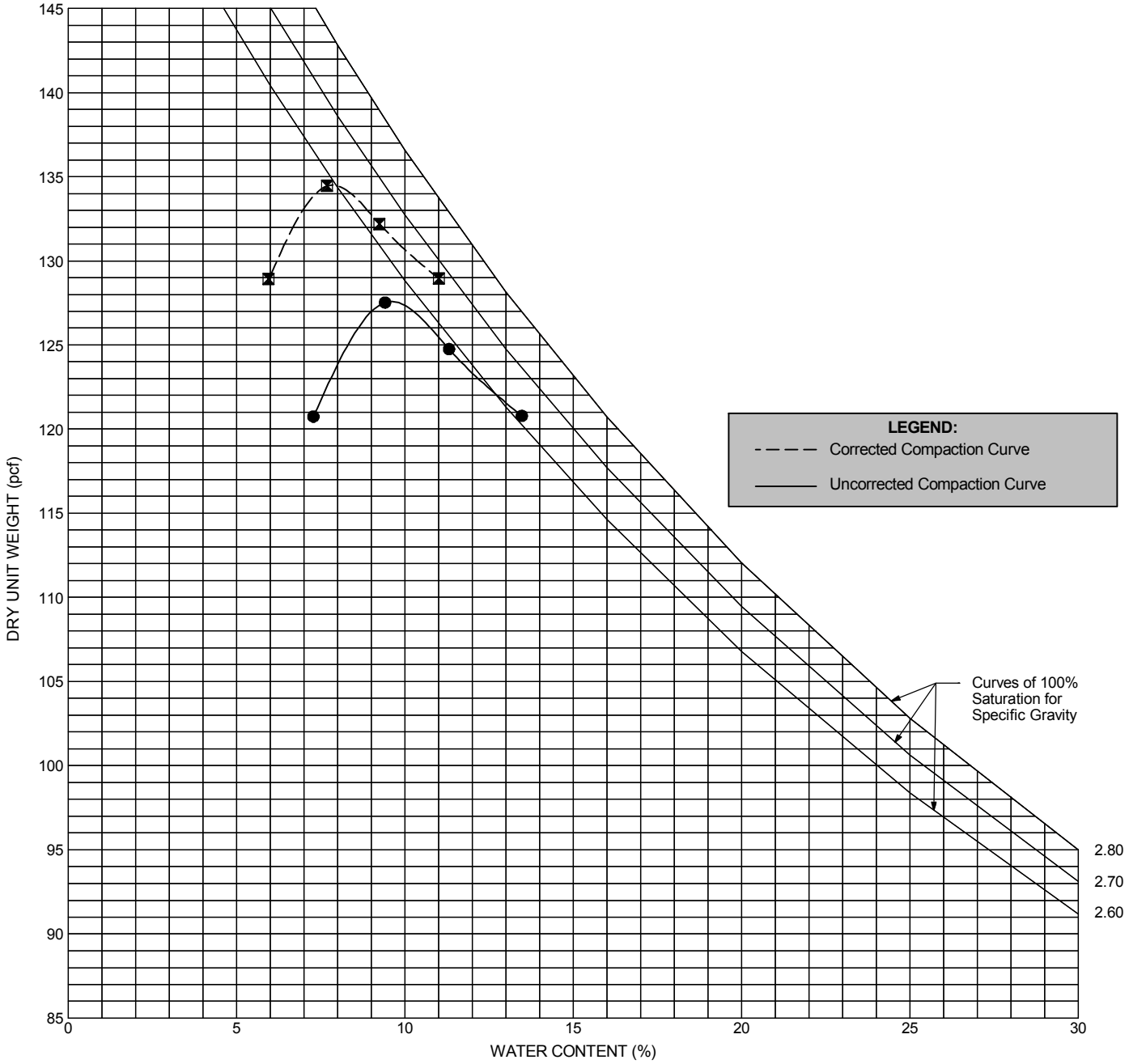
Moapa River Indian Reservation, USA

FIGURE

C-30

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_COMP CURVE (2.6 - 2.8 AV)RC]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/22/2019 01:17 PM BY: MPalmer



Exploration ID	Depth (ft.)	Sample Description
● SA-25	2.5 - 7.5	CEMENTED SAND AND GRAVEL

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Uncorrected Max Dry Unit Wt. (pcf)	Uncorrected Opt. Water Content (%)
100	82	25	29	20	9	127.6	9.6

Exploration ID	Depth (ft.)	Fraction > #4 sieve (%)	Corrected Max Dry Unit Wt. (pcf)	Corrected Opt. Water Content (%)
⧓ SA-25	2.5 - 7.5	18.3	133.4	7.8

Testing performed in general accordance with ASTM D1557 Method A.
Oversized correction method performed in general accordance with ASTM D4718.
NP = Nonplastic
NM = Not Measured

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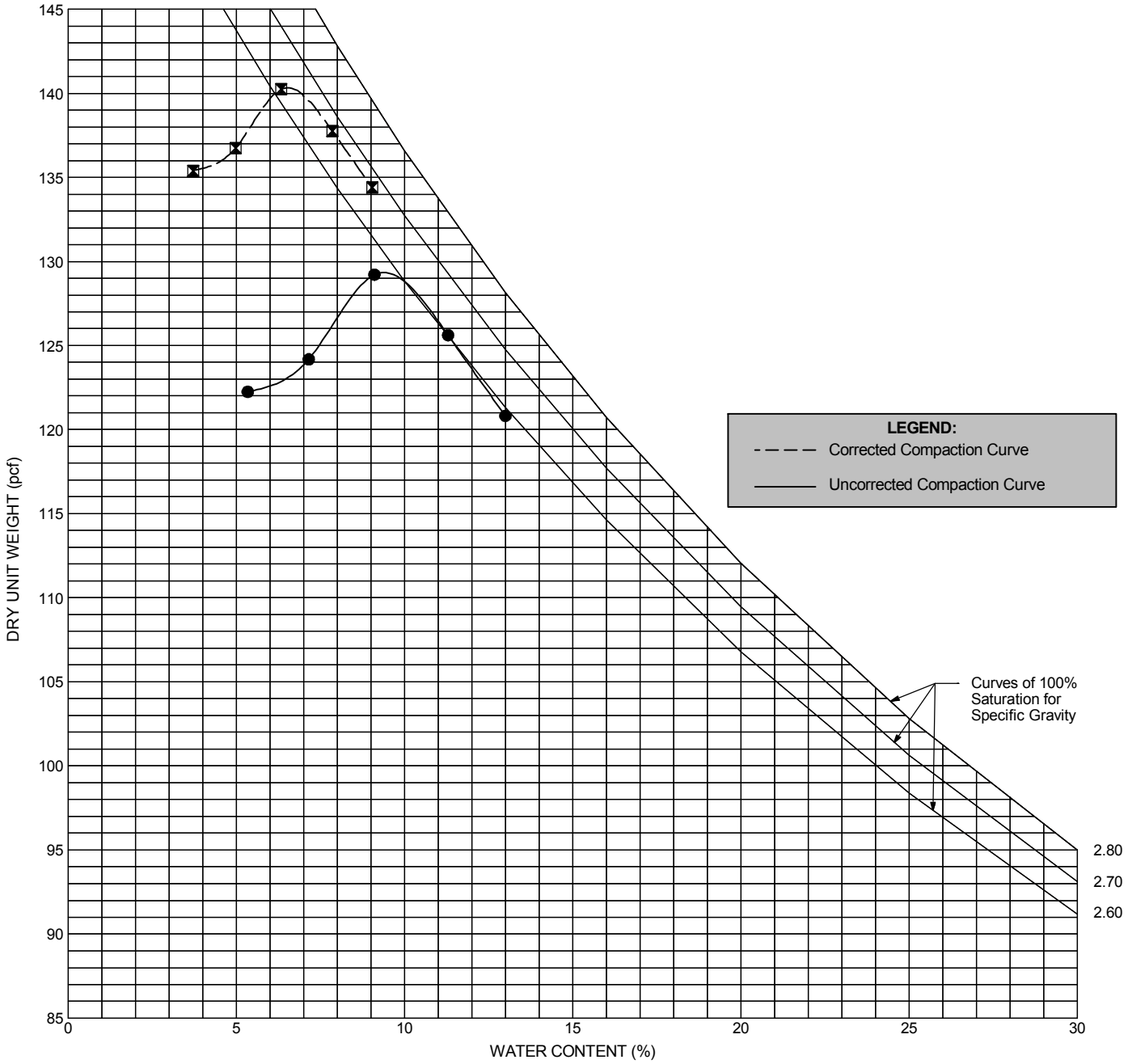
COMPACTION CURVE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-31

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_COMP CURVE (2.6 - 2.8 AV)RC]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/22/2019 01:17 PM BY: MPalmer



Exploration ID	Depth (ft.)	Sample Description
● SA-27	2.5 - 7	CEMENTED SAND AND GRAVEL

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Uncorrected Max Dry Unit Wt. (pcf)	Uncorrected Opt. Water Content (%)
94	70	21	32	25	7	129.3	9.3

Exploration ID	Depth (ft.)	Fraction > #4 sieve (%)	Corrected Max Dry Unit Wt. (pcf)	Corrected Opt. Water Content (%)
⊠ SA-27	2.5 - 7	30.5	138.5	6.6

Testing performed in general accordance with ASTM D1557 Method B.
Oversized correction method performed in general accordance with ASTM D4718.
NP = Nonplastic
NM = Not Measured

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DRAWN BY:	AB, MAP
CHECKED BY:	JLS
DATE:	2/22/2019
REVISED:	-

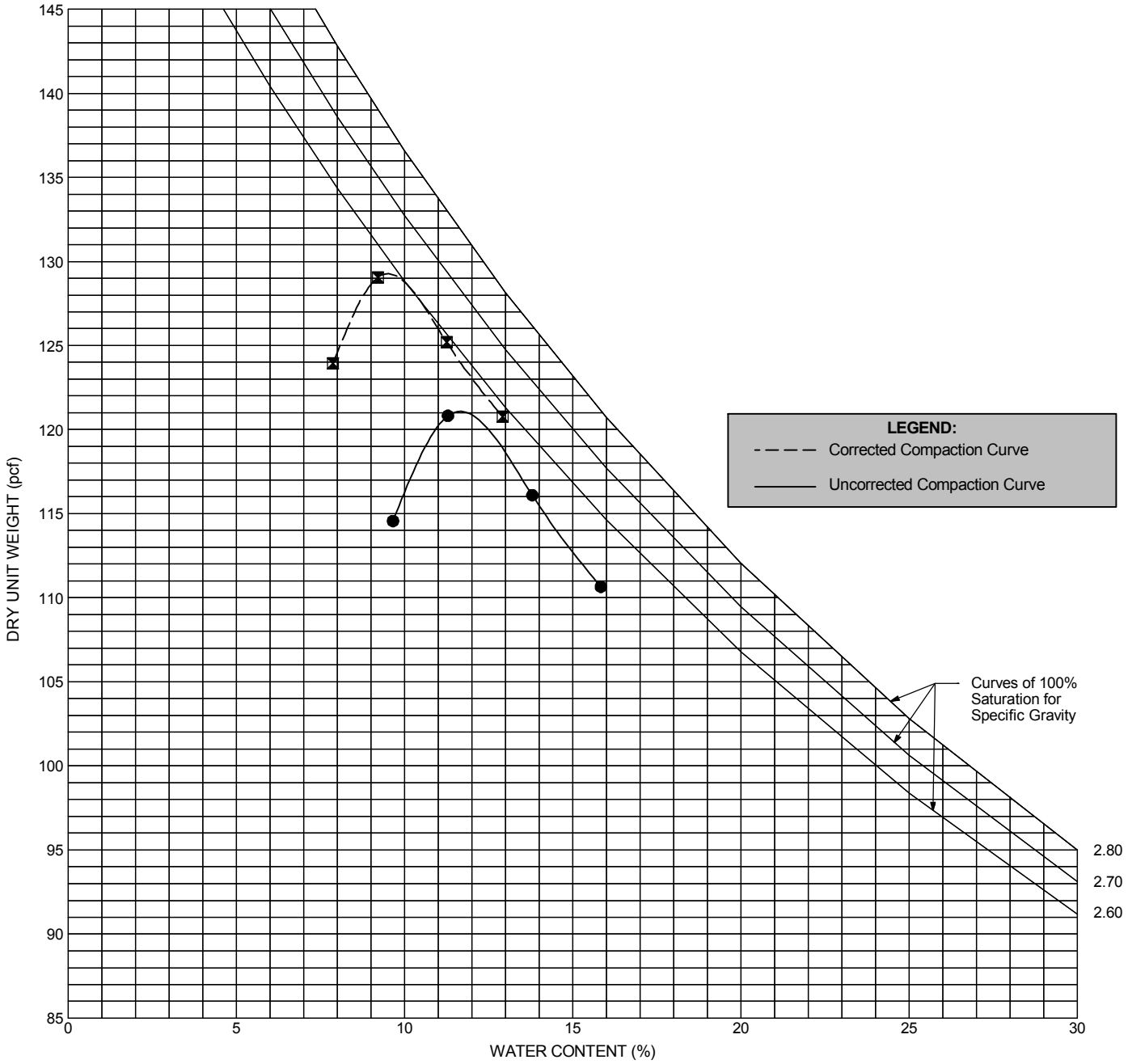
COMPACTION CURVE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-32

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [KLF_COMP CURVE (2.6 - 2.8 AV)RC]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/22/2019 01:17 PM BY: MPalmer



Exploration ID	Depth (ft.)	Sample Description
● TP-4	0 - 0.5	CLAYEY SAND with GRAVEL (SC)

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Uncorrected Max Dry Unit Wt. (pcf)	Uncorrected Opt. Water Content (%)
92	82	41	23	14	9	121.1	11.7

Exploration ID	Depth (ft.)	Fraction > #4 sieve (%)	Corrected Max Dry Unit Wt. (pcf)	Corrected Opt. Water Content (%)
⧓ TP-4	0 - 0.5	18.4	127.2	9.5

Testing performed in general accordance with ASTM D1557 Method A.
Oversized correction method performed in general accordance with ASTM D4718.
NP = Nonplastic
NM = Not Measured

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CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

COMPACTION CURVE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-33

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [KLF_COMP CURVE (2.6 - 2.8 AV)RC]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
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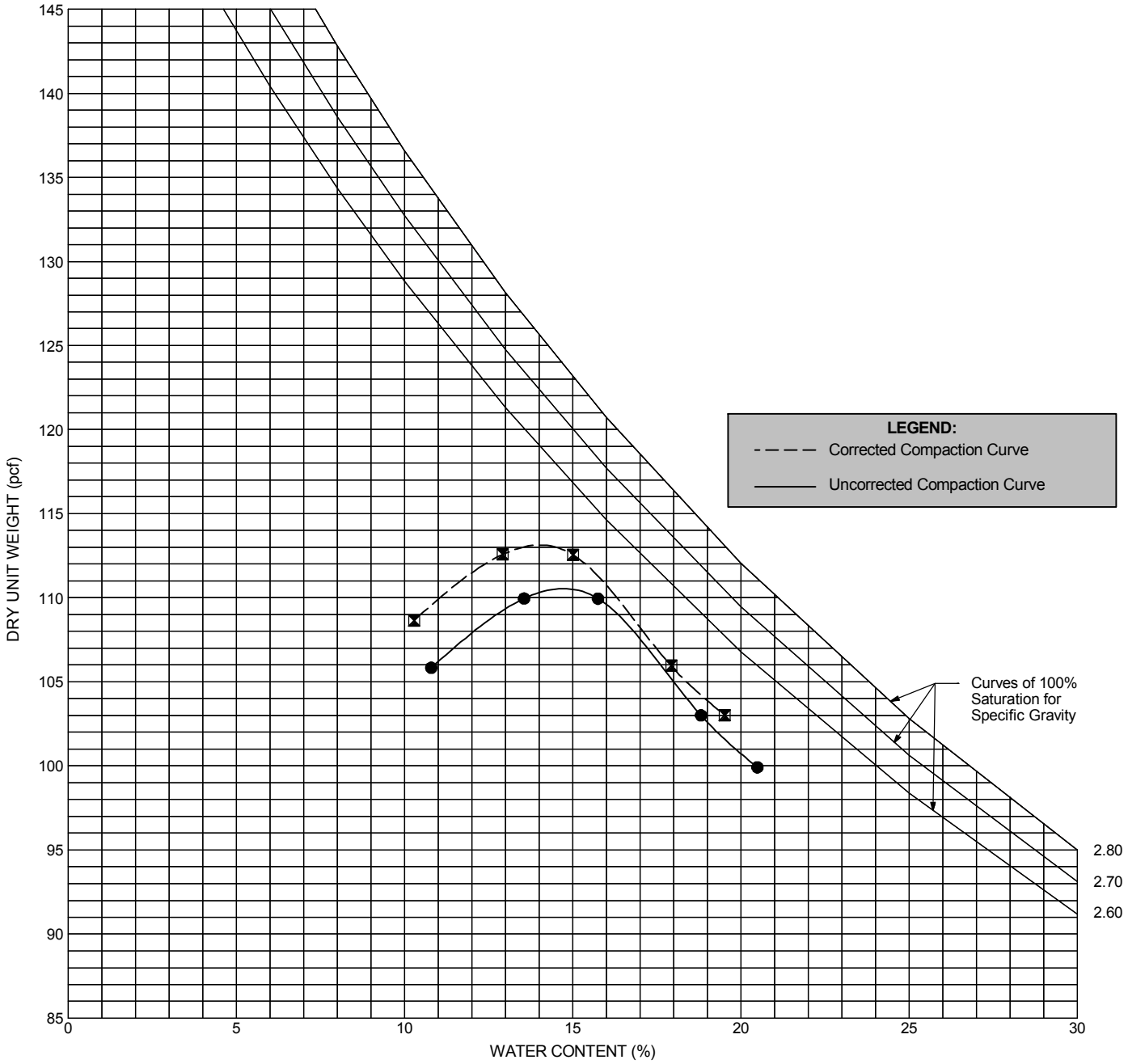

Exploration ID	Depth (ft.)	Sample Description
● TP-15	0 - 1	SANDY SILT (ML)

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Uncorrected Max Dry Unit Wt. (pcf)	Uncorrected Opt. Water Content (%)
100	95	67	NP	NP	NP	110.5	14.7

Exploration ID	Depth (ft.)	Fraction > #4 sieve (%)	Corrected Max Dry Unit Wt. (pcf)	Corrected Opt. Water Content (%)
⊠ TP-15	0 - 1	4.7	112.5	13.9

Testing performed in general accordance with ASTM D1557 Method A.
Oversized correction method performed in general accordance with ASTM D4718.
NP = Nonplastic
NM = Not Measured

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

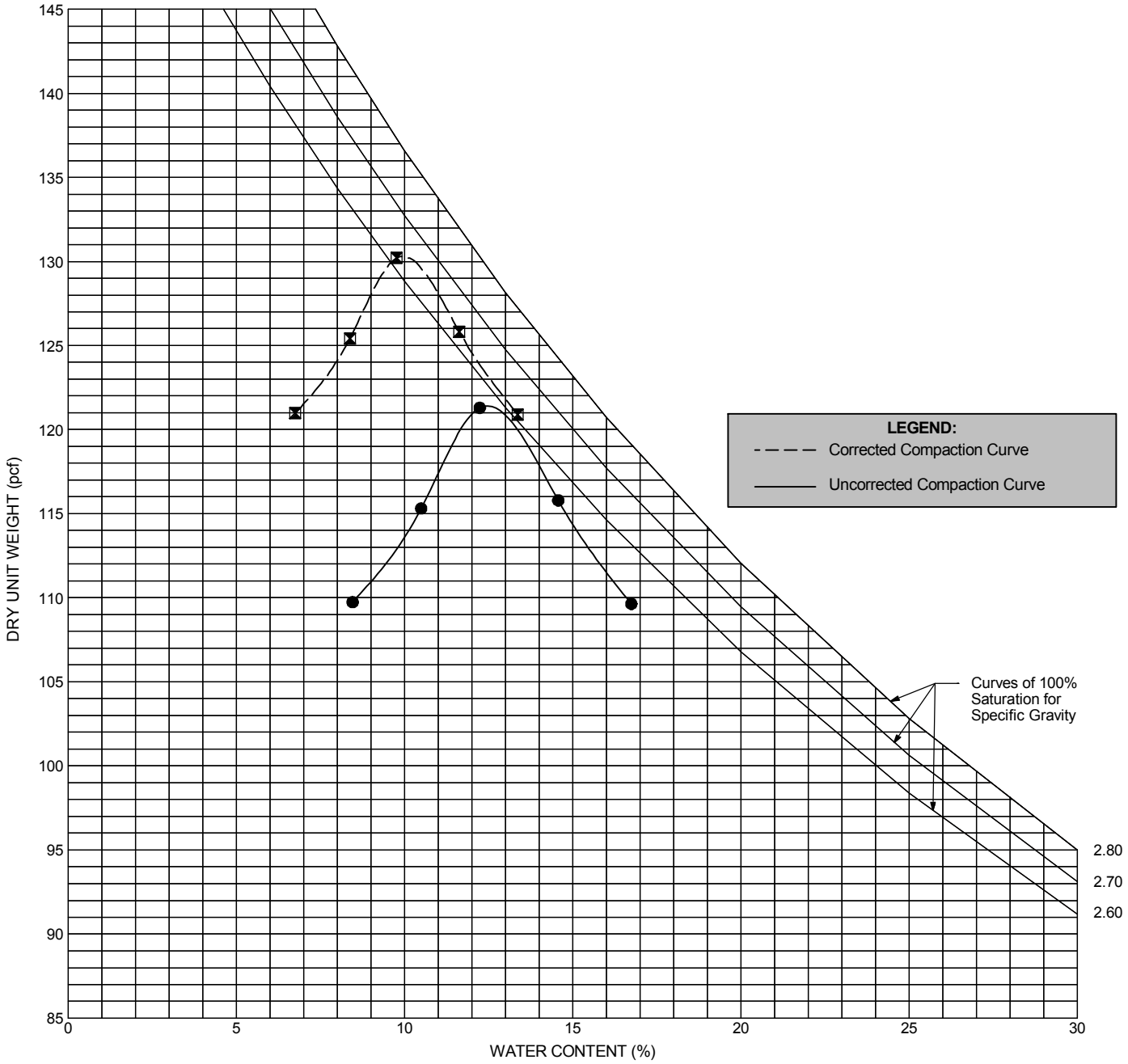
COMPACTION CURVE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-34

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_COMP CURVE (2.6 - 2.8 AV)RC]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/22/2019 01:17 PM BY: MPalmer



Exploration ID	Depth (ft.)	Sample Description
● TP-19	0 - 1	SILTY SAND with GRAVEL (SM)

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Uncorrected Max Dry Unit Wt. (pcf)	Uncorrected Opt. Water Content (%)
93	80	23	NP	NP	NP	121.4	12.5

Exploration ID	Depth (ft.)	Fraction > #4 sieve (%)	Corrected Max Dry Unit Wt. (pcf)	Corrected Opt. Water Content (%)
⊠ TP-19	0 - 1	20.2	128.3	10.1

Testing performed in general accordance with ASTM D1557 Method A.
Oversized correction method performed in general accordance with ASTM D4718.
NP = Nonplastic
NM = Not Measured

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DATE:	2/22/2019
REVISED:	-

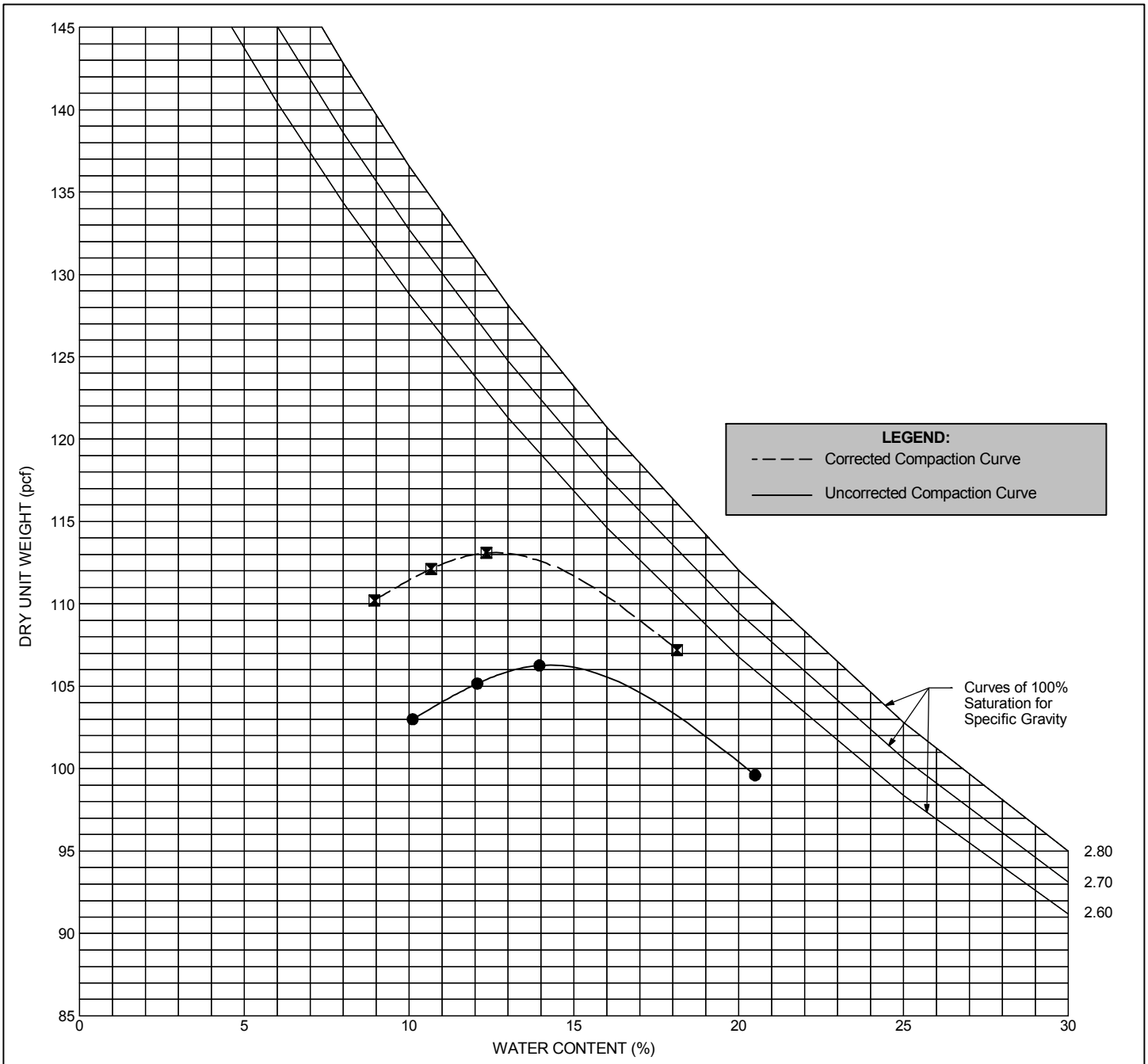
COMPACTION CURVE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-35

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [KLF_COMP CURVE (2.6 - 2.8 AV)RC]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/22/2019 01:17 PM BY: MPalmer



Exploration ID	Depth (ft.)	Sample Description
● TP-23	0 - 1	SILTY SAND (SM)

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Uncorrected Max Dry Unit Wt. (pcf)	Uncorrected Opt. Water Content (%)
96	88	33	NP	NP	NP	106.3	14.3

Exploration ID	Depth (ft.)	Fraction > #4 sieve (%)	Corrected Max Dry Unit Wt. (pcf)	Corrected Opt. Water Content (%)
⊠ TP-23	0 - 1	11.5	111.1	12.9

Testing performed in general accordance with ASTM D1557 Method A.
Oversized correction method performed in general accordance with ASTM D4718.
NP = Nonplastic
NM = Not Measured

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

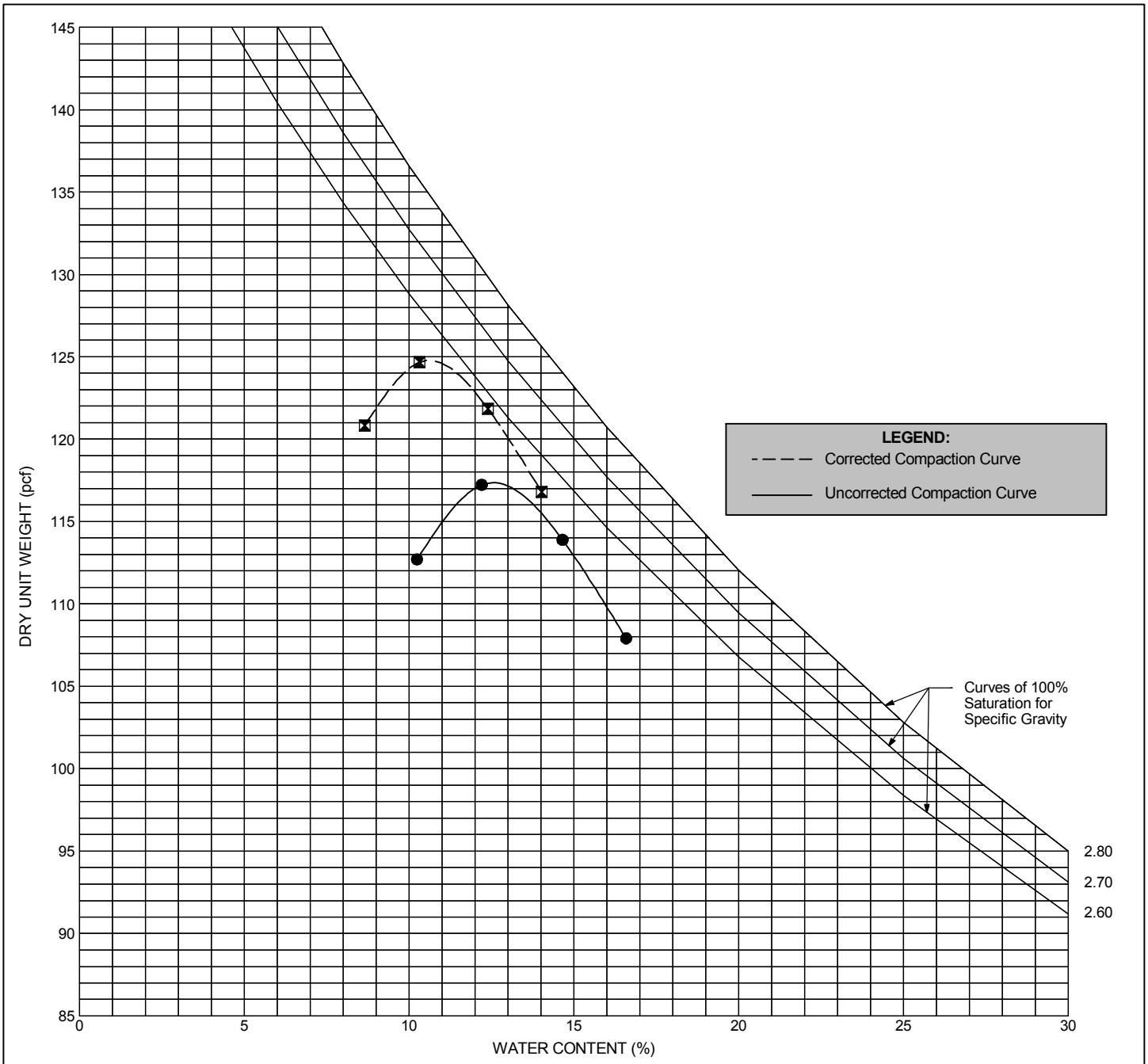
COMPACTION CURVE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-36

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_COMP CURVE (2.6 - 2.8 AV)RC]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/22/2019 01:17 PM BY: MPalmer



Exploration ID	Depth (ft.)	Sample Description
● TP-26	0 - 1	SILTY, CLAYEY SAND with GRAVEL (SC-SM)

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Uncorrected Max Dry Unit Wt. (pcf)	Uncorrected Opt. Water Content (%)
92	85	39	25	19	6	117.4	12.6

Exploration ID	Depth (ft.)	Fraction > #4 sieve (%)	Corrected Max Dry Unit Wt. (pcf)	Corrected Opt. Water Content (%)
⊠ TP-26	0 - 1	15.4	122.7	10.8

Testing performed in general accordance with ASTM D1557 Method A.
Oversized correction method performed in general accordance with ASTM D4718.
NP = Nonplastic
NM = Not Measured

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

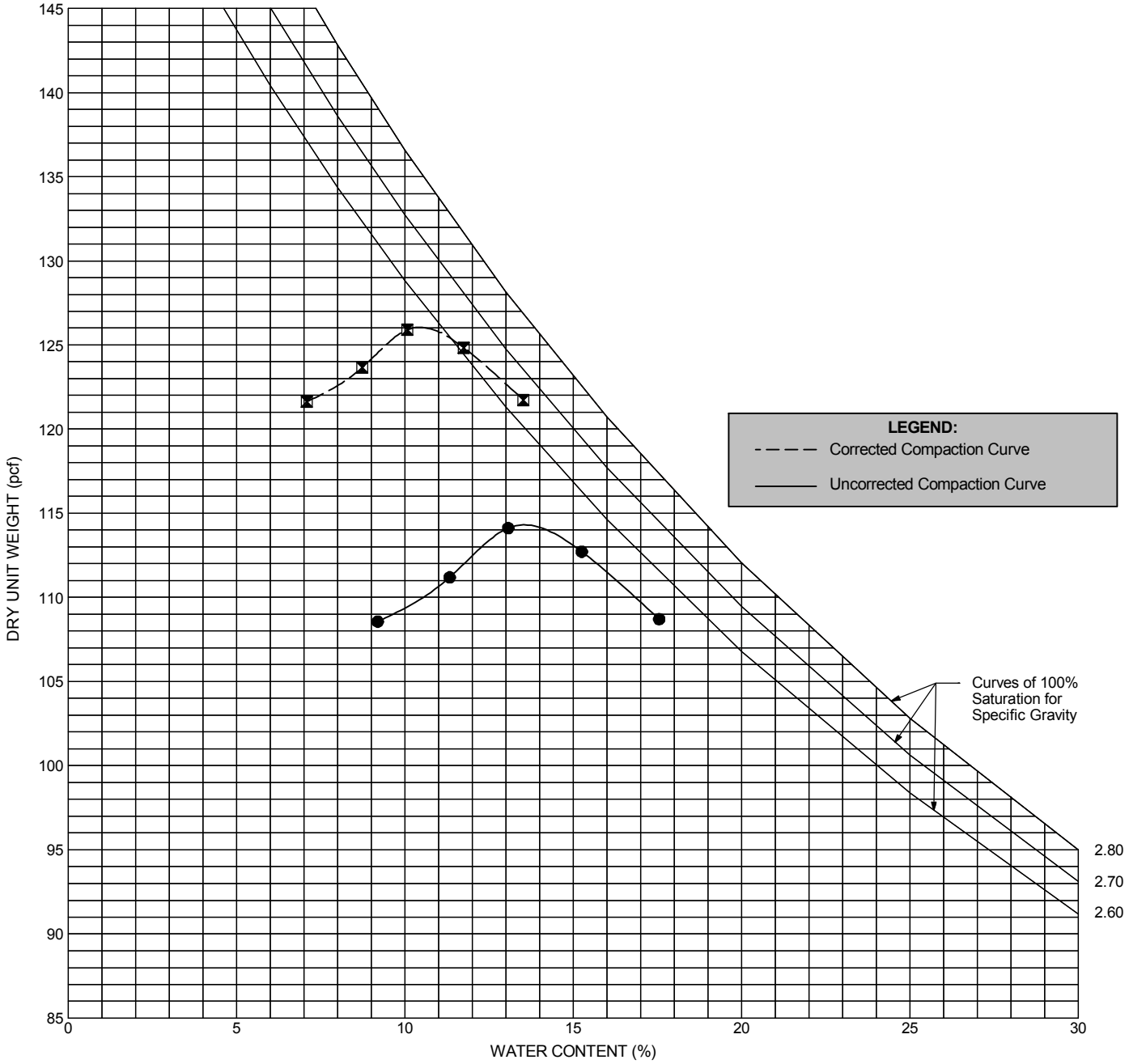
COMPACTION CURVE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-37

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [_KLF_COMP CURVE (2.6 - 2.8 AV)RC]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/22/2019 01:18 PM BY: MPalmer



Exploration ID	Depth (ft.)	Sample Description
● TP-28	0 - 1	SILTY GRAVEL with SAND (GM)

Passing 3/4"	Passing #4	Passing #200	LL	PL	PI	Uncorrected Max Dry Unit Wt. (pcf)	Uncorrected Opt. Water Content (%)
77	59	24	NP	NP	NP	114.3	13.5

Exploration ID	Depth (ft.)	Fraction > 3/4" sieve (%)	Corrected Max Dry Unit Wt. (pcf)	Corrected Opt. Water Content (%)
⊠ TP-28	0 - 1	23.0	123.1	10.6

Testing performed in general accordance with ASTM D1557 Method C.
Oversized correction method performed in general accordance with ASTM D4718.
NP = Nonplastic
NM = Not Measured

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PROJECT NO.:	20191344
DRAWN BY:	AB, MAP
CHECKED BY:	MNM, JLS
DATE:	2/22/2019
REVISED:	-

COMPACTION CURVE

Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

FIGURE

C-38

gINT FILE: Klf_gint_master_2017
gINT TEMPLATE: E:\KLF_STANDARD_GINT_LIBRARY_2017.GLB [KLF_COMP CURVE (2.6 - 2.8 AV)RC]
PROJECT NUMBER: 20191344.001A
OFFICE FILTER: LAS VEGAS
PLOTTED: 02/22/2019 01:18 PM BY: MPalmer

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Appendix D

APPENDIX D

Thermal Resistivity Results (4 pages)

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info@geothermusa.com

February 7, 2019

Kleinfelder
6280 South Valley View Blvd, Suite 500
Las Vegas, NV 89118
Attn: Marc Moncilovich, PG

Re: Thermal Analysis of Native Soil Samples
Eagle Shadow Mountain Solar, Moapa Indian Reservation, Clark County, NV

The following are the results of thermal dryout tests conducted on ten (10) bulk samples of native soil from the referenced project received at our laboratory.

Thermal Dryout Tests: Per your request, the samples were tested at the 'optimum' moisture content and 85% of the density provided by Kleinfelder. The tests were conducted in accordance with the IEEE standard 442-2017. The results are tabulated below and the thermal dryout curves are presented in **Figures 1 and 2.**

Sample ID, , Soil Description, Thermal Resistivity, Moisture and Dry Density

Sample ID	Description (Kleinfelder)	Thermal Resistivity (°C-cm/W)		Moisture Content (%)	Dry Density (lb/ft^3)
		Wet	Dry		
TP-4 @ 0'-0.5'	Clayey sand w/ gravel	84	180	10	108
TP-15 @ 0'-1'	Sandy silt	70	259	14	95
TP-19 @ 0'-1'	Silty sand w/ gravel	52	199	10	109
TP-23 @ 0'-1'	Silty sand	64	231	13	94
TP-26 @ 0'-1'	Silty, clayey sand w/ gravel	61	197	11	104
SA-4 @ 0.5'-5'	Poorly Graded Sand w/ Gravel	62	133	7	116
SA-20 @ 2.5'-5'	Silty sand	83	203	10	105
SA-24 @ 2.5'-7.5'	Silty, clayey sand w/ gravel	62	141	7	116
SA-25 @ 2.5'-7.5'	Clayey sand w/ gravel	67	147	8	113
SA-27@ 2.5'-5'	Silty sand w/ gravel	58	125	8	114

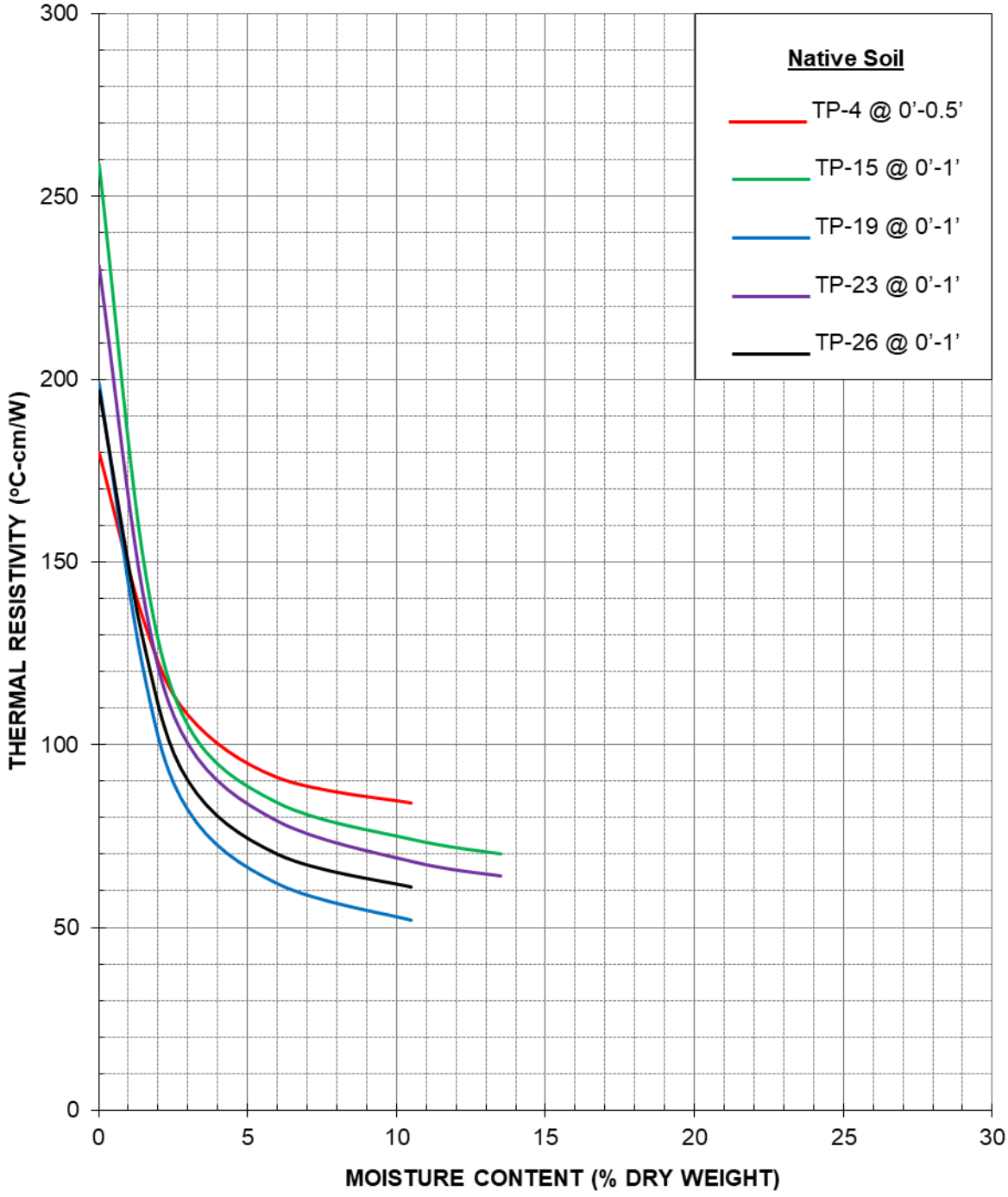
Comments: The thermal characteristics depicted in the dryout curves apply for the samples at their respective test dry density.

Please contact us if you have any questions or if we can be of further assistance.

Geotherm USA

Deepak Parmar

THERMAL DRYOUT CURVES



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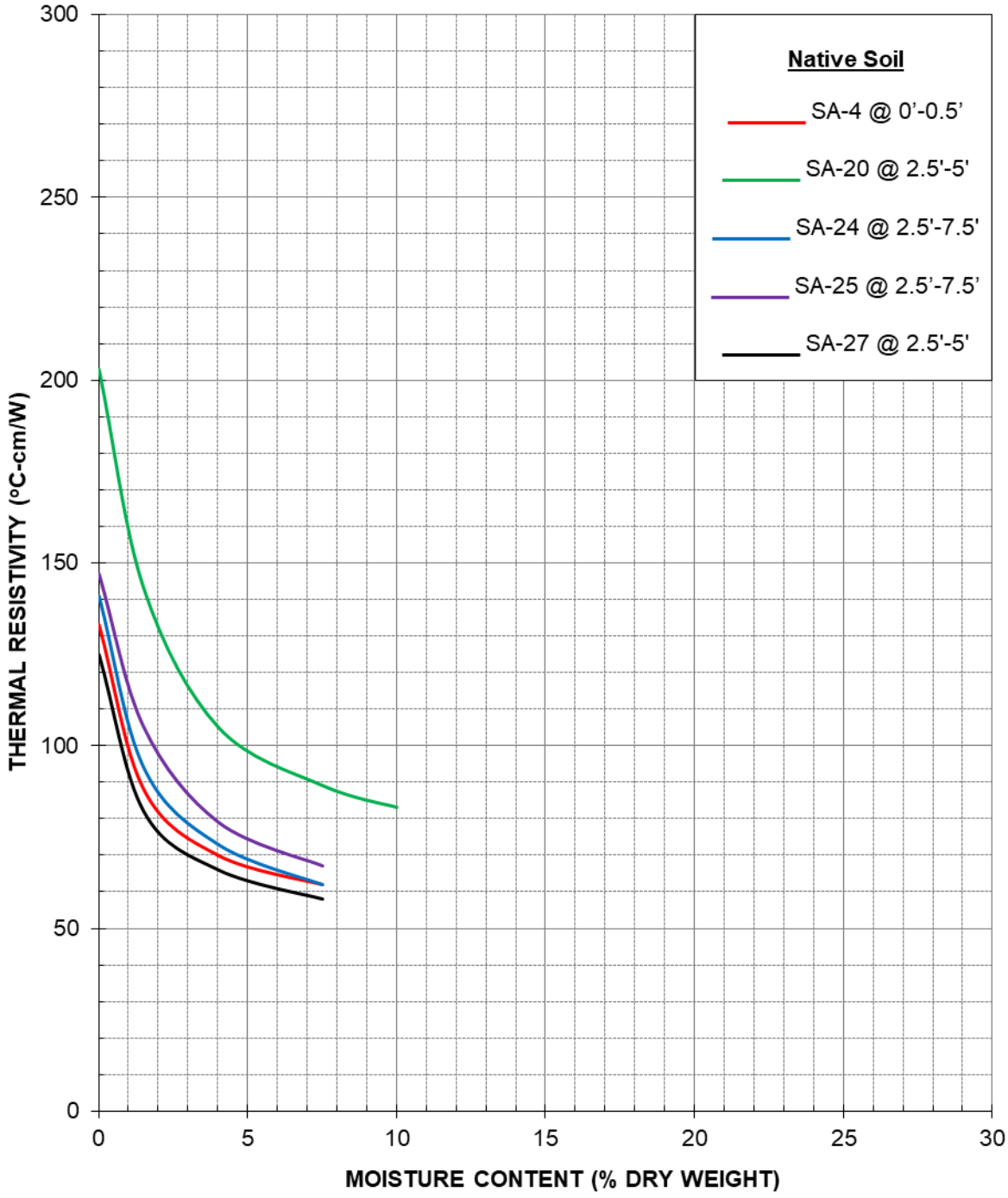
Thermal Analysis of Native Soils

Eagle Shadow Mountain Solar, Moapa Indian Reservation, Clark County, NV

February 2019 **Figure 1**

THERMAL DRYOUT CURVES



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Thermal Analysis of Native Soils

Eagle Shadow Mountain Solar, Moapa Indian Reservation, Clark County, NV

February 2019 **Figure 2**

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Appendix E

APPENDIX E

Soil Chemical Test Results (48 pages)

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6245 Harrison Drive, Suite 4, Las Vegas, NV 89120

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Email: veritaslabs@msn.com

CLIENT NAME: Kleinfelder
6280 S. Valley View Blvd., Ste. 500
Las Vegas, NV 89118

PROJECT MGR: Kris Ross

CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084
DATE RECEIVED AT LAB: Jan-23-2019 14:20

Presented herein are the analytical results for samples received from the above referenced project.

Samples submitted for this project were not sampled by Veritas Laboratories. Unless otherwise noted, samples were received by Veritas Laboratories with proper and complete documentation.

Veritas Laboratories is approved by the Clark County Department of Building as a Quality Assurance Agency (QAA) for inspection and testing services, Category G-CT.

Submitted soil samples for this project were extracted for solubilty parameters in a 1:5 (soil to water) ratio and the results corrected for this dilution.

Should you have any questions or comments regarding this report or if we can be of further service to you, please do not hesitate to contact me at (702) 321-8315.

Sincerely,

Bruce G. Cunningham
Laboratory Director
Veritas Laboratories
Nevada Lab Certification ID NV00918

1/31/19
Date

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

SAMPLE SUMMARY

CLIENT SAMPLE ID	VERITAS SAMPLE ID	MATRIX	DATE/TIME COLLECTED	DATE/TIME RECEIVED
SA-4 @ 0.5-5'	V19A084-01	Soil		1/23/19 14:20
SA-20 @ 2.5-3.0'	V19A084-02	Soil		1/23/19 14:20
SA-21 @ 5'	V19A084-03	Soil		1/23/19 14:20
SA-24 @ 2.5-7.5'	V19A084-04	Soil		1/23/19 14:20
SA-25 @ 2.5-7.5'	V19A084-05	Soil		1/23/19 14:20
SA-27 @ 2.5-7.0'	V19A084-06	Soil		1/23/19 14:20
SA-27 @ 15' SPT	V19A084-07	Soil		1/23/19 14:20
TP 1 : 0-1'	V19A084-08	Soil		1/23/19 14:20
TP 4: 0-0.5'	V19A084-09	Soil		1/23/19 14:20
TP 6 : 0-1'	V19A084-10	Soil		1/23/19 14:20
TP 8 : 0-1'	V19A084-11	Soil		1/23/19 14:20
TP 10 : 0-1'	V19A084-12	Soil		1/23/19 14:20
TP 12 : 0-1'	V19A084-13	Soil		1/23/19 14:20
TP 13 : 0-1'	V19A084-14	Soil		1/23/19 14:20
TP 15 : 0-1'	V19A084-15	Soil		1/23/19 14:20
TP 19 : 0-1'	V19A084-16	Soil		1/23/19 14:20
TP 20 : 0-1'	V19A084-17	Soil		1/23/19 14:20
TP 21 : 0-1'	V19A084-18	Soil		1/23/19 14:20
TP 21 : 4-8'	V19A084-19	Soil		1/23/19 14:20
TP 23 : 0-1'	V19A084-20	Soil		1/23/19 14:20
TP 25 : 0-1'	V19A084-21	Soil		1/23/19 14:20
TP 26 : 0-1'	V19A084-22	Soil		1/23/19 14:20
TP 28 : 0-1'	V19A084-23	Soil		1/23/19 14:20

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **SA-4 @ 0.5-5'**
VERITAS SAMPLE ID: V19A084-01
DATE/TIME SAMPLED: 1/23/19 0:00
DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.88**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**197**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**49000**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**4100**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0023**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0090**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**1.6**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.0072**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.010**	%	SM 2540C	1/29/19
Water Soluble Chloride	**25**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **SA-20 @ 2.5-3.0'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-02 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.48**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**201**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**8000**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**745**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.021**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.060**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**<0.50**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.065**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.032**	%	SM 2540C	1/29/19
Water Soluble Chloride	**180**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **SA-21 @ 5'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-03 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.75**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**231**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**12500**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**1600**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0086**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0060**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**0.77**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.0089**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.0098**	%	SM 2540C	1/29/19
Water Soluble Chloride	**60**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **SA-24 @ 2.5-7.5'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-04 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.74**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**229**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**16000**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**1720**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0042**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.028**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**2.1**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.013**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.014**	%	SM 2540C	1/29/19
Water Soluble Chloride	**45**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **SA-25 @ 2.5-7.5'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-05 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.52**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**242**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**5100**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**800**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.018**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.075**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**0.85**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.055**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.036**	%	SM 2540C	1/29/19
Water Soluble Chloride	**140**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **SA-27 @ 2.5-7.0'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-06 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.87**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**246**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**26500**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**3100**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0050**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0090**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**0.64**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.013**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.017**	%	SM 2540C	1/29/19
Water Soluble Chloride	**45**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **SA-27 @ 15' SPT** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-07 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.30**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**273**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**1000**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**330**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.015**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.41**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**0.56**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.046**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.13**	%	SM 2540C	1/29/19
Water Soluble Chloride	**120**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP I : 0-1'**
VERITAS SAMPLE ID: V19A084-08
DATE/TIME SAMPLED: 1/23/19 0:00
DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.70**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**251**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**4200**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**2700**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0021**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0080**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**2.5**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.0065**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.0074**	%	SM 2540C	1/29/19
Water Soluble Chloride	**25**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 4: 0-0.5'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-09 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.64**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**277**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**4450**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**1550**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0019**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0045**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**27**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.0060**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.010**	%	SM 2540C	1/29/19
Water Soluble Chloride	**40**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 6 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-10 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**7.96**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**261**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**880**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**135**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.070**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.22**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**<0.50**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.22**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.15**	%	SM 2540C	1/29/19
Water Soluble Chloride	**1200**	mg/Kg	SM 4500-Cl B	1/29/19

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(702) 597-2098 Fax
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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 8 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-11 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**7.89**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**284**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**675**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**100**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.060**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.20**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**1.8**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.19**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.18**	%	SM 2540C	1/29/19
Water Soluble Chloride	**1800**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 10 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-12 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.65**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**267**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**9500**	Ohm-cm	ASTM G57	1/25/19
Resistivity (Saturated)	**2650**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0015**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0015**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**1.5**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.0022**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.023**	%	SM 2540C	1/29/19
Water Soluble Chloride	**25**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 12 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-13 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.48**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**272**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**7200**	Ohm-cm	ASTM G57	1/28/19
Resistivity (Saturated)	**1250**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0023**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.016**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**1.2**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.0073**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.012**	%	SM 2540C	1/29/19
Water Soluble Chloride	**20**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 13 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-14 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.73**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**267**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**5500**	Ohm-cm	ASTM G57	1/28/19
Resistivity (Saturated)	**2700**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0015**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0035**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**1.3**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.0046**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.0098**	%	SM 2540C	1/29/19
Water Soluble Chloride	**0.0**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 15 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-15 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.79**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**269**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**9400**	Ohm-cm	ASTM G57	1/28/19
Resistivity (Saturated)	**3000**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0015**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0040**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**0.76**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.0045**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.0082**	%	SM 2540C	1/29/19
Water Soluble Chloride	**35**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 19 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-16 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.69**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**294**	mV	SM 2580B	1/28/19
Resistivity (as Received)	**5200**	Ohm-cm	ASTM G57	1/28/19
Resistivity (Saturated)	**2100**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0012**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0070**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**0.61**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.0038**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.010**	%	SM 2540C	1/29/19
Water Soluble Chloride	**30**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 20 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-17 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.71**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**176**	mV	SM 2580B	1/29/19
Resistivity (as Received)	**3950**	Ohm-cm	ASTM G57	1/28/19
Resistivity (Saturated)	**3290**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0016**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0035**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**2.3**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.0049**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.019**	%	SM 2540C	1/29/19
Water Soluble Chloride	**25**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 21 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-18 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.67**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**133**	mV	SM 2580B	1/29/19
Resistivity (as Received)	**4600**	Ohm-cm	ASTM G57	1/28/19
Resistivity (Saturated)	**1400**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0072**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0080**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**<0.50**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.012**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.023**	%	SM 2540C	1/29/19
Water Soluble Chloride	**70**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 21 : 4-8'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-19 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.29**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**195**	mV	SM 2580B	1/29/19
Resistivity (as Received)	**900**	Ohm-cm	ASTM G57	1/28/19
Resistivity (Saturated)	**180**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.11**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.80**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**<0.50**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.35**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.32**	%	SM 2540C	1/29/19
Water Soluble Chloride	**520**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 23 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-20 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.55**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**198**	mV	SM 2580B	1/29/19
Resistivity (as Received)	**9800**	Ohm-cm	ASTM G57	1/28/19
Resistivity (Saturated)	**3100**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0011**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0065**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**<0.50**	mg/Kg	SM 4500-S2-D	1/30/19
Total Available Water Soluble Sodium Sulfate	**0.0034**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.0086**	%	SM 2540C	1/29/19
Water Soluble Chloride	**20**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 25 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-21 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.49**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**198**	mV	SM 2580B	1/29/19
Resistivity (as Received)	**26500**	Ohm-cm	ASTM G57	1/28/19
Resistivity (Saturated)	**3200**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0016**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0010**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**<0.50**	mg/Kg	SM 4500-S2-D	1/31/19
Total Available Water Soluble Sodium Sulfate	**0.0015**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.0092**	%	SM 2540C	1/29/19
Water Soluble Chloride	**25**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 26 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-22 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.66**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**211**	mV	SM 2580B	1/29/19
Resistivity (as Received)	**6650**	Ohm-cm	ASTM G57	1/28/19
Resistivity (Saturated)	**3460**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.00097**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0035**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**4.7**	mg/Kg	SM 4500-S2-D	1/31/19
Total Available Water Soluble Sodium Sulfate	**0.0030**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.016**	%	SM 2540C	1/29/19
Water Soluble Chloride	**0.0**	mg/Kg	SM 4500-Cl B	1/29/19

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CLIENT COMPANY NAME: Kleinfelder
CLIENT PROJECT NAME: **Eagle Shadow Mountain**
CLIENT PROJECT NUMBER: 20191344
VERITAS LAB ORDER ID: V19A084

ANALYTICAL RESULTS

CLIENT SAMPLE ID: **TP 28 : 0-1'** DATE/TIME SAMPLED: 1/23/19 0:00
VERITAS SAMPLE ID: V19A084-23 DATE/TIME RECEIVED: 1/23/19 14:20

Matrix: Soil

Analysis: Soil Solubility/Corrosion Parameters

PARAMETER	RESULT	UNITS	METHOD	DATE ANALYZED
pH	**8.48**	pH Units	EPA 9045 D	1/25/19
Redox Potential (ORP)	**220**	mV	SM 2580B	1/29/19
Resistivity (as Received)	**10500**	Ohm-cm	ASTM G57	1/28/19
Resistivity (Saturated)	**2750**	Ohm-cm	ASTM G57	1/30/19
Water Soluble Sodium	**0.0011**	%	EPA 6010B	1/29/19
Water Soluble Sulfate	**0.0010**	%	SM 4500-SO4 E	1/29/19
Soluble Sulfide	**0.84**	mg/Kg	SM 4500-S2-D	1/31/19
Total Available Water Soluble Sodium Sulfate	**0.0015**	%	Calculation	1/29/19
Total Soluble Salts (Solubility)	**0.0084**	%	SM 2540C	1/29/19
Water Soluble Chloride	**0.0**	mg/Kg	SM 4500-Cl B	1/29/19

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

V19A084-01

Client: Kleinfelder Date/Time Sampled: _____

Project Name: East Norriton Project Number: 20191344

Lab #: _____ Sample ID: SA-4 @ 0.5-5'

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resicivity~~** ASTM G57, run as received then saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

Other Tests: _____

Received: B. G/L
1/23/19, 2:20p
23.5°C

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

V19A084-02

Client: Kleinfelder Date/Time Sampled:

Project Name: Eagle Shadow Mountain Wash Project Number: 20191349

Lab #: Sample ID: SA-20 @ 2.5-3.01

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resisivity~~** ASTM G57, run as received then saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: Kleinfelder Date/Time Sampled: 11A084-03

Project Name: Eagle Shadow Mtn Project Number: 209134

Lab #: 14 Sample ID: 5921-5'

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ASTM G57 run as recieved then saturated
  ~~Soluble Sodium, Soluble Sulfate~~, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates
  ___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride
  ___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

V19A084-04

Client: Kleinfelder Date/Time Sampled:

Project Name: ~~Eagle Shadow Mountain Solar~~ Project Number: 20191344

Lab #: Sample ID: ~~SA-24 @ 2.5-7.5'~~

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resisivity~~** ASTM G57, run as received than saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

V19A084-05

Client: Kleinfelder Date/Time Sampled:

Project Name: Eagle Mountain Solar Project Number: 20141344

Lab #: Sample ID: SA-25 @ 2.5-7.5'

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility** (Total Salts), ~~AASHTO Resisivity~~ ASTM G57 Run as received, Then saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

V19A084-06

Client: Kleinfelder Date/Time Sampled: _____

Project Name: Eagle Shadow Mtn Solar Project Number: 20191344

Lab #: _____ Sample ID: SH-27 @ 2.5-7.0'

- [ ] **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- [ ] **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- [ ] **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- [ ] **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- [ ] **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- [x] **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), AASHTO Resistivity** ASTM G57, run as received Then saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- [ ] **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- [ ] **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- [ ] **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- [ ] **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

VERITAS LABORATORTIES

VTA084-07

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: Kleinfelder
Date/Time Sampled: 11:27AM 1-15-19 DG
Project Name: Eagle Shadow NT
Project Number: 20191214 (T)
Lab #: Las Vegas
Sample ID: S-1 27 @ 15' SPT

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ASTM G57 run as received then saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride
___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)
___ Other Tests

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORRESTION TESTING ORDER FORM

U19A084-08

Client: KLEINFELDE Date/Time Sampled: _____

Project Name: Eagle Shadow Mountain Project Number: 2019 1344

Lab #: _____ Sample ID: TP1 10-1'

- [ ] **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- [ ] **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- [ ] **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- [ ] **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- [ ] **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- [x] **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), AASHTO Resistivity** ASTM G57 Then saturated / Run as received
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- [ ] **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- [ ] **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- [ ] **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- [ ] **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: _____ Date/Time Sampled: _____

Project Name: Eagle Shadow Mt Project Number: 20191344

Lab #: _____ Sample ID: TP4 : 0-015' 119084-09

☐ **Soil Solubility Suite #1: WSSS**

Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates

☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates

☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**

Soluble Sulfate, Solubility (Total Salts), Soluble Chloride

☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates

☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ASTM G57, run as received / Then saturated

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates

☐ **Corrosion Suite**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates

☐ **Corrosion Suite w/Resistivity**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates

*_____ NDOT (T235) *_____ AASHTO (T288)

☐ **Corrosion Suite w/Solubility (Total Salts)**

Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: KLEINFELDER Date/Time Sampled: _____

Project Name: Eagle Shadow Mountain Project Number: 20191344

Lab #: _____ Sample ID: _____

TP6 : 0-1' V19A084-10

☐ **Soil Solubility Suite #1: WSSS**
Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates

☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates

☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
Soluble Sulfate, Solubility (Total Salts), Soluble Chloride

☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates

☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ASTM G57 1 run as received Then saturated
Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates

☐ **Corrosion Suite**
Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates

☐ **Corrosion Suite w/Resistivity**
Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
*_____ NDOT (T235) *_____ AASHTO (T288)

☐ **Corrosion Suite w/Solubility (Total Salts)**
Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride
___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: KLEINFELDER

Project Name: Eagle Shadow Mountain Date/Time Sampled:

Lab #: Sample ID: Project Number: 2019344

TP8:0-1' 119A084-11

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resisivity~~** ASTM G57, run as received Then saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates
  ___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride
  ___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)
  Other Tests

...TAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: KLEINFELDER Date/Time Sampled: _____

Project Name: Eagle Shadow Mountain Project Number: 20191344

Lab #: _____ Sample ID: _____

V19A084-12

TP10 : 0-1'

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ASTM G57, run as received Then saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

V19A084-13

Client: KLEINFELDER Date/Time Sampled: _____

Project Name: Eagle Shadow Mt Project Number: 20191344

Lab #: _____ Sample ID: _____

TP 12 : 0-1'

ASTM G57

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ! run as received, Then saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

~~Other Tests~~

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: Kleinfelder Date/Time Sampled: 9:23 AM 1-15-18 DG

Project Name: Eagle Shadow MT Project Number: 20191344 (G)

Lab #: Las Vegas Sample ID: TP13 0-1'

V19A084-14

☐ **Soil Solubility Suite #1: WSSS**

Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates

☐ **Soil Solubility Suite #2: WSS$ & Solubility (Total Salts)**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates

☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**

Soluble Sulfate, Solubility (Total Salts), Soluble Chloride

☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates

ran AS recieved

☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ASTM G57 then Sturated

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates

☐ **Corrosion Suite**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates

☐ **Corrosion Suite w/Resistivity**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates

*_____ NDOT (T235) *_____ AASHTO (T288)

☐ **Corrosion Suite w/Solubility (Total Salts)**

Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

8:56 a.m

Client: Klein Felder Date/Time Sampled: 1-15-19

Project Name: Eagle Shadow MT Project Number: 2019344 (J)

Lab #: Las Vegas Sample ID: TP-15 @ 0-1'

V19A084-15

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ASTM G57 run as received than saturated.
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: KLEINFELDER Date/Time Sampled:

Project Name: Eagle Shadow Pkt Project Number: 20191349

Lab #: Sample ID: TP19:0-11

V19A084-16

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ASTM G57 run as received, Then saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, **Resistivity***, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

Other Tests:

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: Kleinfelder Date/Time Sampled: 9:25 AM 1-5-19 DG

Project Name: eagle shadow MT Project Number: 20191344 (7)

Lab #: Las Vegas Sample ID: TP 20 @ 0-1

V19A084-17

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSS$ & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ASTM G57 run AS recieved then saturated.
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

Other Tests: ___

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: Kleinfelder Date/Time Sampled: _____

Project Name: Eagle Mt Project Number: 20191344

Lab #: _____ Sample ID: _____ TP21 10-11

V19A084-18

☐ **Soil Solubility Suite #1: WSSS**

Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates

☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates

☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**

Soluble Sulfate, Solubility (Total Salts), Soluble Chloride

☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates

☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ASTM 657 Run as received Then Saturated

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates

☐ **Corrosion Suite**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates

☐ **Corrosion Suite w/Resistivity**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates

*_____ NDOT (T235) *_____ AASHTO (T288)

☐ **Corrosion Suite w/Solubility (Total Salts)**

Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

~~Other Tests~~

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: _____ Date/Time Sampled: _____

Project Name: Eagle Shadow Mt Project Number: 20197344

Lab #: _____ Sample ID: TP21i4-8' N9A084-19

☐ **Soil Solubility Suite #1: WSSS**

Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates

☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates

☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**

Soluble Sulfate, Solubility (Total Salts), Soluble Chloride

☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates

☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** ASTM G57 run as received then saturated

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates

☐ **Corrosion Suite**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates

☐ **Corrosion Suite w/Resistivity**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates

*_____ NDOT (T235) *_____ AASHTO (T288)

☐ **Corrosion Suite w/Solubility (Total Salts)**

Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

~~Other Tests~~

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: Kleinfelder Date/Time Sampled: 9:08 AM 1-15-19 DG

Project Name: Eagle Shadow MT Project Number: 20191344 (7)

Lab #: Las Vegas Sample ID: TP 23 @ 0-1'

19A084-20

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6:** Corrosion Suite w/Solubility (Total Salts), ~~**AASHTO Resistivity**~~ ASTM G57 run 45 reviewed than Saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

71.0

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: KLEINFELDER Date/Time Sampled: _____

Project Name: Eagle Mountain Shadow Project Number: 20191344

Lab #: _____ Sample ID: _____

TP25 : 0-1'

V19A084-21

- ☐ **Soil Solubility Suite #1: WSSS**
  Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates
- ☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
  Soluble Sulfate, Solubility (Total Salts), Soluble Chloride
- ☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
  Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates
- ☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), AASHTO Resistivity** ASTM G57, as received, the saturated
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates
- ☐ **Corrosion Suite**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates
- ☐ **Corrosion Suite w/Resistivity**
  Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
  *_____ NDOT (T235) *_____ AASHTO (T288)
- ☐ **Corrosion Suite w/Solubility (Total Salts)**
  Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

~~Other Tests~~

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: KLEINFELDER Date/Time Sampled: _____

Project Name: _____ Project Number: 20191344

Lab #: _____ Sample ID: TP26 : 0-11

V19A084-22

☐ **Soil Solubility Suite #1: WSSS**

Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates

☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates

☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**

Soluble Sulfate, Solubility (Total Salts), Soluble Chloride

ASTM G57

☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**

Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates

☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** , run as received, Then saturated

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates

☐ **Corrosion Suite**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates

☐ **Corrosion Suite w/Resistivity**

Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates

*_____ NDOT (T235) *_____ AASHTO (T288)

☐ **Corrosion Suite w/Solubility (Total Salts)**

Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride

___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

VERITAS LABORATORTIES

SOIL SOLUBILITY AND CORROSION TESTING ORDER FORM

Client: Kleinfelder Date/Time Sampled: 9:50AM 1-15-19

Project Name: eagle shadow MT Project Number: 20191344 (J)

Lab #: Las Vegas Sample ID: TP-28 @ 0-1

19A0844-23

☐ **Soil Solubility Suite #1: WSSS**
Soluble Sodium, Soluble Sulfate, Total Sodium Sulfates

☐ **Soil Solubility Suite #2: WSSS & Solubility (Total Salts)**
Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #3: WSSS, Solubility, pH, Soluble Chloride**
Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), pH, Soluble Chloride, Total Sodium Sulfates

☐ **Soil Solubility Suite #4: Sulfate, Solubility (Total Salts), Soluble Chloride**
Soluble Sulfate, Solubility (Total Salts), Soluble Chloride

☐ **Soil Solubility Suite #5: WSSS, Solubility (Total Salts), Soluble Chloride**
Soluble Sodium, Soluble Sulfate, Solubility (Total Salts), Soluble Chloride, Total Sodium Sulfates

☒ **Soil Solubility Suite #6: Corrosion Suite w/Solubility (Total Salts), ~~AASHTO Resistivity~~** run as received ASTM G57 than saturated
Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (AASHTO), Solubility (Total Salts), Total Sodium Sulfates

☐ **Soil Solubility Suite #7: Corrosion Suite w/Solubility (Total Salts), NDOT Resistivity**
Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity (NDOT), Solubility (Total Salts), Total Sodium Sulfates

☐ **Corrosion Suite**
Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Total Sodium Sulfates

☐ **Corrosion Suite w/Resistivity**
Soluble Sodium, Soluble Sulfate, Soluble Chloride, pH, Redox, Sulfide, Resistivity*, Total Sodium Sulfates
*_____ NDOT (T235) *_____ AASHTO (T288)

☐ **Corrosion Suite w/Solubility (Total Salts)**
Soluble Sodium, Soluble Sulfate, Chloride, pH, Redox, Sulfide, Solubility (Total Salts), Total Sodium Sulfates

___ Sulfate ___ Solubility (Total Salts) ___ pH ___ Chloride
___ Resistivity (NDOT T235) ___ Resistivity (AASHTO T288)

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Appendix F

APPENDIX F

Corrosion Control Recommendations (6 pages)

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April 10, 2019
Kleinfelder Project No.: 20191344.001A

Mr. Tristan Cooke, PE, LEED-AP
325MK 8me LLC
211 Sutter Street; 6th Floor
San Francisco, CA 94108

SUBJECT: Corrosion Control Recommendations
Eagle Shadow Mountain Solar Project
Moapa River Indian Reservation, USA

Dear Mr. Cooke:

Per your request, Kleinfelder, Inc. (Kleinfelder) presents corrosion control recommendations for the Eagle Shadow Mountain Solar Project, a photovoltaic (PV) solar electric generating project planned in Moapa River Indian Reservation, north of Las Vegas, Nevada. Kleinfelder performed geotechnical investigation for the project (Project number 20191344.001A, report dated 2/27/19).

Kleinfelder assumes that the PV racking will be installed on driven piles fabricated from 6-inch steel beams (W6x7, W6x15, or similar) and that the pile embedment will be approximately 7 to 9 feet. Subsurface data were provided in the geotechnical engineering report by Kleinfelder. We understand the design life of the structure is 40 years.

Based on the soil, groundwater, and laboratory testing data presented in the geotechnical engineering report, as well as material standards and industry reports, Kleinfelder is providing an assessment for galvanic and atmospheric corrosion, estimated corrosion rates, and recommendations for protection against corrosion.

Corrosion is defined as the deterioration of a metal that results from a reaction with its environment. "External corrosion" occurs below grade, where the pile is in contact with soil but at depths where relatively anoxic soils conditions exist. "Atmospheric corrosion" occurs within the soil to air transition zone located approximately 18-inches below grade to the top of pile above grade and is primarily due to moisture and oxygen but can be accentuated by other airborne contaminants such as sodium chloride.

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CORROSION EVALUATION

Information presented in the following paragraphs was considered in assessing the potential for external and atmospheric corrosion of the piles for the subject project.

Surface Conditions:
The proposed site is located in undeveloped desert. The site slopes overall down from the west to the east. Cemented soils, cobbles, and boulders were observed at the ground surface. A cover of typical desert vegetation was also present. Several washes up to several feet deep and a few to more than 10 feet wide are present at the site.

Subsurface:
The near surface soils encountered in the explorations generally consisted of medium dense to very dense granular soils. The granular soils encountered had silt and clay contents ranging from approximately 20 to 40 percent with plasticity indices typically ranging from non-plastic to 15. Near-surface, high-plasticity, fine-grained soils were present in a few of the explorations, generally located near the center and eastern portions of the site.

Climate:
The site is located where the average rainfall for the year is approximately 5 inches[1].

Laboratory Test Results:
The geotechnical engineering report provided laboratory chemical test results on 23 samples. A summary of the results is presented in Table 1.

Table 1 – Laboratory Test Results Summary

	Chloride Concentration (ppm)	Sulfate Concentration (ppm)	Red-Ox Potential (mV)	pH
Minimum Value	0	10	133	8
Average Value	193	835	234	8.5
Maximum Value	1800	8000	294	8.9

10 Sulfide concentrations >1 ppm with maximum value of 27 ppm for all samples.
ppm – Parts per Million;
mV – millivolt

Field Resistivity Test Results:
The geotechnical engineering report provided results of 20 in-situ soil resistivity lines using the Wenner four-pin method (ASTM method G57). This reading type by nature of the test is averaged to a depth equal to the pin spacing; therefore this test considers the entire depth. Resistivity results from depths up to 70' were considered for the corrosion rate calculations.

[1] https://www.usclimatedata.com/climate/north-las-vegas/nevada/united-states/usnv0142

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Table 2 – Field Resistivity Test Results (Ω-cm)

Test Location	Spacing (ft)											
	2.5	5	7.5	10	15	20	25	30	40	50	60	70
Min. Value	22,809	10,284	6,960	4,276	3,266	2,486	3,086	3,250	2,123	1,650	1,327	1,180
Ave. Value	254,005	122,596	60,767	39,885	22,253	13,756	11,659	9,504	6,101	4,639	3,726	3,208
Max. Value	699,974	474,948	213,008	185,019	84,227	44,890	28,334	24,446	12,303	8,420	5,487	5,290
Overall Avg.	46,008											

CONCLUSIONS AND RECOMMENDATIONS

Through the design life of the piles, galvanization is first consumed in the zones of external and atmospheric corrosion. Once the galvanization is consumed, the steel begins to corrode. The design life of the pile is, therefore, the sum of the time that it takes to consume the galvanization and the time that it takes to reduce the steel section down to a level that is no longer structurally stable.

Above-Grade Corrosion

Corrosion of the components above grade is related to humidity, chemical contaminants and pollutants in the air, and other factors. Considering the site's semi-rural location, we estimate the Corrosivity Category to be C2, based on ISO 9223.

Below-Grade Corrosion

Based on the provided data, site soils exhibit non-corrosive resistivity (averaging 46,008 ohm-cm), moderate concentration of sulfates, extremely high concentration of chlorides, moderately corrosive soil oxidation reduction (redox, average 234 mV), and pH values indicating strongly alkaline soils.

Soils with these combined properties are considered to be moderately corrosive to metals. The representative soils used for analysis were chosen based upon their similar soil chemistry as well as their mechanical properties (grain type, size, and relative amounts).

Higher resistivity contributes to the soil being less conductive and therefore less corrosive. The AGA Service Life of Galvanized Steel Article indicates that high chlorides (above 20 ppm) will shorten the extended service life, however, alkaline soils can outweigh this effect. Moderate soil oxidation reduction (100 - 200 mV) indicates that anaerobic bacterial corrosion is likely in undisturbed soils. Due to the presence of cemented soils and cobbles, pre-drilling of pile locations will be employed, thus, the pile will be installed in disturbed soil. Given the very low moisture climate and given that PV development does not involve irrigation or significant site grading, it is unlikely the disturbance will increase the corrosion rates.

Kleinfelder understands that the foundation designer will specify the required galvanization coating considering the allowable steel loss and the structural capacity of the pile. Corrosion rate of galvanization and bare steel was

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evaluated for external and atmospheric corrosion. All piles will be exposed to both corrosion regimes therefore Kleinfelder presents only one corrosion rate based on the controlling exposure. The magnitude of corrosion loss should be anticipated on both sides of the flanges and web of the piles. The structural engineer should consider the potential corrosion loss when sizing the piles.

The estimated time to zinc depletion for hot- dipped galvanization that conforms to ASTM A123 (approximately 3 mil coating) is more than 40 years. After depletion of the galvanization coating, bare steel in contact with earth would expect to see metal loss similar to the following:

Table 3 – Estimated Corrosion Rates to Piles after Depletion of Galvanization

Time of Exposure (years)	Approximate Loss of Material per Exposed Face
	Bare Steel (mil)
10	9
20	12
25	14
30	15
35	17
40	18

Grounding of posts with buried, bare copper wire presents a risk to the galvanization from dissimilar metal corrosion. Dissimilar metal corrosion can occur if there is no shielding between the copper grounding wire and the grounded pile when in close proximity to each other. This dissimilar metal corrosion could accelerate the corrosion rate of the zinc in the vicinity of the copper wire. Providing special fasteners, at the connection between the galvanized post and bond wire that are designed to reduce corrosion, can alleviate the corrosion circuit. Alternately, electrical shielding of ground wires could be accomplished by insulating wires (i.e. THHN) that connect the grounded pile to the grounding trunk line, up to a distance of 10 feet.

LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession, practicing in the same locality, under similar conditions, and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Structural recommendations are not included in this corrosion evaluation. Kleinfelder makes no other representation, guarantee or warranty (express or implied), regarding the services, communication (oral or written), report, opinion, or instrument of service provided. This report may be used only by 325MK 8me LLC and the registered design professional in responsible charge and only for the purposes stated for this specific engagement within a reasonable time from its issuance, but in no event later than one year from the date of the report.

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CLOSING

The opinions and statements included in this letter are subject to the limitations presented above. We appreciate the opportunity of providing our services for this project. If you have questions regarding this letter or, if we may be of further assistance, please contact the undersigned.

Sincerely,

KLEINFELDER, INC.

Christopher Strout, PE, NACE CP3, #69107
Engineering Supervisor

Marc Moncilovich
Geotechnical Project Manager

Christopher Strout, NV PE #023421

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Exhibit D

Substation - View 1

Substation - View 2

Exhibit F

Appendix H

Decommissioning Plan

CONCEPTUAL DECOMMISSIONING PLAN

EAGLE SHADOW MOUNTIAN SOLAR PROJECT

CLARK COUNTY, NEVADA

June 2019

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FIGURES

Figure 1: Project Location

Figure 2: Project Area

Acronyms and Abbreviations

BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
CSP	Concentrating Solar Power
EPA	Environmental Protection Agency
ESA	Environmental Site Assessment
NEPA	National Environmental Policy Act
O&M	Operations and Maintenance
Project	Eagle Shadow Mountain Solar Project
PV	Photovoltaic
PPA	Power Purchase Agreement
RCRA	Resource Conservation and Recovery Act
Reservation	Moapa River Indian Reservation
TSCA	Toxic Substances Control Act

1 Introduction

1.1 Purpose of the Decommissioning Plan

The purpose of this Decommissioning Plan is to establish the conceptual methodologies that would be employed for decommissioning activities associated with the permanent closure of the facilities at the Eagle Shadow Mountain Solar Project (Project or facility). The actions implemented during the facility closure would be determined based on the expected future use of the site. Therefore, a more detailed decommissioning plan would be developed in advance of the start of decommissioning activities.

The Project is expected to operate at a minimum for the life of the term of the Power Purchase Agreement with NV Energy (30 years). Because much of the needed electrical infrastructure will have been developed, it is possible that the solar field would continue to be upgraded and used to generate solar energy even beyond the term of the initial lease and energy purchase agreements, remaining in solar energy production for the foreseeable future. It is also possible that the Tribe could re-purpose the Project site at the termination of solar project. Certain facility components such as the access roads, electrical transmission lines, Operations and Maintenance (O&M) building, and others could be used to support other future uses on this site.

For purposes of developing this plan, it is assumed that if and when the Project is decommissioned, all Project structures and electrical equipment would be removed from the solar field and associated rights-of way (ROWs) and the disturbed areas would be reclaimed in accordance with the Restoration Plan.
This conceptual decommissioning plan addresses the following:

- Project Description
- Regulatory Criteria
- Decommissioning Activities
    - Pre-Decommissioning
    - Removal of Facilities
    - Hazardous Waste Management
    - Debris Management, Disposal, and Recycling
    - Post-Demolition Site Stabilization
- Project Decommissioning Costs and Bonding

As mentioned above, because this document addresses Project actions that would occur well in the future, it will be updated and finalized in the months prior to the scheduled decommissioning. This will ensure the final plan addresses the proposed future land use of the site and the applicable rules and regulations in place at that time.

2 Project Description

2.1 Project Area

The Proposed Project would be located approximately 30 miles northeast of Las Vegas in Clark County, Nevada. The solar project would be located on up to 2,200 acres of tribal trust land, west of I-15 and east of U.S. Highway 93, in Sections 1, 9, 10, 11, 14, 15, 16, 21 and 22 of Township 16 South, Range 64 East. These lands are currently vacant except for roads, pipelines, a tribal aggregate operation, and a well.

The portion of the proposed 12.5-mile gen-tie line located on Tribal lands within the designated utility corridor managed by the BLM occur within Sections 12, 13, and 14 in Township 16 South, Range 64 East; Sections 5, 6, and 7 in Township 16 South, Range 65 East; and Sections 12, 13, 14, 22, 23, 27, 28, 32, and 33 in Township 15 South, Range 65 East. The short segment on Federal lands managed by the BLM would be within Section 7 in Township 16 South, Range 66 East and the portion on private lands owned by NVE adjacent to the Reid-Gardner Substation would be within Sections 5 and 6 in Township 16 South, Range 66 East. All of these lands are adjacent to multiple existing linear electric transmission and pipeline utilities and private lands (owned by NV Energy) adjacent to the Reid-Gardner Substation.

2.2 Proposed Project

The following describes the major features of the proposed Project. For a comprehensive description of the proposed Project, refer to the associated Environmental Impact Statement for the Eagle Shadow Mountain Solar Project for the Project design details.

The Project will consist of an up to 300 megawatt alternating current (MWac) solar energy generating facility using photovoltaic (PV) technology and associated infrastructure. Project components include on-site facilities, off-site facilities, and temporary facilities needed to construct the Project. The solar site would be located entirely on Tribal lands. Major onsite facilities include the solar field comprised of multiple blocks of PV solar panels mounted on single-axis tracking systems, associated inverter and transformer equipment, an energy storage system (ESS), a project substation, and operation and maintenance (O&M) facilities.

The offsite facilities would include an approximately 12.5-mile dual-circuit 230kV gen-tie line located on Tribal lands, BLM-administered lands, and private lands owned by NV Energy. Most of the gen-tie would be within a Federally-designated utility corridor on Tribal lands. This line would require a right-of-way (ROW) width of 125 to 200 feet. The Applicant would construct the gen-tie from the Project substation to a structure located on BLM-administered land in the SW¼ of the NE¼ of Section 7 referred to as the Point of Change of Ownership (POCO). From the POCO structure, the remaining portion of the gen-tie would be constructed by NVE to the Reid Gardner Substation. Additional offsite facilities include an existing road that would provide access to the Project and electric distribution and communication lines.

Temporary facilities that would be removed at the end of construction include laydown and construction areas and water storage tanks also located on Tribal lands.

Power produced by the Project would be conveyed to the regional transmission system via the gen-tie interconnection to NVE's existing 230kV Reid-Gardner Substation.

Access Roads

The Project would require vehicular access for construction, operation, and maintenance. The access roads would be utilized for delivery of all Project components, and would be used by workers traveling to and from the site for construction. Main access to the ESMSP site for construction and through operations and decommissioning would be provided via existing roads. Access to this portion of the Reservation would be via I-15, US Highway 93, and North Las Vegas Boulevard to existing improved roads on the Reservation and would not be reclaimed.

Within the solar field, access ways would be built to provide vehicle access to the solar equipment (PV modules, inverters, transformers) for O&M activities. These access ways would be located around the arrays and between the panel rows in the solar field. The existing soil surface of all interior access ways would be graded. In addition to grading, interior access ways that lead to inverter stations would be compacted using onsite materials. The access roads within the solar facility would be reclaimed during decommissioning.

Most of the structures along the proposed gen-tie line would be accessed via new spur roads constructed from existing utility access roads. Where the proposed line does not parallel existing lines, a new road would be developed within the ROW to facilitate access to the gen-tie transmission structures. New gen-ties access roads and spur roads would typically be 12 feet wide and bladed and would be compacted to ensure stability if needed. Access roads parallel to the gen-tie alignment and spur roads would be left in place but would not be maintained following construction. New and existing gen-tie access roads would not be reclaimed during decommissioning.

3 Regulatory Criteria

During the decommissioning process, all activities will be conducted in compliance with all applicable Federal and Tribal regulations in place at the time. Consultation with the Tribe, BIA, BLM, and any other involved entities would be conducted to ensure that all Federal and Tribal requirements are addressed.

The primary guidance documents for decommissioning will be the Final Decommissioning Plan (prepared just in advance of project closure) and the Restoration Plan.

Federal requirements involving hazardous wastes and toxic substances will also be followed during decommissioning activities. Among these are the Toxic Substances Control Act (TSCA) (15 U.S.C. §2601) that requires reporting, record-keeping and testing requirements and restrictions relating to the use and disposal of chemical substances and/or mixtures. TSCA also addresses the production, importation, use and disposal of specific chemicals (EPA 2016). The Resource Conservation and Recovery Act (RCRA) (42 U.S.C. §6901) gives the EPA the authority to control hazardous waste from its generation until its disposal, including transportation, treatment, and storage (EPA 2011).

Coordination with the Tribe and agencies throughout the life of the Project, including decommissioning, is critical so that applicable regulations are not violated and the public and the environment are not impacted by the Project.

4 Project Decommissioning

The procedures described for decommissioning are designed to promote public health and safety, environmental protection and compliance with applicable regulations. It is assumed that decommissioning will begin approximately 30 or more years after Project operation is initiated. The Project decommissioning plan may incorporate the sale of some of the facility components via the used equipment market and recycling of components. Decommissioning will be conducted in accordance with a Final Decommissioning Plan that will be developed in the months prior to decommissioning being initiated.

This conceptual decommissioning plan assumes that all equipment and facilities within and associated with the solar field will be removed. The transmission lines and internal solar facility access roads would also be restored to as close to its original state as practicable. A compliance inspection would be performed by BLM on the Project's BLM lands.

4.1 Pre-Decommissioning Activities

Pre-decommissioning activities will be conducted to prepare the Project for demolition. This would include assessing the existing site conditions and development of the Final Decommissioning Plan and schedule as described above.

An Environmental Site Assessment (ESA) will be conducted before any decommissioning activities occur. The ESA will document the existing conditions of the solar field, including the location and presence of hazardous materials on the site. The results of the ESA will be used to define any remediation or cleanup methodologies that could be required and incorporated into the Final Decommissioning Plan. This documentation would ensure that areas containing hazardous materials can be decommissioned appropriately.

Other pre-decommissioning activities would include removing hazardous materials from the site including residues that occur in equipment. All operational liquids and chemicals are expected to be removed and disposed of as discussed in Section 4.4. Hazardous material and petroleum containers, , and other similar structures shall be rinsed clean, when feasible, and the waste liquid collected for off-site disposal.

Locations for decommissioned structures, non-hazardous waste, and debris will be designated on the Final Decommissioning Plan to facilitate the decommissioning process and off-site removal.

4.2 Removal of Facilities

Site decommissioning and equipment removal may take a year or more. Therefore, access roads, fencing, electrical power, and raw/sanitary water facilities will temporarily remain in place for use by the

decommissioning and restoration workers until no longer needed. Therefore, these components would be the last to be removed prior to site rehabilitation.

Solar Field Above- and Below-Ground Facilities

Structures that need to be dismantled during decommissioning include the onsite substation, energy storage system, onsite O&M area, perimeter fence, solar field, and transformers and inverters. These structures will be dismantled and moved to designated areas for either recycling or disposal at an approved landfill.

Above-ground structures will be removed through mechanical or other approved methods. Below-ground structures will be removed or, upon agency approval, may remain in place to minimize soil disturbance. Below-ground facilities/utilities that potentially may be removed include embedded foundations (if present), electrical lines and conduits, and concrete slabs.

While holding or evaporation ponds are not anticipated as part of the proposed project, any evaporation, stormwater holding, or construction/decommissioning water holding ponds will be closed by removing any non-biodegradable materials (e.g., high density polyethylene (HDPE) liners), along with any hard surface/non-draining layers that may have been used as base material. The pond(s) will then be filled with weed- and other contaminant free-fill and brought to grade level.

Gen-Tie Transmission Lines

If the gen-tie transmission lines will not continue to be used by the Tribe for another purpose at the time of Project decommissioning, the lines will be removed. Decommissioning of the gen-tie will consist of removal of all structures associated with the construction of the transmission line(s) to include, but not limited to overhead conductors and the removal of poles. All steel will be recycled and the foundations will be removed to a depth of at least 2 feet below the ground surface, unless the Tribe or BLM does not require removal of the foundations. Aluminum from overhead conductors will be recycled.

Roads

Access and on-site roads will remain in place to accomplish decommissioning at the end of the facility's life and would be one of the last Project components to be removed. If any on-site roads developed in the solar facility are not needed for other future uses by the Tribe, any aggregate and/or other base material would be removed and recycled or transported to an appropriate disposal site (where applicable).

After the road materials are removed, the roads will be restored to approximate preconstruction conditions in accordance with the Restoration Plan.

4.3 Debris Management, Disposal, and Recycling

Each type of removed material or demolition debris will be placed in designated locations within the solar field. Each stockpile will be transported off-site to either a used equipment market, off-site recycling center, or approved landfill depending on the material type. Debris will be broken down into manageable sizes so that transportation is simplified.

4.4 Hazardous Waste Management

All disposal and transportation of hazardous waste will be conducted under compliance with RCRA (42 U.S.C. §6901), and TSCA (15 U.S.C. §2601), and other regulations as needed. In areas where no record of hazardous waste exposure occurred, a visual inspection would be conducted as part of the post-operational ESA described earlier. If a concern is identified, further evaluation of the area shall occur and the area or structure will be treated accordingly. A licensed state waste contractor would be used to ensure that all required laws and regulations have been met and to address any remaining requirements needed to successfully close the Project.

4.5 Post-Demolition Site Stabilization

Since minimal grading is being proposed during project construction, and because vegetation cover will be managed during operation of the proposed project, disturbed areas will be restored to promote pre-project drainage patterns, with the goal of reducing the potential for erosion. These activities will occur following the removal of project equipment in a given area. Once the site is stabilized, restoration activities required to return the disturbed areas to a pre-construction function will be conducted in accordance with the plans prepared as part of the Project. These plans include:

- Site Restoration Plan
- Integrated Weed Management Plan

The objectives of these plans include the following:

- Reduce potential for erosion,
- Promote habitat reestablishment
- Implement the weed management program that minimizes the need for non-native species eradication.

5 Project Decommissioning Costs and Bonding

Prior to the issuance of full notice to proceed, the Applicant will provide performance and reclamation bonding in an amount sufficient to ensure the implementation of the approved Decommissioning Plan for restoration and performance.

The bond instrument will be based on a decommissioning cost estimate provided by the Applicant and based on the final design of the Project. This estimate will consider any Project components that are expected to be left in place at the request of and for the benefit to the Tribe (e.g., gen-tie lines, access road). The decommissioning, performance and reclamation estimate will also include the residual value of any salvageable or recyclable property, as well as the then-current cost of decommissioning.

6 References

United States Environmental Protection Agency (EPA). 2011. Summary of the Resource Conservation and Recovery Act. https://www.epa.gov/laws-regulations/summary-resource-conservation-and-recovery-act.

United States Environmental Protection Agency (EPA). 2016. Summary of the Toxic Substances Control Act. https://www.epa.gov/laws-regulations/summary-toxic-substances-control-act.

Exhibit I

From:	Laura Wickham
To:	Joshua J. Hicks
Subject:	RE: Request for 701A Abatement Application
Date:	Tuesday, October 22, 2019 12:13:33 PM
Attachments:	image001.png image002.png 1 Application FULL_5-7-2018.xlsx

Hi Josh,

I have attached the application. We have approved one other project like this in the past but as you know it would only be granted a sales and use tax partial abatement since the property taxes would be paid to the tribe and not the state. Our office/the state do not have jurisdiction over the property taxes paid on trial land.

Best Regards,

Laura Wickham
Energy Program Manager
Governor's Office of Energy
755 N. Roop Street, Ste. 202
Carson City, NV 89701
T 775.687.1850 Ext. 7308|F 775.687.1869|lwickham@energy.nv.gov|http://energy.nv.gov

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From: Joshua Hicks
Sent: Friday, October 18, 2019 2:36 PM
To: Laura Wickham
Subject: Request for 701A Abatement Application

Hi Laura,

I've been retained by 8 Minute Energy with respect to a planned 50MW facility in Southern Nevada. Can you please send me a blank application?

Also – this project will be primarily on tribal land. I know the Energy Office has approved abatements on these type of locations in the past, and I presume that is still the case but wanted to make sure.

Thanks,

Josh

Joshua J. Hicks | Partner

McDONALD CARANO

100 West Liberty Street | Tenth Floor
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Exhibit J

Nevada Governor's Office of Energy
Renewable Energy Tax Abatement Application
AFN:

Facility Information	EAGLE SHADOW MTN.	*6/12/2020*
Date of Submittal to GOE:		

Type of Incentives (Please check all that the company is applying for on this application)

[X] Sales & Use Tax Abatement [X] Property Tax Abatement

Company Information (Legal name of company under which business will be transacted in

Company Name:	325MK 8ME LLC
Department of Taxation's Tax Payer ID number:	
Federal Employer ID number (FEIN, EIN or FID):	
NAICS Code:	221114
Description of Company's Nevada Operations: The Company is developing and hopes to build and operate a utility-scale solar power plant on the Moapa River Indian Reservation, with a generration tie line, both located in Clark County, NV.	
Percentage of Company's Market Inside Nevada:	100%
Mailing Address: c/o 8minute Solar Energy LLC, 5455 Wilshire Blvd., Ste 2010	
City: Los Angeles, CA 90036	
Phone: (323) 525-0900	
APN:	
Taxation District where facility is located: Clark Co, NV & Moapa Reservation	

Nevada Facility

Type of Facility (please check all that are relevant to the facility)

- [ ] Geothermal
- [ ] Process Heat from Solar Energy
- [X] Solar PV
- [ ] Solar Thermal
- [ ] Wind
- [ ] Biomass
- [ ] Waterpower
- [ ] Fuel Cells
- [X] Transmission that is interconnected to a renewable energy or geothermal
- [ ] Transmission that contributes to the capability of the electrical grid to accommodate and transmit electricity produced from Nevada renewable

Name Plate Production Capacity of the Facility:	300 MW AC
Net Output Production Capacity of the Facility in MW:	300 MW AC
Annual Net Production Capacity of the Facility in MWh (or other appropriate unit):	

Estimated total capital investment:	339,000,000
Percent of total estimated capital investment expended in Nevada:	100%
Anticipated date or time range for the start of construction:	
Anticipated date for the Commerical Operation Date (COD) of the facility:	
Construction period (in months). Note: time period muct match payroll calculations	
Address of the Real Property for the Generation Facility:	Pending
City: Outside city limits in Clark County, NV, approximately 30 miles northeast of Las Vegas on land owned by the Moapa Band of Paiute Indians	

Size of the total Facility Land (acre):	2098

Are you required to file any paper work with the PUC and/or FERC?			YES
If yes,	Purpose of the Filing with PUC: UEPA Permit	Filing Date OR Anticipated filing Date:	
If yes,	Purpose of the Filing with FERC: Exempt Wholesale Generator	Filing Date OR Anticipated filing Date:	

	List All the county(s), Cities, and Towns where the facility will be
1	Clark County, Moapa River Indian Reservation
2	Clark County, BLM Land (portion of generation tie-line)
3	
4	
5	
6	
7	
8	
9	

CHECKLIST - PLEASE ATTACH:	
1	Description of the Technology and Complete Facility including generation, transmission or distribution, the physical point at which the ownership of energy is transferred and nature of the connection to the transmission grid
2	Complete and legal description of the location of the proposed facility, including a regional facility map that identifies the location, county boundaries and state boundaries of the proposed facility or a reference to any such map of appropriate scale
3	Description of any natural or nonrenewable resources that will be affected by or required to be used in the construction or operation of the proposed facility, including statement of any areas of mitigation, controversy, issue or concern
4	Summary of the PUC and FERC Dockets if any PUC and FERC filing have started
5	Copy of the Business Plan for the Nevada Facility
6	For Expansion Applications, Copy of the most recent assessment schedule and tax bill from the County Assessor's Office or the Department of Taxation
7	Website link to company profile
8	Copy of the Current Nevada State Business License
9	Facility Information Form
10	Employment Information, construction, and permanent employee salary schedules
11	Supplemental Information Form
12	Taxation Reporting Forms (Summary Sheet and Schedules 1 through 8)
13	Names and contact information for construction company, contractors, subcontractors
14	Letter from the utility or company describing the highlights of PPA, LOI, or MOU.
15	Confidential Information Identification Form

Nevada Governor's Office of Energy
Renewable Energy Tax Abatement Application
AFN:

List of Required Permits or Authorizations for the Proposed Facility

	Permit or Authorization Title	Issuing Agency	Project Circumstance Requiring Permit or Authorization	Steps to Obtain Permit	Application Date	Approval Date or Expected Approval Date
I. Federal Permits or Authorizations						
	Right-of-Way Authorization N-99229	Bureau of Land Management	Utility system application on federal lands	NEPA analysis which resulted in an Environmental Impact Statement; Record of Decision which will authorize the right-of-way.	[redacted]	[redacted]
	Biological Opinion	US Fish and Wildlife Service	Potential take of federal threatened or endangered species	NEPA analysis; Section 7 consultation between BIA and USFWS		
	Solar Energy Ground Lease Approval	Bureau of Indian Affairs	Solar facility proposal on tribal land held in trust by the Bureau of Indian Affairs.	NEPA analysis which resulted in an Environmental Impact Statement; Record of Decision; BIA and Moapa Band of Paiutes approval of solar energy ground lease		
	Section 106 Consultation	Bureau of Indian Affairs / Nevada State Historic Preservation Officer / Bureau of Land Management	NEPA review of a federal undertaking	Conduct cultural resources survey and submit to BIA; Federal agencies consult with Nevada State Historic Preservation Officer; Federal agencies and SHPO concur on how to address potential project impacts on cultural resources and document agreement in Memorandum of Understanding		
II. State of Nevada Permits or Authorizations						
	Application for Energy Projects Funds for the Recovery of Costs	Nevada Department of Wildlife	Renewable energy project review	Submit application and fee	[redacted]	[redacted]
	Utility Environmental Protection Act Permit to Construct The Eagle Shadow Mountain Interconnection Facilities	Public Utilities Commission of Nevada	230-kV terminal addition and associated facilities within the Reid Gardner Substation	Submit application		
	Special Purpose Permit	Nevada Department of Wildlife	Translocating desert tortoise	Submit application and fee		

III. County Permits or Authorizations						
	Special Use Permit	Clark County, NV	Transmission line on BLM and private lands within Clark County	Submit application and fee. Clark County Town Advisory Board and Planning Commission Approval	[redacted]	
	Dust Control Permit	Clark County, NV	Ground disturbance with potential to generate dust	Submit permit application and fee.		
IV. City Permits or Authorizations						

NOTE: Project contractors, subcontractors, and other entities including owner that will be purchasing goods and equipment for the construction of the Facility are entitled to claim or receive the sales and use tax abatement

Contractors and Subcontractors List

Vendor 1	
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 2	
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 3	
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 4	
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 5	
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 6	
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 7	
Tax ID	
Contact	
Mailing Address	
E-Mail	

Employment Information

Employment

New Operations or Expansion

CONSTRUCTION EMPLOYEES	Full Time	Part Time
Number of anticipated construction employees who will be employed during the **entire construction phase**?	300	
Number of anticipated construction employees who will be employed during the **entire construction phase that will be Nevada Residents?**	150 or more	
Average anticipated hourly wage of construction employees, excluding management and administrative employees:	$41.08	
Number of anticipated construction employees who will be employed during the **second-quarter of construction***?	150	
Percentage of anticipated **second-quarter*** construction employees who will be **Nevada Residents**?	50% or more	
Number of anticipated **second-quarter*** construction employees who will be **Nevada Residents**?	75 or more	

PERMANENT EMPLOYEES

Number of anticipated permanent employees who will be employed as of the end of its first fourth-quarter of new operations or expansion?	1	9
Average anticipated hourly wage of permanent employees, excluding management and administrative employees:	25.82	25.82
Number of permanent employees who were employed prior to the expansion?	n/a	
Average hourly wage of current permanent employees, excluding managements and administrative employees	n/a	

Employee Benefit Program for Construction Employees

Health insurance for <u>construction employees</u> and an option for dependents must be offered upon employment

List Benefits Included (medical, dental, vision, flex spending account, etc):
325MK 8ME LLC has not yet chosen a contractor to provide construction labor. Benefits for construction employees and their dependents will be determined by vendors and will be required to meet or exceed the requirements of NRS 701A.365(1)(e)(4)(I) & (II) and NAC 701A.590(5). Compliance with these requirements is mandatory for vendors and is so stated in the contracts to be provided to such vendors. Copies of such contracts shall be available upon request.

Name of Insurer: To be determined once 325MK 8ME LLC chooses its contractors and subcontractors

Cost of Total Benefit Package: TBD	Cost of Health Insurance for Construction Employees: TBD

* For reporting purposes, the "second quarter of construction" is weeks 13 through 26 of a 52-week construction period. However, if the construction period is expected to last more or less than 52 weeks, justification may be provided to and considered by the Director of the Governor's Office of Energy as to why there should be an adjustment in the duration or timing of the "second quarter of construction".

Construction Employee Schedule

List all anticipated construction employees and associated wages for all persons who will be working on the construction of the facility during the **entire construction period**. ***Please provide the formula utilized to arrive at the numbers below****

FULL TIME EMPLOYEES

		(a)	(b)	(c) = (a)+(b)	(e) = (c) x (d)	(f) =Σ(e) / Σ(c)
#	Job Title	# of Nevada Employees	# of Non-Nevada Employees	Total # of Employees	Total Hourly Wage per category ($)	Average Hourly Wage ($)
`	**Construction Employees, excluding**					
	Management and Administrative Employees	150	150	300	$12,600.00	
	TOTAL	**150**	**150**	**300**	**12,600**	**$41.08**

TOTAL CONSTRUCTION PAYROLL	**19,656,000 for 16-month period**

Second Quarter Construction Employee Schedule

List all anticipated construction employees and associated wages for all persons who will be working on the construction of the facility during the **second quarter of construction**. ***Please provide the formula utilized to arrive at the numbers below****

FULL TIME EMPLOYEES

		(a)	(b)	(c) = (a)+(b)	(e) = (c) x (d)	(f) =Σ(e) / Σ(c)
#	Job Title	# of Nevada Employees	# of Non-Nevada Employees	Total # of Employees	Total Hourly Wage per job title ($)	Average Hourly Wage ($)
	Construction Employees, excluding					
	Management and Administrative Employees	75	75	150	$6,300.00	
	TOTAL	**75**	**75**	**150**	**6,300.00**	$42.00

TOTAL CONSTRUCTION PAYROLL	**3,780,000.00 for second quarter**

* **# Construction Workers x Hours Per Week**

Manhours per Week x Average Hourly Wage

# of Weeks x Total Weekly Payroll = Yearly Payroll

Permanent Employee Schedule

List all anticipated permanent employees who will be employed by the Nevada Facility as of the end of its first fourth-quarter of new operations or expansion and the employment per job title will continue next 20 years. ***Please provide the formula utilized to arrive at the numbers below****

		(c)	(f) =Σ(e) / Σ(c)
#	**Job Title**	**# of Employees**	**Average Hourly Wage ($)**
1	Management and Administrative Employees		
FULL TIME			
2	Permanent Employees, excluding Managemenet	1	
	and Administrative Employees		
PART TME			
3	Permanent Employees, excluding Managemenet		
	and Administrative Employees	9	
	TOTAL	10	**$26.00**

Full Time (40 hrs/Wk)	**$54,080**
Part Time (20 hrs/Wk)	**$1,216,800**

TOTAL ANNUAL PAYROLL	**$1,270,880**

* **# Employees x Hours Per Week x 52 Weeks x Average Hourly Wage**

Nevada Governor's Office of Energy
Renewable Energy Tax Abatement Application
AFN:

Supplemental Information

Please respond to each question. Answers to the questions will assist Department of Taxation staff in determining whether the facility should be locally or centrally assessed. Other questions will assist staff in understanding whether the reported replacement costs capture all aspects of taxable value.

1) Will you have a possessory interest in any governmentally owned property for this facility? Please describe if yes.

The facility will constructed on land owned by and leased from the Moapa River Indian Reservation. However, the facility's 12.4 mile gen-tie line will cross land, some of which is owned by the Bureau of Land Management (BLM), and land held in trust by the bureau of Indian Affairs (BIA) for the Moapa Band of Paiutes and administered by the BLM.

2) Will the facility, including generation, transmission, or distribution cross state or county boundaries? If yes, please describe.

No.

3) Is the facility owned by a subsidiary of a company that is interstate or intercounty in nature? Name and location of the subsidiary company, if yes.

No.

4) At what physical point is the ownership of energy transferred? Describe the location and nature of the connection to the transmission grid.

The point of interconnection is the 230kV NV Energy Reid Gardner Substation

5) Will the facility be eligible for other abatements or exemptions such as pollution control exemptions? Please describe if yes

No.

6) Has your company applied and/or been approved for any abatements or exemptions for this facility or any other facility by the State of Nevada and/or local governments? If yes, list the abatements awarded, name and location of the project, name of the awarder, date of approval, amounts and status of the accounts

No.

7) Has your company applied for, or planning to apply for, an exempt wholesale generator desigination as defined in 15 U.S.C 79z-5A?

[redacted]

8) If an EIS or EA has been performed, please supply the ROD number.

[redacted]

9) Has an appraisal been performed on any portion of this land or project?

No.

10) Has a Power Purchase Agreement been executed?

Yes, a Long-Term Renewable Power Purchase Agreement has been executed with Nevada Power Company d/b/a NV Energy

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Summary Report
Schedules 1 through 8

Company: 325MK 8ME LLC

Division: N/A

Line No.	Schedule	Total Estimated RCNLD or Transaction Cost	Department Use Only
1	Sch. 1 Personal Property - Property Tax - Total from Col. J. *	24,034,038	
2	Sch. 2 Real Property - Improvements - Total from Col. F. *	36,231,441	
3	Sch. 3 Real Property - Land - Total from Col. I		
4	Sch. 4 Operating Leases - Total from Col. F *	732,552	
5	Sch. 5 Contributions in Aid of Construction - Total from Col. F	3,050,000	
6	Sch. 6 First Year Estimated Sales & Use Tax - Total from Col. J	1,981,094	
7	Sch. 7 Second Year Estimated Sales & Use Tax - Total from Col. J	5,943,283	
8	Sch. 8 Third Year Estimated Sales & Use Tax - Total from Col. J		

** The final determination of the classification of property as real or personal is made by the county assessor for locally-assessed property or by the Department of Taxation for centrally-assessed property. Placement of property on these sheets of the application is made for purposes of this fiscal note only and is not determinative of the final classification of property by the appropriate taxing official.*

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Property Tax: Personal Property
Schedule 1

Company Name:___325MK 8ME LLC_____

Division:_____N/A_____

Instructions:

(1) List each item of personal property subject to property tax in Col A. Pursuant to NRS 361.030, personal property includes stocks of goods on hand; any vehicle not included in the definition of vehicle in NRS 371.020; all machines and machinery, all works and improvements, and all property of whatever kind or nature not included in the term "real estate" as that term is defined in NRS 361.035.

(2) For each item in Col. A, complete the requested information in Col. B and Col. D (if applicable), Col. C and Col. D through Col. J.

(3) The total estimated cost reported in Col. H should include estimated or actual costs of installation and costs of transportation per NAC 361.1351 and NAC 361.1355. Costs of installation include the costs of direct labor, direct overhead and the capitalized expense of interest or imputed charges for interest which are necessary to make the property operational.

(4) Use the Personal Property Manual published by the Department of Taxation to determine the Cost Less Depreciation in Column (J). Select the Life Schedule that is closest to the estimated life of the personal property listed in Col. I. *See http://tax.state.nv.us. Then select: Publications/Locally Assessed Properties/Personal Property Manual.*

(5) Attach additional sheets as necessary.

A	B	C	D	E	H	I	J
Personal Property Itemized Description	**G/L Account No. (if applicable)**	**Purchased by Facility Owner (FO) Contractor (C) Subcontractor (SC)**	**Date Purchased (if applicable)**	**Date Received or Estimated Date of Receipt in Nevada**	**Estimated Total Acquisition Cost**	**Estimated Life of Personal Property**	**Estimated Acquisition Cost Less Depreciation**
SCADA/MET		C				10	
MODULES		FO				30	
RACKING/POSTS		C				30	
TRACKERS / INVERTERS		C				20	
ELECTRICAL - A/C and D/C		C				15	
O&M: COMPUTERS, FURN/FIXT		C				5	
Grand Total					282,787,891		24,034,038

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Property Tax: Real Property Improvements
Schedule 2

Company Name:___325MK 8ME LLC_____
Division:_____N/A_____

Instructions:

(1) List each item of real property improvements subject to property tax in Col A. Pursuant to NRS 361.035, real property includes all houses, buildings, fences, ditches, structures, erections, railroads, toll roads and bridges, or other improvements built or erected upon any land, whether such land is private property or public property; as well as mobile or manufactured

(2) For each item in Col. A, complete the requested information in Col. B (if applicable), and Col. C through Col. F.

(3) The total estimated cost reported in Col. F should include estimated or actual costs of labor (do not include construction or operational employee totals from previous tab), materials, supervision, contractors' profit and overhead, architects' plans and specifications, engineering plans, building permits, site preparation costs, sales taxes and insurance; costs of buying or assembling land such as escrow fees, legal fees, right of way costs, demolition, storm drains, rough grading or other land improvement costs, yard improvements including septic systems, signs, landscaping, paving, walls, yard lighting; off-site

(4) Use Schedule 3 to report land; Schedule 4 to report operating leases; and Schedule 5 to report contributions in aid of

(5) Attach additional sheets as necessary.

A	B	C	F
Real Property Improvements Itemized Description	**G/L Account No. (if applicable)**	**Estimated Date of Completion**	**Estimated Total Construction Cost**
SUBSTATION			
GEN-TIE TRANSMISSION LINE			
O&M BUILDING			
ROADS			
FENCING			
REVEGITATION			
SUBSTATION CIVIL			
OTHER/OVERHEAD/SITE PREP			
Grand Total			36,231,441

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Company:___325MK 8ME LLC_____

Division: _____N/A_____

Property Tax: Real Property Land
Schedule 3

Show the requested data for **all land**, owned or leased, in Nevada.

A	B	C	D	E		F	G	H	I
	Where Situated			Brief Description, Size of the Land (acre), Date Acquired	Assessor's Parcel Number (APN)	Owned (O) Leased (L) Rented (Rtd)	G/L Account Number (if applicable)	Purchase Price (if applicable)	Assessor's Taxable Value
Line #	County	City or Town	Tax District						
1									
2	CLARK	N/A		MOAPA TRIBAL LAND 2,098 ACRES	n/a	L			n/a
3									
4	CLARK			BLM GENTIE	See Suppl. Info.	L			
5									
6									
7									
8									
9									
10									
11									
12	**Grand Total**								0

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Company Name:___325MK 8ME LLC_____

Division:_____N/A_____

Property Tax: Operating Leases
Schedule 4

Instructions:

(1) List each operating lease for real or personal property. Designate whether the lease is for real or personal property in Col. C.

(2) For each item in Col. A, complete the requested information in Col. B (if applicable), and Col. C through Col. F.

(3) The total estimated cost reported in Col. E and Col. F should contain the costs appropriate to real or personal property. For definitions, please refer to Schedule 1 for personal property and Schedule 2 for Improvements.

(4) Report the Annual Lease Payment in Col. G; the term of the lease in Col. H; and any residual value at the end of the lease term in Col. I.

(5) Attach additional sheets as necessary.

A	B	C	E	F	G	H	I
Operating Lease Itemized Description	**G/L Account No. (if applicable)**	**Real or Personal Property?**	**Lessor's Replacement Cost Per Unit**	**Estimated Total Replacement Cost**	**Annual Lease payment**	**Lease Years Remaining**	**Residual Value**
LAND @ MOAPA TRIBE		REAL (LAND)					
BLM ROW?		REAL (LAND)					
		** - Payment made for 30 year period					
Grand Total				732552			

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Company Name:____325MK 8ME LLC_____
Division:_____N/A_____

Property Tax: Contributions in Aid of Construction
Schedule 5

Instructions:

(1) List all contributions in aid of construction (CIAC). CIAC is defined in NAC 361.260 as property which has been contributed to a utility by a prospective customer or which has been constructed by the utility and paid for by the prospective customer for which no reimbursement is required to be made by the utility to the prospective customer as a prerequisite to obtaining service.

(2) For each item in Col. A, complete the requested information in Col. B (if applicable), and Col. C through Col. F.

(3) The total estimated cost reported in Col. E and Col. F should contain the costs appropriate to real or personal property. For definitions, please refer to Schedule 1 for personal property and Schedule 2 for Improvements.

(4) Attach additional sheets as necessary.

A	B	C	D	E	F
Contributions in Aid of Construction (CIAC) Itemized Description	**G/L Account No. (if applicable)**	**Real or Personal Property?**	**Number of Units**	**Replacement Cost Per Unit**	**Estimated Total Replacement Cost**
Interconnection Facilities to be owned by NV Energy		Real	1	3,050,000	3,050,000
Grand Total					3050000

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Company Name:____325MK 8ME LLC_____

Division:_____N/A_____

Sales and Use Tax
First Year of Eligible Abatement
Schedule 6

Instructions:

(1) Column A: List each item of personal property or materials and supplies subject to sales and use tax (please include leases. Refer to NRS Chapter 372 for taxable events.

(2) Column B: For each item in column A, list applicable account nomber.

(3) Column C: List the Facility Owner, Contractor or Subcontractor that will be purchasing the personal property or materials and supplies subject to sales and use tax.

(4) Column D: List the date the personal property or materials and supplies were purchased.

(5) Column E: List the date that possession of the personal property or materials and supplies will be taken.

(6) Column F: List the cost of the personal property or materials and supplies.

(7) Column G: List the county where possession will be taken and the applicable sales tax rate of that county. *Find the appropriate sales/use tax rate on the Department of Taxation's website at http://tax.state.nv.us. Then scroll to "Quick Links" and select "Sales/Use Tax Rate Map".*

(8) Column H: Multiply Column F by the Sales Tax Rate in Column G.

(9) Attach additional sheets as necessary.

A	B	C	D	E	F	G		H
Personal Property or Materials and Supplies Itemized Description	**G/L Account No. (if applicable)**	**Purchased by Facility Owner (FO) Contractor (C) Subcontractor (SC)**	**Date Purchased**	**Date of Possession**	**Total Transaction Cost**	**County and Applicable Sales Tax Rate**	**TRIBAL NON-TRIBAL**	**Estimated Sales Tax Paid or to be Paid**
SCADA/MET					[redacted]	2.60%	[redacted]	[redacted]
MODULES						2.60%		
RACKING/POSTS						2.60%		
TRACKERS / INVERTERS						2.60%		
ELECTRICAL - A/C and D/C						2.60%		
SUBSTATION						2.60%		
GEN-TIE TRANSMISSION LINE						2.60%		
O&M BUILDING						2.60%		
FENCING						2.60%		
Grand Total					76195929.6			1,981,094

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Company Name:____325MK 8ME LLC_____

Division:_____N/A_____

Sales and Use Tax
Second Year of Eligible Abatement
Schedule 7

Instructions:

(1) Column A: List each item of personal property or materials and supplies subject to sales and use tax (please include leases. Refer to NRS Chapter 372 for taxable events.

(2) Column B: For each item in column A, list applicable account nomber.

(3) Column C: List the Facility Owner, Contractor or Subcontractor that will be purchasing the personal property or materials and supplies subject to sales and use tax.

(4) Column D: List the date the personal property or materials and supplies were purchased.

(5) Column E: List the date that possession of the personal property or materials and supplies will be taken.

(6) Column F: List the cost of the personal property or materials and supplies.

(7) Column G: List the county where possession will be taken and the applicable sales tax rate of that county. *Find the appropriate sales/use tax rate on the Department of Taxation's website at http://tax.state.nv.us. Then scroll to "Quick Links" and select "Sales/Use Tax Rate Map".*

(8) Column H: Multiply Column F by the Sales Tax Rate in Column G.

(9) Attach additional sheets as necessary.

A	B	C	D	E	F	G		H
Personal Property or Materials and Supplies Itemized Description	**G/L Account No. (if applicable)**	**Purchased by Facility Owner (FO) Contractor (C) Subcontractor (SC)**	**Date Purchased**	**Date of Possession**	**Total Transaction Cost**	**County and Applicable Sales Tax Rate**	**TRIBAL NON TRIBAL**	**Estimated Sales Tax Paid or to be Paid**
SCADA/MET								
MODULES								
RACKING/POSTS								
TRACKERS / INVERTERS								
ELECTRICAL - A/C and D/C								
SUBSTATION								
GEN-TIE TRANSMISSION LINE								
O&M BUILDING								
FENCING								
Grand Total					228,587,789			5,943,283

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Company Name:_____325MK 8ME LLC____
Division:_____N/A_____

Sales and Use Tax
Third Year of Eligible Abatement
Schedule 8

Instructions:

(1) Column A: List each item of personal property or materials and supplies subject to sales and use tax (please include leases. Refer to NRS Chapter 372 for taxable events.

(2) Column B: For each item in column A, list applicable account nomber.

(3) Column C: List the Facility Owner, Contractor or Subcontractor that will be purchasing the personal property or materials and supplies subject to sales and use tax.

(4) Column D: List the date the personal property or materials and supplies were purchased.

(5) Column E: List the date that possession of the personal property or materials and supplies will be taken.

(6) Column F: List the cost of the personal property or materials and supplies.

http://tax.state.nv.us. Then scroll to "Quick Links" and select "Sales/Use Tax Rate Map".

(7) Column H: Multiply Column F by the Sales Tax Rate in Column G.

(8) Attach additional sheets as necessary.

A	B	C	D	E	F	G	H
Personal Property or Materials and Supplies Itemized Description	**G/L Account No. (if applicable)**	**Purchased by Facility Owner (FO) Contractor (C) Subcontractor (SC)**	**Date Purchased**	**Date of Possession**	**Total Transaction Cost**	**County and Applicable Sales Tax Rate**	**Estimated Sales Tax Paid or to be Paid**
Grand Total							0

APPLICANT: 325MK 8ME LLC

Attestation and Signature

I, _____Benjamin Droz___, by signing this Application, I do hereby attest and affirm under penalty of perjury the following:

(1) I have the legal capacity to submit this Application on behalf of the applicant;
(2) I have prepared and personally knowledgeable regarding the contents of this Application; and
(3) The content of this Application are true, correct, and complete.

DocuSigned by:
Benjamin Droz
5E243FA7362C424...

Benjamin Droz	
Name of person authorized for signature:	**Signature:**
Authorized Signatory	12 June 2020
Title:	**Date:**

This Application contains confidential information: Yes __X__ No

If yes, please identify any information in the within Application or documents submitted herewith, which Applicant considers confidential or trade secret information. Further, identify: (1) the applicable statutory authority or agreement preventing public disclosure of the information; and (2) Applicant's rationale underlying non-disclosure of the information or document(s).

Applicant acknowledges that the burden of demonstrating confidentiality or trade secret status lies with the Applicant, and Applicant agrees to defend and indemnify the State and its agencies for honoring such designation. Notwithstanding, Applicant understands that the over-inclusive designation of information or documents as confidential or trade secret may cause the Nevada State Office of Energy to conduct further inquiry of the Applicant into the confidentiality of the information, potentially delaying submission of the Application to the Nevada Energy Director.

Material for which confidentiality is claimed:

1. State and Federal Taxpayer ID
2. Annual Net Production
3. State and Federal FERC, PUCN and Permit Filing Dates
4. Wholesale Generator and Certain EIS Information
5. Personal Property Acquisition Costs
6. Real Property Improvement Construction Costs
7. Operating Lease Payments and Replacement Costs
8. Non-Aggregate Tangible Property Acquisition Costs and Estimated Sales Tax

Basis for claims of confidentiality:

This application includes confidential and proprietary trade secret and economic information as defined by Nevada law. Prohibitions on the public disclosure of such information is provided in the Uniform Trade Secrets Act (NRS Chapter 600A), NRS 49.325, NRS 360.247, NRS 360.250, NRS 361.044, NRS 372.750, NRS 703.190, NRS 793.196, NRS 239.010, et. seq., NRS 241.020, and NAC 701A.565; NAC 239.699 and NAC 360.182. The confidential and proprietary trade secret and economic information has been obscured in the redacted version of this application.

Certificate Of Completion

Envelope Id: D159147A92AC4396B41AFE7424DAF662
Status: Completed
Subject: Please DocuSign: NV Abatement Signature Page.pdf
Source Envelope:
Document Pages: 1
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Benjamin Droz bdroz@capdyn.com Vice President Capital Dynamics AG Security Level: Email, Account Authentication (Optional)	DocuSigned by: 5E243FA7362C424... Signature Adoption: Pre-selected Style Using IP Address: 194.110.128.244	Sent: 6/12/2020 10:16:18 PM Viewed: 6/12/2020 10:16:25 PM Signed: 6/12/2020 10:16:29 PM

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In Person Signer Events	Signature	Timestamp

Editor Delivery Events	Status	Timestamp

Agent Delivery Events	Status	Timestamp

Intermediary Delivery Events	Status	Timestamp

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Carbon Copy Events	Status	Timestamp

Witness Events	Signature	Timestamp

Notary Events	Signature	Timestamp

Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	6/12/2020 10:16:18 PM
Certified Delivered	Security Checked	6/12/2020 10:16:25 PM
Signing Complete	Security Checked	6/12/2020 10:16:29 PM
Completed	Security Checked	6/12/2020 10:16:29 PM

Payment Events	Status	Timestamps

Exhibit K

BEFORE THE NEVADA ENERGY DIRECTOR
GOVERNOR'S OFFICE OF ENERGY

In the Matter of the Application of:	)	
	)	**Application Filing No. 20-0616SPV**
325MK 8ME, LLC	)	
	)	

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND ORDER

A hearing was held before the Director of the Governor's Office of Energy (Office) on October 21, 2020 regarding Application Filing Number 20-0616SPV. At the hearing, applicant 325MK 8ME, LLC was represented by Josh Hicks of McDonald Carano, LLP. Based upon the 325MK 8ME, LLC application, and evidence presented at the hearing, the Director makes the following findings of fact, conclusions of law, and order in this matter.

FINDINGS OF FACT

1. At the hearing of the matter, 325MK 8ME, LLC presented the testimony of Benjamin Droz. The Office Director admitted into evidence a packet of Exhibits that contained five subparts: (1) Notice of Public Hearing dated September 29, 2020 (2) 325MK 8ME, LLC Application as filed with the Office on June 16, 2020 (3) Fiscal Impact of the partial abatement of Sales and Use Tax as required by NRS 701A.375-1 by the Nevada Department of Taxation, received on August 24, 2020; (4) Fiscal Impact of the partial abatement as provided by the Governor's Office of Finance required by NRS 701A.375-1, received on August 31, 2020; (5) Pre-filed Testimony of Benjamin Droz. At the hearing, all Exhibits were admitted into evidence.

Based upon the testimony of the witness and the evidence presented, the Director finds the following to be the facts in this matter.

2. 325MK 8ME, LLC is a company with a current Nevada State Business License from the Nevada Secretary of State.

3. On June 16, 2020, 325MK 8ME, LLC submitted its Application seeking partial abatement of sales and use taxes for the construction and operation of a facility for the generation of solar renewable energy ("Facility") that would be located in Clark County, Nevada on Moapa Tribal Land. The Application described a solar generating facility that would generate up to 300 Nameplate megawatts (MW) that would be sold to NV Energy pursuant to a power purchase agreement.

4. The filed application supported that 325MK 8ME, LLC was properly licensed and qualified to do business in Nevada; that 325MK 8ME, LLC had obtained all required discretionary state and local licenses and permits, with the remaining permits to be obtained prior to start of construction, expected sometime during the third quarter 2020, and intended to maintain all of the required licenses and permits for the Facility; that 325MK 8ME, LLC had all necessary approvals for the Facility; that the Facility would have an AC nameplate rating of up to 300 MW; that 325MK 8ME, LLC had entered into a power purchase agreement with NV Energy; that the Facility was anticipated to be at least partially operational sometime during the fourth quarter of 2021; that the total capital investment of the Facility in Nevada will be approximately $339,000,000; that the Facility would create approximately 1 full-time operational jobs which would pay an average of approximately $26.58 per hour; and that the Facility would create an estimated 150 full-time construction jobs over the course of construction which would pay an average hourly wage of $42.28 per hour.

5. That the average hourly wage that will be paid by the facility to its employees in this State, excluding management and administrative employees, is approximately $26.58 which is at

least 110% of the average statewide hourly wage for green industry tax abatements, currently posted by Department of Employment Training and Rehabilitation.

6. That the average hourly wage paid by the facility to all of its construction employees working on the facility, excluding management and administrative employees, will be approximately $42.28 which is at least 175% of the average statewide hourly wage for green industry tax abatements, currently posted by Department of Employment Training and Rehabilitation.

7. The Fiscal Impact statement produced by the Department of Taxation shows the following estimated figures regarding the sales and uses taxes related to the Facility:

Total Amount Abated (Year 1)	$4,400,315
Total Amount Abated (Year 2)	$13,200,945
Total Amount Abated (Years 3)	$0.00
TOTAL AMOUNT ABATED	**$17,601,260**

Total Amount Abated by Local Government (Year 1)	$2,876,396
Total Amount Abated by Local Government (Year 2)	$8,629,189
Total Amount Abated by Local Government (Year 3)	$0.00
TOTAL AMOUNT ABATED BY LOCAL GOVERNMENT	**$11,505,585**
TOTAL LOCAL SCHOOL SUPPORT TAX GAIN	**$7,924,377**

8. The Fiscal Impact statement produced by the Department of Taxation shows the following estimated figures regarding the property taxes related to the Facility over the abatement period (20 years):

Total Property Taxes Due Before Abatement	$0.00
Total Property Taxes Abated Over Abatement Period	$0.00
Total Taxes to Local Government Over Abatement Period	$0.00

9. The Fiscal Note produced by the Budget Division shows that the State General Fund will be impacted for a total of approximately $6,095,675 abated over the period of the abatement (2021 through 2023).

10. Synthesizing the figures in evidence in this matter, the total estimated benefit pursuant to NRS 701A.365(1)(f) to the state and local governments in Nevada is $348,168,201 and the total estimated amount of sales and use taxes abated in this matter is $17,601,260. Thus, the benefits to the state and local governments in Nevada exceeds the total amount of abated taxes. The estimated benefits and amounts abated over the applicable periods of abatement are calculated as follows:

Financial Benefits

Capital Investment in Nevada	$339,000,000
Construction Payroll in Nevada residents	$8,117,760
Operational Payroll in Nevada:	$1,050,441
TOTAL BENEFITS OVER ABATEMENT PERIODS	**$348,168,201**

Amounts Abated

Total Sales and Use Taxes Abated (3 Years)	$17,601,260
Total Property Taxes Abated (20 Years)	$0.00
TOTAL TAXES ABATED	**$17,601,260**

11. That all of the evidence discussed in the preceding paragraphs was supported by the substantial, reliable, and probative evidence taken from the record as a whole produced at the hearing of this matter.

CONCLUSIONS OF LAW

1. The Director has the jurisdiction and authority to adjudicate this matter because the Application is within the scope of NRS 701A.300 through 701A.390 and the Director is required by law to hold the hearing in this matter pursuant to NRS 701A.360(5).

2. The substantial, reliable, and probative evidence in the record of this matter shows that the 325MK 8ME, LLC Application for the construction and operation of the Facility satisfies the following statutory requisites:

(a) NRS 701A.320(1)(a) – The primary source of energy to operate the Facility will be the Facility itself, thus meeting the statutory standard.

(b) NRS 701A.320(1)(b) – The Facility will generate 300 MW AC Nameplate, thus exceeding the statutory standard.

(c) NRS 701A.320(2) – The Facility is not located on residential property, thus meeting the statutory standard.

(d) NRS 701A.360(2) – The Facility is not owned, operated, leased, or controlled by a government agency, thus meeting the statutory standard.

(e) NRS 701A.365(1)(a)(1) – The Facility is anticipated to be operational for at least 25 years, thus exceeding the statutory standard.

(f) NRS 701A.365(1)(b) – The Facility has all the necessary state and local permits and licenses to operate, thus meeting the statutory standard.

(g) NRS 701A.365(1)(c) - No funding for the Facility is or will be provided by any governmental entity in this State for the acquisition, design or construction of the Facility or for the acquisition of any land therefore, except any private activity bonds as defined in 26 U.S.C. §141, thus meeting the statutory standard.

(h) NRS 701A.365(1)(d)(1) – The construction of the Facility will employ at least 150 full-time employees during the second quarter of construction. 325MK 8ME, LLC anticipates that at least 50% of those employees will be Nevada residents, thus meeting the statutory standard.

(i) NRS 701A.365(1)(d)(2) – The capital investment in Nevada for the Facility is estimated to be at least $339,000,000 thus exceeding the statutory standard.

(j) NRS 701A.365(1)(d)(3) – The average hourly wage paid to the operational employees of the Facility will be approximately $26.58, which is at least 110% of the average hourly wage set by DETR of $24.16, thus meeting the statutory standard.

(k) NRS 701A.365(1)(d)(4) – The average hourly wage paid to the construction employees on the Facility will be approximately $42.28, which is at least 175% of the average hourly wage set by DETR of $24.16, thus meeting the statutory standard.

(l) NRS 701A.365(1)(d)(4)(I) and (II) – The health insurance provided to the construction employees on the Facility was represented to allow for the coverage of the dependents of the employees and will meet or exceed the standards established by the Director, thus meeting the statutory standard.

(m) NRS 701A.365(1)(f) – The benefits that will result to this State from the employment by the Facility of the residents of this State and from capital investments by the Facility in this State exceeds the loss of tax revenue that will result from the abatement, thus meeting the statutory standard.

(n) NRS 701A.370(1)(a)(3) – The abatement granted by this Order will not apply during any period in which the Facility is receiving another abatement or exemption from property taxes imposed pursuant to chapter 361 of NRS, other than any partial abatement provided pursuant to NRS 361.4722, thus meeting the statutory standard.

(o) NRS 701A.370(1)(b)(1)(III) – The abatement granted by this Order will not apply during any period in which the Facility is receiving another abatement or exemption from local sales and use taxes, thus meeting the requirement of the statute.

ORDER

Based upon the foregoing, the Director orders that 325MK 8ME, LLC Application Filing No. 20-0616SPV related to the construction and operation of the Facility is hereby **GRANTED.** 325MK 8ME, LLC and the Director may execute an Abatement Agreement as soon as practicable that will satisfy the requisites of NRS 701A.300 through NRS 701A.390. 325MK 8ME, LLC sales and use tax abatement will terminate three years from the effective date of the Abatement Agreement.

SIGNED this _4th__ day of _November_, 2020.

_
DAVID BOBZIEN
Director
Governor's Office of Energy

Exhibit L

Facility Information

Date of Submittal to GOE:

Type of Incentives (Please check all that the company is applying for on this application)

X	Sales & Use Tax Abatement	X	Property Tax Abatement

Company Information *(Legal name of company under which business will be transacted in Nevada.)*

Company Name: Battle Mountain SP, LLC ("BMSP")

Department of Taxation's Tax Payer D number: 1034729802

Federal Employer ID number (FEIN, EIN or F D): 45-4092367

NAICS Code: 221114 (Solar Electric Power Generation)

Description of Company's Nevada Operations: BMSP plans to construct, own, and operate a 101 megawatt alternating current photovoltaic solar facility and ancillary facilities, including solar arrays and battery storage.

Percentage of Company's Market Inside Nevada: 100%

Mailing Address: 101 W Broadway, Suite 1120

City: San Diego, CA Zip: 92101

Phone: 619-507-4130

APN: Section 19 - APN 07-0471-09
Section 29 - APN 07-0471-13
Section 20 - APN 07-0471-10
Section 30 - APN 07- 0471-12

Taxation District where facility is located: 4

Nevada Facility

Type of Facility (please check all that are relevant to the facility)

- [ ] Geothermal
- [ ] Process Heat from Solar Energy
- [X] Solar PV
- [ ] Solar Thermal
- [ ] Wind
- [ ] Biomass
- [ ] Waterpower
- [ ] Fuel Cells
- [ ] Transmission that is interconnected to a renewable energy or geothermal facility
- [ ] Transmission that contributes to the capability of the electrical grid to accommodate and transmit electricity produced from Nevada renewable energy facilities and/or geothermal facilities

Name Plate Production Capacity of the Facility: 101MW

Net Output Production Capacity of the Facility in MW: 101MW

Annual Net Production Capacity of the Facility in MWh (or other appropriate unit): 320,481

Estimated total capital investment: $120,000,000

Percent of total estimated capital investment expended in Nevada: ~25%

Anticipated date or time range for the start of construction: Q2 2020

Anticipated date for the Commerical Operation Date (COD) of the facility: 7/1/2021

Construction period (in months). Note: time period must match payroll calculations: 15

Address of the Real Property for the Generation Facility: Exit 222 off Hwy 80, going southeast, Battle Mountain, Nevada 89820

City: N/A

Size of the total Facility Land (acre): approx 1280 acres

Are you required to file any paper work with the PUC and/or FERC? Yes

If yes,	Purpose of the Filing with PUC: Obtain 1) Order/Permit to Construct ("PTC") an electric generation facility pursuant to the Utilities Environmental Permit Act ("UEPA"); and 2) Power Purchase Agreement ("PPA") approval.	Filing Date OR Anticipated filing Date: 1) BMSP filed an application for a UEPA PTC on 11/3/2017, and the Commission issued an Order granting the application subject to compliance items on 4/25/2019 in Docket No. 16-11036; 2) BMSP's PPA with Sierra Pacific Power Company d/b/a NV Energy was approved by the PUC in Docket No. 18-06003 as part of NVE's Joint Application for Resource Plan approval.

If yes,	Purpose of the Filing with FERC: 1) Approval of LGIA Option to Self Build, and 2) Exemption of Wholesale Status.	Filing Date OR Anticipated filing Date: 1) Q1 2020, and 2) Q2 2021.

	List All the county(s), Cities, and Towns where the facility will be located
1	Humboldt County, NV
2	In proximity to Battle Mountain , NV
3	
4	
5	
6	
7	
8	
9	

CHECKLIST - PLEASE ATTACH:		
1	Description of the Technology and Complete Facility including generation, transmission or distribution, the physical point at which the ownership of energy is transferred and nature of the connection to the transmission grid	Please See Attachment A
2	Complete and legal description of the location of the proposed facility, including a regional facility map that identifies the location, county boundaries and state boundaries of the proposed facility or a reference to any such map of appropriate scale	Please See Attachment A
3	Description of any natural or nonrenewable resources that will be affected by or required to be used in the construction or operation of the proposed facility, including statement of any areas of mitigation, controversy, issue or concern	Please See Attachment A
4	Summary of the PUC and FERC Dockets if any PUC and FERC filing have started	Please See the PUC and FERC Docket Summary found under the "Nevada Facility" section on the previous page
5	Copy of the Business Plan for the Nevada Facility	Please See Attachment A
6	For Expansion Applications, Copy of the most recent assessment schedule and tax bill from the County Assessor's Office or the Department of Taxation	N/A
7	Website link to company profile	https://www.coned.com/en/our-energy-future/renewable-energy-systems
8	Copy of the Current Nevada State Business License	Please See Attachment B
9	Facility Information Form	Please See "Facility Information Tab"
10	Employment Information, construction, and permanent employee salary schedules	Please See "Employment Information", "Construction Employee Schedule", and "Permanent Employee Schedule" Tab
11	Supplemental Information Form	Please See "Supplemental Information" Tab
12	Taxation Reporting Forms (Summary Sheet and Schedules 1 through 8)	
13	Names and contact information for construction company, contractors, subcontractors	Please See "Contractors & Subcontractors" Tab and Attachment C
14	Letter from the utility or company describing the highlights of PPA, LOI, or MOU.	Please See Attachment A
15	Confidential Information Identification Form	Please See "Confidential Information" Tab

List of Required Permits or Authorizations for the Proposed Facility

	Permit or Authorization Title	Issuing Agency	Project Circumstance Requiring Permit or Authorization	Steps to Obtain Permit	Application Date	Approval Date or Expected Approval Date
I. Federal Permits or Authorizations						
	Right of Way, N-94790	Bureau Land Management	ROW for initial access road obtained	ROW for initial access road obtained on 11/29/2017		
	Right of Way	Bureau Land Management	Right-of-way to develop access road and 34.5 kV collector line.	Second right of way for access road and collector line will be obtained following completion of NEPA		
	Jurisdictional Determination Section 19	US Army Corp of Engineers	Project compliance with USACE impacts to wetlands and waterways	Submit request for jurisdictional determination		
	Jurisdictional Determination Section 29	US Army Corp of Engineers	Project compliance with USACE impacts to wetlands and waterways	Submit request for jurisdictional determination		
II. State of Nevada Permits or Authorizations						
	UEPA Compliance Order	Public Utilities Commission of Nevada	Renewable energy facility greater than 70 MW	Submit Application		
	UEPA Permit to Construct Docket 16-11036	Public Utilities Commission of Nevada	Renewable energy facility greater than 70 MW	1) Granting of BLM ROW 2) Obtain ancillary permits		
	Surface Area Disturbance Permit	Nevada Department Environmental Protection	Construction Dust Control Permit	Application and fee payment to NDEP		
	Nevada Division of Wildlife - Energy Planning and Conservation Fund Payment	Nevada Division of Wildlife	Energy projects greater than 10 MW	Submit application; funds administered by the NDOW		
	Hazardous Materials Storage Permit	State Fire Marshal	On Site Storage of Hazardous materials	Application to State Fire Marshal		
III. County Permits or Authorizations						
	Conditional Use Permit UH-17-03	Humboldt County	County Zoning for Project Site and Usage (including addional parcel to include battery storage)	File CUP application and County Hearing		
	Conditional Use Permit UH-17-06	Humboldt County	County Zoning for Project interconnection into Substation	File CUP application and County Hearing		
	Building and Grading Permit	Humboldt County	Construction of Project	File Application with Building Department		

			AFN:			
IV. City Permits or Authorizations						

State of Nevada
Renewable Energy Tax Abatement Application
AFN:

NOTE: Project contractors, subcontractors, and other entities including owner that will be purchasing goods and equipment for the construction of the Facility are entitled to claim or receive the sales and use tax abatement

Contractors and Subcontractors List*

Vendor 1	[redacted]
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 2	
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 3	
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 4	
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 5	
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 6	
Tax ID	
Contact	
Mailing Address	
E-Mail	
Vendor 7	
Tax ID	
Contact	

Mailing Address	[redacted]
E-Mail	

Employment Information

Employment

New Operations or Expansion

CONSTRUCTION EMPLOYEES	Full Time	Part Time
Number of anticipated construction employees who will be employed during the **entire construction phase**?	240	n/a
Number of anticipated construction employees who will be employed during the **entire construction phase that will be Nevada Residents?**	133	n/a
Average anticipated hourly wage of construction employees, excluding management and administrative employees:	$45 02	n/a
Number of anticipated construction employees who will be employed during the **second-quarter of construction***?	200	n/a
Percentage of anticipated **second-quarter*** construction employees who will be **Nevada Residents**?	55%	n/a
Number of anticipated **second-quarter*** construction employees who will be **Nevada Residents**?	112	n/a

PERMANENT EMPLOYEES

Number of anticipated permanent employees who will be employed as of the end of its first fourth-quarter of new operations or expansion?	3	n/a
Average anticipated hourly wage of permanent employees, excluding management and administrative employees:	$40 00	n/a
Number of permanent employees who were employed prior to the expansion?	n/a	n/a
Average hourly wage of current permanent employees, excluding managements and administrative employees	n/a	n/a

Employee Benefit Program for Construction Employees

Health insurance for <u>construction employees</u> and an option for dependents must be offered upon employment

List Benefits Included (medical, dental, vision, flex spending account, etc): The agreement is not finalized at this time. However a health plan meeting the requirements of NRS 701A 365(a) will be provided.	
Name of Insurer: TBD	
Cost of Total Benefit Package:	Cost of Health Insurance for Construction Employees:

* For reporting purposes, the "second quarter of construction" is weeks 13 through 26 of a 52-week construction period. However, if the construction period is expected to last more or less than 52 weeks, justification may be provided to and considered by the Director of the Governor's Office of Energy as to why there should be an adjustment in the duration or timing of the "second quarter of construction".

Construction Employee Schedule

List all anticipated construction employees and associated wages for all persons who will be working on the construction of the facility during the **entire construction period**. ***Please provide the formula utilized to arrive at the numbers below****

FULL TIME EMPLOYEES

		(a)	(b)	(c) = (a)+(b)	(e) = (c) x (d)	(f) =Σ(e) / Σ(c)
#	Job Title	# of Nevada Employees	# of Non-Nevada Employees	Total # of Employees	Total Hourly Wage per category ($)	Average Hourly Wage ($)
	Construction Employees, excluding					
	Management and Administrative Employees					
	Site Superintendent	3	2	5	$89.81	
	General Foreman	8	6	14	$59.37	
	Foreman	12	10	22	$54.04	
	Journeyman	44	35	79	$49.47	
	Apprentice	66	54	120	$36.90	
	TOTAL	**133**	**107**	**240**		**$45.02**

TOTAL CONSTRUCTION PAYROLL	**$10,710,000.00**

Second Quarter Construction Employee Schedule

List all anticipated construction employees and associated wages for all persons who will be working on the construction of the facility during the **second quarter of construction**. ***Please provide the formula utilized to arrive at the numbers below****

FULL TIME EMPLOYEES

		(a)	(b)	(c) = (a)+(b)	(e) = (c) x (d	(f) =Σ(e) / Σ(c)
#	Job Title	# of Nevada Employees	# of Non-Nevada Employees	Total # of Employees	Hourly Wage per job title ($)	Average Hourly Wage ($)
	Construction Employees, excluding					
	Management and Administrative Employees					
	Site Superintendent	3	1	4	$89.81	
	General Foreman	7	5	12	$59.37	
	Foreman	10	8	18	$54.04	
	Journeyman	37	29	66	$49.47	
	Apprentice	55	45	100	$36.90	
	TOTAL	**112**	**88**	**200**		$45.00

TOTAL CONSTRUCTION PAYROLL		$ 5,958,000.00

* **# Construction Workers x Hours Per Week**

Manhours per Week x Average Hourly Wage

# of Weeks x Total Weekly Payroll = Yearly Payroll

Permanent Employee Schedule

List all anticipated permanent employees who will be employed by the Nevada Facility as of the end of its first fourth-quarter of new operations or expansion and the employment per job title will continue next 20 years. ***Please provide the formula utilized to arrive at the numbers below****

FULL TIME EMPLOYEES

		(c)	(f) =Σ(e) / Σ(c)
#	**Job Title**	**# of Employees**	**Average Hourly Wage ($)**
1	Management and Administrative Employees	1	
2	Permanent Employees, excluding Managemenet	2	
	and Administrative Employees		
	TOTAL	3	**$40.00**

TOTAL ANNUAL PAYROLL	**230,000.00**

* **# Employees x Hours Per Week x 52 Weeks x Average Hourly Wage**

Nevada Governor's Office of Energy
Renewable Energy Tax Abatement Application
AFN:

Supplemental Information

Please respond to each question. Answers to the questions will assist Department of Taxation staff in determining whether the facility should be locally or centrally assessed. Other questions will assist staff in understanding whether the reported replacement costs capture all aspects of taxable value.

1) Will you have a possessory interest in any governmentally owned property for this facility? Please describe if yes.

Yes, the BMSP Project will be built across two private parcels (Section 19 and Section 29) and will require 2 BLM easement ROW for 1) site access and 2) connecting the two private parcels via a "Butterfly" crossing. The SF299 ROW for the BLM site access has been obtained. The BLM has granted a DNA for the butterfly crossing and is preparring the SF299 ROW grant.

2) Will the facility, including generation, transmission, or distribution cross state or county boundaries? If yes, please describe.

No

3) Is the facility owned by a subsidiary of a company that is interstate or intercounty in nature? Name and location of the subsidiary company, if yes.

Yes, BMSP is a subsidiary of Consolidated Edison Development located at 100 Summit Lake Drive, Suite 210, Vahalla, NY 10595. Battle Mountain SP, LLC is the entity that owns the facility which will be located at Township 33 North, Range 44 East.

4) At what physical point is the ownership of energy transferred? Describe the location and nature of the connection to the transmission grid.

Ownership of energy is transferred at the proposed new Izenhood Substation located within the project boundary at the southwest corner of Section 19 within Township 33 North, Range 44 East.

5) Will the facility be eligible for other abatements or exemptions such as pollution control exemptions? Please describe if yes

No. BMSP will not apply for abatements in addition to sales and property tax.

6) Has your company applied and/or been approved for any abatements or exemptions for this facility or any other facility by the State of Nevada and/or local governments? If yes, list the abatements awarded, name and location of the project, name of the awarder, date of approval, amounts and status of the accounts.

No. Note: Consolidated Edison affliated companies Copper Mountain Solar 1, LLC, Copper Mountain Solar 2, LLC, Copper Mountain Solar 3, LLC, Copper Mountain 4, LLC and Copper Mountain 5, LLC have been granted an abatement for solar generation facilities.

7) Has your company applied for, or planning to apply for, an exempt wholesale generator desigination as defined in 15 U.S.C 79z-5A?

Yes. BMSP will submit an EWG Self Certification with FERC.

8) If an EIS or EA has been performed, please supply the ROD number.

The ROD number is: DOI-BLM-NV-W010-2016-0022-EA.

9) Has an appraisal been performed on any portion of this land or project?

No.

10) Has a Power Purchase Agreement been executed?

Yes. A Power Purchase Agreement was executed with Sierra Pacific Power Company d/b/a NV Energy on May 14, 2018. It was approved by the Public Utilities Commission of Nevada in Docket No. 18-06003.

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Summary Report
Schedules 1 through 8

Company:

Division:

Line No.	Schedule	Total Estimated RCNLD or Transaction Cost	Department Use Only
1	Sch. 1 Personal Property - Property Tax - Total from Col. J. *	[redacted]	
2	Sch. 2 Real Property - Improvements - Total from Col. F. *		
3	Sch. 3 Real Property - Land - Total from Col. I		
4	Sch. 4 Operating Leases - Total from Col. F *		
5	Sch. 5 Contributions in Aid of Construction - Total from Col. F		
6	Sch. 6 First Year Estimated Sales & Use Tax - Total from Col. J		
7	Sch. 7 Second Year Estimated Sales & Use Tax - Total from Col. J		
8	Sch. 8 Third Year Estimated Sales & Use Tax - Total from Col. J		

** The final determination of the classification of property as real or personal is made by the county assessor for locally-assessed property or by the Department of Taxation for centrally-assessed property. Placement of property on these sheets of the application is made for purposes of this fiscal note only and is not determinative of the final classification of property by the appropriate taxing official.*

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Property Tax: Personal Property
Schedule 1

Company Name:__Battle Mountain SP, LLC_____

Division:____n/a_____

Instructions:

(1) List each item of personal property subject to property tax in Col A. Pursuant to NRS 361.030, personal property includes stocks of goods on hand; any vehicle not included in the definition of vehicle in NRS 371.020; all machines and machinery, all works and improvements, and all property of whatever kind or nature not included in the term "real estate" as that term is defined in NRS 361.035.

(2) For each item in Col. A, complete the requested information in Col. B and Col. D (if applicable), Col. C and Col. D through Col. J.

(3) The total estimated cost reported in Col. H should include estimated or actual costs of installation and costs of transportation per NAC 361.1351 and NAC 361.1355. Costs of installation include the costs of direct labor, direct overhead and the capitalized expense of interest or imputed charges for interest which are necessary to make the property operational.

(4) Use the Personal Property Manual published by the Department of Taxation to determine the Cost Less Depreciation in Column (J). Select the Life Schedule that is closest to the estimated life of the personal property listed in Col. I. *See http://tax.state.nv.us. Then select: Publications/Locally Assessed Properties/Personal Property Manual.*

(5) Attach additional sheets as necessary.

A	B	C	D	E	H	I	J
Personal Property Itemized Description	**G/L Account No. (if applicable)**	**Purchased by Facility Owner (FO) Contractor (C) Subcontractor (SC)**	**Date Purchased (if applicable)**	**Date Received or Estimated Date of Receipt in Nevada**	**Estimated Total Acquisition Cost**	**Estimated Life of Personal Property**	**Estimated Acquisition Cost Less Depreciation**
PV Module Deliveries		FO		6/1/2020-4/1/2021	[redacted]	30 years	[redacted]
PV Rack Deliveries		C		4/1/2020-4/1/2021		30 years	
Inverter Deliveries		C		6/1/2020-4/1/2021		30 years	
Electrical System Material		C		4/1/2020-7/1/2021		30 years	
Substation & Interconnect Material		C		4/1/2020-7/1/2021		30 years	
Engineering & Permitting		C		4/1/2020-1/1/2021		30 years	
DAS / SCADA		C		6/1/2020-7/1/2021		30 years	
Battery Storage Equipment		C		6/1/2020-7/1/2021		30 years	
Grand Total							

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Property Tax: Real Property Improvements

Company Name: Battle Mountain SP, LLC **Schedule 2**
Division: n/a

Instructions:

(1) List each item of real property improvements subject to property tax in Col A. Pursuant to NRS 361.035, real property includes all houses, buildings, fences, ditches, structures, erections, railroads, toll roads and bridges, or other improvements built or erected upon any land, whether such land is private property or public property; as well as mobile or manufactured

(2) For each item in Col. A, complete the requested information in Col. B (if applicable), and Col. C through Col. F.

(3) The total estimated cost reported in Col. F should include estimated or actual costs of labor (do not include construction or operational employee totals from previous tab), materials, supervision, contractors' profit and overhead, architects' plans and specifications, engineering plans, building permits, site preparation costs, sales taxes and insurance; costs of buying or assembling land such as escrow fees, legal fees, right of way costs, demolition, storm drains, rough grading or other land improvement costs, yard improvements including septic systems, signs, landscaping, paving, walls, yard lighting; off-site costs

(4) Use Schedule 3 to report land; Schedule 4 to report operating leases; and Schedule 5 to report contributions in aid of

(5) Attach additional sheets as necessary.

A	B	C	F
Real Property Improvements Itemized Description	**G/L Account No. (if applicable)**	**Estimated Date of Completion**	**Estimated Total Construction Cost**
Grading and Site Work		4/1/2021	[redacted]
Fencing		7/1/2021	
Interior roads		7/1/2021	
Grand Total			

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Company:__Battle Mountain SP, LLC_____

Division: ___n/a_____

Property Tax: Real Property Land
Schedule 3

Show the requested data for **all land**, owned or leased, in Nevada.

A	B	C	D	E		F	G	H	I
	Where Situated			Brief Description, Size of the Land (acre), Date Acquired	Assessor's Parcel Number (APN)	Owned (O) Leased (L) Rented (Rtd)	G/L Account Number (if applicable)	Purchase Price (if applicable)	Assessor's Taxable Value
Line #	County	City or Town	Tax District						
1	Humboldt	Approx 6.5 miles NW of the Town of Battle Mountain	4	633.03	Section 19 - APN 07-0471-09	(L)		N/A	$2,020,631.76
2	Humboldt	Approx 6.5 miles NW of the Town of Battle Mountain	4	642.98	Section 29 - APN 07-0471-13	(L)		N/A	$2,052,392.16
3	Humboldt	Approx 6.5 miles NW of the Town of Battle Mountain	4	Access Road, 1000 ft BLM land, estimated 0.36 acres private land	Portion of Section 17 - APN 07-0471-20	(L)		N/A	$400.00
4	Humboldt	Approx 6.5 miles NW of the Town of Battle Mountain	4	Section 19 and 29 Connector Road accounted for above, remaining on BLM	Section 19 - APN 07 0741-09 and Section 29 - APN 07-0471-13	(L)		N/A	$0.00
5									
6		Total Acres Lease by BMSP		1,276 +/- acres					
7									
8									
9									
10									
11									
12	**Grand Total**								$4,073,423.92

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Company Name:_____Battle Mountain SP, LLC__

Division:_n/a_____

Property Tax: Operating Leases
Schedule 4

Instructions:

(1) List each operating lease for real or personal property. Designate whether the lease is for real or personal property in Col. C.

(2) For each item in Col. A, complete the requested information in Col. B (if applicable), and Col. C through Col. F.

(3) The total estimated cost reported in Col. E and Col. F should contain the costs appropriate to real or personal property. For definitions, please refer to Schedule 1 for personal property and Schedule 2 for Improvements.

(4) Report the Annual Lease Payment in Col. G; the term of the lease in Col. H; and any residual value at the end of the lease term in Col. I.

(5) Attach additional sheets as necessary.

A	B	C	E	F	G	H	I
Operating Lease Itemized Description	**G/L Account No. (if applicable)**	**Real or Personal Property?**	**Lessor's Replacement Cost Per Unit**	**Estimated Total Replacement Cost**	**Annual Lease payment**	**Lease Years Remaining**	**Residual Value**
Section 19 Lease	N/A	Real	<Sch 3>	<Sch 3>	**$192,000**	**20**	<Sch 3>
Section 29 Lease	N/A	Real	<Sch 3>	<Sch 3>	**$192,000**	**20**	<Sch 3>
Grand Total					384,000	20	

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Property Tax: Contributions in Aid of Construction
Schedule 5

Company Name:__Battle Mountian SP, LLC_
Division:_____n/a_____

Instructions:

(1) List all contributions in aid of construction (CIAC). CIAC is defined in NAC 361.260 as property which has been contributed to a utility by a prospective customer or which has been constructed by the utility and paid for by the prospective customer for which no reimbursement is required to be made by the utility to the prospective customer as a prerequisite to obtaining service.

(2) For each item in Col. A, complete the requested information in Col. B (if applicable), and Col. C through Col. F.

(3) The total estimated cost reported in Col. E and Col. F should contain the costs appropriate to real or personal property. For definitions, please refer to Schedule 1 for personal property and Schedule 2 for Improvements.

(4) Attach additional sheets as necessary.

A	B	C	D	E	F
Contributions in Aid of Construction (CIAC) Itemized Description	**G/L Account No. (if applicable)**	**Real or Personal Property?**	**Number of Units**	**Replacement Cost Per Unit**	**Estimated Total Replacement Cost**
120kV Metering at Interconnection Customer Facility		Personal	1	[redacted]	[redacted]
Review of Transmission Provider's Interconnection Facilities Self-Build Components		Personal	1		
Change existing settings on relays at Battle Mountain 120 kV Substation		Personal	1		
Relay Replacement at Valmy 120 kV Substation		Personal	1		
Battle Mountain-Valmy 120 kV Line Fold into Izzenhood switching station		Personal	1		
Review of Distribution Upgrade Self-Build Components		Personal	1		
Customer site Lands and Right-of-Way review and Access to Equipment Agreement		Personal	1		
Lands and Right-of-Way Permitting Review		Personal	1		
Environmental Permitting Review		Personal	1		
Grand Total					

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Company Name:___Battle Mountain SP, LLC_____

Division:___n/a_____

Sales and Use Tax
First Year of Eligible Abatement
Schedule 6

Instructions:

(1) Column A: List each item of personal property or materials and supplies subject to sales and use tax (please include leases. Refer to NRS Chapter 372 for taxable events.

(2) Column B: For each item in column A, list applicable account nomber.

(3) Column C: List the Facility Owner, Contractor or Subcontractor that will be purchasing the personal property or materials and supplies subject to sales and use tax.

(4) Column D: List the date the personal property or materials and supplies were purchased.

(5) Column E: List the date that possession of the personal property or materials and supplies will be taken.

(6) Column F: List the cost of the personal property or materials and supplies.

(7) Column G: List the county where possession will be taken and the applicable sales tax rate of that county. *Find the appropriate sales/use tax rate on the Department of Taxation's website at http://tax.state.nv.us. Then scroll to "Quick Links" and select "Sales/Use Tax Rate Map".*

(8) Column H: Multiply Column F by the Sales Tax Rate in Column G.

(9) Attach additional sheets as necessary.

A	B	C	D	E	F	G	H
Personal Property or Materials and Supplies Itemized Description	**G/L Account No. (if applicable)**	**Purchased by Facility Owner (FO) Contractor (C) Subcontractor (SC)**	**Date Purchased**	**Date of Possession**	**Total Transaction Cost**	**County and Applicable Sales Tax Rate**	**Estimated Sales Tax Paid or to be Paid**
PV Module Deliveries		FO	2020	2020	[redacted]	2.60%	[redacted]
PV Rack Deliveries		C	2020	2020		2.60%	
Inverter Deliveries		C	2020	2020		2.60%	
Electrical System Material		C	2020	2020		2.60%	
Substation & Interconnect Material		C	2020	2020		2.60%	
Engineering & Permitting		C	2020	2020		2.60%	
DAS / SCADA		C	2020	2020		2.60%	
Battery Storage Equipment		C	2020	2020		2.60%	
Grand Total							

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Company Name:__Battle Mountain SP, LLC_____

Division:___n/a_____

Sales and Use Tax
Second Year of Eligible Abatement
Schedule 7

Instructions:

(1) Column A: List each item of personal property or materials and supplies subject to sales and use tax (please include leases. Refer to NRS Chapter 372 for taxable events.

(2) Column B: For each item in column A, list applicable account nomber.

(3) Column C: List the Facility Owner, Contractor or Subcontractor that will be purchasing the personal property or materials and supplies subject to sales and use tax.

(4) Column D: List the date the personal property or materials and supplies were purchased.

(5) Column E: List the date that possession of the personal property or materials and supplies will be taken.

(6) Column F: List the cost of the personal property or materials and supplies.

(7) Column G: List the county where possession will be taken and the applicable sales tax rate of that county. *Find the appropriate sales/use tax rate on the Department of Taxation's website at http://tax.state.nv.us. Then scroll to "Quick Links" and select "Sales/Use Tax Rate Map".*

(8) Column H: Multiply Column F by the Sales Tax Rate in Column G.

(9) Attach additional sheets as necessary.

A	B	C	D	E	F	G	H
Personal Property or Materials and Supplies Itemized Description	**G/L Account No. (if applicable)**	**Purchased by Facility Owner (FO) Contractor (C) Subcontractor (SC)**	**Date Purchased**	**Date of Possession**	**Total Transaction Cost**	**County and Applicable Sales Tax Rate**	**Estimated Sales Tax Paid or to be Paid**
Electrical System Material		C	2021	2021	[redacted]	2.60%	[redacted]
Substation & Interconnect Material		C	2021	2021		2.60%	
DAS / SCADA		C	2021	2021		2.60%	
Battery Storage Equipment		C	2021	2021		2.60%	
Grand Total							

Nevada Governor's Office of Energy
Renewable Energy Tax Abatements Application
AFN:

Company Name:___Battle Mountain SP, LLC_____
Division:____n/a_____

Sales and Use Tax
Third Year of Eligible Abatement
Schedule 8

Instructions:

(1) Column A: List each item of personal property or materials and supplies subject to sales and use tax (please include leases. Refer to NRS Chapter 372 for taxable events.

(2) Column B: For each item in column A, list applicable account nomber.

(3) Column C: List the Facility Owner, Contractor or Subcontractor that will be purchasing the personal property or materials and supplies subject to sales and use tax.

(4) Column D: List the date the personal property or materials and supplies were purchased.

(5) Column E: List the date that possession of the personal property or materials and supplies will be taken.

(6) Column F: List the cost of the personal property or materials and supplies.

http://tax.state.nv.us. Then scroll to "Quick Links" and select "Sales/Use Tax Rate Map".

(7) Column H: Multiply Column F by the Sales Tax Rate in Column G.

(8) Attach additional sheets as necessary.

A	B	C	D	E	F	G	H
Personal Property or Materials and Supplies Itemized Description	**G/L Account No. (if applicable)**	**Purchased by Facility Owner (FO) Contractor (C) Subcontractor (SC)**	**Date Purchased**	**Date of Possession**	**Total Transaction Cost**	**County and Applicable Sales Tax Rate**	**Estimated Sales Tax Paid or to be Paid**
O&M Materials - Second Year of Operation		FO	2022	2022	[redacted]	2.60%	[redacted]
Grand Total							

Attestation and Signature

I, ___Mark Noyes_____. by signing this Application, I do hereby attest and affirm under penalty of perjury the following:

(1) I have the legal capacity to submit this Application on behalf of the applicant;
(2) I have prepared and personally knowledgeable regarding the contents of this Application; and
(3) The content of this Application are true, correct, and complete.

Mark Noyes
Name of person authorized for signature:

Signature:

President & Chief Executive Officer
Title:

11/22/2019
Date:

This Application contains confidential information: Yes __X__ No

If yes, please identify any information in the within Application or documents submitted herewith, which Applicant considers confidential or trade secret information. Further, identify: (1) the applicable statutory authority or agreement preventing public disclosure of the information; and (2) Applicant's rationale underlying non-disclosure of the information or document(s).

Applicant acknowledges that the burden of demonstrating confidentiality or trade secret status lies with the Applicant, and Applicant agrees to defend and indemnify the State and its agencies for honoring such designation. Notwithstanding, Applicant understands that the over-inclusive designation of information or documents as confidential or trade secret may cause the Nevada State Office of Energy to conduct further inquiry of the Applicant into the confidentiality of the information, potentially delaying submission of the Application to the Nevada Energy Director.

Material for which confidentiality is claimed : *Confidentiality is claimed for data relating to costs and prices, as well as to private information of individuals and companies such as e-mail addresses of individuals and tax ID #s of companies.*

Basis for claims of confidentiality : NRS 360.247, 49.325, 703.190, 239B.030 & 239B.040.

Exhibit M

AFFIDAVIT OF JUSTIN JOHNSON

I, JUSTIN JOHNSON, affirm under penalty of perjury that the assertions contained in this affidavit are true and correct:

1. I am over 18 years old and a resident of Arizona. I make this affidavit based upon personal knowledge, except when stated to be upon information and belief, and as to that information, I believe it to be true. If called as a witness, I could competently testify as to the contents of this affidavit.

2. By way of a tax bill dated April 9, 2025, the Clark County Assessor classified the Eagle Shadow Mountain Solar Project (the "ESM Project"), a solar project owned by 325MK 8ME, LLC ("Appellant") and located on land owned by the United States and held in trust for the Moapa Band of Paiute Tribe (the "Moapa Band") in Clark County, as taxable personal property for tax years 2022-23, 2023-24 and 2024-25.

3. The Clark County Assessor's classification of the ESM Project as taxable personal property resulted in a $3,534,105.38 Nevada property tax liability for Appellant. Appellant has paid this property tax liability under protest.

4. Prior to April 9, 2025, the ESM Project had never been assessed Nevada property tax and Appellant had never incurred Nevada property tax liability for the project.

5. On May 15, 2025, Appellant submitted to the Nevada State Board of Equalization a Petition for Direct Appeal of the Clark County Assessor's property tax assessment ("Petition").

6. The Petition was received by the Nevada State Board of Equalization and assigned Case No. 25-155 ("Appeal").

7. During the pendency of the Appeal, Mr. Thomas Walusek, MAI, Senior Management Analyst with the Clark County Assessor's Office, requested Appellant provide a detailed explanation of Appellant's position on the Appeal.

8. On September 9, 2025, Appellant submitted a letter ("Letter") to Mr. Walusek explaining in detail why the ESM Project is exempt from Nevada property tax.

9. I make this affidavit in support of the Appeal and the Letter.

10. I am a graduate of the United States Air Force Academy.

11. I earned a Master of Business Administration from Babson College.

12. I possess more than 25-years of energy and operations work experience in procurement, asset management, performance and engineering management, development and construction. During those 25-years, I have held senior or executive level positions with various renewable energy companies including Capital Dynamics, EDP Renewables and Horizon Wind Energy.

13. Currently, I am the Executive Vice President and Chief Operating Officer of Arevon Energy, Inc. ("Arevon"), which owns the Appellant through an affiliated entity.

14. As Arevon's Executive Vice President and Chief Operating Officer, I am responsible for all construction, engineering, procurement, asset management and operations activities of the ESM Project.

15. I have held the Executive Vice President and Chief Operating Officer positions with Arevon for approximately eight years.

16. I helped found Arevon in 2017 and led the organization in its role as exclusive asset manager to Capital Dynamics.

17. In 2019 , Capital Dynamics partnered with 8minute Solar Energy LLC to acquire the rights to develop, construct and deploy the ESM Project.

18. Shortly thereafter, Arevon acquired the ESM Project from 8minute Solar Energy LLC, the project's original developer, through a competitive process in furtherance of Arevon's business model of owning and operating utility-scale renewable energy projects long term ("the ESM Project Acquisition").

19. During the ESM Project Acquisition, I held an executive level position with Arevon and was responsible for, among other things, development of the ESM Project.

20. Shortly after the ESM Project Acquisition, I was promoted to my current positions of Executive Vice President and Chief Operating Officer of Arevon.

21. As Arevon's Chief Operating Officer since ESM Project Acquisition, and an executive with Arevon during the ESM Project Acquisition, I am familiar with every aspect of the project's early-stage development. I am therefore intimately familiar with early-stage development planning, efforts and costs, as well as long-term plans and contractual obligations of Appellant and the ESM Project including agreements with the Moapa Band and Nevada Power Company d/b/a NV Energy ("NV Energy").

22. As part of the ESM Project Acquisition, Appellant's Renewable Energy Tax Abatement ("RETA") Application to the State of Nevada was reviewed, including the Findings of Fact, Conclusions of Law and Order (the "RETA Order") dated November 4, 2020 and attached to the Letter as **Exhibit K**.

23. The RETA Order indicated that the State of Nevada had determined no property tax would result from the ESM Project.

24. The RETA Order's determination on property tax was consistent with my understanding at the time of the ESM Project Acquisition that no property tax would result from the ESM Project because it was located on federally owned land held in trust for the Moapa Band.

25. Appellant relied on that determination in the RETA Order in going forward with the ESM Project Acquisition.

26. As Arevon's Chief Operating Officer since the ESM Project Acquisition, I am familiar with the construction of the ESM Project as well as Appellant's contractual agreements with the Moapa Band and NV Energy.

27. The ESM Project is located entirely on 2,300 acres of the Moapa River Indian Reservation land which Appellant leases from the Moapa Band.

28. The ESM Project was intended by Appellant and the Moapa Band to be a permanent improvement of the Moapa River Indian Reservation land.

29. The ESM Project's intended permanence is memorialized in the Solar Energy Ground Lease Agreement ("Lease") entered into by Appellant and the Moapa Band.

30. A true and accurate copy of the Lease between Appellant and the Moapa Band is attached to the Letter as **Exhibit E**.

31. The Lease defines the ESM Project as a "permanent improvement."

32. The Lease mandates that the ESM Project "shall be treated" as a "permanent improvement" at all times.

33. Under the Lease, the Moapa Band dedicated the 2,300 acres of the Moapa River Indian Reservation land to be used for the development, construction and operation of a solar power facility.

34. Appellant's ESM Project fulfills the dedicated purpose of the 2,300 acres of the Moapa River Indian Reservation land.

35. Under the Lease, Appellant must operate the ESM Project for a term of up to 50-years.

36. During those 50-years, Appellant has no other rights concerning the 2,300 acres of the Moapa River Indian Reservation land.

37. The Lease grants the Moapa Band an express option to terminate the Lease but "not remove" the ESM Project because the ESM Project was intended to remain on the Moapa River Indian Reservation land even after the Lease terminates.

38. The ESM Project's intended permanence is also memorialized in the project's "Conceptual Decommissioning Plan."

39. The ESM Project's Decommissioning Plan was submitted by the Moapa Band to the Environmental Protection Agency and Bureau of Indian Affairs ("BIA") as part of the project's Environmental Impact Study.

40. A true and accurate copy of the Conceptual Decommissioning Plan is attached to the Letter as **Exhibit F**.

41. As described by the Moapa Band in the Conceptual Decommissioning Plan, the project was intended to permanently be "used to generate solar energy even beyond the term of

the initial lease and energy purchase agreements, remaining in solar energy production for the foreseeable future."

42. The ESM Project's intended permanence is also memorialized in the Long Term Renewable Power Purchase Agreement ("PPA") entered into by Appellant and NV Energy.

43. A true and accurate copy of the PPA between Appellant and NV Energy is attached to the Letter as **Exhibit G**.

44. Under the PPA, Appellant agreed to supply NV Energy with all renewable energy "Product" generated at the ESM Project for a period of 25-years.

45. The 25-year term is reflective of Appellant and NV Energy's intent that the ESM Project was meant to be a long-term permanent improvement to the Moapa River Indian Reservation land as opposed to a short-term and temporary project.

46. In addition to Appellant and the Moapa Band intending the ESM Project to be a permanent improvement, the parties also intended the ESM Project to be treated uniquely for purposes of taxation as memorialized in the Tribal Agreement ("Tribal Agreement") entered into by Appellant and the Moapa Tribe.

47. A true and accurate copy of the Tribal Agreement between Appellant and the Moapa Band is attached to the Letter as **Exhibit H**.

48. The Tribal Agreement states that under federal and state law, the ESM Project would not be subject to "real estate taxation by either the State of Nevada or any local governmental authority, or division, department, agency, court, arbitrator, tribunal, commission, board, official, organization, body or other instrumentality thereof."

49. The Tribal Agreement also states that Appellant would remit PILOT fees to the Moapa Band "in lieu of all taxes, tax levies or other tax assessments (other than sales and use tax as provided for in Section 3 above) that could be levied by the [Moapa Band] against [Appellant] or its contractors, against the Project, the Premises, the Improvements, the Infrastructure, the Rights of Way, the Solar Power Facilities, Tenant Improvements, Tenant Operations or any other property or activities of Project Company authorized under the Lease."

50. In exchange for Apellant's remitting PILOT fees to the Moapa Band, the Moapa Band provides certain services to the ESM Project. The Moapa Band has provided these services to the ESM Project since Appellant began remitting PILOT fees to the Moapa Band.

51. One example of such service is the Moapa Band's maintenance of the access and on-site roads at the ESM Project which Appellant uses to access, maintain and operate the project.

52. To the best of my knowledge, Clark County does not currently provide, nor has it ever provided, services to the ESM Project that could be considered services funded by the Nevada property tax.

53. To my understanding, Clark County does not provide services to the ESM Project because the project is located entirely on the Moapa River Indian Reservation land. The disparity in services rendered to the ESM Project is depicted by the Moapa Band's maintenance of the access and on-site roads at the ESM Project as compared to Clark County's maintenance of access roads which abruptly ends when the roads cross onto the Moapa River Indian Reservation. True and accurate photos of Clark County maintained roads leading to the Moapa River Indian Reservation and Moapa Band maintained roads once they cross onto the Moapa River Indian Reservation are attached to the Letter as **Exhibit S.**

54. The Lease, the PPA and the Tribal Agreement demonstrate that the ESM Project was intended to be permanently affixed to the Moapa River Indian Reservation land for an indefinite time.

55. None of the key parties who developed the ESM Project—Appellant, the Moapa Band and NV Energy—intended the ESM Project to be affixed to the Moapa River Indian Reservation land on a short-term or temporary basis.

56. The ESM Project's intended permanence is also observed in the construction and physical affixation of the project to the Moapa River Indian Reservation land.

57. As Arevon's Chief Operating Officer since the ESM Project Acquisition, I am familiar with every aspect of the ESM Project's construction. I am therefore intimately familiar with the specifics of why, when and how the ESM Project was constructed.

58. Preparatory construction work at the ESM Project started in or around August 2020. The necessary grading and sitework for the solar array construction completed in or around December 2020 but the bulk of grading and sitework completed later, in or around March 2021. Because the grading and sitework for the solar array finished early, construction of the solar array commenced in or around December 2020 and concluded in or around April 2023. Construction of the high voltage side of the ESM Project was completed in or around May 2021.

59. Because construction of the high voltage side of the ESM Project was completed in or around May 2021, the ESM Project first produced test energy in or around October 2021. By the end of 2021, approximately 70% of the project was operational and producing energy. Full commercial operation and production of energy at the ESM Project was realized in or around May 2023 after construction of the entire solar array concluded.

60. Overall, the ESM Project cost $460,300,001 to construct. I can provide a more detailed cost breakdown of the project and its components upon request.

61. Overall construction of the ESM Project took around 34 months. I can provide a more detailed timeline of construction of the project upon request.

62. Only two permits were required from Clark County in conjunction with the ESM Project's construction: (1) a Special Use Permit related to the portion of the gen-tie line on Bureau of Land Management ("BLM") and NV Energy properties, and (2) a Dust Control Permit for construction activities. Clark County did not issue or require any building permits for the primary components of the ESM Project itself.

63. Both of the permits issued by Clark County pertained to construction and work on the gen-tie portion of the project located on non-tribal land.

64. True and accurate copies of the Special Use Permit and Dust Control Operating Permit For Construction Activities issued by Clark County are attached to the Letter as **Exhibit T**.

65. The ESM Project was constructed pursuant to Structural Design Plans which took over 8 months to develop. One of the reasons why the project's Structural Design Plans took so

long to develop was that construction of the project had to adequately address the unique and inimitable geographic characteristics of the Moapa River Indian Reservation land.

66. True and accurate copies of the ESM Project's Structural Design Plans, which detail how the project is physically connected and affixed to the Moapa River Indian Reservation land, are attached to the Letter as **Exhibit A**.

67. The ESM Project consists of two primary components that are connected to the Moapa River Indian Reservation real property: (1) module-tracker structures, and (2) a substation.

68. At a very high level, a collection of 72-solar panels make up a "module"; a "module" is physically connected to a 200 foot long "tracker" which runs parallel to the ground and is permanently connected thereto via "earth trusses" or "driven piles"; through the solar panels, a module collects solar energy that is transmitted through a series of steps including an inverter to a "substation" permanently connected to the real property via robust cement foundations and steel framing; at the "substation", the solar energy is transmitted to a transformer for subsequent transmission.

69. Every module at the ESM Project is physically connected to a tracker.

70. There are 10,618 tracker units at the ESM Project. Each tracker is physically affixed to the ground by "earth trusses" or "driven piles." 60% of the ESM Project module-tracker structures are permanently connected to the ground via earth trusses. 40% of the ESM Project module-tracker structures are permanently connected to the ground via driven piles.

71. In total, 83,304 earth trusses were used to permanently connect module-tracker structures to the ground at the ESM Project while 38,061 driven piles were used.

72. True and accurate photos of the ESM Project, module-tracker structures, earth trusses and driven piles are attached to the Letter as **Exhibit B**.

73. Earth trusses are manufactured solar tracker foundations that include five parts and are assembled in an "A" frame configuration. These parts consist of two earth screws that anchor the truss into the ground. The earth screws have an outside diameter of approximately 3 inches (with an approximate wall thickness of 0.1 inches) and they measure between 5 and 7 feet long

and weigh approximately 60 pounds each. The earth screws have continuous flights (or threads) and are hot dipped galvanized. The earth screws are installed into the ground using a proprietary installation rig that simultaneously drills a hole and advances the earth screws into the bedrock to the proper depth and angle. Two supporting pipe legs and an earth truss cap are then all permanently affixed to the earth screw in the field with a custom hydraulic crimper.

74. The earth truss is firmly stabilized and immovable when the body of the earth screws are embedded nearly 4 feet deep into the bedrock. The tracker is then bolted to the completed A-Frame earth truss using industrial grade bolts.

75. Driven piles are between 8.5 feet and 15.5 feet long, the section of the pile (looking down from the top) is approximately 6 inches tall, and weigh between 60 and 186 pounds. As with earth trusses, to install driven piles a slightly undersized pilot hole is cut deep into the bedrock using a down-hole drill. After that, a mechanical pile driver is used to hammer the driven pile into the pilot hole until it reaches a stable layer of bedrock. This typically requires hammering the driven piles anywhere from 6 to 8 feet into the ground. At that point, the bedrock securely locks the driven pile into a vertically-fixed position, leaving about three to five feet of exposed driven pile above ground. The exposed portion of the driven pile is then bolted to the tracker using the same large-format bolts discussed above.

76. Before constructing the ESM Project, Appellant commissioned a "Geotechnical Exploration Report."

77. A true and accurate copy of the Geotechnical Exploration Report is attached to the Letter as **Exhibit C**.

78. The Geotechnical Exploration Report explores the unique geological conditions and compositions of the Moapa River Indian Reservation land which was necessary to learn in order to adequately design and construct the project in a permanent manner.

79. Under the Geotechnical Exploration Report, the Moapa River Indian Reservation land displayed "large volume changes in the subsurface" and "widespread occurrence of thick,

resistant layers of cemented sand and gravel" which required "specialized excavation equipment" to prepare the "cemented soils" for module-tracker installation.

80. Because of the Geotechnical Exploration Report's findings, Appellant specifically selected earth truss and driven pile connection methodologies to ensure the module-tracker structures were permanently connected to the ground.

81. The earth truss screws and driven piles supporting the module-tracker structures are securely held in place only by the counter-force the ground exerts against the screws and piles which increases as they are twisted and hammered deeper into the earth. The amount of counter-force required to support the weight of the modules and trackers can only be achieved by pounding the screws and piles so deep into the bedrock that they become an extension of the ground itself.

82. The majority of module-tracker structures at the ESM Project being connected to the ground through earth trusses is unique.

83. The ESM Project was one of the first solar projects in Nevada to utilize earth truss technology to permanently affix the module-tracker structures to the ground.

84. In addition to the Geotechnical Exploration Report's findings, earth trusses were intentionally selected as part of the ESM Project's module-tracker structure design to address the Moapa River Indian Reservation land's unique geological composition of caliche in certain areas.

85. Although it can take different forms, caliche is most commonly a geological composition of soil in which calcium carbonate deposits are cemented together over time. This renders the soil rock-hard and exponentially more difficult to cut through than most soil types. Because caliche makes-up the majority ground composition on Moapa River Indian Reservation land, the use of earth trusses and screws was required to "break through" and "grip" the caliche-rich soil in a manner that could permanently connect the module-tracker structures to the ground and support their weight.

86. Driven piles are the most common affixation technique used for module-tracker structures throughout solar projects inside and outside Nevada.

87. Driven piles would not have sufficiently addressed the problems posed by caliche-rich soil in a way that provides permanent affixation of the module-tracker structures nor support of their weight.

88. The predominant use of earth trusses at the ESM Project is a unique construction method intentionally employed by Appellant to construct the module-tracker structures and connect them to the Moapa River Indian Reservation land in a permanent manner.

89. The module-tracker structures took over 10 months to construct because labor-intensive and difficult installation of earth trusses and driven piles.

90. The module-tracker structures cost $139,610,823 to construct and install at the ESM Project which does not include $28,306,906 in grading and earth work, much of which was required to excavate and prepare the Moapa River Indian Reservation land for construction and installation of the module-tracker structures.

91. True and accurate photos of the ESM Project's substation are attached to the Letter as **Exhibit D**.

92. The ESM Project substation is connected to the real property through a variety of classic cement foundations. The first variant, a drilled caisson, encompasses drilling 82 concrete caisson foundations that range between 30 inches and 48 inches in diameter and between 8 and 13 feet deep directly into the bedrock. Reinforcing steel is placed and then the hole is filled with concrete. There are seventeen concrete slab foundations to support the substation's additional equipment.

93. Of all the foundations at the ESM Project, the concrete foundations to which the substation equipment is affixed are the most robust.

94. The substation equipment includes two main power transformers (each weighing in excess of 50,000 pounds); a control enclosure structure which houses all of the monitoring and controls devices; various high voltage and medium voltage breakers (among other electrical protection devices) and/or switching; a capacitor bank; a backup generator; and a series of steel structures which support the overhead medium and high voltage cables. All of these structures and

equipment are affixed to individual foundations via anchor bolts which were either set into the concrete before it hardens or drilled and epoxied into already hardened concrete.

95. On average, it takes 3 to 6 months to properly construct and install a solar project substation.

96. The ESM Project's substation took nearly 6 months to construct.

97. The ESM Project's substation cost $14,705,689 to construct and install which does not include the substation's proportional share of the $28,306,906 grading and earth work costs.

98. The projected lifespans of the constructed ESM Project and its components are also indicative of its intended permanence.

99. The module-tracker, earth truss and driven pile components of the ESM Project are designed and constructed to last in perpetuity.

100. The substation is designed and constructed to last indefinitely, although certain components such as transformers may need to be replaced from time to time.

101. The transformer housed in the substation is expected to last anywhere from 35 to 50 years.

102. The ESM Project was intentionally designed and constructed to include more solar panels than necessary. This was done so that, as individual panel power production slightly decreases over time, additional panels make-up for the production loss and the project continues to produce its intended generation outputs. This is also indicative of the ESM Project's intended permanence.

103. As Arevon's Chief Operating Officer since the ESM Project Acquisition, I was and am directly involved in every aspect of the project's operations which includes any theoretical moving or removal of the project. I am therefore intimately familiar with how the project would be moved or removed.

104. The ESM Project has never been moved or removed from the Moapa River Indian Reservation land.

105. There are no current or future plans to move or remove the ESM Project from the Moapa River Indian Reservation land.

106. In general, moving or removing the ESM Project would be a substantial, complex, rigorous, laborious, time-consuming and expensive undertaking subject to intense regulatory scrutiny.

107. Moving or removing the module-tracker structures in a way that renders them operable is impossible. This is because of the earth truss and driven pile connection techniques. Once screws have been twisted that deep into the ground, it is impossible to "unscrew," move or remove them without substantially damaging them as well as the module-tracker structures attached. Once piles have been driven that deep into the ground, it is similarly impractical to move or remove them without substantially damaging them.

108. To move or remove the screws and piles, one must "cut them at grade" or physically sever them at ground level so the exposed, above-ground portion of the screw and pile is removed and below-ground portions remain embedded in the bedrock.

109. "Cutting at grade" requires the use of a plasma torch and is similar to the removal of a building or a bridge.

110. "Cutting at grade" completely destroys each screw and pile and renders them unusable because it leaves a portion of each screw and pile embedded in the earth and a portion above the "cut" which remains attached to the module-tracker structure.

111. The screws and piles still connected to the module-tracker structures are no longer adequate length to re-install into the ground deep-enough to obtain the amount of ground-exerted counter-force required to support the weight of structures.

112. There is no way to remove the screws and piles still embedded in the ground without intensive excavation processes which disturbs and damages the surrounding real property. Even if the screws and piles still embedded in the ground were removed, they would no longer be the correct length to permanently connect an above ground module-tracker structure to the ground.

113. Moving or removing the substation would require substantial industrial grade-work and destroy the substation structure itself.

114. Removal of the substation would involve a two-step process. First, the ancillary equipment connected to the cement foundations would need to be removed. Once removed, the steel structures bolted to cement foundations remain. There is no way to remove the cement foundations from the ground without a commercial excavation processes that substantially damages the cement foundations and surrounding real property.

115. Thus, there is no real way to move or remove the substation without completely destroying it and substantially damaging the real property to which it is permanently attached.

116. Damage to the ESM Project and the Moapa River Indian Reservation land upon moving or removing the project was an actual consideration of Appellant and the Moapa Band when they negotiated and signed the Lease.

117. Under the Lease, Appellant and the Moapa Band intentionally included Section 12.01 which defines and differentiates "Subject Property" as property "that is physically separable from the to-be-removed Tenant's Property without material cost or damage[.]"

118. Like its two primary components—the module-tracker structures and the substation—the ESM Project as a whole is not readily movable or removable in a way that renders the project operational.

119. The only parts of the ESM Project theoretically capable of being moved or removed in a way that permits them to retain their operation are smaller components that, in and of themselves and without connection to the ESM Project as a whole, are incapable of producing solar energy.

120. In any event, there is no guarantee that such smaller components could be used at another solar project. This is because even the smaller components were specifically designed for use at the ESM Project.

121. As an example of this, the panels attached to the ESM Project module-tracker structures were specially designed with certain voltage and wattage outputs. Even though panels

are theoretically movable and interchangeable, the specific voltage and wattage specs of the ESM Project panels means they are potentially unusable at another solar project if that project does not share the ESM Project's voltage and wattage needs.

122. The only way move or remove the ESM Project is pursuant to the project's Conceptual Decommissioning Plan.

123. Decommissioning the ESM Project is a mammoth process which requires removal of the project's facilities, structures and electrical equipment.

124. Decommissioning the ESM Project would likely take a year or longer.

125. Decommissioning the ESM Project would require Appellant to provide "performance and reclamation bonding in an amount sufficient to ensure the implementation of the approved Decommission Plan."

126. Per the Conceptual Decommissioning Plan, the bond amount required would be based on a decommissioning cost "estimate" provided by Appellant.

127. Appellant estimates the cost of decommissioning the ESM Project to be significant and would cost millions of dollars and take significant time and effort.

128. Per the Conceptual Decommissioning Plan, decommissioning of the ESM Project would have to "be conducted in compliance with all applicable Federal and Tribal regulations in place at the time" and with constant "[c]onsultation with the [Moapa Band], BIA, BLM, and any other involved entities would be conducted to ensure that all Federal and Tribal requirements are addressed."

129. Per the Conceptual Decommissioning Plan, decommissioning of the ESM Project would require Appellant to fund, develop and adhere to an Environmental Site Assessment, a Final Decommissioning Plan and a Restoration Plan to remove the project from the Moapa River Indian Reservation land.

130. Per the Conceptual Decommissioning Plan, decommissioning of the ESM Project would require all structures and facilities erected at the ESM Project to be dismantled through only "approved methods."

131. Per the Conceptual Decommissioning Plan, decommissioning of the ESM Project would require Appellant to remove access and on-site roads used at the ESM Project. This process entails physical removal of any aggregate and/or other base material used to construct the roads, recycling or disposal of such material and restoration of the roads to approximate pre-project conditions.

132. Per the Conceptual Decommissioning Plan, decommissioning of the ESM Project would require Appellant to undertake "Post-Demolition Site Stabilization" efforts which include the restoration of any "disturbed areas" to "promote pre-project drainage patterns, with the goal of reducing the potential for erosion." Once the disturbed sites are stabilized, "restoration activities required to return the disturbed areas to a pre-construction function" are required in accordance with a Site Restoration Plan and Integrated Weed Management Plan.

133. Even if the ESM Project could theoretically be moved or removed in a manner that renders the project operational, moving or removing the project would cause Appellant to breach the PPA.

134. Under the PPA, Appellant must supply NV Energy with all renewable energy "Product" generated at the ESM Project for a period of 25 years.

135. Moving or removing the ESM Project from the Moapa River Indian Reservation would cause Appellant to commit several "Events of Default" under the PPA because Appellant's contractual obligations thereunder pertain only to providing NV Energy with generated renewable energy "Product" at the "Facility" and "Generating Facility" on the Moapa River Indian Reservation.

136. The PPA makes clear that Appellant cannot sell or transfer the ESM Project without first notifying NV Energy and that NV Energy shall have a "Right of First Offer" to purchase the project upon notice of proposed sale or transfer.

137. Under the PPA, NV Energy also has an express "Early Purchase Option" to purchase the ESM Project from Appellant "on a date chosen by [NV Energy] during the six (6)

months after the Facility's 10th, 15th, and 20th anniversaries of the Commercial Operation Date[.]"

138. Appellant is not "permitted to make any modification" to the ESM Project "[w]ithout the prior written consent of" NV Energy and must notify NV Energy of "any temporary or permanent change to the performance, operating characteristics, or major generation components (such as turbines, generators, inverters, solar panels or similar equipment, as applicable)[.]"

139. Even if the ESM Project could theoretically be moved or removed in a manner that renders the project operational, NV Energy could potentially block such removal or moving via exercise of its Right of First Offer or Early Purchase Option.

I declare under penalty of perjury that the foregoing is true and correct.

JUSTIN JOHNSON

STATE OF NEVADA)
: ss.
COUNTY OF CLARK)

The foregoing Affidavit was acknowledged before me on September 9, 2025, by Justin Johnson as Executive Vice President and Chief Operating Officer of Arevon Energy, Inc.

WITNESS my hand and official seal

NOTARY PUBLIC

JULIE CLIFT
Notary Public, State of Nevada
No. 20-2524-01
My Appt. Exp. July 4, 2029

Exhibit N

HUMBOLDT COUNTY DISTRICT ATTORNEY
P.O. Box 909
Winnemucca, Nevada 89446

CASE NO. CV0023220
DEPT. NO 2.
THIS DOCUMENT CONTAINS NO SOCIAL SECURITY NUMBERS

FILED
2022 SEP 21 PM 2:58
TAMI RAE SPERO
DIST. COURT CLERK

IN THE SIXTH JUDICIAL DISTRICT COURT OF THE STATE OF NEVADA

IN AND FOR THE COUNTY OF HUMBOLDT

HUMBOLDT COUNTY, NEVADA, a political subdivision of the State of Nevada; and the HUMBOLDT COUNTY ASSESSOR
Petitioner,

vs.

THE STATE OF NEVADA, ex.rel. STATE BOARD OF EQUALIZATION; NEW NEVADA LANDS, LLC; BATTLE MOUNTAIN SOLAR PROJECT, LLC.,
Respondents.

PETITION FOR JUDICIAL REVIEW

Petitioners HUMBOLDT COUNTY, NEVADA and HUMBOLDT COUNTY ASSESSOR (collectively "County") acting by and through their legal counsel MICHAEL MACDONALD, District Attorney, by and through WENDY MADDOX, his deputy, hereby file this Petition for Judicial Review ("Petition"). This petition is made and based upon the provisions of chapters 233B, 360 and 361 of the Nevada Revised Statutes ("NRS") and Chapters 360 and 361 of the Nevada Administrative Code ("NAC"). In support of the petition, Petitioner alleges as follows:

I.
INTRODUCTION

1. Petitioners request that this Court judicially review the decision of the State Board of Equalization ("SBE") issued August 24, 2022 ("Decision" attached as Exhibit 1"), concerning the appeal of the Humboldt County Assessor from the denial by the Humboldt County Board of Equalization ("CBE") of Assessor's valuation of "property" improvements on the 2021-2022

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supplemental role as properly valued, wherein the SBE upheld the decision of the CBE. The Decision of the SBE is: (a) in violation of constitutional or statutory provisions, or affected by other error of law, (b) in excess of the statutory authority of the SBE, and made upon unlawful procedure, and (c) is clearly erroneous in view of the reliable, probative and substantial evidence on the whole record, and is therefore arbitrary or capricious or characterized by abuse of discretion. The "property" at issue in this matter consists of a solar photovoltaic utility-scale power generating facility which exists on two (2) separate parcels lying within Humboldt County, Nevada (APN: 07-0471-13 & 07-0471-24.)

II.

JURISDICTION AND VENUE

2. This court has jurisdiction of the Petition pursuant to NRS 233B.130. Petitioners (with the exception of New Lands) are parties of record in the proceedings before the SBE, and are aggrieved by the Decision. The Decision is a final decision for purposes of judicial review.

3. Venus in this action is proper pursuant to NRS 233B.130 (2) (b), which provides that the aggrieved party may file its petition in the district court for the county in which the aggrieved party resides.

III.

PARTIES

4. Humboldt County, Nevada, is a political subdivision of the State of Nevada whose tax revenues may be reduced as a result of the SBE Decision.

5. The Humboldt County Assessor is an officer of Humboldt County charged with valuing all property of every kind and nature that is subject to taxation in Humboldt County, Nevada.

6. Respondent SBE is an administrative agency of the State of Nevada mandated to hear appeals of property tax assessments and is created pursuant to Chapter 361 of the NRS.

7. Respondent New Nevada Lands is a Limited Liability Company and owner/ lessor of the land where the Property being taxed exists.

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8. Respondent Battle Mountain Solar Project is a Limited Liability Company (lessee/tenant of the land owned by New Nevada Lands) and owner of the property being taxed.

IV.

BACKGROUND

9. This appeal involves the taxable value of the property owned by Battle Mountain Solar Project which exists on land owned by New Nevada Lands.

10. The Assessor valued the Property at one hundred and fifty-five million, twenty-six thousand, and eight hundred sixty-two dollars ($155,026,862) using the reported cost of replacement as codified in NAC 361.1117, not applying depreciation and not applying the federal tax credit to the replacement cost as required by law.

11. Battle Mountain Solar Project appealed to the CBE asserting the property had not been properly valued in that the federal tax credit should have been deducted from Assessor's replacement cost.

12. After a hearing, Battle Mountain Solar Project's claim that the federal tax credit should be deducted from the Assessor's replacement cost was granted by the CBE.

13. Assessor appealed the CBE's decision to the SBE. The SBE upheld the decision of the CBE and found that the federal tax credit of 30% should be deducted from Assessors replacement cost calculation as provided on Taxpayer's opinion of value.

14. The SBE ignored the facts and State law, and arbitrarily and capriciously set the value of the Property with the 30% federal tax credit deduction at one hundred and nine million, three hundred and ninety one thousand, and five hundred fifty three dollars ($109,391,553).

V.

PETITION FOR JUDICIAL REVIEW

15. Petitioner realleges the allegations of Paragraphs 1 through 14 of this Petition as though fully set forth herein.

16. Pursuant to NRS 233B.135, this Court may remand the SBE's Decision, or may set the

entire Decision aside, if this Court finds that substantial rights of a Petitioner have been prejudiced because the Decision is:

a. In violation of constitutional or statutory provision; or
b. In excess of the statutory authority of the agency; or
c. Made upon an unlawful procedure; or
d. Affected by other error of law; or,
e. Clearly erroneous in view of the reliable, probative and substantial evidence on the whole record; and/ or,
f. Arbitrary or capricious or characterized by abuse of discretion.

A. The Decision is in violation of constitutional or statutory provision or affected by other error of law.

17. The Decision is in violation of Article 10, Section 1, Nevada Constitution, as well as the NAC 360 & 361 and NRS 360 &361, in that the Decision grants an unlawful valuation reduction to Battle Mountain Solar Project, LLC.

B. The Decision is in excess of the statutory authority of the SBE.

18. The Decision ignores the authorized basis for determining taxable value and assigns a taxable value without any statutory or factual basis which is in excess of the SBE's authority.

C. The Decision is clearly erroneous in view of the reliable, probative and substantial evidence on the whole record, and is arbitrary or capricious or characterized by abuse of discretion.

19. The Decision ignores the substantial evidence in the record and lacking any substantial evidence sets an arbitrary value for the property.

D. The Decision is arbitrary or capricious or characterized by an abuse of discretion.

20. The Decision is not based on substantial evidence or the law and is therefore arbitrary or capricious or characterized by an abuse of discretion

VI.

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RELIEF SOUGHT

WHEREFORE, Petitioners pray for judgment as follows:

1. For an Order setting aside or reversing the decision of the SBE and requiring the monies refunded to taxpayer be returned to County or in the alternative remanding the matter back to the SBE;
2. For an Order awarding Petitioners their costs of litigation and reasonable attorney fees; and
3. For such other and further relief as this Court deems just and proper

DATED this 21st day of September, 2022

Respectfully submitted.
MICHAEL MACDONALD
HUMBOLDT COUNTY
DISTRICT ATTORNEY

BY: _____

WENDY MADDOX
Deputy District Attorney (Bar No. 14081)
501 Bridge Street
Winnemucca, Nevada 89446

HUMBOLDT COUNTY DISTRICT ATTORNEY
P.O. Box 909
Winnemucca, Nevada 89446

EXHIBIT 1

DECISION

RECEIVED
AUG 31 2022
BOARD OF EQUALIZATION

STATE OF NEVADA

STATE BOARD OF EQUALIZATION

STEVE SISOLAK
Governor

1550 College Parkway, Suite 115
Carson City, Nevada 89706-7921
Telephone (775) 684-2160
Fax (775) 684-2020

Shellie Hughes
Secretary

In the Matter of	**Case No. 22-130**
APN: 07-0471-13 and 07-0471-24	
Humboldt County Assessor, PETITIONER	
v.	
Battle Mountain Solar Project, LLC, RESPONDENT	
Appeal from Decision of the Humboldt County Board of Equalization	

NOTICE OF DECISION

Appearances

Mark Stafford and Andy Heiser appeared on behalf of the Humboldt County Assessor (Assessor).

Peter Michaels and David Grazda appeared on behalf of Battle Mountain Solar Project, LLC (Taxpayer).

Summary

The matter of the Assessor's petition for review of property valuation for real property on the 2021-2022 supplemental roll came before the State Board of Equalization (State Board) for hearing in Carson City, Nevada and via Zoom on June 29, 2022. The Humboldt County Board of Equalization (County Board) heard Taxpayer's property tax appeal on February 24, 2022. The subject property is a solar photovoltaic utility-scale power generating facility located in Valmy, Nevada, west of Battle Mountain, on two parcels comprising approximately 778.38 acres.

The State Board, having considered all evidence, documents and testimony pertaining to the petition, hereby makes the following Findings of Fact, Conclusions of Law and Decision.

FINDINGS OF FACT

1. The State Board is an administrative body created pursuant to NRS 361.375.

2. The State Board is mandated to hear all appeals of property tax assessments pursuant to NRS 361.360 and NRS 361.400.

3. Taxpayer and Assessor were given adequate, proper and legal notice of the time and place of the hearing before the State Board, and the matter was properly noticed pursuant to the Open Meeting Law at NRS 241.020.

4. Assessor has the burden of proof pursuant to NAC 361.741.

5. The County Board reduced the taxable value determined by the Assessor to $109,391,553.00 for both parcels combined based on the County Board's finding that the "total value would be based upon the [Taxapayer's] value which, takes into account, the federal credit less than the actual money expended." County Board Decision at Findings of Fact No. 5, SBE 105.

6. The County Board found in favor of Assessor that the improvements were not trade fixtures to be taxed as personal property. Taxpayer did not appeal the County Board's decision.

7. To value the improvements, the Assessor used an alternative cost method authorized by the Department of Taxation, because Marshall and Swift does not offer replacement cost for the subject property improvements. *See* NAC 361.128(4).

8. The Department of Taxation allowed Assessor to use the Trended Historic Cost or Trended Gross Book Cost. SBE 72.

9. Assessor presented evidence of the cost approach using the reported cost, not applying depreciation as the improvements were completed in 2021 and arriving at a taxable value of $155,026,862. SBE 47.

10. Assessor applied the definition of "cost of replacement" under NAC 361.1117 to determine replacement cost of the subject property and testified that the law does not allow Assessor to apply the federal tax credit to the replacement cost.

11. Taxpayer successfully argued to the County Board that the federal tax credit of 30% should be deducted from Assessor's replacement cost calculation as provided on Taxpayer's Opinion of Value. SBE 42.

12. The federal tax credit is offered one time and would not apply to a subsequent buyer of the subject property.

13. Taxpayer testified that a reasonable sales price would be the cost including the tax credit if the subject property were sold after completion. The Taxpayer would not have built the project without the tax credit.

14. Any finding of fact above construed to constitute a conclusion of law is adopted as such to the same extent as if originally so denominated.

CONCLUSIONS OF LAW

1. Taxpayer and Assessor are subject to the jurisdiction of the State Board.

2. The State Board has the authority to determine taxable values in the State.

3. Assessor failed to meet his burden to show the County Board's decision was in error.

4. Any conclusion of law above construed to constitute a finding of fact is adopted as such to the same extent as if originally so denominated.

DECISION

Based on the above Findings of Fact and Conclusions of Law and a preponderance of the evidence, the State Board decided to uphold the County Board's decision regarding the inclusion of the investment tax credit to the cost of replacement which resulted in a reduction to the subject property's taxable value to $109,391,553. The Petition is denied.

BY THE STATE BOARD OF EQUALIZATION THIS 24th DAY OF August, 2022.

Shellie Hughes, Secretary

CERTIFICATE OF SERVICE
22-130

I hereby certify on the 24th day of August, 2022, I served the foregoing Findings of Fact, Conclusions of Law, and Decision by placing a true and correct copy thereof in the United States Mail, postage prepaid, and properly addressed to the following:

CERTIFIED MAIL: 9171969009350255649099
22-144
Andy Heiser
Humboldt County Assessor
50 W 5th Street
Winnemucca NV 89445

CERTIFIED MAIL: 9171969009350255649082

22-144
New Nevada Lands LLC
Battle Mountain Solar Projects
100 Sumitt Lake Dr
Valhalla NY 10595

Denesa Johnston

Denesa Johnston
Department of Taxation
State Board of Equalization

HUMBOLDT COUNTY DISTRICT ATTORNEY
P.O. Box 909
Winnemucca, Nevada 89446

CERTIFICATE OF SERVICE

I, JORDYN DEAN, do herby certify that I am employed by the Humboldt County District Attorney's Office, and that on the 21 day of September, 2022, I placed a true and correct copy of the foregoing or attached document, by the method indicated below, entitled PETITION FOR JUDICIAL REVIEW to:

STATE BOARD OF EQULIZATION
500 S. Grand Central Parkway
Las Vegas, Nevada 89155
Via Certified Mail, Tracking Number
#9414 7266 9904 2099 7390 64

BATTLE MOUNTAIN SOLAR PROJECT, LLC
100 Sumitt Lake Drive
Valhalla, New York 10595
Via Certified Mail, Tracking number
#9414 7266 9904 2099 7390 71

NEW NEVADA LANDS, LLC
P.O. Box 805
Destin, Florida 32540
Via Certified Mail, Tracking number
#9414 7266 9904 2099 7390 57

ASSESSOR
50 West 5th Street
Winnemucca, Nevada 89445
Via hand delivery

Office of the Attorney General
100 North Carson Street
Carson City, Nevada 89701
Via Certified Mail, Tracking number
#9414 7266 9904 2099 7390 88

DATED this 21 day of September, 2022.

JORDYN DEAN

9414 7266 9904 2099 7390 71

RETURN RECEIPT REQUESTED

NEOPOST FIRST-CLASS MAIL

09/22/2022

US POSTAGE $008.93⁰

ZIP 89445

041M11285604

HUMBOLDT COUNTY DISTRICT ATTORNEY
P O BOX 909
501 BRIDGE STREET
WINNEMUCCA, NEVADA 89446

TO

Battle Mountain Solar Project, LLC
100 Sumitt Lake Drive
Valhalla, NY 10595

received
9/26/22

Exhibit O

STATE OF NEVADA
DEPARTMENT OF TAXATION
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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Battle Mountain Solar Project LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Battle Mountain Solar Project (BMSP), is owned by Battle Mountain Solar Project, LLC, a subsidiary of Consolidated Edison Development, 100 Summit Dr., Suite 210, Valhalla, New York 10595. The solar photovoltaic ("PV") facility will have a net output production capacity of 101 MW and an annual net production capacity of 320,481 MWh. The project is expected to be in commercial operation by July 1, 2021.

The BMSP will be located one half mile Southeast of Exit 222 on Interstate 80, Northwest of Battle Mountain, Nevada in Humboldt County, Nevada. The BMSP will be located on 1,276 acres of land in Township 33 North, Range 44 East, Sections 19, 20, 29 and 30. The total 1,276 acres that BMSP will reside on are identified by the following Humboldt County Assessor Parcel Numbers (APN): APN 07-047-09, APN 07-0471-10, APN 07-0471-12 and APN 07-0471-13.

The property components of the facility will consist of 348,000 photovoltaic modules, a single axis tracking system, driven pile foundations, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, battery storage equipment, an operations and maintenance building, a collector substation with a high voltage step-up transformer, a 500 foot long 120-kV gen-tie connecting the substation to a Nevada Energy switchyard and a 2,000 foot long 120 kV transmission line connecting the switchyard to the existing #120 Valmy to Battle Mountain 120 kV line located within the boundaries of the BMSP property.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Humboldt County and the interchange substation belonging to NV Energy, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the Humboldt County assessor's land values. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The county assessor established a taxable value of about $3,192 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (modules, inverters, racking, SCADA and security, O & M building rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Battle Mountain Solar Project, LLC from Humboldt County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer listed $1,146,000 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[2]

The Department also used the 2020-21 tax rate of $2.2306 per hundred (0.022306) for Tax District 4 without further adjustment. Under current law, the maximum tax rate could go up to $3.66;

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 4, Humboldt County, including a distribution to the State Debt Fund. Since the application was submitted on November 22, 2019, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2021:	$ 294,186,243
Total Taxable Value of the Project in 2041:	$ 213,365,015
Estimated capital cost per kW (294,186,243/101,000)	$2,913/kW
Total Taxes Due, First Year After Completion:	$ 2,296,743
Total Renewable Energy Abatement, First Year:	$ 1,263,209
Total Taxes Available to Local Governments after abatement:	$ 1,033,534

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 39,616,440
Total Renewable Energy Abatement, 20 years:	$ 21,789,042
Total Taxes Available to Local Governments after abatement:	$ 17,827,398

See attached spreadsheets for the amounts by year and by local government entity.

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 20 Year Summary

COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	39,616,439.50	(21,789,041.72)	17,827,397.78	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	3,019,274.97	(1,660,601.23)	1,358,673.74	7.621%
Humboldt County School District	0.008850	1	15,717,990.20	(8,644,894.61)	7,073,095.59	39.675%
Humboldt County	0.007512	1	13,341,643.22	(7,337,903.77)	6,003,739.45	33.677%
Golconda Fire Protection District	0.000290	1	515,052.78	(283,279.03)	231,773.75	1.300%
Humboldt County Hospital District	0.003954	1	7,022,478.33	(3,862,363.08)	3,160,115.25	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
213,365,015	55.0%	100.0%	55.0%	(21,789,041.72)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	213,365,015	55.00%	100.00%	55.00%	(21,789,041.72)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2021-22

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	2,296,742.94	(1,263,208.62)	1,033,534.32	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	175,040.93	(96,272.51)	78,768.42	7.621%
Humboldt County School District	0.008850	1	911,242.49	(501,183.37)	410,059.12	39.675%
Humboldt County	0.007512	1	773,474.99	(425,411.24)	348,063.75	33.677%
Golconda Fire Protection District	0.000290	1	29,859.92	(16,422.96)	13,436.96	1.300%
Humboldt County Hospital District	0.003954	1	407,124.61	(223,918.54)	183,206.07	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
294,186,439	55.0%	100.0%	55.0%	(1,263,208.62)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	294,186,439	55.00%	100.00%	55.00%	(1,263,208.62)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2022-23

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	2,263,404.88	(1,244,872.69)	1,018,532.19	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	172,500.15	(94,875.08)	77,625.07	7.621%
Humboldt County School District	0.008850	1	898,015.47	(493,908.51)	404,106.96	39.675%
Humboldt County	0.007512	1	762,247.71	(419,236.24)	343,011.47	33.677%
Golconda Fire Protection District	0.000290	1	29,426.50	(16,184.58)	13,241.92	1.300%
Humboldt County Hospital District	0.003954	1	401,215.05	(220,668.28)	180,546.77	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
289,916,212	55.0%	100.0%	55.0%	(1,244,872.69)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	289,916,212	55.00%	100.00%	55.00%	(1,244,872.69)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP, LLC 2023-24

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	2,230,079.49	(1,226,543.72)	1,003,535.77	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	169,960.33	(93,478.18)	76,482.15	7.621%
Humboldt County School District	0.008850	1	884,793.49	(486,636.42)	398,157.07	39.675%
Humboldt County	0.007512	1	751,024.71	(413,063.59)	337,961.12	33.677%
Golconda Fire Protection District	0.000290	1	28,993.23	(15,946.28)	13,046.95	1.300%
Humboldt County Hospital District	0.003954	1	395,307.73	(217,419.25)	177,888.48	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
285,647,615	55.0%	100.0%	55.0%	(1,226,543.72)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	285,647,615	55.00%	100.00%	55.00%	(1,226,543.72)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2024-25

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	2,196,767.09	(1,208,221.91)	988,545.18	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	167,421.50	(92,081.83)	75,339.67	7.621%
Humboldt County School District	0.008850	1	871,576.65	(479,367.16)	392,209.49	39.675%
Humboldt County	0.007512	1	739,806.08	(406,893.34)	332,912.74	33.677%
Golconda Fire Protection District	0.000290	1	28,560.14	(15,708.08)	12,852.06	1.300%
Humboldt County Hospital District	0.003954	1	389,402.72	(214,171.50)	175,231.22	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
281,380,679	55.0%	100.0%	55.0%	(1,208,221.91)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	281,380,679	55.00%	100.00%	55.00%	(1,208,221.91)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2025-26

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	2,163,467.95	(1,189,907.37)	973,560.58	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	164,883.69	(90,686.03)	74,197.66	7.621%
Humboldt County School District	0.008850	1	858,365.07	(472,100.79)	386,264.28	39.675%
Humboldt County	0.007512	1	728,591.91	(400,725.55)	327,866.36	33.677%
Golconda Fire Protection District	0.000290	1	28,127.22	(15,469.97)	12,657.25	1.300%
Humboldt County Hospital District	0.003954	1	383,500.06	(210,925.03)	172,575.03	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
277,115,439	55.0%	100.0%	55.0%	(1,189,907.37)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	277,115,439	55.00%	100.00%	55.00%	(1,189,907.37)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2026-27

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	2,130,182.29	(1,171,600.27)	958,582.02	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	162,346.90	(89,290.80)	73,056.10	7.621%
Humboldt County School District	0.008850	1	845,158.85	(464,837.37)	380,321.48	39.675%
Humboldt County	0.007512	1	717,382.29	(394,560.26)	322,822.03	33.677%
Golconda Fire Protection District	0.000290	1	27,694.47	(15,231.96)	12,462.51	1.300%
Humboldt County Hospital District	0.003954	1	377,599.78	(207,679.88)	169,919.90	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
272,851,928	55.0%	100.0%	55.0%	(1,171,600.27)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	272,851,928	55.00%	100.00%	55.00%	(1,171,600.27)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2027-28

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	2,096,910.39	(1,153,300.72)	943,609.67	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	159,811.16	(87,896.14)	71,915.02	7.621%
Humboldt County School District	0.008850	1	831,958.08	(457,576.94)	374,381.14	39.675%
Humboldt County	0.007512	1	706,177.30	(388,397.52)	317,779.78	33.677%
Golconda Fire Protection District	0.000290	1	27,261.90	(14,994.05)	12,267.85	1.300%
Humboldt County Hospital District	0.003954	1	371,701.95	(204,436.07)	167,265.88	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
268,590,180	55.0%	100.0%	55.0%	(1,153,300.72)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	268,590,180	55.00%	100.00%	55.00%	(1,153,300.72)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2028-29

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	2,063,652.56	(1,135,008.92)	928,643.64	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	157,276.49	(86,502.07)	70,774.42	7.621%
Humboldt County School District	0.008850	1	818,762.89	(450,319.59)	368,443.30	39.675%
Humboldt County	0.007512	1	694,977.05	(382,237.38)	312,739.67	33.677%
Golconda Fire Protection District	0.000290	1	26,829.52	(14,756.24)	12,073.28	1.300%
Humboldt County Hospital District	0.003954	1	365,806.61	(201,193.64)	164,612.97	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
264,330,232	55.0%	100.0%	55.0%	(1,135,008.92)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	264,330,232	55.00%	100.00%	55.00%	(1,135,008.92)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2029 -2030

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	2,030,409.03	(1,116,724.97)	913,684.06	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	154,742.91	(85,108.60)	69,634.31	7.621%
Humboldt County School District	0.008850	1	805,573.39	(443,065.36)	362,508.03	39.675%
Humboldt County	0.007512	1	683,781.61	(376,079.89)	307,701.72	33.677%
Golconda Fire Protection District	0.000290	1	26,397.32	(14,518.53)	11,878.79	1.300%
Humboldt County Hospital District	0.003954	1	359,913.80	(197,952.59)	161,961.21	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
260,072,118	55.0%	100.0%	55.0%	(1,116,724.97)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	260,072,118	55.00%	100.00%	55.00%	(1,116,724.97)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2030-31

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	1,997,180.13	(1,098,449.07)	898,731.06	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	152,210.45	(83,715.75)	68,494.70	7.621%
Humboldt County School District	0.008850	1	792,389.68	(435,814.32)	356,575.36	39.675%
Humboldt County	0.007512	1	672,591.10	(369,925.11)	302,665.99	33.677%
Golconda Fire Protection District	0.000290	1	25,965.31	(14,280.92)	11,684.39	1.300%
Humboldt County Hospital District	0.003954	1	354,023.59	(194,712.97)	159,310.62	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
255,815,876	55.0%	100.0%	55.0%	(1,098,449.07)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	255,815,876	55.00%	100.00%	55.00%	(1,098,449.07)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2031-32

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	1,963,966.13	(1,080,181.38)	883,784.75	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	149,679.12	(82,323.52)	67,355.60	7.621%
Humboldt County School District	0.008850	1	779,211.88	(428,566.53)	350,645.35	39.675%
Humboldt County	0.007512	1	661,405.61	(363,773.09)	297,632.52	33.677%
Golconda Fire Protection District	0.000290	1	25,533.50	(14,043.43)	11,490.07	1.300%
Humboldt County Hospital District	0.003954	1	348,136.02	(191,474.81)	156,661.21	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
251,561,544	55.0%	100.0%	55.0%	(1,080,181.38)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	251,561,544	55.00%	100.00%	55.00%	(1,080,181.38)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2033-34

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	1,930,767.33	(1,061,922.03)	868,845.30	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	147,148.95	(80,931.92)	66,217.03	7.621%
Humboldt County School District	0.008850	1	766,040.12	(421,322.07)	344,718.05	39.675%
Humboldt County	0.007512	1	650,225.24	(357,623.88)	292,601.36	33.677%
Golconda Fire Protection District	0.000290	1	25,101.88	(13,806.03)	11,295.85	1.300%
Humboldt County Hospital District	0.003954	1	342,251.14	(188,238.13)	154,013.01	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
247,309,158	55.0%	100.0%	55.0%	(1,061,922.03)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	247,309,158	55.00%	100.00%	55.00%	(1,061,922.03)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2033-34

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	1,897,584.03	(1,043,671.22)	853,912.81	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	144,619.96	(79,540.98)	65,078.98	7.621%
Humboldt County School District	0.008850	1	752,874.50	(414,080.98)	338,793.52	39.675%
Humboldt County	0.007512	1	639,050.09	(351,477.55)	287,572.54	33.677%
Golconda Fire Protection District	0.000290	1	24,670.46	(13,568.75)	11,101.71	1.300%
Humboldt County Hospital District	0.003954	1	336,369.02	(185,002.96)	151,366.06	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
243,058,758	55.0%	100.0%	55.0%	(1,043,671.22)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	243,058,758	55.00%	100.00%	55.00%	(1,043,671.22)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2034-35

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	1,864,416.55	(1,025,429.10)	838,987.45	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	142,092.18	(78,150.70)	63,941.48	7.621%
Humboldt County School District	0.008850	1	739,715.17	(406,843.34)	332,871.83	39.675%
Humboldt County	0.007512	1	627,880.26	(345,334.14)	282,546.12	33.677%
Golconda Fire Protection District	0.000290	1	24,239.25	(13,331.59)	10,907.66	1.300%
Humboldt County Hospital District	0.003954	1	330,489.69	(181,769.33)	148,720.36	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
238,810,385	55.0%	100.0%	55.0%	(1,025,429.10)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	238,810,385	55.00%	100.00%	55.00%	(1,025,429.10)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2035-36

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	1,831,265.21	(1,007,195.88)	824,069.33	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	139,565.63	(76,761.10)	62,804.53	7.621%
Humboldt County School District	0.008850	1	726,562.23	(399,609.23)	326,953.00	39.675%
Humboldt County	0.007512	1	616,715.87	(339,193.73)	277,522.14	33.677%
Golconda Fire Protection District	0.000290	1	23,808.25	(13,094.54)	10,713.71	1.300%
Humboldt County Hospital District	0.003954	1	324,613.23	(178,537.28)	146,075.95	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
234,564,078	55.0%	100.0%	55.0%	(1,007,195.88)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	234,564,078	55.00%	100.00%	55.00%	(1,007,195.88)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2036-37

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	1,798,130.32	(988,971.67)	809,158.65	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	137,040.33	(75,372.18)	61,668.15	7.621%
Humboldt County School District	0.008850	1	713,415.82	(392,378.70)	321,037.12	39.675%
Humboldt County	0.007512	1	605,557.02	(333,056.36)	272,500.66	33.677%
Golconda Fire Protection District	0.000290	1	23,377.47	(12,857.61)	10,519.86	1.300%
Humboldt County Hospital District	0.003954	1	318,739.68	(175,306.82)	143,432.86	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
230,319,878	55.0%	100.0%	55.0%	(988,971.67)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	230,319,878	55.00%	100.00%	55.00%	(988,971.67)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2037-38

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	1,765,012.23	(970,756.73)	794,255.50	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	134,516.31	(73,983.97)	60,532.34	7.621%
Humboldt County School District	0.008850	1	700,276.08	(385,151.84)	315,124.24	39.675%
Humboldt County	0.007512	1	594,403.83	(326,922.11)	267,481.72	33.677%
Golconda Fire Protection District	0.000290	1	22,946.90	(12,620.80)	10,326.10	1.300%
Humboldt County Hospital District	0.003954	1	312,869.11	(172,078.01)	140,791.10	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
226,077,829	55.0%	100.0%	55.0%	(970,756.73)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	226,077,829	55.00%	100.00%	55.00%	(970,756.73)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2038-39

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	1,731,911.23	(952,551.17)	779,360.06	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	131,993.59	(72,596.47)	59,397.12	7.621%
Humboldt County School District	0.008850	1	687,143.12	(377,928.72)	309,214.40	39.675%
Humboldt County	0.007512	1	583,256.40	(320,791.02)	262,465.38	33.677%
Golconda Fire Protection District	0.000290	1	22,516.55	(12,384.10)	10,132.45	1.300%
Humboldt County Hospital District	0.003954	1	307,001.57	(168,850.86)	138,150.71	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
221,837,973	55.0%	100.0%	55.0%	(952,551.17)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	221,837,973	55.00%	100.00%	55.00%	(952,551.17)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2039-40

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	1,698,827.72	(934,355.25)	764,472.47	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	129,472.21	(71,209.72)	58,262.49	7.621%
Humboldt County School District	0.008850	1	674,017.09	(370,709.40)	303,307.69	39.675%
Humboldt County	0.007512	1	572,114.85	(314,663.17)	257,451.68	33.677%
Golconda Fire Protection District	0.000290	1	22,086.44	(12,147.54)	9,938.90	1.300%
Humboldt County Hospital District	0.003954	1	301,137.13	(165,625.42)	135,511.71	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
217,600,353	55.0%	100.0%	55.0%	(934,355.25)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	217,600,353	55.00%	100.00%	55.00%	(934,355.25)

NEVADA DEPARTMENT OF TAXATION

RENEWABLE ENERGY ABATEMENT WORKSHEET

DISTRICT 4, Humboldt County

EXCLUDES STATE RENEWABLE ENERGY FUND

Battle Mountain SP LLC 2040-41

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COMBINED TAX RATE	TOTAL TAXES DUE	TOTAL RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TAXES AFTER ABATEMENT
0.022306	1,665,762.00	(916,169.10)	749,592.90	100.000%

TAXING ENTITY	TAX RATE	SCHOOL SWITCH	TOTAL TAXES DUE	RENEW ABATEMENT	TAXES AFTER ABATEMENT	PERCENT TOTAL TAXES
State of Nevada	0.001700	1	126,952.18	(69,823.70)	57,128.48	7.621%
Humboldt County School District	0.008850	1	660,898.13	(363,493.97)	297,404.16	39.675%
Humboldt County	0.007512	1	560,979.30	(308,538.62)	252,440.68	33.677%
Golconda Fire Protection District	0.000290	1	21,656.55	(11,911.10)	9,745.45	1.300%
Humboldt County Hospital District	0.003954	1	295,275.84	(162,401.71)	132,874.13	17.726%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%
			-	-	-	0.000%

NET TAXABLE VALUE	AVERAGE ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
213,365,015	55.0%	100.0%	55.0%	(916,169.10)

ASSET	TOTAL TAXABLE VALUE	ABATEMENT PERCENTAGE	TAXABLE VALUE PERCENTAGE	WEIGHTED RENEW ABATEMENT PERCENTGE	CURRENT YEAR ABATEMENT
Solar Energy Facility	213,365,015	55.00%	100.00%	55.00%	(916,169.10)

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Chair, Nevada Tax Commission
SHELLIE HUGHES
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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Dry Lake East Energy Center, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Dry Lake East Energy Center, is a subsidiary of NextEra Energy Resources located at 700 Universe Blvd, Juno Beach, Florida 33408. The solar photovoltaic facility in Clark County, Nevada will have a net output production capacity of 400 MW and an annual net production capacity of 577,194 MWh. The project is expected to be in commercial operation by December 2026.

The Dry Lake East Energy Center will be located on 1660 acres of BLM land. The total acres that the facility will reside on are identified by portions of the following Clark County Assessor Parcel Numbers (APN): 104-07-000-004, 104-08-000-001, 104-06-000-002, 083-32-000-002, 103-01-000-001, 104-07-000-001, 103-12-000-001, 104-05-000-001, 103-02-000-001, and 084-36-000-002.

The property components of the facility will consist of photovoltaic modules, inverters, transformers, racking, a substation, fencing, roads, and BESS equipment. The project will deliver the generated and stored power to the point of transfer of ownership at the NV Energy Harry Allen Substation (the point of interconnection) at a transmission pole to the West of I-15. A long-term Power Purchase Agreement was executed in January 2024 with NV Energy.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the Harry Allen Substation, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the Assessor's taxable land value at $4,267 per acre. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer also reported several project cost areas as "personal" property (modules, inverters, racking, BESS equipment, substation equipment and electrical system material) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2024-25 Personal Property Manual, Appendix E.

The Taxpayer does indicate one item as contribution in aid of construction (CIAC), the Transmission Provider Interconnection Facilities with an estimated replacement cost at $315,000. However, capital invested as a CIAC does not qualify for a renewable energy abatement because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property contributed to the utility by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility receiving CIAC for this project will own the transmission facilities.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Dry Lake East Energy Center, LLC from Clark County and listed in the application are also an objective indication of the permanent nature of the facility.

The Department also used the 2024-25 tax rate of $2.5017 per hundred (0.025017) for Tax District 100 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax District 100 in Clark County, including a distribution to the State Debt Fund. Since the application was submitted on March 12, 2025, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2026:	$ 576,469,009
Total Taxable Value of the Project in 2046:	$ 431,960,731
Estimated capital cost per kW (481,024,834/200,000)	$2405/kW
Total Taxes Due, First Year After Completion:	$ 5,047,534
Total Renewable Energy Abatement, First Year:	$ 2,776,144
Total Taxes Available to Local Governments after abatement:	$ 2,271,390

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 88,775,964
Total Renewable Energy Abatement, 20 years:	$ 48,826,780
Total Taxes Available to Local Governments after abatement:	$ 39,949,183

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Luning 2 Projectco, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Luning Energy, LLC ("Luning") is a wholly owned subsidiary of Liberty Utilities LLC. Luning's project, Phase 2 of the Luning Solar Energy Project, a 50-megawatt ("MW") alternating current ("AC") photovoltaic ("PV") solar generating and battery storage facility. The project will cover 560 acres of leased BLM land parcel 006-340-09 in Mineral County, NV. The BLM prepared an Environmental Assessment ("EA") on December 17, 2021, finding that any affected resources could be mitigated, and the approval of the grant would have no significant impact. Luning phase 2, received a Right of Way ("ROW") grant from the Bureau of Land Management ("BLM") that authorizes Liberty Utilities to construct, operate, maintain and terminate a 50 MWac solar facility with battery storage, infrastructure and substation expansion on the public lands. The purpose of phase 2 of the Luning project, is to develop energy storage to be used when the Luning Phase 1 facility is not able to contribute the full 50 MWac.

The property includes construction of additional solar modules, battery storage arrays, expansion of the existing substation, a gen-tie line from the new solar modules and batteries to the substation and short access roads off State Route 361. Other components include, a storage building, an 8700-square foot expansion to Luning phase 1 and perimeter security fencing around the whole facility. As with phase 1 the Luning phase 2 will connect with the NV Energy Table Mountain substation.

The project will require an 8700 square-foot expansion to the South of Luning phase 1, to allow for the additional electrical output created by Luning phase 2. NV Energy Table Mountain substation provides the interconnection from Phase 1 and Phase 2 to the electrical grid. The voltage from Luning phase 2, would be stepped up at the substation using the existing 34.5-kV to 120-kV transformer. An isolation switch at the 120-kV would connect the power from the battery systems and solar modules to the substation. Liberty applied for and was granted a Material Modification Agreement with NV Energy in July of 2020 to allow for Luning phase 2, under the existing, Large Generator Interconnection Agreement ("LGIA").

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on Luning phase 2 facility and battery storage including its connection to the Table Mountain substation owned by NV Energy being in Mineral County, and no intercounty exchanges the Department concludes the project qualifies for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time.

The Taxpayer identified 560 acres of BLM land parcel 006-340-09 will be leased for its operations. The parcel being leased is immediately adjacent to Luning Project phase 1 and is in Zone 2, per the 2012 NASS Census per Acre Land Values.

Based on the lease agreement with the BLM the Department estimated the value of the land using a ground-rent capitalization method. Per the lease agreement with BLM a value of $13.62 per acre, plus a megawatt ("MW") capacity fee of $2,000 per MW for PV facilities is established; the total annual rent is about $107,627 using this method. A 28-year term was used and a discount rate of 8.841%, resulting in an estimated market value when fully operational of $1,104,000 or $1,971 per acre, for the land. This result was used by the Department rather than the pre-development value established by the county assessor. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV modules, PV inverters, PV transformers, battery storage containers and racking) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2024-25 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar modules, expansions, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Luning from Mineral County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, renewability of the lease for Luning phase 1 with BLM and the connections between phases 1 and 2

would indicate the permeance of Luning phase 2. This information is indicative of the permanence of the facility.

The Taxpayer listed no Contributions in Aid of Construction for Luning phase 2.

The Department also used the 2023-24 tax rate of $3.6600 per hundred (0.025017) for Tax District 150 Mineral County without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax District 150, Mineral County, including a distribution to the State Debt Fund. Since the application was submitted after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2025:		$ 124,799,651
Total Taxable Value of the Project in 2045:		$ 90,050,710
Estimated capital cost per kW (124,799,651/50,000)	$2,496/kW	
Total Taxes Due, First Year After Completion:		$ 1,598,684
Total Renewable Energy Abatement, First Year:		$ 879,276
Total Taxes Available to Local Governments after abatement:		$ 719,408

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 27,518,502
Total Renewable Energy Abatement, 20 years:	$ 15,135,176
Total Taxes Available to Local Governments after abatement:	$ 12,383,326

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Escape Solar LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as Escape Solar LLC, will be owned and constructed by Escape Solar LLC, a wholly owned subsidiary of Estuary Power LLC. Estuary Power will manage the facility while the operations and maintenance will be handled by a company employed through Escape Solar LLC. The solar photovoltaic ("PV") generating facility will consist of a total capacity of 185-megawatts ("MW") alternating current ("AC"), a project substation that will combine outputs to total 138 kilovolts ("kV"), a .1-mile 138 kV gen-tie line consisting of two new steel poles approximately 70 ft. in height, interconnection upgrades to the Lincoln County Power District ("LCPD") Mesa Substation, and a Battery Energy Storage System ("BESS") of 100 MW at 4 hours in Lincoln County, Nevada. The facility will provide a clean, reliable and economical source of electricity, providing 520,000 MWh of clean emissions-free power yearly. The project is expected to be in commercial operation by second quarter of 2025 through fourth quarter of 2025.

The Escape Solar LLC facility will be located on Mesquite Heights Road in Lincoln County, NV 89034. Using Lincoln County assessor parcel numbers ("APN") 008-261-09 at 666.27 acres and parcel number 008-261-23 at 2,239.60 acres; the total facility, battery and substation will cover 2,905.87 acres. Both parcels of land were part of the Lincoln County Land Act of 2000 ("LCLA"), in which public land was auctioned to provide for economic development in the county. As such an environmental impact statement ("EIS") was performed by US Fish and Wildlife Services ("USFWS") in 2010 assessing the issuance of Incidental Take Permits ("ITP") and implementing the Southeastern Lincoln County Habitat Conservation Plan ("SLCHCP"). SLCHCP is 1,780,140 acres of Lincoln County including the LCLA lands. Escape Solar retained BEC Environmental Inc ("BEC") to create an environmental statement ("ES") of the potential resource impacts and potential mitigation the project would have on the area. The area does contain per the endangered species act ("ESA") 2 endangered species, the Desert Tortoise and the Southwestern Willow Flycatcher. Both the ES and EIS found if proper mitigation actions are taken the Desert Tortoise would not be affected and there were no Willow Flycatcher habitats within the LCLA.

The property will consist of a field of solar PV modules, single axis tracking structures, several transformers, circuit breakers, metering instruments, relay panels, a project substation that increases voltage to 138 kV, and an 830-foot Gen-Tie Line connecting the Escape Solar project to the LCPD Mesa substation after upgrades have been put in place. A BESS using either Tesla or Spring Grow battery storage technology will be used to shift some of the solar PV generated energy from day to evening and night hours. Ownership will transfer at different points depending on the customers of Escape Solar; however, 160 MW will be wheeled across to the LCPD electrical system and the Overton Power District's #5 ("OPD5") to interface with NV Energy at Reid Gardner substation transferring ownership. An additional 25 MW will be wheeled across the LCPD system to the Yucca Switchyard and OPD5 will take ownership.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed; pursuant to NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed; pursuant to NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property. This subsection does not apply to a qualifying facility as defined in 18 C.F.R § 292.101, constructed before July 1, 1997, or to an exempt wholesale generator as, defined in 15 U.S.C. § 79z-5a.

Based on the location of the facility, assets and substation all being within Lincoln County, and Escape Solar LLC's application; supplemental information, a wholesale generator exemption has been applied for. Pursuant to NRS 361.320(6) the Department therefore concludes the property appears to qualify for local assessment for the purposes of this fiscal note.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. As owners of both APN 008-261-23 and 008-261-09 the land value was assessed using the Lincoln County assessors 2024 value. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time.

Escape Solar LLC indicates in schedule 3 of the application two owned parcels of land to be used for the project. Parcel 008-261-23 covers a total of 2,239.60 acres and parcel 008-261-

09 covers an additional 666.27 acres. The total acreage owned and to be used for the project is 2,905.87, with a total value from Lincoln County Assessor for 2024 of $3,678,587 or $1,265.92 per acre.

The Taxpayer reports several items on Schedule 1 “personal” property (modules, inverters, trackers, pile foundations, electrical materials, substation major equipment, substation apparatus) rather than real property. Several of the items do not represent the fully installed cost and is therefore understated as to the true replacement cost against which, depreciation will ultimately be applied. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2024-25 Personal Property Manual, Appendix E.

The Department’s understanding is that the solar field consists of components either attached to the land and foundations, or “so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item,” for example, the pile foundations, substations, and gen-tie lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Escape Solar LLC, from Lincoln County, ownership of the land and the application are also an objective indication of the permanent nature of the facility.

The Taxpayer does indicate two items as contribution in aid of construction (CIAC). An expansion to the LCPD Mesa Substation with the taxpayer estimates of replacement cost at $2,000,000 and the Escape-Mesa transmission line estimate of replacement cost of $500,000. However, capital invested as a CIAC does not qualify for a renewable energy abatement because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property contributed to the utility by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility receiving CIAC for this project, LCPD Mesa substation, will own the upgrades to the substation as well as 2 new steel poles for transmission lines.

The Department also used the 2023-24 tax rate of $2.9985 per hundred (0.029985) for Tax District 50 Lincoln County without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached PDFs consider the required distribution of remaining taxes after abatement to local governments in Tax District 50 Lincoln County, including a distribution to the State Debt Fund. Since the application was submitted after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2025:	$202,478,587
Total Taxable Value of the Project in 2045:	$147,501,007
Estimated capital cost per kW (202,478,587/185,000)	$1094/kW
Total Taxes Due, First Year After Completion:	$ 2,124,962
Total Renewable Energy Abatement, First Year:	$ 1,168,729
Total Taxes Available to Local Governments after abatement:	$ 956,233

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 36,719,031
Total Renewable Energy Abatement, 20 years:	$ 20,195,467
Total Taxes Available to Local Governments after abatement:	$ 16,523,564

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Townsite Solar 2, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Townsite Solar 2, LLC (TS2) is wholly owned by William O. Perkins Revocable Trust with William O. Perkins III as Trustee. The address is 5847 San Felipe, Suite 4450, Houston, TX 77057. The solar photovoltaic facility will have a net output production capacity of 35 MW, with a 167 MW BESS and an annual net production capacity of 90,000 MWh. The project is expected to be in commercial operation by April 30, 2026.

The TS2 facility will be located 1.25 miles South of the I-11 and Route 93 interchange, West ¼ miles on the access road to CTC BRQ quarry pit, and North on old Highway 95 for .30 miles to the site on BLM land. The total 166 acres that the facility will reside on are identified by portions of the following Clark County Assessor Parcel Numbers (APN): APN 189-14-000-002 and APN 189-14-000-005.

The property components of the facility will consist of photovoltaic modules, inverters, trackers, SCADA equipment, substation equipment, fencing, roads, and BESS equipment. TS2 will deliver the generated and stored power to the point of delivery on the Southern Nevada Water Authority (SNWA) 230Kv transmission line where it interconnects with the Boulder Flats substation. From this substation, power will be transmitted by SNWA pursuant to a long-term agreement to WAPA's 230 KVa substation where energy will be sold at the Mead 230Kv substation.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall

establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the interchange substation belonging to the SNWA, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the capitalized land lease. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The land lease established a taxable value of about $12,777 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as “personal” property (modules, inverters, racking, BESS equipment, substation equipment and electrical system material) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2024-25 Personal Property Manual, Appendix E. The taxpayer did not list any property as Contributions in Aid of Construction.

The Department’s understanding is that the solar field consists of components either attached to the land and foundations, or “so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item,” for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Townsite Solar 2, LLC from Clark County and listed in the application are also an objective indication of the permanent nature of the facility.

The Department also used the 2024-25 tax rate of $2.6097 per hundred (0.026097) for Tax District 52 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax District 52 in Clark County, including a distribution to the State Debt Fund. Since the application was submitted on July 1, 2024, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2025:	$ 211,621,000
Total Taxable Value of the Project in 2045:	$ 97,131,911
Estimated capital cost per kW (211,621,000/35,000)	$6046/kW
Total Taxes Due, First Year After Completion:	$ 1,932,936
Total Renewable Energy Abatement, First Year:	$ 1,063,115
Total Taxes Available to Local Governments after abatement:	$ 869,821

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 20,856,474
Total Renewable Energy Abatement, 20 years:	$ 11,471,060
Total Taxes Available to Local Governments after abatement:	$ 9,385,413

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Sierra Solar Phase 1

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as Sierra Solar Phase 1, will be owned, constructed, and operated by Sierra Pacific Power Company, d/b/a NV Energy. The solar photovoltaic ("PV") generating facility will consist of a 400-megawatt ("MW") alternating current ("AC") generating plant with a 400 MW BESS and interconnections to NV Energy's transmission and distribution systems. The net annual output production capacity of the facility will be 1,200,295 MWh.

The Sierra Solar Phase 1 project will be located on 2674 acres on the East and West sides of Sage Hen Creek Road in Churchill County, Nevada. The generating plant will be located entirely on private land identified as Churchill County Assessor parcels APN 004-351-03 (645 acres), APN 004-351-11 (601 acres), APN 004-351-15 (509 acres), APN 004-351-09 (603 acres), APN 004-351-22 (250 acres) and APN 004-351-05 (66 acres).

The facility project includes solar PV arrays, tracking systems, inverters, a 400 MW lithium-ion battery with integrated BESS inverters, an operation and maintenance building, project substation and switchyard, perimeter fencing, site access roads and a generation tie line.

The project interconnection will be through a generation tie-line from the project substation to the Lantern 345kV switching station. The project has an amended Large Generator Interconnection Agreement (LGIA) in place with NV Energy. The facility will interconnect to the Tracy-Valmy 345kV transmission line which crosses county lines. There will also be telecommunication upgrades for this project in adjoining counties. Construction for the project will begin in October 2024 and the completion will be in April 2027.

Determination of Central or Local Assessment

NRS 361.320(2) requires the Nevada Tax Commission to fix the valuation of all physical property used in the operation of the electric light and power company business as a *collective unit.* Once the system-wide value is established, the amount of value allocated to the State of Nevada is determined based on the proportion of Nevada book cost to system book cost

weighted at 75% plus the proportion of Nevada gross operating revenue to system gross operating revenue weighted at 25%. Once the Nevada allocated portion of the system value is known, the Nevada Tax Commission then determines the amount of allocated value which must be apportioned to each tax district in the state in which the taxpayer has property. The apportionment is based on a mile-unit valuation basis.[1] Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed; pursuant to NRS 361.320(1). Sierra Solar Phase 1 will operate as a collective unit in the operation of a power and light company. Pursuant to NRS 361.320(6) the Department concludes the property qualifies for central assessment for the purposes of this fiscal note.

Sierra Solar Phase 1 indicates in Schedule 3 of the application six owned parcels of land to be used for the project. The total acreage owned and to be used for the project is 2,674 with a total value from Churchill County Assessor for 2024 of $142,670 or $53.35 per acre.

The Taxpayer reports several items on Schedule 2 as real property: modules, inverters, trackers, pile foundations, electrical materials, substation, battery energy storage site and generation transmission line. Several of the items do not represent the fully installed cost and is therefore understated as to the true replacement cost against which, depreciation will ultimately be applied. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, and NAC 361.11745.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the pile foundations, substations, and gen-tie lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Sierra Solar Phase 1 from Churchill County, ownership of the land and the application are also an objective indication of the permanent nature of the facility.

The Taxpayer did not list any property as Contributions in Aid of Construction (CIAC).

The Department also used the 2024-25 tax rate of $2.8329 per hundred (0.028329) for Tax District 30 Churchill County without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached PDFs consider the required distribution of remaining taxes after abatement to local governments in Tax District 30 Churchill County, including a distribution to the State Debt Fund. Since the

[1] *See NRS 361.320(2).*

application was submitted on July 16, 2024, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2027:	$ 1,516,865,112
Total Taxable Value of the Project in 2047:	$ 1,093,468,836
Estimated capital cost per kW (1,516,865,112/400,000)	$3792/kW
Total Taxes Due, First Year After Completion:	$15,039,945
Total Renewable Energy Abatement, First Year:	$ 8,271,970
Total Taxes Available to Local Governments after abatement:	$ 6,767,975

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 258,797,053
Total Renewable Energy Abatement, 20 years:	$ 142,338,379
Total Taxes Available to Local Governments after abatement:	$ 116,458,674

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Purple Sage Energy Center, Noble Solar, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Purple Sage Energy Center, is operated by Noble Solar, LLC, 1901 Harrison St., Suite 1600, Oakland, CA 94612. Noble Solar LLC is a subsidiary of Valley of Fire Solar, LLC which is managed by Primergy Solar Management, LLC. The solar photovoltaic facility will have a net output production capacity of 400 MW, with a 400 MW BESS and an annual net production capacity of 1,211,946 MWh. The project is expected to be in commercial operation by November 2027.

The Purple Sage Energy Center will be located at the intersection of Tecopa Springs Road and Prairie Fire Road on BLM land. The total 4400 acres that the facility will reside on are identified by portions of the following Clark County Assessor Parcel Numbers (APN): APN 171-00-001-004, APN 171-00-001-005, APN 171-00-001-009, APN 171-00-001-010, APN 171-00-001-011, APN 171-00-001-012, APN 171-00-001-017, APN 171-00-001-018, APN 171-00-001-019, APN 171-00-001-020, APN 171-00-002-001, APN 171-00-002-002, 171-00-002-003, APN 171-00-002-011, and APN 171-00-002-012.

The property components of the facility will consist of photovoltaic modules, inverters, racking, single axis trackers, a substation, OM building, transmission system, fencing, roads, and BESS equipment. The project will deliver the generated and stored power to the point of transfer of ownership at the Trout Canyon substation in Clark County which connects to the CAISO transmission grid in California.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions

would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the Trout Canyon substation, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the capitalized land lease. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The land lease established a taxable value of about $731 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as “personal” property (modules, inverters, racking, BESS equipment, substation equipment and electrical system material) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2024-25 Personal Property Manual, Appendix E. The taxpayer did not list any property as Contributions in Aid of Construction.

The Department’s understanding is that the solar field consists of components either attached to the land and foundations, or “so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item,” for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Noble Solar, LLC from Clark County and listed in the application are also an objective indication of the permanent nature of the facility.

The Department also used the 2024-25 tax rate of $2.5017 per hundred (0.025017) for Tax District 100 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

District 100 in Clark County, including a distribution to the State Debt Fund. Since the application was submitted on September 6, 2024, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2026:	$ 1,004,096,223
Total Taxable Value of the Project in 2046:	$ 725,462,516
Estimated capital cost per kW (1,004,096,223/400,000)	$2510/kW
Total Taxes Due, First Year After Completion:	$ 8,791,816
Total Renewable Energy Abatement, First Year:	$ 4,835,499
Total Taxes Available to Local Governments after abatement:	$ 3,956,317

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 151,395,487
Total Renewable Energy Abatement, 20 years:	$ 83,267,518
Total Taxes Available to Local Governments after abatement:	$ 68,127,969

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Panwest NCA2 Solar, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Panwest NCA2 Solar, LLC, is a wholly owned subsidiary of Panwest NCA2 Holdings, LLC (Delaware). The mailing address is 917 Tahoe Blvd, Ste 202, Incline Village, NV 89451. The solar photovoltaic facility will have a net output production capacity of 57 MW, with a battery energy storage system (BESS) and an annual net production capacity of 169,341 MWh. The project is expected to be in commercial operation by June 2026.

The project will be located adjacent to PABCO Gypsum at 8000 E. Lake Mead Blvd, Las Vegas, NV 89115 on leased land. The total 331 acres that the facility will reside on are identified by portions of the following Clark County Assessor Parcel Numbers (APN): APN 142-00-001-010 (135 ac.), APN 141-00-001-003 (60 ac.), and APN 141-00-001-004 (136 ac.).

The property components of the facility will consist of photovoltaic modules, inverters, racking, single axis trackers, a substation, fencing, roads, and BESS equipment. The Point of Change of Ownership will be at the point where the Interconnection Customer's 69 kV transmission lead line terminates on the Transmission Provider-owned Point of Change of Ownership Structure located within the NCA2 owned Bonneville 69kV substation.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the project substation, also located in the same county, the property qualifies for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the capitalized land lease. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The land lease established a taxable value of about $9,248 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (modules, inverters, racking, BESS equipment, substation equipment and electrical system material) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2024-25 Personal Property Manual, Appendix E.

The Taxpayer listed $2,025,040 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for renewable energy abatements by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case PABCO Gypsum would be the owner of any contributed plant.[2]

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Panwest ACA2 Solar, LLC from Clark

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

County and listed in the application are also an objective indication of the permanent nature of the facility.

The Department also used the 2024-25 tax rate of $2.5017 per hundred (0.025017) for Tax District 103 without further adjustment. Under current law, the maximum tax rate could go up to $3.66. However, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax District 103 in Clark County, including a distribution to the State Debt Fund. Since the application was submitted on November 7, 2024, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2026:	$ 140,698,788
Total Taxable Value of the Project in 2046:	$ 104,842,125
Estimated capital cost per kW (140,698,788/57,000)	$2468/kW
Total Taxes Due, First Year After Completion:	$ 1,231,951
Total Renewable Energy Abatement, First Year:	$ 667,573
Total Taxes Available to Local Governments after abatement:	$ 554,378

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 21,448,012
Total Renewable Energy Abatement, 20 years:	$ 11,818,407
Total Taxes Available to Local Governments after abatement:	$ 9,669,605

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Yellow Pine Solar II, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Yellow Pine Solar II, LLC, will be owned and operated by Yellow Pine Solar, LLC, a subsidiary of NextEra Energy Resources located at 700 Universe Boulevard, Juno Beach, Florida 33408. The solar photovoltaic facility will have a net output production capacity of 125 MW and an annual net production capacity of 404,452 MWh. The project is expected to be in commercial operation by July 1, 2024.

The Yellow Pine Solar facility will be located at 6901 Tecopa Rd., Enterprise, Nevada 89124. The 1206 total acres that the facility will reside on are identified by portions of the following Clark County Assessor Parcel Numbers (APN): APN 171-00-001-004, APN 171-00-001-005, APN 171-00-001-006, APN 171-00-001-007, APN 171-00-001-010, APN 171-00-001-011, APN 171-00-001-012, APN 168-00-002-025 and APN 168-00-002-026.

The property components of the facility will consist of photovoltaic modules, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling and battery storage equipment connecting to the new Trout Canyon Substation (TCS) owned by GridLiance West, LLC. Yellow Pine Solar II will connect to TCS on the south side of SR 160 and North of Tecopa Rd. A Power Purchase Agreement has been executed with San Jose Clean Energy and Pioneer Community Energy.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the interchange substation belonging to GridLiance West, LLC, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the capitalized land lease. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The land lease established a land value of about $31,924 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as “personal” property (modules, inverters, racking, battery storage equipment and electrical system material) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department’s understanding is that the solar field consists of components either attached to the land and foundations, or “so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item,” for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Yellow Pine Solar II, LLC from Clark

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer did not list any property as Contributions in Aid of Construction.

The Department also used the 2022-23 tax rate of $2.5017 per hundred (0.025017) for Tax District 100 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax District 100 in Clark County, including a distribution to the State Debt Fund. Since the application was submitted on July 23, 2023, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2024:	$ 63,859,134
Total Taxable Value of the Project in 2044:	$ 48,169,570
Estimated capital cost per kW (63,859,134/125,000)	$511/kW
Total Taxes Due, First Year After Completion:	$ 559,147
Total Renewable Energy Abatement, First Year:	$ 307,531
Total Taxes Available to Local Governments after abatement:	$ 251,616

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 9,801,155
Total Renewable Energy Abatement, 20 years:	$ 5,390,635
Total Taxes Available to Local Governments after abatement:	$ 4,410,520

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Iron Point Solar, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Iron Point Solar, LLC has a mailing address at 1901 Harrison Street, Suite 1600, Oakland, CA 94612. Iron Point Solar, LLC is owned by Primergy Solar, a portfolio company of Quinbrook Infrastructure Partners located at 5th Floor, 53/54 Grosvenor St., London W1K #HU, England. Iron Point Solar, LLC consists of a 325-megawatt ("MW") solar photovoltaic ("PV") facility. The facility has an annual net production capacity of 708,167 MWh. The facility is located on 1,756 acres of land on three parcels of land leased from Val-Energy, LLC and Hermes Socrates, LLC. The parcels are identified as the following Humboldt County Assessor Parcel Numbers: APN 07-0351-16, 07-0355-16 and 07-0707-16 at Valmy Station, 23755 Treaty Hill Rd, Valmy, Humboldt County, Nevada. Iron Point Solar, LLC is expected to be in commercial operation by November 30, 2023.

The property components of the facility consist of PV modules, racking, DC/AC inverters, a battery energy storage system, roads, culverts, detention ponds and fencing. Ownership of energy will be transferred at the Point of Delivery, the Valmy substation owned by NV Energy, 30 miles East of Winnemucca along Interstate Highway 80.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Humboldt County and the interchange substation belonging to NV Energy, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The land lease established a value of $9,558,000 for the leased land on the three parcels. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, transmission line, DC/AC collection, fence, and racking) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Iron Point Solar, LLC from Humboldt County and listed in the application are also an objective indication of the permanent nature of the facility. This information is indicative of the permanence of the facility.

The Taxpayer listed no property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer.

The Department also used the 2021-22 tax rate of $2.306 per hundred (0.022306) for Tax District 4 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets account for the required distribution of remaining taxes after abatement to local governments in Tax District 4, Humboldt County, including a distribution to the State Debt Fund. Since the application was submitted on February 28, 2022, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2023:	$	430,737,933
Total Taxable Value of the Project in 2043:	$	309,028,638
Estimated capital cost per kW (430,737,933/325,000)	$	1,325/kW
Total Taxes Due, First Year After Completion:	$	3,362,814
Total Renewable Energy Abatement, First Year:	$	1,849,547
Total Taxes Available to Local Governments after abatement:	$	1,513,266

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	58,063,545
Total Renewable Energy Abatement, 20 years:	$	31,934,949
Total Taxes Available to Local Governments after abatement:	$	26,128,595

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Nevada Gold Energy LLC Solar Project

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as Nevada Gold Energy LLC ("NGE") TS Solar 1, is a wholly owned subsidiary of Nevada Gold Mines LLC ("NGM") which is in turn a joint venture between Barrick Gold Corporation, a British Columbia Corporation, and Newmont Corporation, a Delaware Corporation. The solar photovoltaic ("PV") facility will have a net output production capacity of 200 MW and an annual net production capacity of 510,000 MWh. The project is expected to be in commercial operation by December 30, 2024.

TS Solar 1 will be located at 914 Dunphy Ranch Road in Eureka County. TS Solar 1 will be adjacent to Nevada Gold Energy's existing 242 MW conventional electricity generating facility known as the TS Power Plant (TSPP). The TS Solar 1 project will be located on 1,476.86 acres of land identified as portions of Eureka County Assessor Parcel Numbers (APN's): APN 414002, APN 421003, APN 421004 and APN 416001.

The property components of TS Solar 1 will consist of solar photovoltaic modules, solar trackers, driven pile foundations, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, and substation with a high voltage step-up transformer.

An existing Gen-Tie Line (not part of TS Solar 1) originates from the existing TSPP and runs six miles North to NV Energy's Falcon Substation, where it interconnects at 120 kV. The existing Gen-Tie Line is currently used to transmit electrical energy from the TSPP to Falcon Substation. Ownership of energy will be transferred at the Point of Interconnection at the 120kV side of the Falcon Substation. Nevada Gold Energy LLC and Nevada Gold Mines LLC have executed a Memorandum of Understanding pursuant to which NGE will supply, and NGM will purchase, all electricity and portfolio energy credits produced by TS Solar 1 for use by NGM's mine sites and associated facilities.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Eureka County and the interchange Falcon substation owned by Sierra Pacific Power Company d/b/a as NV Energy, also located in Eureka County, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the Eureka County assessor's land values. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The county assessor established a taxable value of about $123 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property": photovoltaic modules, inverters, trackers, pile foundations, substation equipment and SCADA rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Nevada Gold Energy LLC Solar Project LLC TS Solar 1 from Eureka County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer did not list any property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[2]

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall

The Department also used the 2022-23 tax rate of $1.8743 per hundred (0.018743) for Tax District 4 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax District 4, Eureka County, including a distribution to the State Debt Fund. Since the application was submitted on August 3, 2022, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2024:	$	193,881,633
Total Taxable Value of the Project in 2044:	$	138,760,105
Estimated capital cost per kW (193,881,633/200,000)		$969/kW
Total Taxes Due, First Year After Completion:	$	1,271,873
Total Renewable Energy Abatement, First Year:	$	699,530
Total Taxes Available to Local Governments after abatement:	$	572,342

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	22,659,865
Total Renewable Energy Abatement, 20 years:	$	12,462,925
Total Taxes Available to Local Governments after abatement:	$	10,196,939

See attached spreadsheets for the amounts by year and by local government entity.

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then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Boulder Flats Solar, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Boulder Flats Solar, LLC is a wholly owned subsidiary of ibV Energy Partners LLC with an address at 777 Brickell Ave, Suite 500, Miami, Florida 33131. Boulder Flats Solar, LLC consists of a 113-megawatt ("MW") solar photovoltaic ("PV") facility. The facility has an annual net production capacity of 324,655 MWh. The facility is located on 700 acres of land on three parcels of land leased from the City of Boulder, Nevada. The parcels are identified as the following Clark County Assessor Parcel Numbers: APN 207-00-001-062, APN 207-00-001-070 and APN 207-00-002-053 at a location South of Interstate 11 and East of Route 95 in Clark County, Nevada. Boulder Flats Solar, LLC is expected to be in commercial operation by December 31, 2022.

The property components of the facility consist of PV modules, trackers, DC/AC inverters, an operations and maintenance building, roads and fencing. Ownership of energy will be transferred at the Point of Delivery, the substation at the facility owned by Southern Nevada Water Authority (SNWA). Boulder Flats Solar, LLC and SNWA have a Power Purchase Agreement.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the interchange substation belonging to SNWA, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The land lease established a value of $15,679,000 for the leased land on the three parcels. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, transmission line, DC/AC collection, fence, and racking) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Boulder Flats Solar, LLC from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. This information is indicative of the permanence of the facility.

The Taxpayer listed $4,688,226 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case Southern Nevada Water Authority would be the owner of any contributed plant.[2]

The Department also used the 2021-22 tax rate of $2.6097 per hundred (0.026097) for Tax District 52 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

The calculation of the renewable energy abatement contained in the attached spreadsheets account for the required distribution of remaining taxes after abatement to local governments in Tax District 52, Clark County, including a distribution to the State Debt Fund. Since the application was submitted on August 3, 2021, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2022:	$	30,453,261
Total Taxable Value of the Project in 2042:	$	33,404,907
Estimated capital cost per kW (30,453,261/113,000)	$	269/kW
Total Taxes Due, First Year After Completion:	$	278,158
Total Renewable Energy Abatement, First Year:	$	152,987
Total Taxes Available to Local Governments after abatement:	$	125,171

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	5,793,996
Total Renewable Energy Abatement, 20 years:	$	3,186,698
Total Taxes Available to Local Governments after abatement:	$	2,607,298

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Dodge Flat Solar, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Dodge Flat Solar Facility (DFSF), is owned by Dodge Flat Solar, LLC, a subsidiary of NextEra Energy, 100 Summit Dr., 700 Universe Blvd, Juno Beach, Florida 33408. The solar photovoltaic ("PV") facility will have a net output production capacity of 200 MW and an annual net production capacity of 574,307 MWh. The project is expected to be in commercial operation by December 1, 2021.

The DFSF will be located at 3505 State Route 447, Reno, Nevada, 89510 in Washoe County, Nevada. The DFSF will be located on 1,579 acres of land in Section 23, Township 21 North, Range 23 West; Section 25, Township 21 North, Range 23 West; Section 31, Township 21 North, Range 24 West. The total 1,579 acres that DFSF will reside on are identified by the following Washoe County Assessor Parcel Numbers (APN): APN 079-150-11, APN 079-150-29, and APN 079-180-16.

The property components of the facility will consist of photovoltaic modules, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, battery storage equipment, a collector substation with a high voltage step-up transformer, connecting the new substation to the Nevada Energy switchyard within the boundaries of the Dodge Flat Solar Facility property.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Washoe County and the interchange substation belonging to NV Energy, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the Washoe County assessor's land values. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The county assessor established a taxable value of about $450 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (modules, inverters, racking, and SCADA rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Dodge Flat Solar, LLC from Washoe County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer listed $1,485,040 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case Nevada Energy would be the owner of any contributed plant.[2]

The Department also used the 2020-21 tax rate of $3.2402 per hundred (0.032402) for Tax District 4000 without further adjustment. Under current law, the maximum tax rate could go up to

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

$3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 4000, Washoe County, including a distribution to the State Debt Fund. Since the application was submitted on April 23, 2020, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2021:	$	53,721,266
Total Taxable Value of the Project in 2041:	$	38,155,685
Estimated capital cost per kW (53,721,266/101,000)		$532/kW
Total Taxes Due, First Year After Completion:	$	609,236
Total Renewable Energy Abatement, First Year:	$	335,080
Total Taxes Available to Local Governments after abatement:	$	274,156

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	10,504,015
Total Renewable Energy Abatement, 20 years:	$	5,777,208
Total Taxes Available to Local Governments after abatement:	$	4,726,807

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Townsite Solar, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Townsite Solar facility is a subsidiary of Townsite Solar CEI, LLC located at 8800 N. Gainey Center Dr., Suite 250, Scottsdale, Arizona 85258. The solar photovoltaic facility will have a net output production capacity of 180 MW and an annual net production capacity of 529,420 MWh. The project is expected to be in commercial operation by December 1, 2021.

The Townsite Solar facility will be located at 13316 US Highway 95 South Boulder City, Nevada 89001. The total 1,019.31 acres that the facility will reside on are identified by portions of the following Clark County Assessor Parcel Numbers (APN): APN 186-19-000-002, APN 186-19-000-004, APN 188-13-000-002, APN 188-24-000-002, APN 188-24-000-005, APN 189-13-000-005, APN 189-13-000-006, APN 189-13-000-008, APN 189-13-000-009, APN 14-000-003, APN 189-23-101.001, APN 189-23-501-001, APN 189-23-501-003, APN 189-24-000-003, and APN 189-24-000-004.

The property components of the facility will consist of photovoltaic modules, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, a collector substation with a high voltage step-up transformer, connecting to the Mead substation owned by the Western Area Power Administration.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the interchange substation belonging to the Western Area Power Administration, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the capitalized land lease. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The land lease established a taxable value of about $1,500 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as “personal” property (modules, inverters, racking, a substation and electrical system material) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department’s understanding is that the solar field consists of components either attached to the land and foundations, or “so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item,” for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Townsite Solar, LLC from Clark County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer listed $6,576,900 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case the Western Area Power Administration would be the owner of any contributed plant.[2]

The Department also used the 2020-21 tax rate of $2.7039 per hundred (0.027039) for Tax Districts 50, 52 and 55 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to “ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year.”

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax Districts 50, 52 and 55 in Clark County, including a distribution to the State Debt Fund. Since the application was submitted on May 20, 2020, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2021:	$ 122,656,000
Total Taxable Value of the Project in 2041:	$ 97,131,911
Estimated capital cost per kW (122,656,000/180,000)	$681/kW
Total Taxes Due, First Year After Completion:	$ 1,160,773
Total Renewable Energy Abatement, First Year:	$ 638,425
Total Taxes Available to Local Governments after abatement:	$ 522,348

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 20,767,378
Total Renewable Energy Abatement, 20 years:	$ 11,422,058
Total Taxes Available to Local Governments after abatement:	$ 9,345,320

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Fish Springs Ranch Solar, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as Fish Springs Ranch Solar, LLC, is a subsidiary of NextEra Energy Resources, 100 Summit Dr., 700 Universe Blvd, Juno Beach, Florida 33408. The solar photovoltaic ("PV") facility will have a net output production capacity of 100 MW and an annual net production capacity of 270,632 MWh. The project is expected to be in commercial operation by December 1, 2021.

The Fish Springs Ranch Solar project will be located on Rainbow Road and Fish Springs Road, Reno, Nevada, 89510 in Washoe County, Nevada. Fish Springs Ranch will be located on 1,357.5 acres of land identified by the following Washoe County Assessor Parcel Numbers (APN): APN 074-040-61, APN 074-040-24, APN 074-070-28, 074-040-23 and 074-040-58.

The property components of the facility will consist of photovoltaic modules, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, a collector substation with a high voltage step-up transformer. A new quarter mile long 345-kv Gen-Tie line will connect the Project's substation to the NV Energy Fort Sage existing substation at the Southwest corner of APN 074-040-61. A Power Purchase agreement was executed with Sierra Pacific Power Company d/b/a NV Energy on May 14, 2018.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Washoe County and the interchange substation belonging to NV Energy, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the capitalized land lease. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The land lease established a taxable value of about $2,603 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (modules, inverters, racking, and SCADA rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Fish Springs Ranch Solar, LLC from Washoe County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer listed $1,575,000 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case Nevada Energy would be the owner of any contributed plant.[2]

The Department also used the 2020-21 tax rate of $2.7002 per hundred (0.027002) for Tax District 9000 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax District 9000, Washoe County, including a distribution to the State Debt Fund. Since the application was submitted on June 19, 2020, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2021:	$	27,083,000
Total Taxable Value of the Project in 2041:	$	21,985,164
Estimated capital cost per kW (27,083,000/100,000)		$271/kW
Total Taxes Due, First Year After Completion:	$	255,953
Total Renewable Energy Abatement, First Year:	$	140,774
Total Taxes Available to Local Governments after abatement:	$	115,179

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	4,628,245
Total Renewable Energy Abatement, 20 years:	$	2,545,535
Total Taxes Available to Local Governments after abatement:	$	2,082,710

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Nevada Gold Energy LLC Solar Project

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as Nevada Gold Energy LLC ("NGE") TS Solar 1, is a wholly owned subsidiary of Nevada Gold Mines LLC ("NGM") which is in turn a joint venture between Barrick Gold Corporation, a British Columbia Corporation, and Newmont Corporation, a Delaware Corporation. The solar photovoltaic ("PV") facility will have a net output production capacity of 100 MW and an annual net production capacity of 250,000 MWh. The project is expected to be in commercial operation by December 30, 2021.

TS Solar 1 will be located approximately 4 miles North of Dunphy, Nevada and Interstate 80 and a half mile West of Boulder Valley Road in Eureka County. The address of the solar facility is 914 Dunphy Ranch Road. TS Solar 1 will be adjacent to Nevada Gold Energy's existing 242 MW conventional electricity generating facility known as the TS Power Plant (TSPP). The TS Solar 1 project will be located on 893.05 acres of land identified as portions of Eureka County Assessor Parcel Numbers (APN's): APN 414002, APN 421003 and APN 421004.

The property components of TS Solar 1 will consist of solar photovoltaic modules, solar trackers, driven pile foundations, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, and substation with a high voltage step-up transformer.

An existing Gen-Tie Line (not part of TS Solar 1) originates from the existing TSPP and runs six miles North to NV Energy's Falcon Substation, where it interconnects at 120 kV. The existing Gen-Tie Line is currently used to transmit electrical energy from the TSPP to Falcon Substation. Ownership of energy will be transferred at the Point of Interconnection at the 120kV side of the Falcon Substation. Nevada Gold Energy LLC and Nevada Gold Mines LLC have executed a Memorandum of Understanding pursuant to which NGE will supply, and NGM will purchase, all electricity and portfolio energy credits produced by TS Solar 1 for use by NGM's mine sites and associated facilities.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Eureka County and the interchange Falcon substation owned by Sierra Pacific Power Company d/b/a as NV Energy, also located in Eureka County, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the Eureka County assessor's land values. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The county assessor established a taxable value of about $194 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property": photovoltaic modules, inverters, trackers, pile foundations, substation equipment and SCADA rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Nevada Gold Energy LLC Solar Project LLC TS Solar 1 from Eureka County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer did not list any property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[2]

The Department also used the 2020-21 tax rate of $1.8743 per hundred (0.018743) for Tax District 4 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax District 4, Eureka County, including a distribution to the State Debt Fund. Since the application was submitted on June 24, 2020, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2021:	$	75,672,968
Total Taxable Value of the Project in 2041:	$	54,234,482
Estimated capital cost per kW (75,672,968/100,000)	$756/kW	
Total Taxes Due, First Year After Completion:	$	496,418
Total Renewable Energy Abatement, First Year:	$	279,934
Total Taxes Available to Local Governments after abatement:	$	229,036

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	8,849,240
Total Renewable Energy Abatement, 20 years:	$	4,867,081
Total Taxes Available to Local Governments after abatement:	$	3,982,157

See attached spreadsheets for the amounts by year and by local government entity.

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Yellow Pine Solar, LLC Phase 1

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Yellow Pine Solar, LLC Phase 1, will be owned and operated by Yellow Pine Solar, LLC, a subsidiary of NextEra Energy Resources located at 700 Universe Boulevard, Juno Beach, Florida 33408. The solar photovoltaic facility will have a net output production capacity of 125 MW and an annual net production capacity of 404,452 MWh. The project is expected to be in commercial operation by December 1, 2022.

The Yellow Pine Solar facility will be located approximately ten miles Southeast of Pahrump, Nevada on the South side of State Route 160 and West of Tecopa Road. The 1,126.55 total acres that the facility will reside on are identified by portions of the following Clark County Assessor Parcel Numbers (APN): APN 168-00-002-026, APN 171-00-001-006, APN 171-00-001-005, APN 171-00-001-004, APN 171-00-001-011, and APN 171-00-001-012.

The property components of the facility will consist of photovoltaic modules, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, battery storage equipment and a collector substation with a high voltage step-up transformer, connecting to the proposed new Trout Canyon Substation (TCS) owned by GridLiance West, LLC. A 230-kilovolt gen-tie line will be constructed from the project substation approximately one tenth of a mile to the TCS. A GridLiance West 230-kV transmission line would then extend East and North from the TCS, across State Route 160 to an existing GridLiance West 230-kV transmission line. A Power Purchase Agreement has been executed with the Silicon Valley Clean Energy Center and the Monterey Bay Community Power Authority.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall

establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the interchange substation belonging to GridLiance West, LLC, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the capitalized land lease. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The land lease established a land value of about $694 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (modules, inverters, racking, a substation and electrical system material) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Yellow Pine Solar, LLC from Clark County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer listed $9,662,000 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case the GridLiance West, LLC would be the owner of any contributed plant.[2]

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

The Department also used the 2020-21 tax rate of $2.5017 per hundred (0.025017) for Tax District 100 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax District 100 in Clark County, including a distribution to the State Debt Fund. Since the application was submitted on June 29, 2020, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2022:	$	49,666,000
Total Taxable Value of the Project in 2042:	$	43,512,365
Estimated capital cost per kW (42,166,000/125,000)		$397/kW
Total Taxes Due, First Year After Completion:	$	434,873
Total Renewable Energy Abatement, First Year:	$	239,180
Total Taxes Available to Local Governments after abatement:	$	195,693

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	8,133,082
Total Renewable Energy Abatement, 20 years:	$	4,473,195
Total Taxes Available to Local Governments after abatement:	$	3,659,886

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Dry Lake Solar Project, NV Energy

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Dry Lake Solar Project, will be owned and operated by Nevada Power company, dba NV Energy. NV Energy is located at 6226 West Sahara Avenue, Las Vegas, Nevada 89146. NV Energy is an indirect wholly owned subsidiary of Berkshire Hathaway Energy Company ("BHE"). BHE is a holding company based in Des Moines, Iowa that owns subsidiaries principally engage in energy businesses. The solar photovoltaic facility will have a net output production capacity of 150 MW and an annual net production capacity of 443,448 MWh. The project is expected to be in commercial operation by December 1, 2023.

The Dry Lake solar Project will be located at 15425 North Interstate Highway 15 in Moapa, Nevada. The 751 total acres that the facility will reside on are identified by portions of the following Clark County Assessor Parcel Numbers (APN): APN 104-06-000-001, APN 103-01-000-001, APN 083-31-000-001, APN 084-25-000-001 and APN 084-36-000-002.

The property components of the facility will consist of photovoltaic modules, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, battery storage equipment and a collector substation with a high voltage step-up transformer, connecting to the NV Energy Harry Allen 230 kV Substation. The Dry Lake solar Project has a LGIA in place with NV Energy, dated 10/15/2015, which has been designated as Service Agreement No. 15-00055. This interconnection will connect the Project substation to the Harry Allen 230 kV substation and will provide a total generating facility capacity of 150 MW net at the point of connection.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall

establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the Harry Allen 230kV interchange substation also belonging to NV Energy and located in the same county, the property will qualify to be centrally assessed by the State of Nevada.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the capitalized land lease. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The land lease established a land value of about $864 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as “personal” property (modules, inverters, racking, a substation and electrical system material) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department’s understanding is that the solar field consists of components either attached to the land and foundations, or “so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item,” for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Yellow Pine Solar, LLC from Clark County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer did not list property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property.

The Department also used the 2020-21 tax rate of $2.5017 per hundred (0.025017) for Tax District 100 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax District 100 in Clark County, including a distribution to the State Debt Fund. Since the application was

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

submitted on August 12, 2020, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2023:	$	285,851,013
Total Taxable Value of the Project in 2043:	$	207,133,082
Estimated capital cost per kW (285,851,013/150,000)		$1906/kW
Total Taxes Due, First Year After Completion:	$	2,502,987
Total Renewable Energy Abatement, First Year:	$	1,376,593
Total Taxes Available to Local Governments after abatement:	$	1,126,304

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	43,485,045
Total Renewable Energy Abatement, 20 years:	$	23,916,775
Total Taxes Available to Local Governments after abatement:	$	19,568,271

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Gemini Solar Project

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Gemini Solar Project, will be owned and operated by Solar Partners XI, LLC located at 555 12th Street, Suite 110, Oakland, CA 94607. The solar photovoltaic facility will have a net output production capacity of 690 MW and an annual net production capacity of 2,253,000 MWh. The project is expected to be in commercial operation by November 30, 2023.

The Gemini Solar Project facility will be located on Valley of Fire Highway in Clark County, Nevada. The 7,114 total acres that the facility will reside on are identified by the following Clark County Assessor Parcel Numbers (APN): 083-10-000-001, 083-11-000-001, 083-11-000-002, 083-12-000-002, 083-15-000-001,083-14-000-001, 083-14-000-002, 083-13-000-001, 083-23-000-001, 083-24-000-001, 083-25-000-001, 083-36-000-001, 082-00-001-001, 082-00-001-002, 082-00-001-003, 082-00-001-007, 082-00-001-008, 082-00-001-009, 082-00-002-001, 082-00-002-002, 082-00-002-003, 082-00-002-007, 082-00-002-008, 082-00-002-009, 082-00-002-013, 082-00-002-014, 082-00-002-015, 104-01-000-001, 104-02-001-001, 105-00-001-001, 105-00-001-002, 105-00-001-003 and 105-00-001-008.

The property components of the facility will consist of photovoltaic modules, DC wiring, DC/AC inverters, switchgear, medium voltage step-up transformers, AC cabling, and battery storage equipment. The facility will have an interconnection with the 230 kV Crystal Springs Substation owned by NV Energy. A Power Purchase Agreement has been executed with NV Energy.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the Crystal Springs Substation belonging to NV Energy, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the capitalized land lease. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Clark County Assessor established a land value of $4,610 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as “personal” property (modules, inverters, racking, a substation and electrical system material) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department’s understanding is that the solar field consists of components either attached to the land and foundations, or “so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item,” for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Solar Partners XI, LLC from Clark County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer listed no property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property.

The Department also used the 2020-21 tax rate of $2.5017 per hundred (0.025017) for Tax District 100 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax District 100 in Clark County, including a distribution to the State Debt Fund. Since the application was submitted on November 30, 2020, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2023:	$	932,234,653
Total Taxable Value of the Project in 2043:	$	691,294,150
Estimated capital cost per kW (932,234,653/690,000)		$1,351/kW
Total Taxes Due, First Year After Completion:	$	8,162,600
Total Renewable Energy Abatement, First Year:	$	4,489,430
Total Taxes Available to Local Governments after abatement:	$	3,673,170

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	142,076,741
Total Renewable Energy Abatement, 20 years:	$	78,142,208
Total Taxes Available to Local Governments after abatement:	$	63,934,533

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
CEI Switch Citadel Op Co, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as CEI Switch Citadel Op Co, LLC, is a subsidiary of CEI Switch Citadel Holdco, LLC located at 8800 N. Gainey Center Dr., Suite 250 Scottsdale, Arizona 85258. The solar photovoltaic ("PV") facility will have a net output production capacity of 100 MW and an annual net production capacity of 273,666 MWh. The project is expected to be in commercial operation by January 1, 2023.

The Switch Citadel solar project will be located near Long Valley Road and Canyon Way in Storey County, Nevada. CEI Switch Citadel will be located on 844.01 acres of land identified by the following Storey County Assessor Parcel Number (APN) 004-201-05.

The property components of the facility will consist of photovoltaic modules, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, a collector substation with a high voltage step-up transformer. The change of ownership is between the generator substation and the 345kV line dead-end structure. A Power Purchase agreement was executed with Switched ON, LLC.

Analysis

Determination of Central or Local Assessment

Generally, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Storey County and the interchange substation also belonging to CEI Switch Citadel Op Co, LLC located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using the capitalized land lease. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The land lease established a taxable value of about $8,257 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (modules, inverters, racking, and SCADA rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Fish Springs Ranch Solar, LLC from Washoe County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer listed $9,162,000 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case Nevada Energy would be the owner of any contributed plant.[2]

The Department also used the 2020-21 tax rate of $3.4607 per hundred (0.034607) for Tax District 51 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets considers the required distribution of remaining taxes after abatement to local governments in Tax

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

District 51, Storey County, including a distribution to the State Debt Fund. Since the application was submitted on June 26, 2020, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2023:	$	68,535,400
Total Taxable Value of the Project in 2043:	$	54,172,493
Estimated capital cost per kW (68,535,400/100,000)		$685/kW
Total Taxes Due, First Year After Completion:	$	830,131
Total Renewable Energy Abatement, First Year:	$	456,572
Total Taxes Available to Local Governments after abatement:	$	373,559

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	14,840,078
Total Renewable Energy Abatement, 20 years:	$	6,877,606
Total Taxes Available to Local Governments after abatement:	$	7,962,471

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes
Harry Allen Solar Energy LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The project, known as the Harry Allen Solar Energy Project (the "HSEP"), is owned by Harry Allen Solar Energy, LLC. The solar photovoltaic ("PV") facility will have a gross production capacity of 100 MW and an annual net production capacity of 300 GWh. The project is expected to be in commercial operation by November 1, 2020.

The HSEP will be located approximately 15 miles northeast of Las Vegas in the BLM Dry Lake Solar Energy Zone. The BLM and Harry Allen Solar Energy LLC executed a right-of-way grant for the HSEP in April, 2018. The 640 acre HSEP area is located within Sections 33 and 34, Township 17S, Range 63E, and Sections 3 and 4, Township 18S, Range 63E, Mount Diablo Meridian, in Clark County, Nevada. The Clark County Assessor's parcel number (APN) is 084-35-000-003.

The property components of the facility will consist of PV modules, a single axis tracking system, driven pile foundations, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, a central substation with a high voltage step-up transformer and one mile of high voltage transmission line to the interconnection point at the NV Energy 230 kV Harry Allen Substation.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the interchange substation belonging to NV Energy, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified one BLM leased parcel of land as part of the project in Schedule 3 of the application having a total acreage of 640 acres, identified as BLM Right of Way N-93321. The land is identified as Clark County Assessor's Parcel Number (APN) 084-35-000-003.

The county assessor established a taxable value of about $4,692 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (modules, inverters, racking, SCADA and security, O & M building furniture and appliances, personal computers and electrical) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2019-20 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Harry Allen Solar Energy, LLC from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the BLM lease provides for an initial term of 50 years with the right to renew. This information is indicative of the permanence of the facility.

The Taxpayer listed $1,741,000 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[2]

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

The Department also used the 2019-20 tax rate of $2.5017 per hundred (0.025017) for Tax District 100 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 100, Clark County, including a distribution to the State Debt Fund. Since the application was submitted on March 25, 2019, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2021:	$ 130,953,458
Total Taxable Value of the Project in 2041:	$ 95,918,704
Estimated capital cost per kW (130,953,458/100,000)	$1,310/kW
Total Taxes Due, First Year After Completion:	$ 1,146,621
Total Renewable Energy Abatement, First Year:	$ 630,642
Total Taxes Available to Local Governments after abatement:	$ 515,980

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 19,857,569
Total Renewable Energy Abatement, 20 years:	$ 10,921,663
Total Taxes Available to Local Governments after abatement:	$ 8,935,906

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Copper Mountain Solar V, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The Copper Mountain Solar V (CMS5), LLC consists of a 254-megawatt ("MW") solar photovoltaic ("PV") facility located on 1135 acres of land located at 587 Eldorado Valley Drive, Boulder City, Clark County, Nevada and leased by CSM5 from the City of Boulder City. CMS5 is located in the Boulder City Eldorado Valley Energy Zone, approximately 17 miles south of the city of Henderson and approximately 13 miles south of the intersection of Highway 93 and Highway 95, just west of Highway 95. Copper Mountain Solar V, LLC is expected to be completed by December 30, 2021.

The 1,135 acre site that CMS5 is constructed on is identified by the following Clark County, Nevada Assessor's Parcel Numbers (APN): portion of 213-00-001-018 (480.42 ac), portion of 213-00-001-019 (310.02 ac), portion of 214-00-001-019 (318.68 ac) and portion of 214-00-001-020 (25.7 ac). The leased site area is located in Section 13 and 14, Township 25 south, Range 62 East and in Section 17 and Section 16, Township 26 South, Range 63 East, Mount Diablo Meridian in the city of Boulder City, Clark County, Nevada.

CSM5 will connect to the NV Energy Solar One 230 kV Substation on Eldorado Valley Drive. The electricity will be transmitted to NV Energy's customers.

The property components of the facility consist of engineering, grading and site work and fencing. Other components include interior roads, PV solar modules, pad-mounted inverters, PV racks, substation and interconnect material, and electrical system material.

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions

would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified four parcels of land as part of the project in Schedule 3 of the application. Prior to improvement of the land, the county assessor established a taxable value of $3,971,905 or about $3,500 per acre, for 1,135 acres. Because the land will be leased, the Department also estimated the value of the land by using a ground-rent capitalization method in which the reported base rent of $1,8160 per acre annually for twenty years was capitalized using an 8% discount rate, resulting in an estimated value per acre of $21,720. CMS5 also reported that the rent has no escalation for the 20 year term; therefore, the Department did not apply an appreciation factor.

The Taxpayer also reported several project cost areas as “personal” property (PV Module Deliveries, PV Rack Deliveries, Electrical System Material, Substation and interconnect material, engineering and permitting) rather than real property. The Department notes that many of the items of property were listed as “materials” or “deliverables” which does not represent a fully installed cost and is therefore understated as to the true replacement cost against which depreciation will ultimately be applied. Although the reported cost understates true replacement cost, the Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department’s understanding is that the solar field consists of components either attached to the land and foundations, or “so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item,” for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by the CMS5 from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the City of Boulder City lease and development agreement provides for a term of 20 years with the right to renew with 2 extensions of 10 years each thus supporting the permanence of the facility.

The Department did not include property listed as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case NV Energy for the extended gen-tie and the interconnection facilities is the owner of the plant so contributed.[2]

The Department also used the 2018-19 tax rate of $2.7064 per hundred (0.027064) for Tax District 52 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 52, Clark County, including a distribution to the State Debt Fund. Since the application was submitted after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2022:		$ 180,536,178
Total Taxable Value of the Project in 2042:		$ 136,109,188
Estimated capital cost per kW (180,536,178/254,000)	$711/kW	
Total Taxes Due, First Year After Completion:		$ 1,710,125
Total Renewable Energy Abatement, First Year:		$ 940,568
Total Taxes Available to Local Governments after abatement:		$ 769,556

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 29,994,171
Total Renewable Energy Abatement, 20 years:	$ 16,496,794
Total Taxes Available to Local Governments after abatement:	$ 13,497,377

See attached spreadsheets for the amounts by year and by local government entity.

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Turquoise Nevada, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Turquoise Nevada, LLC is a wholly owned subsidiary of Greenbacker Renewable Energy Corporation. Turquoise Nevada's project will consist of a 50-megawatt ("MW") solar photovoltaic ("PV") facility located on two parcels containing 591.25 acres of land owned by Turquoise Solar, LLC. The first parcel of 447.32 acres is identified as Washoe County Assessor Parcel Number (APN) 084-110-31, located within Section Twenty-one (21), Township Twenty North (T.20N.), Range Twenty-two East (T.22E.), Mount Diablo Meridian (MDM), County of Washoe, State of Nevada. The second parcel of 143.93 acres is identified as Washoe County Assessor Parcel Number (APN) 084-110-35, located within the South Half (S ½) of Section Twenty-one (21), and the North Half (N ½) of Section Twenty-eight (Sec. 28) of Township Twenty (20) North, Range Twenty-two (22) East, Mount Diablo Meridian, County of Washoe, State of Nevada. The two parcels are approximately 15 miles east of downtown Reno and just north of Interstate 80. The project is expected to be in commercial operation by September 2020.

The Turquoise Nevada facility will consist of site improvements, solar photovoltaic modules, a fixed-tilt racking system, DC wiring, DC/AC inverters, a medium voltage step-up transformer, AC cabling, connecting to a shared substation with a high voltage step-up transformer. The substation is shared with the 10 MW Turquoise Liberty Solar facility and Point of Interconnection at the Pah Rah Substation, owned by NV Energy.

Turquoise Nevada will interconnect to the NV Energy's Pah Rah Substation via 0.4 mile 120kv transmission line. Turquoise Nevada, LLC and NV Energy executed a Large Generator Interconnection Agreement (LGIA) on March 30, 2016.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the Turquoise Nevada facility assets in Washoe County and the interconnect substation belonging to NV Energy, also in Washoe County, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

Prior to improvement of the land, the county assessor established a taxable value of about $1,186 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as “personal” property (PV solar panels, trackers, inverters, substation, SCADA, fence, and pile foundations) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2018-19 Personal Property Manual, Appendix E.

The Department’s understanding is that the solar field consists of components either attached to the land and foundations, or “so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item,” for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Turquoise Nevada from Washoe County and listed in the application are also an objective indication of the permanent nature of the facility.

No Contributions in Aid of Construction were listed by the Taxpayer. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[2]

The Department also used the 2021-22 tax rate of $3.2402 per hundred (0.032402) for Tax District 4000 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 4000, Washoe County, including a distribution to the State Debt Fund. Since the application was submitted on July 17, 2019, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2021:		$ 57,774,465
Total Taxable Value of the Project in 2041:		$ 41,829,114
Estimated capital cost per kW (57,774,465 /10,000)	$5,777/kW	
Total Taxes Due, First Year After Completion:		$ 655,202
Total Renewable Energy Abatement, First Year:		$ 360,361
Total Taxes Available to Local Governments after abatement:		$ 294,841

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 10,358,424
Total Renewable Energy Abatement, 20 years:	$ 5,697,133
Total Taxes Available to Local Governments after abatement:	$ 4,661,291

See attached spreadsheets for the amounts by year and by local government entity.

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Turquoise Liberty ProjectCo, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Turquoise Liberty ProjectCo, LLC ("Turquoise Solar") is an indirect wholly owned subsidiary of Sumimoto Corporation of Americas, which is ultimately own Sumimoto Corporation of Tokyo, Japan. Turquoise Solar's project consists of a 10-megawatt ("MW") solar photovoltaic ("PV") facility located on three parcels containing 109 acres of land own by the applicant's parent company. The parcels are located in Township Twenty (20) North, Range Twenty-two (22) East, Mount Diablo Meridian, Section 21, approximately 15 miles east of downtown Reno just north of Interstate 80. The project is expected to be in commercial operation by January 1, 2019.

The property components of the facility consist of site preparation, including construction survey, grading, trenching, and drainage features. Other components include PV modules, pile foundations, a single-axis tracking system, DC/AC inverters, a SCADA system, a central substation with a high voltage step-up transformer and high voltage transmission line to the point of interconnect.

The project will interconnect into NV Energy's transmission system via a gen-tie line owned by NV Energy, connecting the project to the Pah Rah Substation, owned by NV Energy. Turquoise Liberty Sellco LLC and Liberty Utilities (Calpeco Electric) LLC signed a Purchase and Sale Agreement dated October 2016 according to which Calpeco Electric will purchase the project from Turquoise Solar after the construction is finalized. No information was provided about any energy PPA at the time of this fiscal note.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall

establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Washoe County and the interchange substation belonging to NV Energy, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified three privately owned parcels of land as part of the project in Schedule 3 of the application having a total acreage of 109 acres. Schedule 3 referenced three Assessor Parcel Numbers ("APN"), however, the project is actually only a portion of the total acreage listed under the APN, which is 672 acres. Two parcels are owned by the applicant's parent company and the third parcel is currently owned by Apple, Inc., the applicant's parent company having the right to purchase after the completion of the project.

Prior to improvement of the land, the county assessor established a taxable value of about $10,320 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, trackers, inverters, substation, SCADA, fence, and pile foundations) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2018-19 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Turquoise Solar from Washoe County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer listed $1,075,000 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

customer. The utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[2]

The Department also used the 2017-18 tax rate of $3.2402 per hundred (0.032402) for Tax District 4000 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 4000, Washoe County, including a distribution to the State Debt Fund. Since the application was submitted on March 21, 2018, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2019:		$ 15,029,765
Total Taxable Value of the Project in 2039:		$ 9,364,145
Estimated capital cost per kW (15,029,765 /10,000)	$1,502/kW	
Total Taxes Due, First Year After Completion:		$ 170,448
Total Renewable Energy Abatement, First Year:		$ 93,746
Total Taxes Available to Local Governments after abatement:		$ 76,702

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 2,523,791
Total Renewable Energy Abatement, 20 years:	$ 1,388,085
Total Taxes Available to Local Governments after abatement:	$ 1,135,706

See attached spreadsheets for the amounts by year and by local government entity.

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

EP Renewable Las Vegas, Inc.

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

EnviroPower Renewable Las Vegas, Inc. ("EPRLV") is a wholly owned subsidiary of EnviroPower Renewable, Inc., headquartered in Boca Raton, FL. EPRLV's project consists of a 100 MW (nameplate) biomass gasification power plant. The gasification line will generate power using conventional steam Rankine cycle heat recovery steam generators to drive a 100 MW steam turbine generator. Three combustion gas turbine generating units with a combined nameplate generating capacity of 42 MW, located on the adjacent Garnett Valley Energy Facility "GVEF", has been contracted to provide back-up power capability. Along with a battery start 1 MW reciprocating engine generator, the combustion gas turbine generators will also provide black start capability. The net output production is expected to be 41.6 MW in Phase I and 83.2 in Phase II. The facility is located on two parcels containing approximately 85 acres of land owned by the applicant company. A parcel of 34 acres is used for the power facility and the 51 acres parcel is used for fuel storage. The parcels are located the Clark County, Nevada, in the Apex Industrial Park, northwest of Nadine Peterson Boulevard and North of Las Vegas Boulevard, within the southwest quarter of Section 34, Township 18 South, Range 63 East, Mount Diablo Meridian. The project is expected to be in commercial operation by July 1, 2020.

The property components of the facility consist of site preparation, including construction survey, grading, trenching, and drainage features. Other components include gasification units, process equipment, ducts, vessels, instrumentation, ash conveyor, equipment for water and pollution control, a power generation system, and a central substation with a high voltage step-up transformer and high voltage transmission line to the point of interconnect.

The project will interconnect into NV Energy's transmission system via a gen-tie line owned by NV Energy, connecting the project to the Gypsum Substation, owned by NV Energy. EPRLV did not sign any energy PPAs at the time of this fiscal note but it identified the potential purchasers as being from California. EPRLV submitted a proposal to SCPPA in April 2018 but no details about the proposal were provided. Additionally, EPRLV indicated that it is also willing to sell energy to Nevada purchasers that would issue appropriate PPAs.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS

361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the interchange substation belonging to NV Energy, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale projects.

The Taxpayer identified two privately owned parcels of land as part of the project in Schedule 3 of the application having a total acreage of 85 acres. One parcel, totaling 33.78 acres is located in the tax district 257 and it represents the main portion of the project, where the actual plant will be built. The other parcel, located in tax district 103 will be used primarily for fuel storage.

Prior to improvement of the land, the county assessor established a taxable value of about $16,000 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as “personal” property rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2018-19 Personal Property Manual, Appendix E.

The Taxpayer listed $1,650,000 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[1]

[1] NRS 361.260 requires the county assessor to “ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year.”

The Department also used the 2018-19 tax rate of $3.3544 per hundred (0.033544) for Tax District 257 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 257, Clark County, including a distribution to the State Debt Fund. Since the application was submitted on June 30, 2018, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2020:		$ 217,381,184
Total Taxable Value of the Project in 2040:		$ 151,035,314
Estimated capital cost per kW (15,029,765 /10,000)	$1,502/kW	
Total Taxes Due, First Year After Completion:		$ 2,552,142
Total Renewable Energy Abatement, First Year:		$ 1,403,678
Total Taxes Available to Local Governments after abatement:		$ 1,148,464

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 42,890,413
Total Renewable Energy Abatement, 20 years:	$ 23,589,727
Total Taxes Available to Local Governments after abatement:	$ 19,300,686

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Techren Solar III, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Techren Solar III, LLC ("Techren III") is a wholly owned subsidiary of Techren Solar, LLC, and is a Hanwha Group company. Techren III's project consists of a 25-megawatt ("MW") solar photovoltaic ("PV") facility located on three parcels containing 159.65 acres of land leased from the City of Boulder City. The parcels are located in Township 23 South, Range 63 East, Mount Diablo Meridian, Sections 34 and 35, Township 24 South, Range 63 MDM, Section 3, 4, 8, 9, 16, 17, 18, 19, and 20, just East of the Southeasterly line of the Southwest Gas Corporation. The project is expected to be in commercial operation by October 30, 2019.

The property components of the facility consist of site preparation, including construction survey, grading, trenching, and drainage features. Other components include PV modules; a single axis tracking system, driven pile foundations, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, and high voltage transmission line to the point of interconnect. The offsite facilities include a 230 kilovolt (kV) generation tie transmission line (gen-tie).

The project will interconnect into NV Energy's transmission system via a gen-tie line owned by Techren III, connecting the project to the Nevada Solar One (NSO) Substation owned by NV Energy. Techren Solar, LLC and Nevada Power dba NV Energy executed a Pre-purchase agreement for 25 years, dated June 27, 2016. Techren Solar, LLC will assign the PPA to Techren III.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the interchange substation belonging to NV Energy, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified three portions of City of Boulder City leased parcels of land as part of the project in Schedule 3 of the application having a total acreage of 3,771.94 acres. Schedule 3 referenced 3 Assessor Parcel Numbers ("APN"), however, the project is actually only a portion of the total acreage listed under the APN, which is 159.65 acres.

Prior to improvement of the land, the county assessor established a taxable value of about $3,500 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, trackers, racking, inverters, development, permitting, project financing, construction rent, legal fees, construction loan, developer fee and overhead) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Techren III from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the City of Boulder City lease provides for an initial term of 50 years with the right to renew. This information is indicative of the permanence of the facility.

The Taxpayer listed $54,063 of property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[2]

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall

The Department also used the 2019-20 tax rate of $2.5264 per hundred (0.025264) for Tax District 52 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 52, 55, Clark County, including a distribution to the State Debt Fund. Since the application was submitted on November 9, 2018, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2019:		$ 33,158,775
Total Taxable Value of the Project in 2039:		$ 24,123,030
Estimated capital cost per kW (33,158,775/25,000)	$1,326/kW	
Total Taxes Due, First Year After Completion:		$ 293,203
Total Renewable Energy Abatement, First Year:		$ 161,262
Total Taxes Available to Local Governments after abatement:		$ 131,941

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 5,063,748
Total Renewable Energy Abatement, 20 years:	$ 2,785,061
Total Taxes Available to Local Governments after abatement:	$ 2,278,687

See attached spreadsheets for the amounts by year and by local government entity.

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then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Techren Solar IV, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Techren Solar IV, LLC ("Techren IV") is a wholly owned subsidiary of Techren Solar, LLC, and is a Hanwha Group company. Techren IV's project consists of a 25 - megawatt ("MW") solar photovoltaic ("PV") facility located on 3 parcels containing 164.18 acres of land leased from the City of Boulder City. The parcels are located in Township 24 South, Range 63 East, Mount Diablo Meridian, Sections 4, 8, 9, 16, 17, and 18, just East of the Southeasterly line of the Southwest Gas Corporation. The project is expected to be in commercial operation by December 30, 2019.

The property components of the facility consist of PV modules, a single axis tracking system, DC/AC inverters, and fencing. The offsite facilities include a 230 kilovolt (kV) generation tie transmission line (gen-tie).

The project will interconnect into NV Energy's transmission system via a gen-tie line owned by Techren IV, connecting the project to the NV Energy Nevada Solar One (NSO) Substation owned by NV Energy. Techren Solar, LLC and Sierra Pacific Power Company dba NV Energy executed a Pre-purchase agreement for 25 years, dated January 12, 2017. Techren Solar, LLC will assign the PPA to Techren IV.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the interchange substation belonging to NV Energy, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified three portions of City of Boulder City leased parcels of land as part of the project in Schedule 3 of the application having a total acreage of 802.87 acres. Schedule 3 referenced 3 Assessor Parcel Numbers ("APN"), however, the project is actually only a portion of the total acreage listed under the APN, which is 164.18 acres.

Prior to improvement of the land, the county assessor established a taxable value of about $3,500 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, transmission line, DC/AC collection, fence, and racking) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Techren IV from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the City of Boulder City lease provides for an initial term of 50 years with the right to renew. This information is indicative of the permanence of the facility.

The Taxpayer listed $54,063 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[2]

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall

The Department also used the 2018-19 tax rate of $2.5264 per hundred (0.025264) for Tax Districts 52 and 55 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax Districts 52 and 55 , Clark County, including a distribution to the State Debt Fund. Since the application was submitted on November 9, 2017, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2019:		$ 34,174,630
Total Taxable Value of the Project in 2039:		$ 24,861,127
Estimated capital cost per kW (34,174,630/25,000)	$1,367/kW	
Total Taxes Due, First Year After Completion:		$ 302,186
Total Renewable Energy Abatement, First Year:		$ 166,202
Total Taxes Available to Local Governments after abatement:		$ 135,983

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):		$ 5,214,467
Total Renewable Energy Abatement, 20 years:		$ 2,867,957
Total Taxes Available to Local Governments after abatement:		$ 2,346,510

See attached spreadsheets for the amounts by year and by local government entity.

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then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Techren Solar V, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Techren Solar V, LLC ("Techren V") is a wholly owned subsidiary of Techren Solar, LLC, and is a Hanwha Group company. Techren V's project consists of a 50 - megawatt ("MW") solar photovoltaic ("PV") facility located on 3 parcels containing 291.97 acres of land leased from the City of Boulder City. The parcels are located in Township 24 South, Range 63 East, Mount Diablo Meridian, Sections 4, 8, 9, 16, 17, and 18, just East of the Southeasterly line of the Southwest Gas Corporation. The project is expected to be in commercial operation by December 31, 2020.

The property components of the facility consist of PV modules, a single axis tracking system, DC/AC inverters, and fencing. The offsite facilities include a 230 kilovolt (kV) generation tie transmission line (gen-tie).

The project will interconnect into NV Energy's transmission system via a gen-tie line owned by Techren V, connecting the project to the NV Energy Nevada Solar One (NSO) Substation owned by NV Energy. Techren Solar, LLC and Sierra Pacific Power Company dba NV Energy executed a Pre-purchase agreement for 25 years, dated January 12, 2017. Techren Solar, LLC will assign the PPA to Techren V.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the interchange substation belonging to NV Energy, also located in the same county, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified three portions of City of Boulder City leased parcels of land as part of the project in Schedule 3 of the application having a total acreage of 525.31 acres. Schedule 3 referenced 3 Assessor Parcel Numbers ("APN"), however, the project is actually only a portion of the total acreage listed under the APN, which is 291.97 acres.

Prior to improvement of the land, the county assessor established a taxable value of about $3,500 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, transmission line, DC/AC collection, fence, and racking) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Techren V from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the City of Boulder City lease provides for an initial term of 50 years with the right to renew. This information is indicative of the permanence of the facility.

The Taxpayer listed $108,125 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[2]

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[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall

The Department also used the 2019-20 tax rate of $2.5264 per hundred (0.025264) for Tax Districts 52 and 55 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax Districts 52 and 55, Clark County, including a distribution to the State Debt Fund. Since the application was submitted on November 9, 2017, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2020:		$ 57,221,886
Total Taxable Value of the Project in 2040:		$ 41,671,694
Estimated capital cost per kW (57,221,886/50,000)	$1,144/kW	
Total Taxes Due, First Year After Completion:		$ 505,979
Total Renewable Energy Abatement, First Year:		$ 278,288
Total Taxes Available to Local Governments after abatement:		$ 227,690

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):		$ 8,742,119
Total Renewable Energy Abatement, 20 years:		$ 4,808,166
Total Taxes Available to Local Governments after abatement:		$ 3,933,953

See attached spreadsheets for the amounts by year and by local government entity.

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then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Sunshine Valley Solar, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Sunshine Valley Solar, LLC ("Sunshine Valley") is a wholly owned subsidiary of IFirst Solar, Inc. Sunshine Valley's project consists of a 100-megawatt ("MW") solar photovoltaic ("PV") facility located on two parcels containing 745 acres of land leased from a private party. The parcels are located in Township 16 South, Range 48 East, Mount Diablo Meridian, Section 36, and Range 49 East, Mount Diablo Meridian, Sections 30 and 31, all near the intersection of Powerline and Anvil Roads, in Amargosa Valley, NV. The project is expected to be in commercial operation by January 1, 2020.

The property components of the facility consist of site preparation, including construction survey, grading, trenching, and drainage features. Other components include PV modules; inverters, a SCADA system, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, a central substation with a high voltage step-up transformer, and high voltage transmission line to the point of interconnect. The offsite facilities include a 138 kilovolt (kV) generation tie transmission line (gen-tie).

The project will interconnect into Valley Electric Association's transmission system via a gen-tie line owned by Sunshine Valley, connecting the project to the Valley Substation owned by Valley Electric Association.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Nye County and the interchange substation belonging to Valley Electric Association, also located in the same county, since Sunshine Valley expressed intention to apply for Wholesale Generator status and assuming such status granted, unless and until such time as FERC decided to deny such a status, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated based on the county assessor valuation of private land. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

Prior to improvement of the land, the county assessor established a taxable value of about $126 per acre. Because the land is leased from a private party, the Department cannot use the ground-rent capitalization method using the annual rent per acre published by the BLM for solar right-of-way grants, plus a megawatt ("MW") capacity fee of $5,256 per MW for PV facilities when fully operational. The total annual rent is about $282,936 using this method and assuming the acreage amount in the BLM lease. The Department is not in possession of any information about the land lease details and consequently it used the pre-development value established by the county assessor. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, transmission line, DC/AC collection, fence, and racking) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Sunshine Valley from Nye County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the private land lease provides for a remaining term of 24 years. This information is indicative of the permanence of the facility.

The Taxpayer did not list any property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer.

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

The Department also used the 2017-18 tax rate of $3.6567 per hundred for Tax District 8 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 150, Mineral County, including a distribution to the State Debt Fund. Since the application was submitted on September 16, 2015, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2019:	$	79,271,376
Total Taxable Value of the Project in 2039:	$	53,506,988
Estimated capital cost per kW (79,271,376/100,000)	$	793/kW
Total Taxes Due, First Year After Completion:	$	1,014,551
Total Renewable Energy Abatement, First Year:	$	558,003
Total Taxes Available to Local Governments after abatement:	$	456,548

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	16,780,037
Total Renewable Energy Abatement, 20 years:	$	9,229,020
Total Taxes Available to Local Governments after abatement:	$	7,551,017

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Techren Solar I, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Techren Solar I, LLC ("Techren I") is a wholly owned subsidiary of Techren Solar, LLC, and is a Hanwha Group company. Techren I's project consists of a 100-megawatt ("MW") solar photovoltaic ("PV") facility located on ten parcels containing 667 acres of land leased from the City of Boulder City. The parcels are located in Township 23 South, Range 63 East, Mount Diablo Meridian, Sections 34 and 35, Township 24 South, Range 63 MDM, Section 3, 4, 8, 9, 16, 17, 18, 19, and 20, just East of the Southeasterly line of the Southwest Gas Corporation. The project is expected to be in commercial operation by December 1, 2018.

The property components of the facility consist of site preparation, including construction survey, grading, trenching, and drainage features. Other components include PV modules; a single axis tracking system, driven pile foundations, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, a central substation with a high voltage step-up transformer and high voltage transmission line to the point of interconnect. The offsite facilities include a 230 kilovolt (kV) generation tie transmission line (gen-tie).

The project will interconnect into NV Energy's transmission system via a gen-tie line owned by Techren I, connecting the project to the Nevada Solar One (NSO) Substation owned by NV Energy. Techren Solar, LLC and Nevada Power dba NV Energy executed a Pre-purchase agreement for 25 years, dated June 27, 2016. Techren Solar, LLC will assign the PPA to Techren I.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall

establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark and the interchange substation belonging to NV Energy, also located in the same county, since Techren I expressed intention to apply for Wholesale Generator status and assuming such status granted, unless and until such time as FERC decided to deny such a status, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified ten portions of City of Boulder City leased parcels of land as part of the project in Schedule 3 of the application having a total acreage of 667 acres. Schedule 3 referenced 10 Assessor Parcel Numbers ("APN"), however, the project is actually only a portion of the total acreage listed under the APN, which is 5,796 acres.

Prior to improvement of the land, the county assessor established a taxable value of about $3,500 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, transmission line, DC/AC collection, fence, and racking) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Techren I from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the City of Boulder City lease provides for an initial term of 50 years with the right to renew. This information is indicative of the permanence of the facility.

The Taxpayer listed $216,250 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[2]

The Department also used the 2017-18 tax rate of $2.5264 per hundred (0.025264) for Tax District 52, 55 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 52, 55, Clark County, including a distribution to the State Debt Fund. Since the application was submitted on November 9, 2017, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2018:		$ 132,814,338
Total Taxable Value of the Project in 2038:		$ 96,695,022
Estimated capital cost per kW (132,814,338/100,000)	$1,328/kW	
Total Taxes Due, First Year After Completion:		$ 1,174,398
Total Renewable Energy Abatement, First Year:		$ 645,919
Total Taxes Available to Local Governments after abatement:		$ 528,479

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 20,221,656
Total Renewable Energy Abatement, 20 years:	$ 11,121,911
Total Taxes Available to Local Governments after abatement:	$ 9,099,745

See attached spreadsheets for the amounts by year and by local government entity.

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Techren Solar II, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Techren Solar II, LLC ("Techren II") is a wholly owned subsidiary of Techren Solar, LLC, and is a Hanwha Group company. Techren I's project consists of a 200-megawatt ("MW") solar photovoltaic ("PV") facility located on five parcels containing 1015 acres of land leased from the City of Boulder City. The parcels are located in Township 24 South, Range 63 East, Mount Diablo Meridian, Sections 4, 8, 9, 16, 17, and 18, just East of the Southeasterly line of the Southwest Gas Corporation. The project is expected to be in commercial operation by September 1, 2019.

The property components of the facility consist of site preparation, including construction survey, grading, trenching, and drainage features. Other components include PV modules; a single axis tracking system, driven pile foundations, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, a central substation with a high voltage step-up transformer and high voltage transmission line to the point of interconnect. The offsite facilities include a 230 kilovolt (kV) generation tie transmission line (gen-tie).

The project will interconnect into NV Energy's transmission system via a gen-tie line owned by Techren II, connecting the project to the NV Energy Nevada Solar One (NSO) Substation owned by NV Energy. Techren Solar, LLC and Sierra Pacific Power Company dba NV Energy executed a Pre-purchase agreement for 25 years, dated January 12, 2017. Techren Solar, LLC will assign the PPA to Techren II.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall

establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark and the interchange substation belonging to NV Energy, also located in the same county, since Techren II expressed intention to apply for Wholesale Generator status and assuming such status granted, unless and until such time as FERC decided to deny such a status, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified ten portions of City of Boulder City leased parcels of land as part of the project in Schedule 3 of the application having a total acreage of 1015 acres. Schedule 3 referenced 10 Assessor Parcel Numbers ("APN"), however, the project is actually only a portion of the total acreage listed under the APN, which is 1,598 acres.

Prior to improvement of the land, the county assessor established a taxable value of about $3,500 per acre. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 1.5% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, transmission line, DC/AC collection, fence, and racking) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Techren II from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the City of Boulder City lease provides for an initial term of 50 years with the right to renew. This information is indicative of the permanence of the facility.

The Taxpayer listed $432,500 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

utility which might have received any CIAC, in this case NV Energy would be the owner of any contributed plant.[2]

The Department also used the 2017-18 tax rate of $2.5264 per hundred (0.025264) for Tax District 52 without further adjustment. Under current law, the maximum tax rate could go up to $3.66; however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 52, Clark County, including a distribution to the State Debt Fund. Since the application was submitted on November 9, 2017, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2019:		$ 252,994,235
Total Taxable Value of the Project in 2039:		$ 183,526,187
Estimated capital cost per kW (252,994,235/200,000)	$1,265/kW	
Total Taxes Due, First Year After Completion:		$ 2,237,076
Total Renewable Energy Abatement, First Year:		$ 1,230,392
Total Taxes Available to Local Governments after abatement:		$ 1,006,684

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 38,461,592
Total Renewable Energy Abatement, 20 years:	$ 21,153,876
Total Taxes Available to Local Governments after abatement:	$ 17,307,716

See attached spreadsheets for the amounts by year and by local government entity.

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Boulder Solar II Project

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The Boulder Solar II Project ("Project") will consist of a 50 megawatt ("MW") alternating current ("AC") solar photovoltaic ("PV") energy generation facility, being a part of the larger Boulder Solar Power Project.[1] This analysis is limited to the Boulder Solar II phase only. The Project is owned by Boulder Solar II, LLC whose indirect corporate parent is SunPower Corporation.

The Project will include a 2.5 miles 230 kV transmission line between the generating facility and NV Energy's Nevada One Substation, where Boulder Solar II will interconnect to the electric grid. The Project is located on 247.61 acres of land located in Dry Lake Bed South Site of Boulder City, Eldorado Valley Energy Zone, approximately 9 miles south/southwest of the intersection of Highways 932 and 95 and 1.7 miles northwest of the intersection of highways 95 and 165. Access to the Project site is via State Highway 95, Veterans Memorial Highway.[2] The Project is expected to have a commercial operation date of December 31, 2016.[3] Boulder Solar II, LLC has signed a 20 year power purchase agreement with NV Energy.

The property components of the facility consist of site preparation activities, including construction survey and underground utility locating. Other components include foundations for trackers, PV solar modules, pad-mounted inverters, underground and overhead cabling and cable termination, electrical equipment enclosures; inverters and transformers, and SCADA monitoring equipment.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

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[1] PUCN Docket No. 12-05037, Modified Order dated June 26, 2015.
[2] PUCN Docket No. 12-05037, Modified Order dated June 26, 2015.
[3] Abatement Application dated March 9, 2016, Facility Information

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

The company reports that the physical point at which the ownership of energy from the Boulder Solar II facility will be transferred is NV Energy's Nevada One Substation, thus the Project facilities do not cross state or county lines. The Department therefore concludes the property appears to qualify for local assessment for purposes of this fiscal note.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. Further, pursuant to NRS 361.157, when any real estate or portion of real estate which for any reason is exempt from taxation is leased, loaned or otherwise made available to and used by a natural person, association, partnership or corporation in connection with a business conducted for profit or as a residence, the leasehold interest. . . . .is subject to taxation. In this case, the Taxpayer holds a leasehold interest in land owned by Boulder City. The possessory interest in the land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[4]

The Taxpayer identified one parcel of land as part of the project in Schedule 3 of the application. The Department estimated the value of the land by using a ground-rent capitalization method in which the reported base rent of $1,700 per acre annually for twenty years was capitalized using an 8% discount rate and a net present value calculated, resulting in an estimated value per acre of $18,339. The Department applied a 2% appreciation factor for each year thereafter. *See also City of Boulder City, Bill No. 1776, an ordinance of the City approving Development Agreement No. 11-1401D between the City of Boulder City and Boulder Solar Power, LLC for development of a solar energy project in the Eldorado Valley Energy Zone, introduced to City Council on September 19, 2015, Agenda Item No. 7, as well as City of Boulder City, Bill No. 1781 approving the Phase II Lease Agreement between the City of Boulder City and Boulder Solar II, LLC, introduced to City Council on January 26, 2016, Agenda Item No. 1.*

The Taxpayer also reported several project cost areas as "personal" property (e.g., Tracker System, Cable Tray, Combiner Boxes, PV Modules) rather than real property. It is not clear whether the reported cost represents a fully installed cost. Nevertheless the Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array

[4] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects; http://www.pv-magazine.com/news/details/beitrag/buffett-strikes-cheapest-electricity-price-in-us-with-nevada-solar-farm_100020120/

foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, there was no information provided regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and no information shown as to whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by the company from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the City of Boulder City lease and development agreement provides for a term of 20 years with the right to renew with 2 extensions of 20 years each thus supporting the permanence of the facility.

The Department did not include property listed as Contributions in Aid of Construction in the total value. Capital invested as a contribution in aid of construction ("CIAC") is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The interconnection facilities contributed by Boulder Solar II at Nevada Solar One substation are owned by NV Energy.[5]

The Department also used the 2015-16 tax rate of $2.5264 per hundred (0.025264) for Tax District 52 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 52, Clark County, including a distribution to the State Debt Fund. Since the application was submitted after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2016:		$ 87,254,823
Total Taxable Value of the Project in 2035:		$ 65,755,763
Estimated capital cost per kW (87,254,823/50,000)	$1,745/kW	
Total Taxes Due, First Year After Completion:		$ 771,542
Total Renewable Energy Abatement, First Year:		$ 424,348
Total Taxes Available to Local Governments after abatement:		$ 347,193

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 13,518,937
Total Renewable Energy Abatement, 20 years:	$ 7,435,415
Total Taxes Available to Local Governments after abatement:	$ 6,083,522

See attached spreadsheets for the amounts by year and by local government entity.

[5] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Copper Mountain Solar IV, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The Copper Mountain Solar IV, LLC ("CMS4") consists of a 94-megawatt ("MW") solar photovoltaic ("PV") facility located on 681.67 acres of land located in Boulder City, Clark County, Nevada, leased by CSM4 from the City of Boulder City. CMS4 is located in the Boulder City Eldorado Valley Energy Zone, approximately 17 miles south of the city of Henderson and approximately 13 miles south of the intersection of Highway 93 and Highway 95, just west of Highway 95. CSM4 is expected to be completed by November 30, 2016.

CSM4's substation will connect to Merchant Switchyard via a 230 kV gen-tie power line of approximately 0.5 miles from the proposed CSM4 Solar Substation. The gen-tie will share some existing pole structures with the Copper Mountain Solar 2 project. The company reports that the delivery point of energy will be at the point of interconnection with the CAISO-Controlled Grid, Merchant Substation, Clark County, Nevada. The company also reports that CSM4 will be an Exempt Wholesale Generator under applicable Federal Energy Regulatory Commission ("FERC") regulations.

The property components of the facility consist of site preparation activities, including construction survey, grading, trenching, and drainage features. Other components include access roads and utilities such as telecommunication lines; foundations for generator step-up transformers, trackers, drive motor foundations, PV solar modules, pad-mounted inverters, underground and overhead cabling and cable termination, electrical equipment enclosures; fire protection systems; electronic system to control equipment and facilities operations; inverters with reactive power control; fencing, switchyard and substations including step-up transformers, circuit breakers and switchgear.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

CMS4 entered into a facilities upgrade agreement dated October 23, 2014. Section 4.1 of the Agreement indicates that CMS4 (Interconnection Customer) will be allowed to connect its generating facility to Southern California Edison Company's transmission system (TO's Transmission System) and be eligible to deliver the generating facility's output using the available capacity of the CAISO Controlled Grid (California Independent System Operation Corporation). Upon initial examination, CMS4 appears to meet NRS 361.320(6) because CMS4 and Southern California Edison are providing generation and transmission functions separately to deliver the power to the final customer. However, if one of the persons is an exempt wholesale generator, as defined in 15 U.S.C. §79z-5a,[1] then subsection 6 of NRS 361.320 does not apply. A search of the Federal Energy Regulatory Commission ("FERC") website as of May 18, 2015 does not indicate that exempt wholesale generator status has become effective, however, the CMS4 application, Attachment D, indicates that exempt wholesale generator status filing is anticipated in the second quarter of 2015. The Department therefore concludes the property appears to qualify for local assessment for purposes of this fiscal note.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[2]

The Taxpayer identified four parcels of land as part of the project in Schedule 3 of the application. Prior to improvement of the land, the county assessor established a taxable value of $6,816,700, or about $10,000 per acre, for 681.67 acres. Because the land will be leased, the Department also estimated the value of the land by using a ground-rent capitalization method in which the reported base rent of $1,500 per acre annually for twenty years was capitalized using an 8% discount rate, resulting in an estimated value per acre of $17,080. CMS4 also reported that the rent has no escalation for the 20 year term, therefore, the Department did not apply an appreciation factor. *See also City of Boulder City, Bill No. 1764, an ordinance of the City approving Development Agreement No. 15-1542 between the City of Boulder City and CMS4, LLC for development of a solar energy project in the Eldorado Valley Energy Zone, introduced to City Council on May 12, 2015, Agenda Item No. 8.*

The Taxpayer also reported several project cost areas as "personal" property (PV Module Deliveries, PV Rack Deliveries, Electrical System Material, Substation and interconnect material, engineering and permitting, and switchgear) rather than real property. The Department notes that many of the items of property were listed as "materials" or "deliverables" which does not represent a fully installed cost and is therefore understated as to the true replacement cost against which depreciation will ultimately be applied. Although the reported cost understates true replacement cost, the Department used the cost reported by the Taxpayer for each cost center but determined that all

[1] **15 U.S.C. §79z-5a** was part of the Public Utility Holding Company Act of 1935 (PUHCA 1935) and was repealed and replaced by the Public Utility Holding Company Act of 2005 (PUHCA 2005). The Federal Energy Regulatory Commission (FERC) passed regulations which adopted the definition of an exempt wholesale generator. See 18 CFR 366.1. §366.1 in part states "For purposes of establishing or determining whether an entity qualifies for exempt wholesale generator status, sections 32(a)(2) through (4), and section 32(b) through (d) of the PUHCA 1935 (15 U.S.C. 79z-5a(a)(2)-(4), 79Z-5a(b)-(d)) shall apply."

[2] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

components, were real property when operated as a unit. The Department based it's determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by the CMS4 from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the City of Boulder City lease and development agreement provides for a term of 20 years with the right to renew with 2 extensions of 10 years each thus supporting the permanence of the facility.

The Department did not include property listed as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case SDG&E for the extended gen-tie and SoCal Edison for the interconnection facilities, are the owners of the plant so contributed.[3]

The Department also used the 2014-15 tax rate of $2.5105 per hundred (0.025015) for Tax District 52 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 52, Clark County, including a distribution to the State Debt Fund. Since the application was submitted after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2015:		$ 166,864,896
Total Taxable Value of the Project in 2034:		$ 122,626,656
Estimated capital cost per kW (155,221,896/94,000)	$1,651/kW	
Total Taxes Due, First Year After Completion:		$ 1,466,200
Total Renewable Energy Abatement, First Year:		$ 806,410

[3] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

Total Taxes Available to Local Governments after abatement:	$	659,790

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$	25,436,899
Total Renewable Energy Abatement, 20 years:	$	13,990,294
Total Taxes Available to Local Governments after abatement:	$	11,446,605

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Playa Solar 2, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Playa Solar 2, LLC ("Playa") is a wholly owned subsidiary of First Solar, Inc. Playa's project consists of a 200-megawatt ("MW") solar photovoltaic ("PV") facility located on three parcels containing 1,711 acres of land leased from the Bureau of Land Management ("BLM"). The parcels are located in Township 17 South, Range 63 East, Mount Diablo Meridian, Sections 2 and 36; and Township 18 South, Range 63 East, Mount Diablo Meridian, Sections 2, 3, 11, and 12, all approximately 1 mile south of the Harry Allen Substation in the Bureau of Land Management's Dry Lake Solar Energy Zone in Clark County, approximately 14 miles northeast of Las Vegas, Nevada. Phase 1 consisting of a 100 MW facility is expected to be in commercial operation by December 31, 2016.

The property components of the facility consist of site preparation, including construction survey, grading, trenching, and drainage features. Other components include access roads and utilities such as telecommunication lines; cadmium telluride thin film PV modules; DC to AC inverters; three-phase pad mounted medium voltage transformers; SCADA system; an operation and maintenance building; fencing; security system; meteorological monitoring stations; underground and overhead cabling and cable termination; electrical equipment enclosures; fire protection systems; lighting; water well and pipeline; switchyard and substations including step-up transformers, circuit breakers and switchgear. The offsite facilities include a 3,500 foot (0.7 mile) 230 kilovolt (kV) generation tie transmission line (gen-tie).

The project will interconnect into NV Energy's transmission system via a gen-tie line owned by Playa, connecting the project to the Harry Allen Substation owned by NV Energy. Playa executed a 20 year purchase power agreement dated June 19, 2015, with Nevada Power Company as the buyer.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the purchase of power by Nevada Power Company, also located in the same county, as well as the advice from the Office of the Attorney General, unless and until such time as the Taxpayer requires the use of transmission lines of another company to deliver power to a third party, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified five parcels of land as part of the project in Schedule 3 of the application having a total acreage of 1,237 acres. Schedule 3 referenced 5 Assessor Parcel Numbers ("APN"), however, the project is actually only a portion of the total acreage listed under each APN. The recited acreage is also less than the BLM lease number NVN-093306 which contains 1,711 acres.

Prior to improvement of the land, the county assessor established a taxable value of about $2,000 per acre. Because the land is leased from the BLM, the Department also estimated the value of the land by using a ground-rent capitalization method using the 2015 annual rent per acre published by the BLM for solar right-of-way grants for Zone 6, or $206.92 per acre, plus a megawatt ("MW") capacity fee of $5,256 per MW for PV facilities when fully operational. The total annual rent is about $879,640 using this method and assuming the acreage amount in the BLM lease. A 25 year term was used and a discount rate of 7%, resulting in an estimated market value when fully operational of $12,403,000, or $7,249 per acre, for the land. This result was used by the Department rather than the pre-development value established by the county assessor. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, transmission line, DC/AC collection, fence, and racking) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based it's determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Playa from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the BLM lease provides for an initial term of 25 years with the right to renew. The Environmental Assessment prepared by the BLM indicates the anticipated operational life of the project would be at least 30 years, with the possibility of subsequent repowering with an expected useful life of 50 years or more.[2] This information is indicative of the permanence of the facility.

The Taxpayer did not list any property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case Nevada Power, would be the owner of any contributed plant.[3]

The Department also used the 2015-16 tax rate of $2.5017 per hundred (0.025017) for Tax District 100 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 100, Clark County, including a distribution to the State Debt Fund. Since the application was submitted on August 3, 2015, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2016:		$ 177,375,738
Total Taxable Value of the Project in 2036:		$ 132,602,313
Estimated capital cost per kW (177,375,738/100,000)	$1,774/kW	
Total Taxes Due, First Year After Completion:		$ 1,553,093
Total Renewable Energy Abatement, First Year:		$ 854,201
Total Taxes Available to Local Governments after abatement:		$ 698,892

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 27,206,674
Total Renewable Energy Abatement, 20 years:	$ 14,963,671
Total Taxes Available to Local Governments after abatement:	$ 12,243,003

See attached spreadsheets for the amounts by year and by local government entity.

[2] BLM, Environmental Assessment DOI-BLM-NV-S010-2014-0127-EA, Section 2.2.15, December 2014.

[3] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Nevada Valley Solar Solutions II, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Nevada Valley Solar Solutions II, LLC ("NVSS-II") is an indirect, wholly owned subsidiary of MDU Resources Group. NVSS-II's project consists of a 15-megawatt ("MW") solar photovoltaic ("PV") facility located on a parcel containing 80 acres of land leased for 30 years from Valley Electric Association, Inc. ("VEA"). The parcel is located at 2371 East Simkins Road, in Pahrump, Nevada, in Township 19 South, Range 53 East Mount Diablo Meridian, Section 25, approximately half a mile East from the Calvada Meadows Airport. The 15-MW facility is expected to be in commercial operation by July 1, 2016.

The property components of the facility consist of materials and equipment, including PV modules, inverters and transformers, racking, and switchgear. Other components include SCADA infrastructure and monitoring systems, CAISO accessible meteorological monitoring stations, underground and overhead cabling and cable termination (fiber optic cable, copper wiring, etc.), metallic raceways for all wiring, structural materials, water-tight hubs, CT cabinets and associated equipment, grounding material, module clamps, combiner boxes mounting materials, output circuit installation materials, labeled and color-coded conductors, flash labels, and operations that include engineering, geotech, trenching, access road, fencing, concrete, permitting, and site security. The offsite facilities include a 2640 foot 24.9 kilovolt distribution line.

The project will interconnect into VEA's transmission system at VEA's meter located at the solar project's switchgear adjacent to the interconnection point of the solar project's facilities and VEA's distribution facilities via a gen-tie line owned by NVSS-I, connecting the project to the substation owned by VEA. NVSS-I executed a purchase power agreement, with VEA as the buyer, which will be further leased to NVSS-II.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Nye County and the purchase of power by Valley Electric Association, also located in the same county, as well as the advice from the Office of the Attorney General, unless and until such time as the Taxpayer requires the use of transmission lines of another company to deliver power to a third party, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified one parcel of land as part of the project in Schedule 2 of the application, having a total acreage of 80 acres. Schedule 2 referenced the Assessor Parcel Numbers ("APN") associated with the project, which verified the ownership of VEA of this parcel.

Prior to improvement of the land, the county assessor established a taxable value of about $459 per acre. Because NVSS-II did not provide any details regarding the lease amount considered in the contractual agreement with VEA, the Department estimated the value of the land by using a ground-rent capitalization method using the 2015 annual rent per acre published by the BLM for solar right-of-way grants for Zone 4, or $103.46 per acre, plus a megawatt ("MW") capacity fee of $5,256 per MW for PV facilities when fully operational. The total annual rent is about $87,116.80 using this method and assuming the acreage amount in the lease. A 30 year term was used and a discount rate of 7%, resulting in an estimated market value when fully operational of $1,332,000.00, or $16,650.00 per acre, for the land. This result was used by the Department rather than the pre-development value established by the county assessor. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported all project cost areas as real estate improvement property (PV solar panels, transmission line, DC/AC collection, fence, and racking). The Department used the cost reported by the Taxpayer for each cost center and confirmed that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer confirmed through the application the real estate nature of the improvements brought by the project and it had not submitted any information regarding any exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached;

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by NVSS-II from Nye County and listed in the application are also an objective indication of the permanent nature of the facility.

The Taxpayer did not list any property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case Nevada Power, would be the owner of any contributed plant.[2]

The Department also used the 2015-16 tax rate of $3.4485 per hundred (0.034485) for Tax District 6 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 6, Nye County, including a distribution to the State Debt Fund. Since the application was submitted on August 26, 2015, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2016:		$ 33,512,970
Total Taxable Value of the Project in 2036:		$ 24,950,094
Estimated capital cost per kW (33,512,970/15,000)	$2,234/kW	
Total Taxes Due, First Year After Completion:		$ 404,493
Total Renewable Energy Abatement, First Year:		$ 222,471
Total Taxes Available to Local Governments after abatement:		$ 182,022

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 7,051,992
Total Renewable Energy Abatement, 20 years:	$ 3,878,596
Total Taxes Available to Local Governments after abatement:	$ 3,173,396

See attached spreadsheets for the amounts by year and by local government entity.

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Playa Solar 1, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Playa Solar 1, LLC ("Playa") is a wholly owned subsidiary of First Solar, Inc. Playa's project consists of a 79-megawatt ("MW") solar photovoltaic ("PV") facility located on five parcels containing 625 acres of land leased from the Bureau of Land Management ("BLM"). The application indicates 980 acres but the number has subsequently been amended to 625 acres by the company. The parcels are located in Township 18 South, Range 63 East, Mount Diablo Meridian, Sections 1, 10, 11, 12, and 14, all approximately 1 mile south of the Harry Allen Substation in the Bureau of Land Management's Dry Lake Solar Energy Zone in Clark County, approximately 14 miles northeast of Las Vegas, Nevada. The project is expected to be in commercial operation by December 31, 2016.

The property components of the facility consist of site preparation, including construction survey, grading, trenching, and drainage features. Other components include access roads and utilities such as telecommunication lines; cadmium telluride thin film PV modules; DC to AC inverters; three-phase pad mounted medium voltage transformers; SCADA system; an operation and maintenance building; fencing; security system; meteorological monitoring stations; underground and overhead cabling and cable termination; electrical equipment enclosures; fire protection systems; lighting; water well and pipeline; switchyard and substations including step-up transformers, circuit breakers and switchgear. The offsite facilities include a 3,500 foot (0.7 mile) 230 kilovolt (kV) generation tie transmission line (gen-tie).

The project will interconnect into NV Energy's transmission system via a gen-tie line jointly owned by Playa Solar 1 and Playa Solar 2, connecting the project to the Harry Allen Substation owned by NV Energy. Playa executed a 20 year purchase power agreement dated June 19, 2015, with Nevada Power Company as the buyer.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Clark County and the purchase of power by Nevada Power Company, also located in the same county, as well as the advice from the Office of the Attorney General, unless and until such time as the Taxpayer requires the use of transmission lines of another company to deliver power to a third party, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified five parcels of land as part of the project in Schedule 3 of the application having a total acreage of 625 acres. Schedule 3 referenced 5 Assessor Parcel Numbers ("APN"), however, the project is actually only a portion of the total acreage listed under each APN. The recited acreage is also less than the BLM lease number NVN-092175 which contains 6,175 acres.

Prior to improvement of the land, the county assessor established a taxable value of about $2,000 per acre. Because the land is leased from the BLM, the Department also estimated the value of the land by using a ground-rent capitalization method using the 2015 annual rent per acre published by the BLM for solar right-of-way grants for Zone 6, or $206.92 per acre, plus a megawatt ("MW") capacity fee of $5,256 per MW for PV facilities when fully operational. The total annual rent is about $544,549 using this method and assuming the acreage amount in the BLM lease. A 25 year term was used and a discount rate of 7%, resulting in an estimated market value when fully operational of $7,678,000, or $12,285 per acre, for the land. This result was used by the Department rather than the pre-development value established by the county assessor. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, transmission line, DC/AC collection, fence, and racking) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

which it is attached. The list of construction permits obtained by Playa from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the BLM lease provides for an initial term of 25 years with the right to renew. The Environmental Assessment prepared by the BLM indicates the anticipated operational life of the project would be at least 30 years, with the possibility of subsequent repowering with an expected useful life of 50 years or more.[2] This information is indicative of the permanence of the facility.

The Taxpayer did not list any property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case Nevada Power, would be the owner of any contributed plant.[3]

The Department also used the 2015-16 tax rate of $2.5017 per hundred (0.025017) for Tax District 100 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 100, Clark County, including a distribution to the State Debt Fund. Since the application was submitted on September 11, 2015, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2016:		$ 135,995,440
Total Taxable Value of the Project in 2036:		$ 101,618,814
Estimated capital cost per kW (135,995,440/79,000)	$1,721/kW	
Total Taxes Due, First Year After Completion:		$ 1,190,769
Total Renewable Energy Abatement, First Year:		$ 654,923
Total Taxes Available to Local Governments after abatement:		$ 535,846

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 20,705,255
Total Renewable Energy Abatement, 20 years:	$ 11,387,890
Total Taxes Available to Local Governments after abatement:	$ 9,317,365

See attached spreadsheets for the amounts by year and by local government entity.

[2] BLM, Environmental Assessment DOI-BLM-NV-S010-2014-0127-EA, Section 2.2.15, December 2014.

[3] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Luning Energy, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

Luning Energy, LLC ("Luning") is a wholly owned subsidiary of Invenergy, LLC. Luning's project, Luning Solar Energy Project, consists of a 50-megawatt ("MW") solar photovoltaic ("PV") facility located on ten parcels containing 584 acres of land leased from the Bureau of Land Management ("BLM") and three parcels with a purchase option, totaling less than one acre. The parcels are located in Township 8 North, Range 34 East, Mount Diablo Meridian, Sections 15, 16, 21, 22, and 23, all approximately 1 mile west of the Table Mountain Substation in Mineral County, approximately 2 miles North-West of Luning, Nevada. The project is expected to be in commercial operation by December 31, 2016. After one year of operation, the project will be owned by Liberty Utilities (CalPeco Electric) LLC, which is s a regulated electric utility owned by Algonquin Power and Utilities Corp.

The property components of the facility consist of site preparation, including construction survey, grading, trenching, and drainage features. Other components include PV modules; a single axis tracking system, drivenpile foundations, DC wiring, DC/AC inverters, medium voltage step-up transformers, AC cabling, a central substation with a high voltage step-up transformer, and approximately one mile of high voltage transmission line to the point of interconnect.. The offsite facilities include a one mile 120 kilovolt (kV) generation tie transmission line (gen-tie).

The project will interconnect into NV Energy's transmission system via a gen-tie line owned by Luning, connecting the project to the Table Mountain Substation owned by NV Energy. Luning and NV Energy executed a Large Generator Interconnection Agreement (LGIA) dated November 19, 2014. The power will be acquired by Liberty Utilities, which will distribute it to its California customers.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions

would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

Based on the location of the facility assets in Mineral County and the interchange substation belonging to NV Energy, also located in the same county, as well as the advice from the Office of the Attorney General, since Luning expressed intention to apply for Wholesale Generator status and assuming such status granted, unless and until such time as FERC decided to deny such a status, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[1]

The Taxpayer identified one BLM leased parcel of land as part of the project in Schedule 3 of the application having a total acreage of 584 acres. Schedule 3 referenced 5 Assessor Parcel Numbers ("APN"), however, the project is actually only a portion of the total acreage listed under the APN, which is 21,964 acres.

Prior to improvement of the land, the county assessor established a taxable value of about $2,000 per acre. Because the land is leased from the BLM, the Department also estimated the value of the land by using a ground-rent capitalization method using the 2015 annual rent per acre published by the BLM for solar right-of-way grants for Zone 2, or $34.48 per acre, plus a megawatt ("MW") capacity fee of $5,256 per MW for PV facilities when fully operational. The total annual rent is about $282,936 using this method and assuming the acreage amount in the BLM lease. A 30 year term was used and a discount rate of 7%, resulting in an estimated market value when fully operational of $4,327,000, or $7,409.25 per acre, for the land. This result was used by the Department rather than the pre-development value established by the county assessor. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land for each year of the abatement period.

The Taxpayer also reported several project cost areas as "personal" property (PV solar panels, transmission line, DC/AC collection, fence, and racking) rather than real property. The Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based its determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by Luning from Mineral County and listed

[1] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects

in the application are also an objective indication of the permanent nature of the facility. In addition, the BLM lease provides for an initial term of 30 years with the right to renew. This information is indicative of the permanence of the facility.

The Taxpayer listed $1,150,000 property as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case NV Energy, would be the owner of any contributed plant.[2]

The Department also used the 2015-16 tax rate of $3.6600 per hundred (0.025017) for Tax District 105 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 150, Mineral County, including a distribution to the State Debt Fund. Since the application was submitted on September 16, 2015, after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2016:		$ 109,669,800
Total Taxable Value of the Project in 2036:		$ 81,167,697
Estimated capital cost per kW (109,669,800/50,000)	$2,193/kW	
Total Taxes Due, First Year After Completion:		$ 1,404,870
Total Renewable Energy Abatement, First Year:		$ 772,679
Total Taxes Available to Local Governments after abatement:		$ 632,192

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 24,356,292
Total Renewable Energy Abatement, 20 years:	$ 13,395,960
Total Taxes Available to Local Governments after abatement:	$ 10,960,331

See attached spreadsheets for the amounts by year and by local government entity.

[2] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Boulder Solar Power Project

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The Boulder Solar Power Project ("Project") will consist of a 200 megawatt ("MW") alternating current ("AC") solar photovoltaic ("PV") energy generation facility, built in two phases of 100 MW each.[1] This analysis is limited to the first phase. The Project is owned by Boulder Solar Power, LLC whose indirect corporate parent is SunPower Corporation Systems.[2]

The Project will include a 500 kV transmission line, a double circuit line for approximately 1.5 miles which will split into two single circuit lines, one of which will terminate at the Marketplace Substation and the other at the Eldorado Substation, as well as an additional 2.3 mile 500-kV transmission line from the Project's solar array to the Nevada Solar One Substation.[3] The Project is located on 541.77 acres of land located in Dry Lake Bed South Site of Boulder City, Eldorado Valley Energy Zone, approximately 9 miles south/southwest of the intersection of Highways 932 and 95 and 1.7 miles northwest of the intersection of highways 95 and 165. Access to the Project site is via State Highway 95, Veterans Memorial Highway.[4] The Project is expected to have a commercial operation date of November 1, 2016.[5] Boulder Solar Power, LLC has signed a 20 year power purchase agreement with NV Energy.

The property components of the facility consist of site preparation activities, including construction survey, grading, trenching, and drainage features. Other components include access roads; foundations for trackers, PV solar modules, pad-mounted inverters, underground and overhead cabling and cable termination, electrical equipment enclosures; fire protection systems; electronic system to control equipment and facilities operations; inverters with reactive power control; fencing, switchyard and substations including step-up transformers, circuit breakers and switchgear.

Analysis

Determination of Central or Local Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS

[1] PUCN Docket No. 12-05037, Modified Order dated June 26, 2015.
[2] PUCN Docket No. 12-05037, Notice of Change to Corporate Structure dated 11-23-15.
[3] PUCN Docket No. 12-05037, Motion to Amend Order dated May 19, 2015.
[4] PUCN Docket No. 12-05037, Modified Order dated June 26, 2015.
[5] Abatement Application dated October 6, 2015, Facility Information

361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

The company reports that the physical point at which the ownership of energy from the Boulder Solar Power facility will be transferred is NV Energy's Nevada Solar One Substation, thus the Project facilities do not cross state or county lines. The Department therefore concludes the property appears to qualify for local assessment for purposes of this fiscal note.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of utility scale solar PV projects.[6]

The Taxpayer identified one parcel of land as part of the project in Schedule 3 of the application. Prior to improvement of the land, the county assessor established a taxable value of $5,420,000, or about $10,000 per acre, for 542 acres. Because the land will be leased, the Department also estimated the value of the land by using a ground-rent capitalization method in which the reported base rent of $1,700 per acre annually for twenty years was capitalized using an 8% discount rate and a net present value calculated, resulting in an estimated value per acre of $19,329. The Department applied a 2% appreciation factor for each year thereafter. *See also City of Boulder City, Bill No. 1776, an ordinance of the City approving Development Agreement No. 11-1401D between the City of Boulder City and Boulder Solar Power, LLC for development of a solar energy project in the Eldorado Valley Energy Zone, introduced to City Council on September 19, 2015, Agenda Item No. 7.*

The Taxpayer also reported several project cost areas as "personal" property (e.g., Tracker System, Cable Tray, Combiner Boxes, PV Modules, High Voltage Substation Equipment) rather than real property. It is not clear whether the reported cost represents a fully installed cost. Nevertheless the Department used the cost reported by the Taxpayer for each cost center but determined that all components were real property when operated as a unit. The Department based it's determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2016-17 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was

[6] http://energy.gov/maps/falling-price-utility-scale-solar-photovoltaic-pv-projects; http://www.pv-magazine.com/news/details/beitrag/buffett-strikes-cheapest-electricity-price-in-us-with-nevada-solar-farm_100020120/

produced, there was no information provided regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and no information shown as to whether the property has a unique identity and function distinct from the real property to which it is attached. The list of construction permits obtained by the company from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the City of Boulder City lease and development agreement provides for a term of 20 years with the right to renew with 2 extensions of 20 years each thus supporting the permanence of the facility.

The Department did not include property listed as Contributions in Aid of Construction in the total value. Capital invested as a contribution in aid of construction ("CIAC") is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The interconnection facilities contributed by Boulder Solar at Nevada Solar One substation are owned by NV Energy.[7]

The Department also used the 2015-16 tax rate of $2.5264 per hundred (0.025264) for Tax District 52 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Tax District 52, Clark County, including a distribution to the State Debt Fund. Since the application was submitted after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2016:		$ 162,905,167
Total Taxable Value of the Project in 2035:		$ 124,245,504
Estimated capital cost per kW (162,905,167/100,000)	$1,629/kW	
Total Taxes Due, First Year After Completion:		$ 1,440,473
Total Renewable Energy Abatement, First Year:		$ 792,260
Total Taxes Available to Local Governments after abatement:		$ 648,213

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 25,365,941
Total Renewable Energy Abatement, 20 years:	$ 13,951,267
Total Taxes Available to Local Governments after abatement:	$ 11,414,673

See attached spreadsheets for the amounts by year and by local government entity.

[7] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

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FISCAL IMPACT
Renewable Energy Partial Abatement Of Property Taxes
Searchlight Solar, LLC

This report was prepared to fulfill the requirements of NRS 701A.375 to indicate an estimate of the fiscal impact of the partial property tax abatement on the State and on each affected local government.

Background

The 17.5 MW solar photovoltaic (PV) energy facility is owned by Searchlight Solar, LLC, also known as ACE Searchlight. Searchlight Solar is a wholly owned subsidiary of American Capital Energy. The facility is located on 268 acres of private property approximately 1 mile northwest of the intersection of Nipton Road and Highway 95, in portions of Sections 21, 22, 27, and 28 in Township 28 South, Range 63 East, M.D.M., near the Town of Searchlight, Clark County, Nevada.

The facility component costs consist of site preparation activities, including construction survey, grading, trenching, and drainage features. Other components include access roads and utilities such as telecommunication lines, foundations for generator step-up transformers, trackers, drive motor foundations; and more than 74,000 crystalline silicon PV solar modules used in arrays mounted on a north/south network of single axis tracking mounts. Plans indicate the solar panels are approximately 7 feet above the grade of the site to the top of the panel, but may be as high as 10 feet. A 69kV electric switching/substation is proposed on the south portion of the site. The switching substation will be on an approximate 16,000 square foot area and consists of utility structures that are at a maximum height of 59 feet. Other components include pad-mounted inverters, underground and overhead cabling and cable termination, operations and maintenance building, electrical equipment enclosures; electronic data acquisition system to control equipment and facilities operations; lighting systems (AC and DC); fencing, controlled access gates, and switchyard.[1] The Taxpayer asserts the assets which should be classified as personal property include solar modules, single-axis tracking system hardware, inverter/transformer blocks, and above ground balance of systems components such as combiner boxes, re-combiners, fuses, and meteorological equipment.[2]

ACE Searchlight entered into a power purchase agreement with Nevada Power Company dated May 28, 2009. The PPA provides for a term of 20 years starting January 1st following the commercial operation date.

Analysis

Determination regarding Central Assessment

[1] Current Planning Document attached to Notice of Final Action, April 23, 2014, Clark County Department of Comprehensive Planning, retrieved 7-14-14 from http://dsnet.co.clark.nv.us/pdf/49427366.pdf

[2] Project Memorandum dated 5-28-2014 from Tom Anderson, ACE Searchlight to Suzanne Linfante

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

The Taxpayer reports that it is in the business of generating and selling energy. It also reports that, pursuant to a Purchase Power Agreement with NV Energy, Searchlight Solar will sell and deliver all product produced by the Project solely to NV Energy at the delivery point, defined as NV Energy's 69 kV transmission line located at a point approximately 1.5 miles north of NV Energy's 69 kV Searchlight Substation. The Assessor and Department should confirm this by asking for a copy of the *Amended and Restated Small Generator Interconnection Agreement, Service Agreement No. 10-101254* between ACE Searchlight and NV Energy dated August 22, 2013 ("SGIA").

Based on advice from the Office of the Attorney General, unless and until such time as the Taxpayer requires the use of transmission lines of another company such as Nevada Power to deliver power to a third party, the property appears to qualify for local assessment.

Description of Replacement Cost New Methodology and Tax Calculation

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. The land value was estimated using a ground-rent capitalization methodology authorized by NAC 361.1198. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission. The Department did not adjust upward the reported acquisition cost of improvements or personal property to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of PV wafers.[3]

The Taxpayer identified five parcels of land as part of the project in Schedule 3 of the application. Prior to improvement of the land, the county assessor established a taxable value of $268,904 for 268.9 acres, or about $1,000 per acre. The Department estimated the value of the land by using a ground-rent capitalization method in which the typical BLM base rental rates for solar properties in Clark County plus a megawatt capacity fee identified in BLM Instruction Memorandum No. 2010-141 were used to estimate the ground rent. A total of $142,624 estimated ground rent was capitalized using a rate of 15% to estimate a total land value of $950,000, or about $3,533 per acre. The rent was calculated by multiplying 268.90 acres times $188.34 per acre plus the MW capacity fee of $5,256 times 17.5 MW. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land for each year of the abatement period. The appreciation factor is a reasonable estimate based on the average annual CPI from 2004 to 2013 of 2.39% and the ten-year average annual growth rate for Clark County reported in the 2012-2013 Statistical Analysis of the Roll of 2.16%.[4]

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[3] http://www.solarserver.com/solar-magazine/solar-news/current/2012/kw15/ims-research-pv-module-suppliers-switch-tactics-as-solar-wafer-prices-fall-70-reduced-in-house-manufacturing-increased-purchases-from-third-party-suppliers.html; IMS Research, www.PVMarketResearch.com

[4] Department of Taxation, "Statistical Analysis of the Roll," 2012-13. Clark County's average growth rate from 2003-04 to 2012-13 was 2.16%. State of Nevada's average growth rate for the same period was 2.48%.

The Taxpayer also reported several project cost areas as "personal" property (tracker system, solar modules, inverter power stations, combiner boxes-fuses, low voltage DC electrical wiring, data acquisition system) rather than real property. The Department used the acquisition cost reported by the Taxpayer for each cost center but determined that components such as solar array foundations, tracker mounts, underground wiring, and property fencing are structures or improvements built on the land. Structures and improvements are included in the definition of real property. *See* NRS 361.035. The classification of components as real or personal property attached to improvements or structures was based on the framework for analysis provided in NAC 361.1127, 361.1133, and 361.11715, NAC 361.11745, as well as the 2015-16 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land and foundations, or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the solar array foundations, underground cabling, substations, and transmission lines. At the time this fiscal note was produced, the Taxpayer had not submitted any information regarding the exception to the fixture test in NAC 361.1127 and NAC 361.11745 with regard to whether solar modules and other components are installed non-permanently and not for the enhancement of the real property to which it is attached; and had not shown whether the property has a unique identity and function distinct from the real property to which it is attached. Nevertheless, the Department has produced two schedules for the fiscal note, one classifying most components as real property and a second one classifying the tracker system, solar modules, inverter power stations, combiner boxes, low voltage DC electrical wiring, and data acquisition system as personal property with a 30 year life. The fiscal impact to the local government is greater over the life of the abatement if the property noted above is classified as personal property (See below, comparing total taxes available to local governments during life of abatement).

The Department did not include property, if any, known as Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing utility service to the customer and are non-refundable to the customer. The utility which might have received any CIAC, in this case NV Energy, is the owner of the plant so contributed.[5]

The Department also used the current tax rate of $2.5217 per hundred (0.025217) for Tax District 700 in Clark County without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement to local governments in Clark County, including a distribution to the State Debt Fund. Since the application was submitted on May 29, 2014 after the effective date for AB 239 (2013), this fiscal note assumes no distribution will be made to the State Renewable Energy Fund.

Estimate of Property Tax Abatement

Estimated capital cost per kW (30,985,805/17,500)	$1,770/kW

[5] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

Real Property Assumption

Based on the assumptions and conditions as if all cost components except the data acquisition system, were real property, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2014:	$ 30,985,805
Total Taxable Value of the Project in 2034:	$ 22,802,015
Total Taxes Due, First Year After Completion:	$ 334,200
Total Renewable Energy Abatement @ 55%:	$ 183,810
Total Taxes Available to Local Governments:	$ 150,390

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 5,796,715
Total Renewable Energy Abatement, 20 years:	$ 3,188,193
Total Taxes Available to Local Governments	$ 2,608,522

Personal Property Assumption

Based on the assumptions and conditions as if cost components including the tracker system, solar modules, inverter power stations, combiner boxes, low voltage DC electrical wiring, and data acquisition system were personal property, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2014:	$ 30,985,805
Total Taxable Value of the Project in 2034:	$ 14,983,568
Total Taxes Due, First Year After Completion:	$ 334,200
Total Renewable Energy Abatement @ 55%:	$ 183,810
Total Taxes Available to Local Governments:	$ 150,390

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 4,702,084
Total Renewable Energy Abatement, 20 years:	$ 2,586,146
Total Taxes Available to Local Governments	$ 2,115,938

Depending on the classification of property, the amount of abatement over the 20 year period ranges from $2,586,146 to $3,188,193. The total taxes available to local governments range from $2,115,938 if the property is classified as personal property, to $2,608,522 if the property is classified as real property.

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

Silver State Solar Power South, LLC

Background

Silver State Solar Power South, LLC, a wholly owned subsidiary of First Solar, Inc., proposes to build a 250 MW AC solar photovoltaic (PV) facility located on BLM administered lands adjacent to Interstate 15, approximately 2 miles east of Primm, and within approximately 40 miles of the Las Vegas metropolitan area in Clark County, Nevada. The Proposed Project is the next phase of construction and operation of additional solar plants and infrastructure connected with the Silver State Solar Power North, LLC[1]. The current phase is expected to be in service by December, 2016.[2] The full output will be delivered to the South Substation, which will provide interconnection to Southern California Edison's Eldorado to Ivanpah Transmission Project (EITP) and to NV Energy's Bighorn Substation.[3]

The solar field and infrastructure will consist of single-axis horizontal tracker systems or fixed-tilt mounting systems, solar modules, direct current (DC) collection system comprised of underground DC cabling and combiner boxes, weather stations (steel lattice) up to 33 feet high mounted on concrete foundations panels, PCS which include the DC to AC inverters and medium voltage step-up transformers, including emergency backup power for the tracker system in the event of high winds and loss of power grid; and an underground and overhead 34.5kV collection system to convey electricity from the solar field to the South Substation.

The substation itself will have 34.5kV to 230kV/220kV step-up transformers, breakers, buswork, protective relaying and associated substation equipment. The Project will also have a 1-mile, 220kV transmission line to connect the South Substation with SCE's proposed EITP and a 2-mile, 230kV transmission line from the South Substation to the NV Energy Bighorn Substation; a switchyard; a 2,000 square foot operation and maintenance building; parking area; and other associated facilities including above-ground water storage tanks, septic system, security gate, signage, and flagpoles.

The Project will also have 2 groundwater wells; a 3-mile-long maintenance road; fire breaks; access road; site security facilities including perimeter security fencing; controlled access gates; desert tortoise exclusion fencing; and fiber optic cabling and SCADA communications system. The solar array field will occupy about 2,900 acres of BLM land.[4]

Fiscal Impact – Property Taxes

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS

[1] BLM, Volume I, Final Environmental Impact Statement for the Silver State Solar Energy Project, DOI No. FES 10-50 (September, 2010)
[2] 7-1-2013 Letter from Brian Kunz to Director Office of Energy, Application to Office of Energy
[3] PUCN Docket #11-09010, Initial Application of Silver State Solar Power South LLC for Permit to Construct a Solar Photovoltaic Power Facility Under the Utility Environmental Protection Act, pages 5-6.
[4] Ibid.

361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

The Taxpayer reports that it is in the business of generating and selling energy. It also reports that no part of its facility crosses state or county boundary lines, and that it has a 20 year purchase power agreement with Southern California Edison (SCE). The Taxpayer reports that ownership of electricity is transferred to SCE at the high end of the step-up transformer located at the Primm Substation.

Based on advice from the Office of the Attorney General, unless and until such time as the Taxpayer requires the use of transmission lines of another company such as Southern California Edison to deliver power to a third party, the property must be locally assessed.

Analysis

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission.

The Taxpayer identified 16 parcels of land as part of the Project in Schedule 3 of the application, however, according to the Assessor's Records, APN 237-10-001-001 is an unknown parcel number and no taxable value could be identified for that parcel. In addition, the Taxpayer reported the same parcel number twice (APN 237-03-001-001). Since the Assessor shows the parcel as 643.08 acres and the Taxpayer reported 320 acres for each listing (about half), the total taxable value for the entire parcel was assumed to include both parcels that the Taxpayer reported. The county assessor has a current taxable value for all parcels except APN 237-10-001-001 of $9,662,780, for fourteen parcels of land having a total of 7,558.25 acres, or $1,278 per acre.

The Taxpayer reported a "replacement cost" value for the land of $19,500,000. (See Schedule 4, Operating Leases). However, the Taxpayer also reported an annual lease payment of $2,700,000 for a period of 25 years. When a capitalization of ground rents methodology is applied (see NAC 361.1198), using a capitalization rate of 10%, the estimated value of the land is $26,773,455. Both the Taxpayer's reported cost for land and the capitalization of ground rents based on Taxpayer's reported lease information, result in a value for the land that is more than twice that of the current taxable value estimated by the Assessor.

For purposes of this analysis, and to be conservative, the Assessor's taxable value for 2013-14 was used for the value of land beginning in 2016. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land for each year thereafter.

The Taxpayer also reported several project cost areas as "personal" property rather than as real property, such as fencing, O&M building, and substation, among others. The Department notes that many of the items of property were listed as "materials only" which does not represent a fully installed cost and is therefore understated as to the true replacement cost against which depreciation will ultimately be applied. Although the reported cost understates true replacement cost, the Department used the cost reported by the Taxpayer for each cost center but determined that all components, with

the exception of operating leases other than land and DAS software, were real property. The Department based it's determination of real property on NRS 361.035, which requires all buildings, fences, ditches, structures, erections, or other improvements built or erected upon any land to be classified as real property, as well as NAC 361.1127 as modified by LCB File No. R068-12, and the 2014-15 Personal Property Manual, Appendix E.

The Department's understanding is that the solar field consists of components either attached to the land or so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item, for example, tracker foundations. The final EIS for the Silver State Solar Project at page 2-54 states "The Proposed Project facilities have an expected life of 50 years after which the Applicant would apply for a lease extension with the BLM and upgrade; or decommission the facility."[5] The list of construction permits obtained by the Taxpayer from Clark County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the BLM ROW lease/grant provides for a term of 30 years with the right to renew.[6]

This analysis therefore applies the requirements of NRS 361.227(1)(b) to determine the taxable value of the improvements. Depreciation of an improvement must be calculated at 1.5 percent of the cost of replacement for each year of adjusted actual age of the improvement up to a maximum of 50 years. Additional functional and economic obsolescence must be calculated by the Assessor separately if there is information indicating that such obsolescence is present.

The Department did not adjust upward the reported cost to reflect any appreciation, based on the assumption that the cost of development will go down over time, since the solar power technology is a relatively new and changing technology.

The Department also used the 2013-14 tax rate of $2.7214 per hundred (0.027214) for Tax District 104 without further adjustment, although a portion of the reported lands exist in Tax District 100 which has a current tax rate of $2.5017. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the change enacted in 2013 by AB 239(6). Formerly, there was a required distribution of remaining taxes after abatement as between the State of Nevada Renewable Energy Fund and local governments, in the proportion of 45/55. However, AB 239(6) repealed any reference of a split of remaining taxes between the State Renewable Energy Fund and local governments, therefore this fiscal note shows that the entire amount of taxes remaining after abatement, or 45%, is distributed to the state's debt fund and to local governments based on the proportion of the tax rate to the total combined tax rate. For example, the State of Nevada rate is 17 cents per hundred, or about 6.247% of the total combined tax rate. For the 2015-16 tax year, the Department estimates the approximate amount of taxes due will be $3,963,47.76, of which 55% will be abated. The amount of taxes left to distribute after abatement is $1,783,506.49. Applying the proportion of the total tax rate that is attributable to the State of Nevada of 6.247% to the remaining taxes, the State would receive $111,411.81 of the total taxes remaining after abatement.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in FY 2015-2016:	$ 416,103,872
Total Taxable Value of the Project in FY 2034-2035:	$ 315,820,020
Estimated capital cost per kW (416,103,872/250,000)	$1,664/kW

[5] Environmental Impact Statement For The Silver State Solar Energy Project (NVN-085077), September, 2010, 2-54.
[6] Paragraphs 2 (c) and (d) of the United States Dept of the Interior, BLM ROW Lease/Grant dated 10-12-10.

Total Taxes Due, First Year After Completion:	$ 3,963,348
Total Renewable Energy Abatement @ 55%:	$ 2,179,841
Total Taxes Available to Local Governments and State Debt:	$ 1,783,506
Total Taxes Available to Local Governments only:	$ 1,672,095

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 69,987,316
Total Renewable Energy Abatement, 20 years:	$ 38,493,024
Total Taxes Available to Local Governments and State Debt:	$ 31,494,292
Total Taxes Available to Local Governments only:	$ 29,526,912

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Sales/ Use and Property Taxes

Mountain View Solar, LLC

Background

Mountain View Solar, LLC ("Mountain View"), is proposing to construct and operate a PV energy project located in the city of North Las Vegas in the Mountain View Industrial Park. Mountain View is a wholly owned subsidiary of Nextera Energy Resources, LLC ("NER") which in turn is a wholly-owned subsidiary of NextEra Energy, Inc ("NextEra"). The parent company has over 550 MW contracted or in construction of solar PV facilities, as well as 310 MW in operation and 350 MW in construction of solar thermal facilities. The Mountain View Solar Project ("Mountain View") is designed to produce 20 MW AC and is expected to generate approximately 52,840 MWh and provide 53,897 kPCs annually.[1]

The Mountain View project is located on 160 acres within the 2,000 acre Mountain View Industrial Park master-planned subdivision specifically developed for industrial use. The industrial park is located two miles northwest of the Interstate 15 and Highway 93 Interchange. Existing land uses surrounding the project consist of a large corridor for transmission lines and multiple power generation stations.[2]

Fiscal Impact – Sales and Use Taxes

In accordance with the provisions NRS 701A of the Nevada Revised Statutes, Mountain View Solar, LLC has requested a Sales and Use Tax Abatement for their Renewable Energy Project. This project is located in Clark County. Upon approval, this project would be granted a partial abatement of Sales and Use Tax for a period of three years, commencing on the date of approval.

The Nevada State Office of Energy has provided to the Department of Taxation a completed copy of the Renewable Energy Tax Abatements Application for this project. According to Schedule 6 of this application, Mountain View Solar, LLC will purchase a total of $34,307,500.00 worth of tangible, personal property subject to Sales and/or Use Tax during the first year of the abatement period. At the current Sales or Use Tax rate for Clark County, the full Sales Tax for these purchases would be $2,778,907.50 less any applicable collection allowance.

According to Schedule 7 and Schedule 8 of this application form, Mountain View Solar, LLC will be making no purchases of tangible personal property subject to Sales and/or Use Tax during the second and third year of the abatement period.

[1] PUCN Docket No. 11-03014, Narrative and Technical Appendix, SUP TRAN-4, p. 74 of 377.
[2] PUCN Docket No. 11-03014, Narrative and Technical Appendix, SUP TRAN-4, p. 78 of 377

Based on this information, the Department of Taxation projects the following Sales Tax related fiscal impact for the three years of the abatement period.

Sales Tax Component	Tax Rate	First Year	Second Year	Third Year	
	8.10%	JULY 1, 2013 - JUN 30, 2014	JULY 1, 2014 - JUN 30, 2015	JULY 1, 2015 - JUN 30, 2016	TOTAL
Sales/Use Tax (General Fund)	2.00%	$686,150.00	$0.00	$0.00	$686,150.00
Local School Support Tax	2.25%	$771,918.75	$0.00	$0.00	$771,918.75
Basic City Relief	0.50%	$171,537.50	$0.00	$0.00	$171,537.50
Supp. City County Relief	1.75%	$600,381.25	$0.00	$0.00	$600,381.25
County Option	1.60%	$548,920.00	$0.00	$0.00	$548,920.00

***Local School Support Tax Rate paid at time of purchase is subject to current rate in statute.**

Fiscal Impact – Property Taxes

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

The Taxpayer reports that it is in the business of generating and selling energy. It also reports that no part of its facility crosses state or county boundary lines, and that it has a 25 year purchase power agreement with Nevada Power Company. The agreement calls for Nevada Power Company to take all electricity, portfolio credits and renewable energy benefits generating from the facility.

Based on advice from the Office of the Attorney General, unless and until such time as the Taxpayer requires the use of transmission lines of another company such as Nevada Power to deliver power to a third party, the property must be locally assessed.

Analysis

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission.

The Taxpayer identified seven parcels of land as part of the project in Schedule 3 of the application. Prior to the purchase by Taxpayer, the county assessor established a taxable value of $2,462,250 for 1845 acres, or about $1,335 per acre, however, Taxpayer purchased 155 acres of the total acreage for $5,425,000 or about $35,000 per acre. The Department used Taxpayer's purchase price for purposes of estimating the value of the land. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land for each year of the abatement period. In addition, a present value analysis was used to establish the value of the right-of-way grant from the BLM for 12 acres, at the rate of $1,162.50 per acre, based on the lease payments to the BLM.

The Taxpayer also reported several project cost areas as "personal" property rather than as real property. The Department used the acquisition cost reported by the Taxpayer for each cost center but determined that nearly all components were real property, based on the framework for analysis provided in NAC 361.1127, 361.1133, and 361.11715, LCB File No. R068-12 on trade fixtures, as well as the 2012-13 Personal Property Manual, Appendix F. In particular, the criteria for determining whether property is real or personal are based on the following:

> NAC 361.1127. "Fixture" means an item, other than a trade fixture, that was originally personal property which has been installed or attached to land or an improvement in a permanent manner. As used in this section, "installed or attached to land or an improvement in a permanent manner" means that:
>
> 1. Either:
>
> (a) An item is attached to, imbedded in or permanently resting upon land or an improvement, or is attached by other means that are normally used for permanent installation, and cannot be removed without substantially damaging the item or the land or improvement with which it is being used; or
>
> (b) The use or purpose of an item that is not otherwise physically annexed to land or an improvement is so adapted that it is:
>
> (1) A necessary, integral or working part of the land or improvement;
>
> (2) Designed or committed for use with the land or improvement; or
>
> (3) So essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item; and
>
> 2. A reasonable person would consider the item to be a permanent part of the land or improvement, taking into account annexation, adaptation and other objective manifestations of permanence, including, without limitation, whether:
>
> (a) Removal of the item would destroy the item or cause significant damage to the real property to which it is installed or attached;
>
> (b) The historic use of the item indicates an intention to leave the item in place;
>
> (c) The terms of a written agreement between parties indicates the intention of a tenant or lessee to remove or transfer ownership of the item; or
>
> (d) Ownership of the item would be conveyed with a transfer of the real property to which it is installed or attached.

The typical components of a photo-voltaic solar generation facility consist of site preparation activities, including construction survey, grading, trenching, drainage features, diversion channels, detention ponds, culverts for road crossings, containment berms, and firebreaks. Other components include access roads and utilities such as telecommunication lines, foundations for generator step-up transformers, trackers, drive motor foundations; PV solar modules, pad-mounted inverters, underground and overhead cabling and cable termination, electrical equipment enclosures; water delivery systems including pumps, wells, water storage tanks, waste and wastewater management; on-site land treatment unit; fire protection systems, including piping systems, fire hydrants, and sprinkler deluge systems; electronic systems to control equipment and facilities operations; lighting systems (AC and DC); fencing, controlled access gates, switchyard and substations.

The Department's understanding is that the solar field consists of components either attached to the land or "so essential to the land or improvement that the land or improvement cannot perform its

desired function without the nonattached item," for example, the underground cabling, substations, and transmission lines. The Taxpayer did not submit any information regarding the exception to the fixture test with regard to whether the property is installed non-permanently and not for the enhancement of the real property to which it is attached; and did not show whether the property has a unique identity and function distinct from the real property to which it is attached.

The Department did not include property reported on Schedule 5, Contributions in Aid of Construction, assuming the property belongs to NV Energy or another party and is therefore not eligible for the abatement. The Department also did not adjust upward the reported acquisition cost to reflect any appreciation, based on the assumption that the cost of development will go down over time, as indicated by recent industry reports regarding declining costs of PV wafers.[3]

The Department also used the current tax rate of $3.3544 per hundred (0.033544) for Tax District 257 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement as between the State of Nevada Renewable Energy Fund (General Fund in the first year only) and local governments, in the proportion of 45/55. Stated another way, 55% of the total taxes generated by the estimated taxable value is abated. Of the remaining 45% of tax dollars, 45% is distributed to the State of Nevada Renewable Energy Fund (or the General Fund in 2010 only) and 55% is distributed to local governments. The calculation assumes the State of Nevada loses the 17 cent per hundred levy for the State debt fund.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2013:	$ 44,035,922
Total Taxable Value of the Project in 2030:	$ 37,328,121

Estimated capital cost per kW (120,028,619/20,000)	$2,200/kW

Total Taxes Due, First Year After Completion:	$ 516,999
Total Renewable Energy Abatement @ 55%:	$ 284,350
Total Taxes Available to Local Governments and Energy Fund:	$ 232,650
Total Taxes Available to Local Governments only:	$ 127,957

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 9,665,894
Total Renewable Energy Abatement, 20 years:	$ 5,316,242
Total Taxes Available to Local Governments and Energy Fund:	$ 4,349,652
Total Taxes Available to Local Governments only:	$ 3,262,793

See attached spreadsheets for the amounts by year and by local government entity.

[3] http://www.solarserver.com/solar-magazine/solar-news/current/2012/kw15/ims-research-pv-module-suppliers-switch-tactics-as-solar-wafer-prices-fall-70-reduced-in-house-manufacturing-increased-purchases-from-third-party-suppliers.html; IMS Research, www.PVMarketResearch.com

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FISCAL IMPACT
Renewable Energy Partial Abatement of Property Taxes

FRV Spectrum Solar, LLC

Background

FRV Spectrum Solar, LLC is a single purpose wholly-owned subsidiary of SunEdison[1], organized to develop, construct and operate the FRV Spectrum Solar project ("Project").[2] The Project consists of a 30.0 megawatt (MW) alternating current (AC) solar photovoltaic (PV) facility located on 311 acres of land located on Lake Mead Boulevard, Township 20 South, Range 64 East, M.D.M, Section 6 in Clark County, Nevada.[3] The location is approximately ten miles due east of Las Vegas.[4] The Project is expected to be completed by December, 2012.[5]

The project site is located on privately-held land currently zoned for heavy industrial uses. The location is close to load, is not on a highly visible or heavily trafficked site, and it is not in the Air Force flight path. FRV has a fully executed long-term lease agreement for 30 years. The generating facility will be interconnected to the Pabco substation via a 69 kV line.[6] The Project will consist of 134,000 polycrystalline modules, each with an average name plate rating of 280W. This array will then be connected to thirty 1000 kW inverters with a CEC efficiency of 97.5%. All modules will be mounted on horizontal single axis trackers.[7]

The property components of the facility consist of site preparation activities, including construction survey, grading, and trenching. Other components include access roads and utilities such as telecommunication lines, foundations for generator step-up transformers, trackers, drive motor foundations; PV solar modules, pad-mounted inverters, underground and overhead cabling and cable termination, electrical equipment enclosures; lighting systems (AC and DC); fencing, controlled access gates, switchyard and substations.[8]

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[1] SunEdison acquired the assets of Fotowatio Renewable Ventures, Inc. since the original application was delivered to the Public Utilities Commission of Nevada. SunEdison is a division of silicon-wafer developer MEMC Electronic Materials, Inc. (Review Journal, October 7, 2011).

[2] Docket 11-030-14, Application of Nevada Power Company before the Public Utilities Commission of Nevada, Volume 2 of 5, Application, Draft notice, Testimony and Narrative, p. 60 (p. 119 of 179).

[3] Docket 11-030-14, Application of Nevada Power Company before the Public Utilities Commission of Nevada, Volume 4 of 5, Technical Appendix, Renewable Power Purchase Agreements, Exhibit 1, page 182; and Exhibit 3A, page 188.

[4] Docket 11-030-14, Application of Nevada Power Company before the Public Utilities Commission of Nevada, Volume 2 of 5, Application, Draft notice, Testimony and Narrative, p. 58 (p. 117 of 179).

[5] FVR Spectrum Solar application to Office of Energy, page 1.

[6] Docket 11-030-14, Application of Nevada Power Company before the Public Utilities Commission of Nevada, Volume 2 of 5, Application, Draft notice, Testimony and Narrative, p. 54 (p. 113 of 179) and p. 58 (p. 117 of 179).

[7] SunEdison REEEA Attachment 1: Description of the Technology and Complete Facility

[8] Office of Energy Application, Schedule 1 and Schedule 2.

Fiscal Impact – Sales and Use Taxes

In accordance with the provisions NRS 701A of the Nevada Revised Statutes, FRV Spectrum Solar, LLC has requested a Sales and Use Tax Abatement for their Renewable Energy Project. Upon approval, this project would be granted a partial abatement of Sales and Use Tax for a period of three years, commencing on the date of approval.

The Nevada State Office of Energy has provided to the Department of Taxation a completed copy of the Renewable Energy Tax Abatements Application for this project. According to Schedule 6 of this application, Spring Valley Wind, LLC will purchase a total of $74,895,500.00 worth of tangible, personal property subject to Sales and/or Use Tax during the first year of the abatement period. At the current Sales or Use Tax rate for Clark County, the full Sales Tax for these purchases would be $6,066,535.50 less any applicable collection allowance.

According to Schedule 7 and Schedule 8 of this application form, FRV Spectrum Solar, LLC will be making no purchases of tangible, personal property subject to Sales and/or Use Tax during the second year and third year of the abatement period.

Based on this information, the Department of Taxation projects the following Sales Tax related fiscal impact for the three years of the abatement period.

Sales Tax Component	Tax Rate	First Year	Second Year	Third Year	
	8.10%	MAY 1, 2012 - APRIL 30, 2013	MAY 1, 2013 - APRIL 30, 2014	MAY 1, 2014 - APRIL 30, 2015	TOTAL
Sales/Use Tax (General Fund)	2.00%	$1,497,910.00	$0.00	$0.00	$1,497,910.00
Local School Support Tax	2.60%	$1,947,283.00	$0.00	$0.00	$1,947,283.00
Basic City Relief	0.50%	$374,477.50	$0.00	$0.00	$374,477.50
Supp. City County Relief	1.75%	$1,310,671.25	$0.00	$0.00	$1,310,671.25
County Option	1.25%	$936,193.75	$0.00	$0.00	$936,193.75

Total Amount Abated (State & Local/County):	**1st year**	$4,119,252.50
	2nd year	$0.00
	3rd year	$0.00
	Total	$4,119,252.50

Total Amount Abated (Local/County Only):	**1st year**	$2,621,342.50
	2nd year	$0.00
	3rd year	$0.00
	Total	$2,621,342.50

Fiscal Impact – Property Taxes

Determination regarding Central Assessment

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

The Taxpayer reports that it is in the business of generating and selling energy. It also reports that no part of its facility crosses state or county boundary lines, and that it has a 25 year purchase power agreement with Nevada Power Company. The agreement calls for Nevada Power Company to take all electricity and PCs (power credits) generating from the facility. The project will generate non-firm energy that will be delivered directly into Nevada Power's electric grid through the Pabco substation.[9]

Based on advice from the Office of the Attorney General, unless and until such time as the Taxpayer requires the use of transmission lines of another company such as Nevada Power to deliver power to a third party, the property must be locally assessed.

Valuation Analysis

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission.

The Taxpayer reported the land is leased from a private party. Based on an operational lease rate of $2,200 per acre per year, a discount rate of 10%, and a term of 30 years, the value of the acreage would be $27,849 per acre. The county assessor has a current taxable value of $1000 per acre. For purposes of this analysis, the Assessor's taxable value was used for the value of land in 2012. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land. The appreciation factor is a considerably more conservative estimate than the 10 year average annual growth rate for land and improvements for Clark County and the State as a whole from 2001-02 to 2010-11.[10]

The Taxpayer also reported several project cost areas as "personal" property rather than as real property, but did not report an expected life for the property. The Department used the acquisition cost reported by the Taxpayer for each cost center but determined that nearly all components were real property, based on the framework for analysis provided in the 2012-13 Personal Property Manual, Appendix E. In particular, the criteria for determining whether property is real or personal are based on the following:

[9] Long-Term Portfolio Energy Credit and Renewable Power Purchase Agreement between Nevada Power Company and FRV Spectrum Solar, LLC, February 11, 2011, p. 28

[10] Department of Taxation, "Statistical Analysis of the Roll," 2010-11. Clark County's average growth rate from 2001-02 to 2010-11 was 6.77%. State of Nevada's average growth rate for the same period was 6.57%.

(1) An item is real property if it is attached to, imbedded in or permanently resting upon land or an improvement, or is attached by other means that are normally used for permanent installation, and cannot be removed without substantially damaging the item or the land or improvement with which it is being used; or

(2) An item is real property if the use or purpose of an item that is not otherwise physically annexed to land or an improvement is so adapted that it is:

(1) A necessary, integral or working part of the land or improvement;
(2) Designed or committed for use with the land or improvement; or
(3) So essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item.

Underlying both the physical or constructive annexation tests is a determination of intent. An assessor must consider whether the item is intended to be a permanent part of the land or improvement, taking into account physical or constructive annexation, and other objective manifestations of permanence.

The typical components of a photo-voltaic solar generation facility consist of site preparation activities, including construction survey, grading, and trenching. Other components include access roads and utilities such as telecommunication lines, foundations for generator step-up transformers, trackers, drive motor foundations; PV solar modules, pad-mounted inverters, underground and overhead cabling and cable termination, electrical equipment enclosures; lighting systems (AC and DC); fencing, controlled access gates, switchyard and substations.

The Department's understanding is that the solar field consists of components either attached to the land or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, tracker foundations. This analysis therefore applies the requirements of NRS 361.227(1)(b) to determine the taxable value of the improvements. Depreciation of an improvement must be calculated at 1.5 percent of the cost of replacement for each year of adjusted actual age of the improvement up to a maximum of 50 years.

The Department also did not adjust upward the reported acquisition cost to reflect any appreciation, based on the assumption that the cost of development will go down over time, since the solar power technology is a relatively new and changing technology.

The Department also used the current tax rate of $2.5067 per hundred (0.025067) for Tax District 103 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the Project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement as between the State of Nevada Renewable Energy Fund (General Fund in the first year only) and local governments, in the proportion of 45/55. Stated another way, 55% of the total taxes generated by the estimated taxable value is abated. Of the remaining 45% of tax dollars, 45% is distributed to the State of Nevada Renewable Energy Fund and 55% is distributed to local governments. The calculation assumes the State of Nevada loses the 17 cent per hundred levy for the State debt fund.

Estimate of Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2012:	$88,971,000
Total Taxable Value of the Project in 2031:	$69,437,647
Estimated capital cost per kW (88,971,000/30,000)	$2,966/kW

Total Taxes Due, First Year After Completion:	$ 780,593
Total Renewable Energy Abatement @ 55%:	$ 429,320
Total Taxes Available to Local Governments and Energy Fund:	$ 351,262
Total Taxes Available to Local Governments only:	$ 193,195

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$13,853,271
Total Renewable Energy Abatement, 20 years:	$ 7,619,299
Total Taxes Available to Local Governments and Energy Fund:	$ 6,233,972
Total Taxes Available to Local Governments only:	$ 3,428,685

See attached spreadsheets for the amounts by year and by local government entity.

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Governor
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Chair, Nevada Tax Commissioner
DINO DICIANNO
Executive Director

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FISCAL IMPACT

Renewable Energy Partial Abatement of Sales/ Use and Property Taxes

Tonopah Solar Energy, LLC

Background

Tonopah Solar Energy, LLC proposes to develop a net output 110 MW concentrating solar power (CSP) facility just west of NV Energy's Anaconda substation, approximately 13 miles northwest of Tonopah in Nye County, Nevada. The project is known as the Crescent Dunes Solar Energy Project. The applicant proposes to build a field of heliostats (mirrors) to focus sunlight on a central receiver (tower), along with a molten salt loop system capable of delivering a firm capacity renewable energy resource.[1]

The project plans include seven buildings, including a steam turbine building, electrical building, administration and maintenance building, heliostat assembly building, warehouse, control room building, and water treatment facility. The central receiver tower will be 653 feet tall. The facility will include a power block, an approximate 1-mile long 230 kV gen-tie transmission and communications line, parking area, lay-down area, evaporation ponds, and an access road. A single overhead 5.6 mile long 230 kV transmission and communications line will connect the solar facility to the Anaconda-Moly electrical substation owned by NV Energy. The Anaconda-Moly substation will be expanded in order to accommodate the incoming transmission line. The project is located on a 2,094 acre right-of-way permitted by the BLM, along with additional rights-of-way permitted for the transmission line. [2]

Fiscal Impact – Sales and Use Taxes

In accordance with the provisions NRS 701A of the Nevada Revised Statutes, Tonopah Solar Energy, LLC has requested a Sales and Use Tax Abatement for their Renewable Energy Project. Upon approval, this project would be granted a partial abatement of Sales and Use Tax for a period of three years, commencing on the date of approval.

The Nevada State Office of Energy has provided to the Department of Taxation a completed copy of the Renewable Energy Tax Abatements Application for this project. According to Schedule 6 of this application, Tonopah Solar Energy, LLC will purchase a total of $104,444,443.00 worth of tangible, personal property subject to Sales and/or Use Tax during the first year of the abatement period. At the current Sales or Use Tax rate for Nye County, the full Sales Tax for these purchases would be $7,415,555.45 less any applicable collection allowance.

According to Schedule 7 of this application form, Tonopah Solar Energy, LLC will purchase $397,777,777.00 worth of tangible, personal property subject to Sales and/or Use Tax during the second year of the abatement period. Schedule 8 shows $75,555,554.00 worth of tangible, personal property subject to Sales/and or Use Tax will be purchased during the third year.

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[1] Attachment A, UEPA Application for a Permit to Construct to Nevada Public Utilities Commission, 7-10-2009.
[2] U.S. Department of the Interior, Record of Decision, re Tonopah Solar Energy, LLC, December 2010.

Based on this information, the Department of Taxation projects the following Sales Tax related fiscal impact for the three years of the abatement period.

Sales Tax Component	FIRST YEAR JULY 1, 2011 - JUN 30, 2012	SECOND YEAR JULY 1, 2012 - JUN 30, 2013	THIRD YEAR JULY 1, 2013 - JUN 30, 2014	TOTAL
Sales/Use Tax (General Fund) (2%)	($2,088,888.86)	($7,955,555.54)	($1,511,111.08)	($11,555,555.48)
Local School Support Tax (2.6%)	$2,715,555.52	$10,342,222.20	$1,964,444.40	$15,022,222.12
Basic City Relief (.50%)	($522,222.22)	($1,988,888.89)	($377,777.77)	($2,888,888.87)
Supp. City County Relief (1.75%)	($1,827,777.75)	($6,961,111.10)	($1,322,222.20)	($10,111,111.05)
County Option (.25%)	($261,111.11)	($994,444.44)	($188,888.89)	($1,444,444.44)

Total Amount Abated:
1st Year: $4,699,999.94
2nd Year: $17,899,999.97
3rd Year: $3,399,999.93

Total Impact on Local/ County Government
1st Year: $2,611,111.08
2nd Year: $9,944,444.43
3rd Year: $1,888,888.85

Fiscal Impact – Property Taxes

Generally speaking, electric light and power companies that are located completely within a county, with no transmission lines carrying power across county lines, are locally assessed. NRS 361.320(7). Facilities that own transmission lines or other property that traverse county boundary lines are centrally assessed. NRS 361.320(1).

NRS 361.320(6) adds an exception to the general rule expressed above. It states:

> If two or more persons perform separate functions that collectively are needed to deliver electric service to the final customer and the property used in performing the functions would be centrally assessed if owned by one person, the Nevada Tax Commission shall establish its valuation and apportion the valuation among the several counties in the same manner as the valuation of other centrally assessed property.

The Taxpayer reports that it is in the business of generating and selling energy. It also reports that no part of its facility crosses state or county boundary lines, and that it has a purchase power agreement with Nevada Power Company. The agreement calls for Nevada Power Company to take all electricity, portfolio credits and renewable energy benefits generating from the facility.

Based on advice from the Office of the Attorney General, unless and until such time as the Taxpayer requires the use of transmission lines of another company such as Nevada Power to deliver power to a third party, the property must be locally assessed.

Analysis

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission.

The Taxpayer identified three parcels of owned land as part of the project in Schedule 3 of the application, along with three right-of-way leases from the Bureau of Land Management in Schedule 4. The county assessor estimated a taxable value for the following parcels, based on a rural commercial use:

12-031-04	121.6 Acres	$ 423,776
12-131-03	79.07 Acres	$ 277,755
12-131-04	80.92 Acres	$ 282,006

In addition, the Department calculated a taxable value of the possessory interest in the BLM ROW leases, using a capitalization of ground rents methodology. The estimated annual rent was capitalized using a 10% capitalization rate, and the net present value estimated to derive a final value for each ROW lease:

Right-of-Way from BLM for Solar Power Plant	$1,696,000
Right-of-Way from BLM for Transmission Line	$ 62,000
Right-of-Way from BLM for Substation Expansion	$ 19,000

For purposes of this analysis, the Assessor's estimated taxable value plus the estimated possessory interest value was used for the value of land in FY 2011-12. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land for each year.

The Taxpayer also reported several project cost areas as "personal" property rather than as real property. The Department used the acquisition cost reported by the Taxpayer for each asset group. Vehicles (which were assumed to be licensed and therefore exempt); computers, office supplies, spare parts, and maintenance tools, were valued as personal property. All other reported assets were determined to be real property, based on the framework for analysis provided in Nevada Tax Commission regulations adopted in August, 2010, LCB File No. R039-10, Section 16 and in the 2011-12 Personal Property Manual, Appendix F. In particular, the criteria for determining whether property is real or personal are based on the following:

> Sec. 16. "Fixture" means an item that was originally personal property which has been installed or attached to land or an improvement in a permanent manner. As used in this section, "installed or attached to land or an improvement in a permanent manner" means that:
>
> 1. Either:
>
> (a) An item is attached to, imbedded in or permanently resting upon land or an improvement, or is attached by other means that are normally used for permanent installation, and cannot be removed without substantially damaging the item or the land or improvement with which it is being used; or
>
> (b) The use or purpose of an item that is not otherwise physically annexed to land or an improvement is so adapted that it is:
>
> (1) A necessary, integral or working part of the land or improvement;
>
> (2) Designed or committed for use with the land or improvement; or
>
> (3) So essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item; and
>
> 2. A reasonable person would consider the item to be a permanent part of the land or

improvement, taking into account annexation, adaptation and other objective manifestations of permanence.

Underlying both the physical or constructive annexation tests is a determination of intent. An assessor must consider whether the item is intended to be a permanent part of the land or improvement, taking into account physical or constructive annexation, and other objective manifestations of permanence.

The typical components of a CSP generation facility consist of site preparation activities, including construction survey, grading, trenching, drainage features, diversion channels, detention ponds, culverts for road crossings, containment berms, and firebreaks. Heliostat fields consisting of mirrors and control system, heat storage using molten salt, and a solar power tower designed to support the boiler and move high-quality steam through a steam turbine generator are the main components of a CSP generation facility. In addition, access roads and utilities such as telecommunication lines, foundations for generator step-up transformers, underground and overhead cabling and cable termination, operations and maintenance buildings, electrical equipment enclosures; water delivery systems including pumps, wells, water storage tanks, waste and wastewater management; on-site land treatment unit; fire protection systems, including piping systems, fire hydrants, and sprinkler deluge systems; electronic systems to control equipment and facilities operations; lighting systems (AC and DC); fencing, controlled access gates, switchyard and substations make up the balance of the plant.[3] The assets work as an economic unit.

The Department's understanding is that the heliostat field, power block, and switchyard consist of components either attached to the land or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the power tower. Furthermore, the BLM's Record of Decision states that "The facility is expected to operate for about 30 years."[4] The list of construction permits obtained by the Taxpayer from Nye County and listed in the application are also an objective indication of the permanent nature of the facility. In addition, the BLM ROW lease/grant provides for a term of 30 years with the right to renew.[5] This analysis therefore applies the requirements of NRS 361.227(1)(b) to determine the taxable value of the improvements. Depreciation of an improvement must be calculated at 1.5 percent of the cost of replacement for each year of adjusted actual age of the improvement up to a maximum of 50 years. Additional functional and economic obsolescence must be calculated separately.

The Department did not adjust upward the reported acquisition cost to reflect any appreciation, based on the assumption that the cost of development will go down over time, since the solar power technology is a relatively new and changing technology.

The Department also used the current tax rate of $3.0518 per hundred (0.030518) for Tax District 12 without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement as between the State of Nevada Renewable Energy Fund (General Fund in the first year only) and local governments, in the proportion of 45/55. Stated another way, 55% of the total taxes generated by the estimated taxable value is abated. Of the remaining 45% of tax dollars, 45% is distributed to the State of Nevada Renewable Energy Fund (or the General Fund in 2010 only) and 55% is distributed to local governments. The calculation assumes the State of Nevada loses the 17 cent per hundred levy for the State debt fund.

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[3] U.S. Department of the Interior (DOI) Bureau of Land Management (BLM) and the U.S. Department of Energy (DOE), Draft Programmatic Environmental Impact Statement for Solar Energy Development in Six Southwestern States (Solar PEIS), Appendix F: Solar Energy Technology Overview, December, 2010, pp. F-5 through F-13.

[4] U.S. Department of the Interior, Record of Decision, re Tonopah Solar Energy, LLC, December 2010.

[5] Instruction Memorandum 2011-003, "Solar Energy Development Policy," dated October 7, 2010.

Estimate of Property Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2011:	$ 927,433,580
Total Taxable Value of the Project in 2031:	$ 663,412,112

Estimated capital cost per kW (927,433,580/110,000)	$8,431/kW

Total Taxes Due, First Year After Completion:	$ 9,906,196
Total Renewable Energy Abatement @ 55%:	$ 5,448,408
Total Taxes Available to Local Governments and Energy Fund:	$ 4,457,788
Total Taxes Available to Local Governments only:	$ 2,451,784

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$ 169,666,288
Total Renewable Energy Abatement, 20 years:	$ 93,316,458
Total Taxes Available to Local Governments and Energy Fund:	$ 76,349,830
Total Taxes Available to Local Governments only:	$ 41,992,407

See attached spreadsheets for the amounts by year and by local government entity.

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FISCAL IMPACT
Renewable Energy Partial Abatement of Sales/ Use and Property Taxes

EGP Stillwater Solar, LLC
Stillwater Solar

Background

EGP Stillwater Solar, LLC proposes to construct and operate the Stillwater Solar Project, a 24.2 MW nameplate capacity and 20 MW net output photo voltaic (PV) solar electrical generation facility.[1] The facility will be located on private land adjacent to the existing Stillwater II geothermal power plant located in the eastern portion of the Lahontan Valley near the community of Stillwater in Churchill County, Nevada.[2] The solar power plant will make use of existing infrastructure of the geothermal power plant owned by a sister company, Enel Geothermal, LLC as necessary and feasible. Both companies are owned by Enel Green Power North America, Inc. (EGP-NA), a leading owner and operator of renewable energy projects in North America, with a presence in 20 U.S. states and three Canadian provinces. The company owns and operates over 70 plants with an installed capacity of around 800 MW powered by renewable hydropower, wind, geothermal and biomass energy.[3]

The Public Utilities Commission recently accepted the application of the Nevada Power Company dba NV Energy to amend the Action Plan of the 2010-2029 Integrated Resource Plan relating to the existing renewable energy purchase power agreement (PPA) between Enel Geothermal LLC and NV Energy. The amended PPA reflects inclusion of the solar facility. The combined geothermal/solar facility is expected to produce 192,700 MWh (megawatt hours) and 311,856 kPECs (portfolio energy credit) annually. Enel plans to use at least 50% of the solar output for station usage.[4]

The company reported[5] that the project will have one switchgear building, approximately 20 ft. x 50 ft. that will be located close to the existing geothermal power plant. There will be 10 inverter skids each of which will have an inverter module approximately 15 ft x 40 ft x 10ft high mounted on a foundation. The surface area occupied by the solar panels will occupy approximately 200 acres. The control room, maintenance facilities and substation yard of the existing geothermal power plant will be used for the solar power plant operations. The project area will have a standard chain link fence around it for safety purposes.

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[1] EGP Stillwater solar, LLC Abatement Application to Office of Energy, Facility Information Sheet

[2] Enel Stillwater, LLC Groundwater Monitoring Plan Associated with Churchill County SUP, 11-5-2008, Recorded document # 396895; retrieved 7-26-11 from http://www.churchillcounty.org/planning/docs/Groundwater%20Monitoring%20Plan.pdf

[3] Retrieved 7-28-11 from http://www.enelgreenpower.com/en-gb/ena/

[4] PUCN Docket No. 11-03014, Application of Nevada Power Company dba NV Energy to amend Action Plan of 2010-2029 Integrated Resource Plan relating to Existing Renewable Energy Contract Amendments dated 7-22-11, pp. 39-44.

[5] Special Use Permit Application dated March 29, 2011, Churchill County Planning Department; retrieved 7-26-11 from http://www.churchillcounty.org/planning/agendas/20110511/EnelStillwaterSolar_SUP_Application.pdf

The new structures will be the racking system to which the solar panels are mounted. There will be a switchgear building that will house the main breakers for the solar panel strings and inverters and the inverters themselves could be considered structure. There will be some roadways within the solar power plant to allow for maintenance and these roads will be made of road base or gravel.

The utility tie in is at the current 60kv circuit switcher being utilized by the existing geothermal power plant. The solar facility electrical connection from panel strings, inverters and transformers will be underground. No additional sanitation facilities, water supply, parking or signage will be required.

Sales and Use Tax Abatement Analysis
AFN 11-04I2SPV

In accordance with the provisions NRS 701A of the Nevada Revised Statutes, EGP Stillwater Solar, LLC has requested a Sales and Use Tax Abatement for their Renewable Energy Project. Upon approval, this project would be granted a partial abatement of Sales and Use Tax for a period of three years commencing on the date of approval.

The Nevada State Office of Energy has provided to the Department of Taxation a completed copy of the Renewable Energy Tax Abatements Application for this project. According to Schedule 6 of this application, EGP Stillwater Solar, LLC will purchase a total of $62,434,045.00 worth of tangible, personal property subject to Sales and/or Use Tax during the first year of the abatement period. At the current Sales or Use Tax rate for Churchill County, the full Sales Tax for these purchases would be $4,88,638.51 less any applicable collection allowance.

According to Schedule 7 and 8 of this application form, EGP Stillwater Solar, will purchase no tangible, personal property subject to Sales and/or Use Tax during the second and third year of the abatement period.

Based on this information, the Department of Taxation projects the following Sales Tax related fiscal impact for the three years of the abatement period.

Sales Tax Component	FIRST YEAR JULY 1, 2011 - JUNE 30, 2012	SECOND YEAR JULY 1, 2012 - JUNE 30, 2013	THIRD YEAR JULY 1, 2013 - JUNE 30, 2014	TOTAL
Sales/Use Tax (General Fund) (2%)	($1,248,680.90)	$0.00	$0.00	($1,248,680.90)
Local School Support Tax (2.6%)	$1,623,285.17	$0.00	$0.00	$1,623,285.17
Basic City Relief (.50%)	($312,170.23)	$0.00	$0.00	($312,170.23)
Supp. City County Relief (1.75%)	($1,092,595.79)	$0.00	$0.00	($1,092,595.79)
County Option (.25%)	($156,085.11)	$0.00	$0.00	($156,085.11)

Total Amount Abated:
1st Year: $2,809,532.03
2nd Year: $0.00
3rd Year: $0.00

Total Impact on Local/ County Government
1st Year: $1,560,851.13
2nd Year: $0.00
3rd Year: $0.00

Property Tax Abatement Analysis

Valuation by the Department of Taxation

Geothermal power plants are valued by the Department as locally assessed property on behalf of the counties pursuant to NRS 362.100(1)(b), which states that "the Department shall appraise and assess all reduction, smelting and milling works, plants and facilities, whether or not associated with a mine, all drilling rigs, and all supplies, machinery, equipment, apparatus, facilities, buildings, structures and other improvements used in connection with any mining, drilling, reduction, smelting or milling operation."

The Department determined that the property of EGP Stillwater Solar should be valued by the Department as opposed to assessment by the Churchill County Assessor based on information obtained from the Public Utilities Commission and its own knowledge of the geothermal operations of Enel Geothermal, LLC. In a brief to the Public Utilities Commission, EGP Stillwater stated that "well over 50% of the total annual output of the solar facility would be used for station usage for the geothermal facility." Further, the solar facility is located on the premises of the geothermal facility.[6] PUCN staff also stated that "the PV system proposed by Enel is clearly going to be located on Enel's premises, and it will be interconnected with the geothermal plant behind SPPC's meter point (or point of demarcation), and Enel is clearly a retail customer of SPPC. Additionally, Staff has confirmed that the geothermal facility's yearly parasitic load will consume more than 50% of the annual output of the proposed PV project."[7]

Locally-assessed Valuation Methodology; Valuation of Land

In general, locally assessed real property must be valued according to the requirements of NRS 361.227. Replacement cost new of the improvements, less depreciation at the rate of 1-1/2% per year for a maximum of 50 years, is added to the full cash value of the improved land. Personal property is valued based on acquisition cost less depreciation identified in the Personal Property Manual approved by the Nevada Tax Commission.

The Taxpayer leases the land upon which the solar project will be located. The Department used a capitalization of ground rents valuation methodology to estimate a value for the 120 acres being leased. Using the reported annual rent of $500 per acre for a twenty-five year term and using a discount rate of 10%, the estimated value (rounded) of the land is $600,000 or a per acre value of $5,000 for improved land. The county assessor has a current land use code (180) of vacant land; and the vacant land has a taxable value of $63,451 for 234.96 acres; or a per acre value of $270. For the balance of the 20 years for which the abatement may be granted, an appreciation factor of 2% per year was applied to the value of the land. The appreciation factor is a conservative estimate based on the 10 year average annual growth rate for land and improvements in Churchill County from 2001-02 to 2010-11.[8]

Locally-assessed Valuation Methodology; Valuation of Improvements

The Taxpayer reported the project costs as both real and personal property in the application. The Department agrees the listed property components may be considered personal property prior to construction but are transformed into real property upon completion of construction. Analysis of the project as real property is based on criteria provided in Nevada Tax Commission regulations adopted in August, 2010, LCB File No. R039-10, Section 16; and in the 2012-13 Personal Property Manual,

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[6] PUCN Docket 11-03014, Closing Brief of Enel Stillwater, LLC regarding "Application of Nevada Power Company dba NV Energy for approval of the first amendment of the Action Plan of the2010-2029 Integrated Resource Plan" dated 7-11-2011, p. 3.

[7] Ibid, p. 5.

[8] Department of Taxation, "Statistical Analysis of the Roll," 2010-11. Churchill County's average growth rate for land and improvements from 2001-02 to 2010-11 was 6.93%. State of Nevada's average growth rate for the same period was 3.30%.

Appendix E. In particular, the criteria for determining whether property is real or personal are based on the following:

> Sec. 16. "Fixture" means an item that was originally personal property which has been installed or attached to land or an improvement in a permanent manner. As used in this section, "installed or attached to land or an improvement in a permanent manner" means that:
>
> 1. Either:
>
> (a) An item is attached to, imbedded in or permanently resting upon land or an improvement, or is attached by other means that are normally used for permanent installation, and cannot be removed without substantially damaging the item or the land or improvement with which it is being used; or
>
> (b) The use or purpose of an item that is not otherwise physically annexed to land or an improvement is so adapted that it is:
>
> (1) A necessary, integral or working part of the land or improvement;
>
> (2) Designed or committed for use with the land or improvement; or
>
> (3) So essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item; and
>
> 2. A reasonable person would consider the item to be a permanent part of the land or improvement, taking into account annexation, adaptation and other objective manifestations of permanence.

The Department's understanding is that the solar field consists of components either attached to the land or "so essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item," for example, the racking system. The Taxpayer also described the racking system as "structures."[9]

The typical components of a photo-voltaic solar generation facility consist of site preparation activities, including construction survey, grading, trenching, drainage features, diversion channels, detention ponds, culverts for road crossings, containment berms, and firebreaks. Other components may include access roads and utilities such as telecommunication lines, foundations for generator step-up transformers, trackers, drive motor foundations; PV solar modules, pad-mounted inverters, underground and overhead cabling and cable termination, operations and maintenance buildings, electrical equipment enclosures; water delivery systems including pumps, wells, water storage tanks, waste and wastewater management; on-site land treatment unit; fire protection systems, including piping systems, fire hydrants, and sprinkler deluge systems; electronic systems to control equipment and facilities operations; lighting systems (AC and DC); fencing, controlled access gates, switchyard and substations. Many of these components, but not all, are part of the current project.

This analysis applies the requirements of NRS 361.227(1)(b) to determine the taxable value of the improvements. The facility components will actually be valued for property tax purposes using Marshall-Swift costing service, however for purposes of this fiscal note, the Department used the reported anticipated cost components as the basis for replacement cost new. Depreciation of an improvement must be calculated at 1.5 percent of the cost of replacement for each year of adjusted actual age of the improvement up to a maximum of 50 years. Additional functional and economic obsolescence must be calculated separately when the property is actually valued for property tax purposes, thus this fiscal note only provides a maximum taxable value without considering actual obsolescence, if any.

The Department also did not adjust upward the reported acquisition cost to reflect any appreciation of the improvements. In addition, the Department did not include property reported on Schedule 5, Contributions in Aid of Construction. Capital invested as a contribution in aid of construction (CIAC) is not eligible for a renewable energy abatement by the contributor of the capital because taxable property is assessed to the owner and not the contributor of the property. CIAC are either cash or utility type property *contributed to the utility* by a customer to assist the utility in providing

[9] The term "structure" is an important word because NRS 361.035 defines real property as "all houses, buildings, fences, ditches, *structures*, erections, railroads, toll roads and bridges, or other improvements built or erected upon any land . . .. "

utility service to the customer and are non-refundable to the customer. The utility which received the CIAC, in this case NV Energy, is the owner of the plant so contributed. [10]

The Department used the 2011-12 tax rate of $2.8029 per hundred (0.028029) for Tax District 2 in Churchill County without further adjustment. Under current law, the maximum tax rate could go up to $3.66, however, the project is also subject to the tax abatement afforded under NRS 361.4722, which limits tax dollar increases to no more than 8% per year.

The calculation of the renewable energy abatement contained in the attached spreadsheets takes into account the required distribution of remaining taxes after abatement as between the State of Nevada Renewable Energy Fund (General Fund in the first year only) and local governments, in the proportion of 45/55. Stated another way, 55% of the total taxes generated by the estimated taxable value is abated. Of the remaining 45% of tax dollars, 45% is distributed to the State of Nevada Renewable Energy Fund (or the General Fund in 2010 only) and 55% is distributed to local governments. The calculation assumes the State of Nevada loses the 17 cent per hundred levy for the State debt fund.

Estimate of Tax Abatement

Based on the assumptions and conditions noted above, the estimated fiscal impact for the duration of the abatement for 20 years is as follows:

Total Taxable Value of the Project in 2012:	$71,166,967	
Total Taxable Value of the Project in 2032:	$51,329,475	
Estimated capital cost per kW ($71,166,957/24,200)	$2,941/kW	
Total Taxes Due, First Year After Completion:		$ 698,159
Total Renewable Energy Abatement @ 55%:		$ 383,987
Total Taxes Available to Local Governments and Energy Fund:		$ 314,171
Total Taxes Available to Local Governments only		$ 172,794

The amount of the abatement for each year thereafter approximates the amount obtained in the first year and continues during the period of abatement as follows:

Total Taxes Due during Period of Abatement (20 years):	$12,015,492
Total Renewable Energy Abatement, 20 years:	$ 6,608,521
Total Taxes Available to Local Governments and Energy Fund:	$ 5,406,971
Total Taxes Available to Local Governments only	$ 2,973,834

See attached spreadsheets for the amounts by year.

[10] NRS 361.260 requires the county assessor to "ascertain all real and secured personal property that is in the county on July 1 which is subject to taxation, and also the names of all persons, corporations, associations, companies or firms *owning* the property. The county assessor shall then determine the taxable value of all such property, and shall then list and assess it to the person, firm, corporation, association or company *owning* it on July 1 of that fiscal year."

Exhibit Q

NEVADA DEPARTMENT OF TAXATION
Division of Excise and Local Government Services

PERSONAL PROPERTY MANUAL:

VALUATION GUIDELINES

2025-2026

Personal Property Manual: Valuation Guidelines 2025-2026

Department of Taxation
Division of Excise and Local Government Services
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Adopted by
Nevada Tax Commission on 05/08/2024

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INTRODUCTION

2025-26 PERSONAL PROPERTY MANUAL – VALUATION GUIDELINES

The schedules presented herein are interpretive guidelines for use by county assessors to establish taxable value, pursuant to the requirements of NRS 361.227(4) and NAC 361.1365 and 361.1375.

CLASSIFICATION OF PROPERTY

Personal property is defined in NRS 361.030 and includes (j) "all property of whatever kind or nature, except vehicles as defined in NRS 371.020, not included in the term "real estate." Real estate is defined in NRS 361.035, and includes land, houses, buildings, fences, ditches, structures,[1] erections, railroads, other improvements, and property rights. Real property is further defined in NAC 361.11715 as land, fixtures, improvements; on-site enhancements; and any rights, interests, benefits and privileges belonging or attached to the land.

NRS 361.333 requires that each major class of property be examined to determine whether there is equality of assessment. Uniformity and equality of assessment thus depend on proper classification. Although NRS 361.035 defines real estate and NRS 361.030 defines personal property, in practice it is sometimes difficult to tell whether an item is personal or real property. As the Attorney General stated in Opinion #41 (1963), "the classification depends on the facts of each particular case." The assessor is encouraged to consult the Division of Excise and Local Government Services and/or the District Attorney in difficult cases.

All references to statutes and regulations may be found in Appendix A of this Manual.

EXEMPT PROPERTY

NRS 361.050 through NRS 361.187 provide exemptions for assorted types of eligible property, including household goods; business inventories; property in transit; property owned by government entities, charitable organizations or veterans; and fine art for display.

Additionally, NRS 361.228(1) provides that

All intangible personal property is exempt from taxation, including, without limitation:

(a) Shares of stock, bonds, mortgages, notes, bank deposits, book accounts such as an acquisition adjustment and credits, and securities and chooses in action of like character; and

(b) Goodwill, customer lists, contracts and contract rights, patents, trademarks, trade names, custom computer programs, copyrights, trade secrets, franchises and licenses.

A complete discussion of exemptions and a cross-reference table is included in Appendix D of this manual.

[1] Structures include self-supporting structures other than buildings which carry gravity loads and resist the effects of earthquakes. They are generally not designed for continuous human occupancy and may be open to the environment, part of landscape design elements, or part of infrastructure systems (transport, water, energy). Examples of non-building structures include silos, chimneys, stacks, cooling towers, bins and hoppers, amusement structures, and monuments. *See American Society of Civil Engineers, "Minimum Design Loads for Buildings and Other Structures;" Revision of ASCE Standard 7-98, SEI/ASCE 7-02, 2nd Edition, Section 9.14, Nonbuilding Structures, p. 186. See also Bachman, Robert and Susan Dowty, "Nonstructural Component or Nonbuilding Structure," originally published in Building Safety Journal (April-May, 2008).*

PROCEDURES FOR DETERMINING TAXABLE VALUE

To calculate the taxable value of personal property, NAC 361.1371 and NAC 361.1375 require the assessor to determine four input values:

- Acquisition cost
- Acquisition year
- Expected life, and
- Cost conversion factor

The personal property declaration submitted by the taxpayer pursuant to NRS 361.265 should list the acquisition cost for each item and the year acquired. The declaration should also contain sufficient information to identify each item's industry classification (NAICS code), property type, and corresponding expected life.

Acquisition Cost

For personal property mobile or manufactured homes, acquisition cost means replacement cost when new, which equals the retail selling price to the original owner. For other types of personal property including billboards, acquisition cost means the actual cost of property to its present owner. For all personal property, acquisition cost includes any expense required to place the asset into service except sales tax--including all charges for transportation, installation, accessories, and profit and overhead, as well as additions to or renovations of the property other than routine maintenance or repairs. Observe, however, that the cost of manufactured homes does not include appurtenant improvements like outbuildings, decks, or paving. The assessor should value these separately as real property and depreciate as appropriate.

Should a taxpayer fail to file a valid personal property declaration or sufficient data is not otherwise available for the assessor to establish acquisition cost, NRS 361.265 authorizes the assessor to make an estimate of the value of the property. NAC 361.139 further requires the assessor to estimate its acquisition cost using any nationally recognized valuation technique. Because NRS 361.265(5) defines failure to file a declaration as a misdemeanor, assessors should advise taxpayers to file complete, accurate, and timely personal property declarations. In addition, if the reported acquisition cost appears inconsistent with market data, the assessor may request documentation for the cost reported and may pursue penalties for perjury if necessary.

Acquisition Year

For mobile and manufactured homes, the acquisition year equals the year of the sale to the original owner, which often corresponds to the manufacturer's model year. For all other personal property, the acquisition year equals the year the current owner purchased or leased the property. Observe that the acquisition year remains constant at the year first sold for manufactured homes but resets to the year acquired each time billboards or equipment change owners.

Expected life

The Life Expectancy Guidelines section assigns typical asset lives to each major industrial classification grouped by NAICS code. For example, all industries classified as *Agriculture and Forestry (NAICS .11)* have 15 year lives, while *Mining (NAICS .21)* assigns a 20-year life to *Oil and Gas Exploration (NAICS .2111)* and a 15-year life to *Mining (NAICS .2121 & .2122)*.

Certain items within industries appear separately as Itemized Equipment with specific lives that may differ from the industry norm. For example, *Agriculture and Forestry* industries with a typical 15-year life expectancy also use specialized equipment whose asset lives equal 7, 10 or 20 years. To improve accuracy, assessors should employ the itemized equipment lives whenever they can assign a specific life expectancy to a particular item.

Having identified the industry classification for the subject account the assessor then assigns its appropriate NAICS code and corresponding expected lives to its assets. *See discussion on NAICS below for current requirements.*

Readers may also use the alphabetical listing of personal property by general type found in the Index of this Manual to locate the appropriate expected life for individual items. Because some industries use similar types of business equipment, like desks or computers, readers should select the NAICS classification that best describes the subject account.

Besides these NAICS Life Expectancy Guidelines, the Personal Property Manual also contains a Special Properties section with descriptions and asset life tables for:

- Short-life property subject to rapid obsolescence;
- Items similar to real property classified as personal, like mobile and manufactured homes or billboards;
- Generic business equipment found across many industries, like furniture and trade fixtures or computers; and
- Specialized assets like high-tech medical diagnostic equipment whose economic lives differ substantially from industry norms.

Cost Conversion Factors

Based on the acquisition cost, acquisition year and expected life for an item, the assessor should select the appropriate Cost Conversion Factor from the tables published in the Personal Property Manual.

Cost Conversion Factors contain three components: Cost Index, Age and Percent Good. To satisfy the requirement of NAC 361.1375(2) the department develops Paasche indexes for manufactured homes, billboards, and business equipment derived from pertinent Marshall Swift comparative cost multiplier tables, the West Urban, All Items CPI index, and the PPI Index for Capital Equipment, Stage of Processing. These indexes inflate replacement cost new expressed in acquisition year nominal dollars into replacement cost new expressed in current year nominal dollars.

Cost indexes do not apply to mobile and manufactured homes first sold prior to July 1, 1982, whose taxable value always equals 20% of their original selling price. Cost indexes for equipment and billboards do not accrue beyond their expected lives; such items have a constant residual cost conversion factor equal to their residual percent good multiplied by the residual year cost index.

To comply with NAC 361.130(2)(b), however, cost indexes do apply to mobile and manufactured homes first sold on or after July 1, 1982. Even though mobile homes fully depreciate after sixteen years, applying the cost index to the years between the current year minus 16 and 1982 may actually produce a temporary increase in taxable value.

NAC 361.1375(4)&(5) specify declining balance depreciation with a 5% residual (salvage value) for all property types except manufactured homes and billboards, which use straight line depreciation. Unless the Department has conducted a market study or has otherwise obtained information which indicates a different residual amount, the Department currently relies on a double declining balance method for all equipment and a 5% residual; 5% per year depreciation with a 20% residual for mobile homes (16 year life), and 1.5% per year depreciation with a 25% residual for billboards (50 year life).

Percent good equals (1 - accrued depreciation) for the given asset age, where age equals the current year (first year of the biennium) minus the acquisition year. For example, for the 2025-26 fiscal year, an asset acquired in 2018 has an age of seven years, a manufactured home first sold in 1992 has an age of thirty-three years. Although one could calculate depreciation directly, the tables reduce this process to a simple lookup.

To calculate taxable value using the Personal Property Manual, the assessor completes three steps:

- Select the appropriate expected life table,
- Look up the cost conversion factor for the given acquisition year and,
- Multiply the acquisition cost by the indicated cost conversion factor.

As usual, assessed value equals 35% of taxable value.

A NOTE ON NAICS

The North American Industry Classification System (*NAICS)* replaced the Standard Industrial Classification (SIC) in 1997. NAICS is based on a production-oriented concept, meaning that it groups establishments into industries according to similarity in the processes used to produce goods or services.

NAICS in the United States was designed for statistical purposes. However, NAICS is frequently used for various administrative, regulatory, contracting, taxation, and other non-statistical purposes.

For additional information and complete tables, readers may consult the US Census Bureau website http://www.census.gov/eos/www/naics/

The Department highly recommends assessors use the NAICS code on each personal property account. Use of the NAICS code will assist in the proper valuation of property pursuant to this Personal Property Manual because the NAICS code identifies the type of industry engaged in by the taxpayer.

In addition, the NAICS code is now a required component on the Statistical Analysis of the Roll Reports required by the Department in NRS 361.390 (3) in order to keep track of tax expenditures per NRS 360.137. For those concerned about the availability of the NAICS code to business taxpayers, use of the NAICS code will be widespread because taxpayers subject to the new Commerce Tax are required to provide the NAICS code. In addition, the NAICS code is required on applications for abatement to the Governor's Office on Economic Development and the Governor's Office on Renewable Energy. **The Department recommends assessors collect the NAICS code on Personal Property Declarations used by business taxpayers.**

2025-26 COST CONVERSION FACTORS

THREE (3) YEAR LIFE

NEVADA DEPARTMENT OF TAXATION

THREE (3) YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2025	0	1.00	0.0	100.0	1.0000
2024	1	1.01	67.0	33.0	0.3333
2023	2	1.04	89.0	11.0	0.1144
2022	3	1.10	95.0	5.0	0.0550
Residual		1.10	95.0	5.0	0.0550

NEVADA DEPARTMENT OF TAXATION

FIVE (5) YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2025	0	1.00	0.0	100.0	1.0000
2024	1	1.01	40.0	60.0	0.6060
2023	2	1.04	64.0	36.0	0.3744
2022	3	1.10	78.0	22.0	0.2420
2021	4	1.19	87.0	13.0	0.1547
2020	5	1.24	95.0	5.0	0.0620
Residual		1.24	95.0	5.0	0.0620

NEVADA DEPARTMENT OF TAXATION

SEVEN (7) YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2025	0	1.00	0.0	100.0	1.0000
2024	1	1.01	29.0	71.0	0.7171
2023	2	1.04	49.0	51.0	0.5304
2022	3	1.10	64.0	36.0	0.3960
2021	4	1.19	74.0	26.0	0.3094
2020	5	1.24	81.0	19.0	0.2356
2019	6	1.26	88.0	12.0	0.1512
2018	7	1.29	95.0	5.0	0.0645
Residual		1.29	95.0	5.0	0.0645

NEVADA DEPARTMENT OF TAXATION

TEN YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2025	0	1.00	0.0	100.0	1.0000
2024	1	1.01	20.0	80.0	0.8080
2023	2	1.04	36.0	64.0	0.6656
2022	3	1.10	49.0	51.0	0.5610
2021	4	1.19	59.0	41.0	0.4879
2020	5	1.24	67.0	33.0	0.4092
2019	6	1.26	74.0	26.0	0.3276
2018	7	1.29	79.0	21.0	0.2709
2017	8	1.32	84.0	16.0	0.2112
2016	9	1.35	90.0	10.0	0.1350
2015	10	1.35	95.0	5.0	0.0675
Residual		1.35	95.0	5.0	0.0675

NEVADA DEPARTMENT OF TAXATION

15 YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2025	0	1.00	0.0	100.0	1.0000
2024	1	1.01	13.0	87.0	0.8787
2023	2	1.04	25.0	75.0	0.7800
2022	3	1.10	35.0	65.0	0.7150
2021	4	1.19	44.0	56.0	0.6664
2020	5	1.24	51.0	49.0	0.6076
2019	6	1.26	58.0	42.0	0.5292
2018	7	1.29	63.0	37.0	0.4773
2017	8	1.32	68.0	32.0	0.4224
2016	9	1.35	72.0	28.0	0.3780
2015	10	1.35	76.0	24.0	0.3240
2014	11	1.37	80.0	20.0	0.2740
2013	12	1.39	84.0	16.0	0.2224
2012	13	1.41	87.0	13.0	0.1833
2011	14	1.44	91.0	9.0	0.1296
2010	15	1.47	95.0	5.0	0.0735
Residual		1.47	95.0	5.0	0.0735

NEVADA DEPARTMENT OF TAXATION

20 YEAR LIFE

200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2025	0	1.00	0.0	100.0	1.0000
2024	1	1.01	10.0	90.0	0.9090
2023	2	1.04	19.0	81.0	0.8424
2022	3	1.10	27.0	73.0	0.8030
2021	4	1.19	34.0	66.0	0.7854
2020	5	1.24	41.0	59.0	0.7316
2019	6	1.26	47.0	53.0	0.6678
2018	7	1.29	52.0	48.0	0.6192
2017	8	1.32	57.0	43.0	0.5676
2016	9	1.35	61.0	39.0	0.5265
2015	10	1.35	65.0	35.0	0.4725
2014	11	1.37	69.0	31.0	0.4247
2013	12	1.39	72.0	28.0	0.3892
2012	13	1.41	75.0	25.0	0.3525
2011	14	1.44	78.0	22.0	0.3168
2010	15	1.47	80.0	20.0	0.2940
2009	16	1.47	83.0	17.0	0.2499
2008	17	1.51	86.0	14.0	0.2114
2007	18	1.56	89.0	11.0	0.1716
2006	19	1.62	92.0	8.0	0.1296
2005	20	1.67	95.0	5.0	0.0835
Residual		1.67	95.0	5.0	0.0835

NEVADA DEPARTMENT OF TAXATION

30 YEAR LIFE
200% DECLINING BALANCE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2025	0	1.00	0.0	100.0	1.0000
2024	1	1.01	7.0	93.0	0.9393
2023	2	1.04	13.0	87.0	0.9048
2022	3	1.10	19.0	81.0	0.8910
2021	4	1.19	24.0	76.0	0.9044
2020	5	1.24	29.0	71.0	0.8804
2019	6	1.26	34.0	66.0	0.8316
2018	7	1.29	38.0	62.0	0.7998
2017	8	1.32	42.0	58.0	0.7656
2016	9	1.35	46.0	54.0	0.7290
2015	10	1.35	50.0	50.0	0.6750
2014	11	1.37	53.0	47.0	0.6439
2013	12	1.39	56.0	44.0	0.6116
2012	13	1.41	59.0	41.0	0.5781
2011	14	1.44	62.0	38.0	0.5472
2010	15	1.47	64.0	36.0	0.5292
2009	16	1.47	67.0	33.0	0.4851
2008	17	1.51	69.0	31.0	0.4681
2007	18	1.56	71.0	29.0	0.4524
2006	19	1.62	73.0	27.0	0.4374
2005	20	1.67	75.0	25.0	0.4175
2004	21	1.74	77.0	23.0	0.4002
2003	22	1.77	79.0	21.0	0.3717
2002	23	1.80	81.0	19.0	0.3420
2001	24	1.82	83.0	17.0	0.3094
2000	25	1.85	85.0	15.0	0.2775
1999	26	1.89	87.0	13.0	0.2457
1998	27	1.90	89.0	11.0	0.2090
1997	28	1.92	91.0	9.0	0.1728
1996	29	1.96	93.0	7.0	0.1372
1995	30	2.01	95.0	5.0	0.1005
Residual		2.01	95.0	5.0	0.1005

NEVADA DEPARTMENT OF TAXATION

MOBILE HOMES SOLD ON OR AFTER JULY 1, 1982

16 YEAR STRAIGHT LINE

YEAR FIRST SOLD	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2025	0	1.00	0.0	100.0	1.0000
2024	1	1.01	5.0	95.0	0.9595
2023	2	1.05	10.0	90.0	0.9450
2022	3	1.12	15.0	85.0	0.9520
2021	4	1.24	20.0	80.0	0.9920
2020	5	1.32	25.0	75.0	0.9900
2019	6	1.35	30.0	70.0	0.9450
2018	7	1.37	35.0	65.0	0.8905
2017	8	1.43	40.0	60.0	0.8580
2016	9	1.45	45.0	55.0	0.7975
2015	10	1.46	50.0	50.0	0.7300
2014	11	1.47	55.0	45.0	0.6615
2013	12	1.50	60.0	40.0	0.6000
2012	13	1.56	65.0	35.0	0.5460
2011	14	1.60	70.0	30.0	0.4800
2010	15	1.62	75.0	25.0	0.4050
2009	16	1.64	80.0	20.0	0.3280
2008	17	1.67	80.0	20.0	0.3340
2007	18	1.74	80.0	20.0	0.3480
2006	19	1.83	80.0	20.0	0.3660
2005	20	1.93	80.0	20.0	0.3860
2004	21	2.03	80.0	20.0	0.4060
2003	22	2.11	80.0	20.0	0.4220
2002	23	2.15	80.0	20.0	0.4300
2001	24	2.17	80.0	20.0	0.4340
2000	25	2.20	80.0	20.0	0.4400
1999	26	2.26	80.0	20.0	0.4520
1998	27	2.29	80.0	20.0	0.4580
1997	28	2.31	80.0	20.0	0.4620
1996	29	2.36	80.0	20.0	0.4720
1995	30	2.38	80.0	20.0	0.4760
1994	31	2.42	80.0	20.0	0.4840

Continued on next page …

NEVADA DEPARTMENT OF TAXATION

MOBILE HOMES SOLD ON OR AFTER JULY 1, 1982

16 YEAR STRAIGHT LINE (Continued)

YEAR FIRST SOLD	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
1993	32	2.49	80.0	20.0	0.4980
1992	33	2.58	80.0	20.0	0.5160
1991	34	2.65	80.0	20.0	0.5300
1990	35	2.69	80.0	20.0	0.5380
1989	36	2.75	80.0	20.0	0.5500
1988	37	2.86	80.0	20.0	0.5720
1987	38	2.94	80.0	20.0	0.5880
1986	39	2.96	80.0	20.0	0.5920
1985	40	3.01	80.0	20.0	0.6020
1984	41	3.07	80.0	20.0	0.6140
1983	42	3.24	80.0	20.0	0.6480
Residual		1.00	80.0	20.0	0.2000[2]

[2] For Mobile Homes Sold on or Before July 1, 1982.

NEVADA DEPARTMENT OF TAXATION

BILLBOARDS

50 YEAR STRAIGHT LINE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
2025	0	1.00	0.0	100.0	1.0000
2024	1	1.00	1.5	98.5	0.9850
2023	2	1.01	3.0	97.0	0.9797
2022	3	1.04	4.5	95.5	0.9932
2021	4	1.18	6.0	94.0	1.1092
2020	5	1.27	7.5	92.5	1.1748
2019	6	1.29	9.0	91.0	1.1739
2018	7	1.32	10.5	89.5	1.1814
2017	8	1.37	12.0	88.0	1.2056
2016	9	1.40	13.5	86.5	1.2110
2015	10	1.40	15.0	85.0	1.1900
2014	11	1.42	16.5	83.5	1.1857
2013	12	1.44	18.0	82.0	1.1808
2012	13	1.47	19.5	80.5	1.1834
2011	14	1.51	21.0	79.0	1.1929
2010	15	1.55	22.5	77.5	1.2013
2009	16	1.54	24.0	76.0	1.1704
2008	17	1.57	25.5	74.5	1.1697
2007	18	1.62	27.0	73.0	1.1826
2006	19	1.69	28.5	71.5	1.2084
2005	20	1.77	30.0	70.0	1.2390
2004	21	1.87	31.5	68.5	1.2810
2003	22	1.96	33.0	67.0	1.3132
2002	23	1.99	34.5	65.5	1.3035
2001	24	2.02	36.0	64.0	1.2928
2000	25	2.05	37.5	62.5	1.2813
1999	26	2.12	39.0	61.0	1.2932
1998	27	2.15	40.5	59.5	1.2793
1997	28	2.18	42.0	58.0	1.2644

Continued on next page …

NEVADA DEPARTMENT OF TAXATION

BILLBOARDS

50 YEAR STRAIGHT LINE

YEAR ACQUIRED	AGE	COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	CONVERSION FACTOR
1996	29	2.22	43.5	56.5	1.2543
1995	30	2.26	45.0	55.0	1.2430
1994	31	2.32	46.5	53.5	1.2412
1993	32	2.39	48.0	52.0	1.2428
1992	33	2.46	49.5	50.5	1.2423
1991	34	2.51	51.0	49.0	1.2299
1990	35	2.56	52.5	47.5	1.2160
1989	36	2.64	54.0	46.0	1.2144
1988	37	2.73	55.5	44.5	1.2149
1987	38	2.83	57.0	43.0	1.2169
1986	39	2.87	58.5	41.5	1.1911
1985	40	2.91	60.0	40.0	1.1640
1984	41	2.98	61.5	38.5	1.1473
1983	42	3.08	63.0	37.0	1.1396
1982	43	3.16	64.5	35.5	1.1218
1981	44	3.31	66.0	34.0	1.1254
1980	45	3.60	67.5	32.5	1.1700
1979	46	3.99	69.0	31.0	1.2369
1978	47	4.40	70.5	29.5	1.2980
1977	48	4.79	72.0	28.0	1.3412
1976	49	5.09	73.5	26.5	1.3489
1975	50	5.40	75.0	25.0	1.3500
Residual		5.40	75.0	25.0	1.3500

SHORT-LIFE PROPERTY

Expected Life .....Three (3) years

Short-Life Property consists of items prone to rapid obsolescence or susceptible to breakage, loss or abnormal wear and tear.

Examples include:

Linens	Uniforms
Glassware	Pots, Pans, Utensils
Barware	Motion Picture Prints
Silverware	Rental Video Tapes, DVDs, CDs

Jigs, Dies, and Molds

Patterns, jigs, dies and molds fall into this category when the type of product manufactured, industry class, use of caustic chemicals, or physical deterioration associated with production volume act to shorten their useful lives and thus require their frequent replacement. Examples include injection molds for plastic parts of high-tech devices or dies used in heavy equipment production.

Ideally, assessors should identify the industrial application and determine the actual service lives of equipment used in current production from owner declarations or surveys of average lives from individual manufacturers before classifying such property as Short-life.

Digital Cameras

Digital cameras fall into two basic categories: professional and snapshot. In recent years, consumer-grade, digital snapshot and video cameras have become a generic commodity. They offer small, flimsy LCD monitors, low image resolution, and lack advanced features like interchangeable lenses. Only snapshot cameras qualify as Short-life property.

INFORMATION SYSTEMS

Life expectancies for computers and peripherals fall into four broad categories:

PCs, Tablets, and associated peripherals .....Three (3) years
Mini-computers (AS 400, VAX) .....Three (3) years
Servers ..... Five (5) years
Mainframe Computers (IBM 360) .....Seven (7) years

An information system consists of computers and peripheral equipment used for processing normal business transactions and the maintenance, retrieval, and analysis of business records.

A computer functions as a programmable, electronically activated device capable of accepting information, applying prescribed processes to the information, and supplying the results of these processes with or without human intervention. It usually contains a central processing unit that provides storage, logic, arithmetic, and control capabilities. Observe that adding machines and electronic calculators do not fall into this category.

To assign appropriate expected lives to computing equipment, assessors need to recognize the differences among mainframes, servers, client computers and personal computers.

Recent advances in computing technology make differentiating mainframes, minicomputers and servers difficult, especially for laymen. When in doubt, consult manufacturer marketing divisions, service literature, or websites to determine how they classify their various product lines.

A mainframe serves as a high-performance computer used for large-scale computing environments that demand greater availability and security than smaller-scale machines can offer. Banks, government agencies, insurance companies, credit card companies, and other organizations that perform massive transaction processing typically use mainframe systems. It is also possible to obtain a server which contains many "blades," each of which is used for a single application.[2] Currently, there are blade servers that have as many as 160 blades.

Mainframes should not be confused with servers, or with a server that uses software to spin off many virtual servers, each with its own computer operating system. Servers usually cost considerably more than personal computers, have more processing power and substantial amounts of computer memory. They are therefore significantly more expensive than most personal computers and they are often kept in service longer than personal computers. Servers are often dedicated to specific tasks like

- Transaction processing (On Line Transaction or OLT servers)
- print queuing and printing (print server)
- running mission critical software, clustering, fail-over and load-balancing (application server)
- audio and video transmission (audio video server)
- exchanging short bursts of written information and opinions in an environment that offers real-time discussions (chat servers)
- sending and receiving faxes without using fax machines (fax server)
- File Transfer Protocol – moving files between computers while providing security and, organization, and transfer control (FTP server)

Historically, mainframes have been associated with centralized rather than distributed computing, although that distinction has blurred as smaller computers become more powerful and mainframes become more multi-purpose. Today, mainframes can serve both distributed users and smaller servers in computing networks. Interestingly, a mainframe actually resides within a server box.

[2] A major advantage of a blade server is that it dramatically reduces cabling requirements.

A key distinguishing feature of a mainframe is that it takes computing power away from end users and puts it in a central location. Another way to visualize a mainframe is to think of the computer as a super server, with multiple operating systems.

Here is a link to the Family Tree And Chronology of some of the older IBM Mainframes. This link will take you to the IBM page for System Z Mainframes.

By comparison, minicomputers are stand-alone computers (computer systems with attached terminals and other devices) sold to small and mid-size businesses for general business applications and to large enterprises for department-level operations. In recent years, the minicomputer has evolved into the "mid-range server" and is part of a network. IBM's AS/400e is a good example.

Peripheral equipment consists of the auxiliary machines which are designed to be placed under the control of a central processing unit. Peripheral equipment may include card readers, card punches, mass storage units, paper tape equipment, keypunches, data-entry devices, teleprinters, terminals, tape drives, disc drives, disc files, disc packs, visual image projector tubes, card sorters, plotters, collators, small inkjet printers, small laser printers, and small desktop all-in-one devices (e.g. printer/fax/scanner combination) that are sold as commodities in retail outlets and which are rapidly replaced as faster machines with new features are added.

Although one could classify computers by processor architecture, number of users supported, total system throughput, etc, ultimately the classification boils down to total system cost and the total time required to amortize the assets. Again, taxpayer records that reveal the actual service lives and disposition values of their own data processing equipment provide the best source of verifiable market data.

TAXABLE SOFTWARE (NOT ASSOCIATED WITH COMPUTER-INTEGRATED MACHINERY)

Expected Life ..... Three (3) years

Nevada law treats standard, prewritten software programs as tangible personal property.[3] A standard prewritten program, often called canned or off-the-shelf software, means a generic application not originally developed and produced for a specific user. This includes any programs, procedures, rules, and associated documentation pertaining to the operation of a computer system. Custom software programs consist of original, one-of-a-kind computer applications developed under contract exclusively for the particular requirements of a specific user. Custom computer programs qualify as exempt intangible personal property pursuant to NRS 361.228.

[3] According to the IRS, "Computer software is not a section 197 intangible even if acquired in connection with the acquisition of a business, if it meets all of the following tests.

- It is readily available for purchase by the general public.
- It is subject to a nonexclusive license.
- It has not been substantially modified.

If the software meets the tests above, it can be depreciated and may qualify for the section 179 expense deduction and the special depreciation allowance (if applicable)." http://www.irs.gov/publications/p225/ch07.html

COMPUTER-INTEGRATED MACHINERY

Expected Life ..... Seven (7) years

Computer integrated machinery, including its integrated programming or software, exhibits the following characteristics:

- The machinery and computer sell as a single unit.
- The machinery cannot operate without the computer and the computer cannot perform functions outside the machinery.
- The components of the computer form an integral, structural part of the equipment itself; it is not economically or functionally feasible to replace the computer without replacing the entire machine.
- For income tax purposes, depreciation accrues to the total cost of the machine and computer as a unit.
- The capabilities of the machine cannot be expanded by substituting a more complex computer for the original.
- Embedded programming or pre-loaded software designed primarily for the function of the machine into which it is integrated runs the computer.

Examples of computer-integrated machinery include computer driven mills; computer integrated manufacturing machinery; computer integrated fabrication machinery; computerized machine lathes; and computerized assembly machinery.

ROBOTS AND ROBOTIC DEVICES

Expected Life:

Industrial and Service Robots .....Ten (10) years
Medical Robots .....Seven (7) years
Robotic Devices..... Five (5) years

This category includes robots and robotic devices operating in both industrial and non-industrial environments. The assessor should assign expected lives to the robots and robotic devices separately. Any robotic machines or devices that do not meet the characteristics of a robot as set forth by the International Organization for Standardization (ISO) are not considered robot for personal property assessment purposes.

Robots and robotics are usually used interchangeably but robotics has a broader meaning than the term robots. The ISO created a differentiation between robotic devices and robots. Robotic Devices are "mechanisms developed with robotic technology but not fulfilling all characteristics of a robot." For example, *teleoperated remote manipulator, haptic device, end-effector, unpowered exoskeleton, two-axis industrial manipulator*. Robots are "programmed actuated mechanism with a degree of autonomy to perform locomotion, manipulation, or positioning."

Robots are mainly mechanical or hardware but also contain some level of programming (software component). The hardware or physical component includes the body/frame, central processing unit (CPU) or control system for processing and executing instructions, sensors for collecting data from the environment, actuators (motors) for physical movement, end effectors for completion of tasks, and power supply for providing energy to the robot. The software (program) is an integral part for robots to operate for its intended use. The combination of

programming software and control system provides the robot the capability to perform and complete its tasks. The software can be upgraded or modified depending on the business needs.

In general, robots are categorized by their primary use or intended application. Nowadays, the most common robot types include industrial robots used for manufacturing (e.g., automotive, aerospace, electronics, consumer goods, etc) and service robots used for retail and hospitality, healthcare, and logistic businesses. The following provides the definition and distinction between the industrial robot and the service robot in accordance with the ISO standards.

Industrial Robot

An industrial robot is "a multifunctional, reprogrammable, automatically controlled manipulator, programmable in three or more axes that can be fixed in one area or mobile for use in industrial automation applications" (ISO 8373:2012). Thus, industrial robots are fully autonomous machines that do not require human intervention and can be re-programmed to perform several functions such as welding, painting, assembly/disassembly, pick and place for printed circuit boards, packaging and labeling, palletizing, product inspection, material handling, cutting, or grinding, testing, etc. Single-purpose automated machines that cannot be re-programmed to perform other tasks or need a human operator are not considered industrial robot. Autonomous Mobile Robots (AMR) used in industrial environments that have less than three axes (movement) and lack of manipulation capabilities are not considered industrial robots. Robots not intended for industrial applications are also not considered industrial robot.

Six Major Types of Industrial Robots Based on Mechanical Structure:

1. Articulated Robots – most common industrial robot; emulate human arm (have three to six rotary joints) that allows a wide range of movement; capable of lifting heavy objects.
2. Cartesian Robots – have three prismatic joints for the movement of the tool and three rotary joints for its orientation in space (can only move linearly in three directions – forward and backward, up and down, and side to side); rigid in all three axes which makes them accurate.
3. Cylindrical Robots – characterized by rotary joint at the base and at least one prismatic joint connecting its links (can move vertically and horizontally); commonly used in small spaces and ideal for objects that require circular symmetry (e.g., wires, pipes).
4. Spherical (Polar) Robots – an older technology; a combination of two rotational joints and one linear joint creating a spherical-shaped working space; commonly used for painting and welding.
5. SCARA (Selective Compliance Assembly Robot Arm) Robots – characterized by two parallel joints which provide movement in X-Y plane; rotating shafts are positioned vertically at the effector; ideal for assembly application and palletization.
6. Delta Robots – consist of parallel links connected to a common base (spider-like arm); useful for direct control tasks and high maneuvering operations (pick-and-place).

Service Robot

A service robot is a robot "that performs useful tasks for humans or equipment excluding industrial automation applications." A degree of autonomy (full or partial) is required for service robots. Thus, service robots are either fully autonomous or operated by a built-in control system, with manual override options, and assist people by performing repetitive, dull, dirty, or dangerous tasks. Service robots are for professional use. Examples include logistics and delivery robots, social robots, restaurant/waiter robots, cleaning robots, disinfection robots, kitchen/chef robots, agricultural robots, aerial robots (drones), underwater robots, etc.

Medical Robot

The "new" ISO robotics vocabulary standard ISO 8373:2021 defines medical robots as a third category next to industrial and service robots. A medical robot is a robot intended to be used as medical electrical equipment or medical electrical systems. It is controlled by a surgeon (not autonomous). An example of medical robot is the Da Vinci Surgical System. Currently, it is the only surgical robot approved by the Food and Drug Administration (FDA) to perform surgical procedures. Da Vinci assists surgeons in performing gynecological surgeries, urological, head and neck, thoracic, colorectal, cardiac and general surgeries. This robot machine consists of three parts: the control center (which carry the surgeon's seat allowing a 3D-magnified, high-definition view and use of hand and foot controls); the patient cart (which holds the surgical instruments and the camera); and the vision cart (which contains a video screen). In line with high-tech electronic medical equipment, the medical robot is assigned a seven-year life.

COMPUTERIZED EQUIPMENT

Expected Life:

Free-standing computer system ..... Seven (7) years or
Generic personal computer .....Three (3) years
Equipment component.....NAICS industry class life

This category includes machines controlled by computers that sell as a separate unit from the machine and can perform additional functions outside the machine. The assessor should assign expected lives to the two components separately; the computer equipment has the same expected life as similar computer equipment; the machinery has the expected life assigned to its specific industry.

Examples include:

Computerized Machine Lathes,
Computerized Assembly Machinery,
Cash Management Systems,
3-D Printers.

HIGH-TECH MEDICAL DIAGNOSTIC EQUIPMENT

Expected Life ..... Five (5) years

High-tech medical diagnostic equipment exhibits these characteristics:

- Used in medical or dental facilities;
- Subject to accelerated functional and economic obsolescence caused by rapid technological development.

Examples include:

Cardiac Ultrasonic Scanners
CAT (Comp Tomography) Scanners
Diagnostic Ultrasounds

General Ultrasonic Scanners
MRI (Magnetic) Scanners
Nuclear Medicine Cameras
OB/GYN Ultrasonic Scanners
PET Scanners (Positron Emission)
All Portable Units of Same
Endoscopy Equipment (amnioscopes, angioscopes, arthroscopes, bronchoscopes, colonoscopes, cystoscopes, encephaloscopes, esophagoscopes, gastroscopes, hysteroscopes, laparoscopes, laryngoscopes, mediastinoscopes, nephroscopes, proctoscopes, rhinoscopes, thoracoscopes, endoscopy tower, endoscopy camera, endoscopy light sources, endoscopy video processors, insufflators, and electrosurgical units)

HIGH-TECH ELECTRONIC MEDICAL EQUIPMENT

Expected Life:

Cardiac laser units ..... Three (3) years
Other items ..... Seven (7) years

High-tech electronic medical equipment exhibits these characteristics:

- Used in medical or dental facilities;
- Subject to accelerated functional and economic obsolescence caused by rapid technological development.

Examples include patient monitors of all kinds:

Anesthesia Monitors, Machines and Devices
Apnea Monitors
Blood Pressure Monitors
Chart Recorders
Defibs
Dopplers
EEG Machines
EKG Machines
External Pace Makers
Heart Rate Devices
Medical Laser Units
Neurological Monitors
Oximeters
Oxygen Analyzers
Spirometers
Systolic Monitors
Temperature Monitors

OFFICE FURNITURE, RETAIL SALES EQUIPMENT, OTHER

This category includes furniture and equipment that can be found across industries.

Description	Life in Years
Air Conditioners	15
Air Conditioners, Window	7
Cash Registers (electronic)	7

Coin-wrap Equipment 15
Copy and Duplicating Machines 5
Cabinets and Shelving 15
Check-out Counters 15
Data Processing Equipment (See Also Information Systems) 7
Décor 15
Displays, Cases, and Racks 15
Mailing Machines 7
Office Furniture (Desks, Chairs, Filing Cabinets) 15
Office Kitchen Appliances (Microwave Ovens, Refrigerators) 15
POS – Point-of-Sale Computer Systems[4] 7
Signs[5] (Other than Billboards and electronic) 15
Signs, Electronic 7
Sound Systems (background and public address) 7

MOBILE OR MANUFACTURED HOMES

This section applies only to mobile or manufactured homes classified as personal property. Pursuant to NRS 361.561, those units identified as a "travel trailer," "utility trailer" and "van conversion," in Chapter 482 of NRS and any other vehicle required to be registered with the department of motor vehicles and public safety are subject to property tax unless registered and taxed pursuant to Chapter 371 of NRS. Such unregistered units and vehicles must be taxed in the manner provided in NRS 361.562 to 361.5644, inclusive.

The sticker issued pursuant to NRS 361.5643 must be affixed to a mobile or manufactured home in such a way that the sticker is clearly visible from the street. The window decal is not required for licensed mobile units or on units considered real property and may be issued at the option of the county assessor.

NRS 361.325(3) segregates mobile homes into two different categories for assessment purposes based on age. Mobile homes sold on or after July 1, 1982 shall be classified according to those factors which most closely determine their useful lives. In establishing the value of other mobile homes, the commission shall begin with the retail selling price and depreciate it by 5 percent per year, but not below 20 percent of its original amount. The assessment ratio in all cases is 35 percent of the computed taxable values. See NAC 361.130 for additional information on the calculation of value for mobile homes.

Depreciation schedules and cost conversion factors apply to the 2025-26 Secured and Unsecured Tax Rolls. The 2025-26 Cost Conversion Index for Mobile or Manufactured Homes appears on pages 8-9 of this manual.

[4] Point-of-Sale systems include all peripherals and handheld devices used to take electronic payments or to collect related data with the exception of smartphones, tablets and POS tablets. Smartphones, tablets and POS tablets should be given a three-year life.

[5] See Appendix E to determine whether signs are real or personal property. Personal property signs include vinyl and fabric banners and sign-waving mannequins.

BILLBOARDS

NRS 361.013 defines a billboard as ". . . a sign that directs attention to a business, commodity, service, entertainment or attraction that is sold, offered or exists at a location other than the premises on which the sign is located."

NRS 361.227 requires that depreciation of a billboard must be calculated at 1.5 percent of the cost of replacement for each year after the year of acquisition of the billboard, up to a maximum of 50 years. Additional information on the calculation of billboards may be found in NAC 361.1305.

Depreciation schedules and cost conversion factors apply to the 2025-26 Secured and Unsecured Tax Rolls. The 2025-26 Cost Conversion Index for Billboards may be found on pages 10-11 of this manual.

LIFE EXPECTANCY GUIDELINES

2025-26 PERSONAL PROPERTY MANUAL

NAICS Industry Code.....Description.....Life in Years

11 AGRICULTURE AND FORESTRY

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

111 Crop Production 15

Personal property includes machinery and equipment such as tractors, combines, hay balers, forage harvesters, unlicensed farm vehicles including utility trailers, wagons and utensils used to grow crops mainly for food and fiber. The subsection comprises establishments, such as farms, orchards, groves, greenhouses, and nurseries, primarily engaged in growing crops, plants, vines, or trees (including Christmas trees) and their seeds.

Itemized Equipment

Fertilizer Distribution 10
Laser sending and receiving equipment 10
Seed cleaning machinery and equipment 20
Seed cleaning equipment – portable 10

112 Animal Production 15

Personal property includes machinery and equipment used to raise or fatten animals for the sale of animals or animal products. The subsection comprises establishments, such as ranches, farms, and feedlots primarily engaged in keeping, grazing, breeding, or feeding animals. These animals are kept for the products they produce or for eventual sale.

Itemized Equipment

1125 Animal Aquaculture, including nets and pens 7
11212 Dairy Production 15
1123 Egg Packing Equipment 20

113 Forestry and Logging 15

Personal property includes machinery and equipment used to: (1) cut timber; (2) cut and transport timber; and (3) produce wood chips in the field, including stationary saw mills, skidders, and log loaders.

Itemized Equipment

Chain saws 7
Portable saw mill 7

21 MINING

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

2111 Oil and Gas Extraction 20

Personal property used in oil and gas extraction are used to explore for crude petroleum and natural gas. A typical example of personal property in this category would include inventory and spare parts.

Itemized Equipment

Bolted and fiberglass tanks 15

Drilling rigs 15

Heaters, treaters, knockout dryer, separators, conditioning equipment 15

LACT units, metering devices, manifolds 15

Motors, engines, drive units 10

Secondary recovery (injection pumps, re-pressure equipment) 15

Transformers 30

2122 Metal Ore Mining 15

Personal property used in developing the mine site, mining or quarrying dimension stone. A typical example of personal property in this category would include inventory and spare parts.

Itemized Equipment

Oxygen generation 20

Mobile equipment, heavy use* 7

2123 Nonmetallic Mineral Mining and Quarrying 15

Personal property used in developing the mine site, mining or quarrying dimension stone. A typical example of personal property in this category would include inventory and spare parts.

* Heavy use is defined as in operation for more than one shift per day, seven days a week. Mining mobile equipment eligible for this category includes haul packs, loaders, shovels, dozers, graders, backhoes, drilling trucks, and excavators.

22 UTILITIES

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

2211 Electric Power Generation, Transmission, and Distribution 30

Personal property used in generating, transmitting, and/or distributing electric power. A typical example of personal property in this category would include inventory and spare parts.

2212 Natural Gas Distribution 30

Personal property used in (1) operating gas distribution systems (e.g., mains, meters); (2) establishments known as gas marketers that buy gas from the well and sell it to a distribution system; (3) establishments known as gas brokers or agents that arrange the sale of gas over gas distribution systems operated by others; and (4) establishments primarily engaged in transmitting and distributing gas to final consumers. A typical example of personal property in this category would include inventory and spare parts.

2213 Water, Sewage, and Other Systems 30

Personal property used in establishments primarily engaged in operating water treatment plants and/or operating water supply systems. A typical example of personal property in this category would include inventory and spare parts.

221330 Steam and Air-Conditioning Supply 30

Personal property used in providing steam, heated air, or cooled air. A typical example of personal property in this category would include inventory and spare parts.

23 CONSTRUCTION

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

236 Construction of Buildings 15

237 Heavy and Civil Engineering Construction 15

238 Specialty Trade Construction 15

Personal property used primarily in the construction of buildings, major engineering projects such as highways and dams, and specialty trades such as pouring concrete, site preparation, plumbing, painting, and electrical work. Includes fixed load and mobile equipment such as:

Air compressors

Motor graders/leveling graders

238 Specialty Trade Construction *continuation…*

Air drills
Asphalt plants
Asphalt spreaders
Backhoe/loaders
Carryalls
Cement mixers/spreaders
Crusher/crushing plant
Roadrollers/sheepsfoot rollers
Crawler cranes/ tractors
Ditchers/diggers
Earthmoving scrapers
Excavators
Fork lifts
Front end loaders / bucket loaders
Mixmobiles
Paving equipment
Portable shop
Portable storage bins
Portable storage tanks
Power hoists
Power shovels
Sand classifiers and drags
Scarifiers and rollers
Scrap metal balers
Scrubber screens and plant feeders
Welder
Wiring Equipment

Itemized Equipment

Cranes

Bridge	20
Jib	20
Mobile Telescopic	10
Electric generating equipment	20
Electronic controlled infrared/laser instruments	10
Power tools (saws, drills, etc.)	7
Hand tools	7
Mobile equipment, heavy use[6]	7

[6] Heavy use is defined as in operation for more than one shift per day, seven days a week

31 MANUFACTURING

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

311 Food 15

Personal property used in this industry transform livestock and agricultural products into products for intermediate or final consumption. The food products manufactured in these establishments are typically sold to wholesalers or retailers for distribution to consumers, but establishments primarily engaged in retailing bakery and candy products made on the premises not for immediate consumption are included. Includes equipment such as walk-in coolers, freezers and other refrigeration, grain tanks, bottling and canning equipment in the following industries:

3111	Animal food manufacturing
3112	Grain and oil seed milling
3113	Sugar and confectionery product manufacturing
3114	Fruit and vegetable preserving and specialty food manufacturing
31141	Frozen food manufacturing
31142	Fruit and vegetable canning
3115	Dairy product manufacturing
3116	Animal slaughtering and processing
3117	Seafood product preparation and packaging
3118	Bakeries and tortilla manufacturing
311811	Retail bakeries
311812	Commercial bakeries
3119	Other food manufacturing, such as honey processing

Itemized Equipment

Cereal manufacturing 20

Grain elevators, non-farm 20

Mechanical portion of packing and sorting line equipment 2nd view 30

Electronic portion of line equipment[7] 10

312 Beverage and Tobacco Product Manufacturing 15

Personal property used to manufacture beverages and tobacco products. Please note that ice manufacturing, while not a beverage, is included with nonalcoholic beverage manufacturing because it uses the same production process as water purification.

[7] If electronic component's original cost cannot be separated from other line assets, use 20 years.

312 **Beverage and Tobacco Product Manufacturing** *continuation…*

Manufacturing processes include:

31211 Soft drink manufacturing

31212 Breweries

31213 Wineries

31214 Distilleries

Itemized Equipment

Cold Storage and Ice-making equipment 20

313 **Textile Mills** **15**

Personal property used in the main processes in this industry which include preparation and spinning of fiber, knitting or weaving of fabric, and the finishing of the textile.

314 **Textile Product** **15**

Personal property used in creation of textile products. With a few exceptions, processes used in this industry are generally cut and sew (i.e., purchasing fabric and cutting and sewing to make non-apparel textile products, such as sheets and towels).

315 **Apparel Manufacturing** **15**

Personal property used in the Apparel Manufacturing industry. This industry includes a diverse range of establishments manufacturing full lines of ready-to-wear apparel and custom apparel: apparel contractors, performing cutting or sewing operations on materials owned by others; jobbers performing entrepreneurial functions involved in apparel manufacture; and tailors, manufacturing custom garments for individual clients.

316 **Leather and Allied Product Manufacturing** **15**

Personal property used to transform hides into leather by tanning or curing and fabricating the leather into products for final consumption. It also includes the manufacture of similar products from other materials, including products (except apparel) made from "leather substitutes," such as rubber, plastics, or textiles It includes dyeing or dressing furs.

321 **Wood Product Manufacturing** **15**

The production processes of the Wood Product Manufacturing sub sector include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that then may be further cut, or shaped by lathes or other shaping tools. The lumber or other transformed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers.

322 Paper Manufacturing 15

3221 Pulp, paper and paperboards mills 15

Personal property used in the manufacturing of pulp and involves separating the cellulose fibers from other impurities in wood or used paper. The manufacturing of paper involves matting these fibers into a sheet.

3222 Converted Paper Product Manufacturing 15

Personal property used in the manufacture of paperboard containers including corrugating, cutting, and shaping machinery to form paperboard into containers. Paper bag and coated and treated paper manufacturing establishments cut and coat paper and foil. Stationery product manufacturing establishments make a variety of paper products used for writing, filing, and similar applications. Other converted paper product manufacturing includes, in particular, the conversion of sanitary paper stock into such things as tissue paper and disposable diapers.

323 Printing and related support activities 15

Personal property including presses, used to transfer an image from a plate, screen, film, or computer file to some medium, such as paper, plastics, metal, textile articles, or wood. The most prominent of these methods is to transfer the image from a plate or screen to the medium (lithographic, gravure, screen, and flexographic printing). When publishing and printing are done in the same establishment, the establishment is classified under Industry Code 51, Information.

Itemized Equipment

Digital or *non-impact printing equipment* 5

(Uses a computer file to directly "drive" the printing mechanism to create the image)

Blue Print Machines 15

Blue Print Machines – small table model 7

3-D Printers 7

324 Petroleum and Coal Products Manufacturing 20

Personal property used to transform crude petroleum and coal into usable products. The dominant process is petroleum refining that involves the separation of crude petroleum into component products through such techniques as cracking and distillation. Products such as asphalt coatings and petroleum lubricating oils are made.

325 Chemical Manufacturing 15

3251 Basic Chemical Manufacturing 15

Personal property used in both basic chemical processes, such as thermal cracking and distillation, and in petrochemical processes, such as (1) manufacturing acyclic (i.e., aliphatic) hydrocarbons such as ethylene, propylene, and butylenes made from refined petroleum or liquid hydrocarbon and/or (2) manufacturing cyclic aromatic hydrocarbons such as benzene, toluene, styrene, xylene, ethyl benzene, and cumene made from refined petroleum or liquid hydrocarbons.

3254 Pharmaceutical and Medicine Manufacturing 15

Personal property used in one or more of the following: (1) manufacturing biological and medicinal products; (2) processing (i.e., grading, grinding, and milling) botanical drugs and herbs; (3) isolating active medicinal principals from botanical drugs and herbs; and (4) manufacturing pharmaceutical products intended for internal and external consumption in such forms as ampoules, tablets, capsules, vials, ointments, powders, solutions, and suspensions.

3255 Paint, Coating, and Adhesive Manufacturing 15

Personal property used to (1) mix pigments, solvents, and binders into paints and other coatings, such as stains, varnishes, lacquers, enamels, shellacs, and water repellant coatings for concrete and masonry, and/or (2) manufacture allied paint products, such as putties, paint and varnish removers, paint brush cleaners, and frit.

326 Plastics and Rubber Products 15

3261 Plastics Product Manufacturing 15

Personal property used in processing new or spent (i.e., recycled) plastics resins into intermediate or final products, using such processes as compression molding; extrusion molding; injection molding; blow molding; and casting.

Itemized Equipment

Special tools 7

3262 Rubber Product Manufacturing 15

Personal property used in the industry group comprised of establishments primarily engaged in processing natural, and synthetic or reclaimed rubber materials into intermediate or final products using processes such as vulcanizing, cementing, molding, extruding, and lathe-cutting.

Itemized Equipment

Special tools 7

327 Nonmetallic Mineral Product..... 20

Personal property used to transform mined or quarried nonmetallic minerals, such as sand, gravel, stone, clay, and refractory materials, into products for intermediate or final consumption. Processes used include grinding, mixing, cutting, shaping, and honing.

3271 Clay Product and Refractory Manufacturing 15

Personal property used in shaping, molding, glazing, and firing pottery, ceramics, and plumbing fixtures made entirely or partly of clay or other ceramic materials.

3272 Glass and Glass Product Manufacturing..... 15

Personal property used in manufacturing glass and/or glass products. Establishments in this industry may manufacture glass and/or glass products by melting silica sand or cullet or purchasing glass.

Itemized Equipment

Special tools 5

3273 Cement and Concrete Product Manufacturing 20

Personal property used in manufacturing Portland, natural, masonry, pozzalanic, and other hydraulic cements.

Itemized Equipment

Quarry equipment{XE "quarry equipment} (Yahoo search)..... 15

Portable ready-mix plants 15

3274 Lime and Gypsum Product Manufacturing 20

Personal property used in manufacturing lime from calcitic limestone, dolomitic limestone, or other calcareous materials, such as coral, chalk, and shells. Lime manufacturing establishments may mine, quarry, collect, or purchase the sources of calcium carbonate.

3279 Abrasive Product Manufacturing..... 20

Personal property used in manufacturing abrasive grinding wheels of natural or synthetic materials, abrasive-coated products, and other abrasive products.

327991 Cut Stone and Stone Product Manufacturing..... 15

Personal property used in cutting, shaping, and finishing granite, marble, limestone, slate, and other stone for building and miscellaneous uses. Stone product manufacturing establishments may mine, quarry, or purchase stone.

331 Primary Metal Manufacturing 20

Personal property used to smelt and/or refine ferrous and nonferrous metals from ore, pig or scrap, using electrometallurgical and other process metallurgical techniques. Metal alloys and super alloys are also manufactured by introducing other chemical elements to pure metals. The output of smelting and refining, usually in ingot form, is used in rolling, drawing, and extruding operations to make sheet, strip, bar, rod, or wire, and in molten form to make castings and other basic metal products.

Includes:

3311 Iron and Steel Mills and Ferroalloy Manufacturing

Itemized Equipment

Special Tools 7

332 Fabricated Metal Product Manufacturing 15

Personal property is used to transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture or treating metals and metal formed products fabricated elsewhere. Important fabricated metal processes are forging, stamping, bending, forming, and machining, used to shape individual pieces of metal; and other processes, such as welding and assembling, used to join separate parts together.

Itemized Equipment

Special Tools 5

333 Machinery Manufacturing 15

Personal property used to create end products that apply mechanical force, for example, the application of gears and levers, to perform work. Some important processes for the manufacture of machinery are forging, stamping, bending, forming, and machining that are used to shape individual pieces of metal. Processes, such as welding and assembling are used to join separate parts together. Although these processes are similar to those used in metal fabricating establishments, machinery manufacturing is different because it typically employs multiple metal forming processes in manufacturing the various parts of the machine.

333314 Optical Instrument and Lens Manufacturing 15

Personal property used in: (1) manufacturing optical instruments and lens, such as binoculars, microscopes (except electron, proton), telescopes, prisms, and lenses (except ophthalmic); (2) coating or polishing lenses (except ophthalmic); and (3) mounting lenses (except ophthalmic).

334 Computer and Electronic Product Manufacturing 7

Personal property used in the manufacture of computers, computer peripherals, communications equipment, and similar electronic products and components. The design and use of integrated circuits and the application of highly specialized miniaturization

technologies are common elements in the production technologies of the computer and electronic industry.

3341 Computer and Peripheral Equipment Manufacturing 7

Personal property used in manufacturing and/or assembling electronic computers, such as mainframes, personal computers, workstations, laptops, and computer servers; and computer peripheral equipment, such as storage devices, printers, monitors, input/output devices and terminals.

Personal property used in manufacturing wire telephone and data communications equipment. These products may be standalone or board-level components of a larger system. Examples of products made by these establishments are central office switching equipment, cordless telephones (except cellular), PBX equipment, telephones, telephone answering machines, LAN modems, multi-user modems, and other data communications equipment, such as bridges, hubs, routers, and gateways.

3343 Audio and Video Equipment Manufacturing 10

Personal property used in manufacturing electronic audio and video equipment for home entertainment, motor vehicle, public address and musical instrument amplifications. Examples of products made include video cassette recorders, televisions, stereo equipment, speaker systems, household-type video cameras, jukeboxes, and amplifiers for musical instruments and public address systems.

3344 Semiconductor and Other Electronic Components 5

Personal property used in manufacturing semiconductors and other components for electronic applications. Examples of products made by these establishments are capacitors, resistors, microprocessors, bare and loaded printed circuit boards, electron tubes, electronic connectors, and computer modems.

Includes:

clean room equipment, crystal growing equipment, deionized water systems, encapsulation equipment, photo mask and wafer manufacturing equipment, semiconductor chemical and gas systems, semiconductor electrical systems, and semiconductor test equipment.

3345 Navigation, Measuring, Medical, Control Instrument Manufacturing 7

Personal property used in manufacturing navigational, measuring, electro medical, and control instruments. Examples of products made by these establishments are aeronautical instruments, appliance regulators and controls (except switches), laboratory analytical instruments, navigation and guidance systems, and physical properties testing equipment.

335 Electrical Equipment, Appliance, and Component Manufacturing 15

Personal property used to manufacture products that generate, distribute and use electrical power, such as electric lamp bulbs, lighting fixtures, small and major electrical appliances, electric motors, generators, transformers, switchgear apparatus, devices for storing electrical power (e.g., batteries), for transmitting electricity (e.g., insulated wire), and wiring devices (e.g., electrical outlets, fuse boxes, and light switches).

336 Transportation Equipment Manufacturing 15

Personal property used in production processes similar to those of other machinery manufacturing establishments - bending, forming, welding, machining, and assembling metal or plastic parts into components and finished products.

The section includes:

3361 Motor Vehicle Manufacturing

3362 Motor Vehicle Body & Trailer Manufacturing

3363 Motor Vehicle Parts Manufacturing

3365 Railroad Rolling Stock Manufacturing

3364 Aerospace Product and Parts Manufacturing..... 15

Personal property used in one or more of the following: (1) manufacturing complete aircraft, missiles, or space vehicles; (2) manufacturing aerospace engines, propulsion units, auxiliary equipment or parts; (3) developing and making prototypes of aerospace products; (4) aircraft conversion (i.e., major modifications to systems); and (5) complete aircraft or propulsion systems overhaul and rebuilding (i.e., periodic restoration of aircraft to original design specifications).

This section includes:

336412 Aircraft Engine and Engine Parts Manufacturing

337 Furniture and Related Product Manufacturing 10

Personal property used to make furniture and related articles, such as mattresses, window blinds, cabinets, and fixtures. The processes used in the manufacture of furniture include the cutting, bending, molding, laminating, and assembly of such materials as wood, metal, glass, plastics, and rattan.

339 Miscellaneous Manufacturing 15

Personal property used in the manufacture of products as diverse as medical equipment and supplies, jewelry, sporting goods, toys, and office supplies.

33991 Jewelry and Silverware Manufacturing 15

Personal property used in: (1) manufacturing, engraving, chasing, or etching jewelry; (2) manufacturing metal personal goods (i.e., small articles carried on or about the person, such as compacts or cigarette cases); (3) manufacturing, engraving, chasing, or etching precious metal solid, precious metal clad, or pewter cutlery and flatware; (4) manufacturing, engraving, chasing, or etching personal metal goods (i.e., small articles carried on or about the person, such as compacts or cigarette cases); (5) stamping coins; (6) manufacturing unassembled jewelry parts and stock shop products, such as sheet, wire, and tubing; (7) cutting, slabbing, tumbling, carving, engraving, polishing, or faceting precious or semiprecious stones and gems; (8) re-cutting, re-polishing, and setting gem stones; and (9) drilling, sawing, and peeling cultured and costume pearls.

42 WHOLESALE TRADE

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

423 Wholesale Trade Fixtures and Equipment 15

Trade fixtures (as opposed to fixtures) and equipment are used in establishments engaged in wholesaling merchandise, generally without transformation, and rendering services incidental to the sale of merchandise. Wholesalers sell merchandise to other businesses and normally operate from a warehouse or office. See also separate listings for specific types of equipment.

423440 Other Commercial Equipment Merchant Wholesalers (lockers (except refrigerated) merchant wholesalers) Example: Product Delivery Lockers retail and e-commerce.

423740, Refrigeration Equipment and Supplies Merchant Wholesalers (lockers, refrigerated, merchant wholesalers) Example: Product Delivery Lockers retail and e-commerce.

44 RETAIL TRADE

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

Includes the personal property for the following:

441 **Motor Vehicle and Parts Dealers** 15

442 **Furniture and Home Furnishing Stores** 15

443 **Electronics and Appliance Stores** 15

444 **Building Material and Garden Equipment and Supply Stores** 15

445 **Food and Beverage Stores (including Convenience Stores)** 15

446 **Health and Personal Care Stores** 15

447 **Gasoline Stations** 15

448 **Clothing and Clothing Accessories Stores** 15

451 **Sporting Goods, Hobby, Book, and Music Stores** 15

452 **General Merchandise Stores** 15

453 **Miscellaneous Store Retailers, including** 15

4531 Florists 15

454 **Non-store Retailers** 15

See also separate listings for specific types of equipment.

48 TRANSPORTATION AND WAREHOUSING

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

481 **Air Transportation** 20

Personal property includes most airplanes; helicopters (rotorcraft); drones weighing over 50 pounds; and aircraft, all of which have a life of 20 years. There are some exceptions, which are itemized below.

Itemized Equipment

Kit built Aircraft 15

Gliders 15

Hot Air Balloons 15

Experimental Aircraft 15

Drones weighing 50 pounds or less 10

482 Rail Transportation..... 20

482112 Short Line Railroads

Itemized Equipment

Railroad Rolling Stock 20

483 Water Transportation 20

Personal property used in providing inland water transportation of passengers and/or cargo on lakes, rivers, or intracoastal waterways.

484 Truck Transportation 10

Itemized Equipment

Light Trucks 7

General freight Trucks 10

Tractor-trailers 10

485 Transit and Ground Passenger Transportation 10

Personal property includes equipment used in Transit and Ground Passenger Transportation. This industry includes a variety of passenger transportation activities, such as urban transit systems; chartered bus, school bus, and interurban bus transportation and taxis.

Itemized Equipment

Buses..... 15

Automobiles, unlicensed..... 7

492 Couriers and Messengers 15

Personal property used in the provision of intercity and/or local delivery of parcels. These articles can be described as those that may be handled by one person without using special equipment. Messengers, which usually deliver within a metropolitan or single urban area, may use bicycle, foot, small truck, or van.

493 Warehousing and Storage..... 15

Personal property used in operating warehousing and storage{XE “storage:} facilities for general merchandise, refrigerated goods, and other warehouse products. These establishments provide facilities to store goods. They do not sell the goods they handle.

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

511 Publishing Industries 15

Personal property used in the publishing of newspapers, magazines, other periodicals, and books, as well as directory and mailing list and software publishing.

512 Motion Picture Production and Sound Recording 7

Personal property used in the production and/or distribution of motion pictures, videos, television programs, or commercials; in the exhibition of motion pictures; or in the provision of postproduction and related services. Sound recording machinery and equipment is used in producing and distributing musical recordings, in publishing music, or in providing sound recording and related services.

512131 Motion Picture Theaters 15

Includes projection equipment, furniture and trade fixtures.

515 Broadcasting and Telecommunications ..... *See Categories*

51511 Radio Broadcasting..... 10

Personal property used in broadcasting audio signals. These establishments operate radio broadcasting studios and facilities for the transmission of aural programming by radio to the public, to affiliates, or to subscribers. In recognition of the FCC change from analog to digital broadcasting equipment in radio, television, and cable industries, all analog equipment MAY be valued using a seven-year life. All other equipment will remain at the life indicated. The assessor will still be responsible for measuring obsolescence if any.

Itemized Equipment

Radio Production Equipment 7

Service and Repair Equipment 10

51512 Television Broadcasting 10

Personal property used in broadcasting images together with sound. These establishments operate television broadcasting studios and facilities for the programming and transmission of programs to the public. In recognition of the FCC mandated change from analog to digital broadcasting equipment in radio, television, and cable industries, all analog equipment MAY be valued using a three-year life. All other equipment will remain at the life indicated. The assessor will still be responsible for measuring obsolescence if any.

Itemized Equipment

Television Production Equipment 7

Service and Repair Equipment 10

517 Telecommunications ..... *See Itemized Equipment*

Wired telecommunications personal property used in (1) operating and maintaining switching and transmission facilities to provide point-to-point communications via landlines, microwave, or a combination of landlines and satellite linkups or (2) furnishing telegraph and other non-vocal communications using their own facilities. Wireless telecommunications assets are used in operating and maintaining switching and transmission facilities that provide omni-directional communications via airwaves, such as cellular telephone or paging services. For handheld devices used to take electronic payments, see Point-of-Sale descriptions.

Itemized Equipment

Central Office Equipment, except computer-based switching equipment 15

Computer-based switching equipment 5

Distribution Plant (if personal property) 30

Fiber optic cable 15

Paging Systems 5

Microwave Systems, except towers 10

Station Equipment 10

Telephone equipment, including, telex, facsimile and Two-Way Radio 5

Cellular Telephones, Smartphones, Hand-helds, Tablets and POS Tablets, and PDAs..... 3

517110 Cable and Other Program Distribution .... *See Itemized Equipment*

Personal property used in distribution systems for broadcast programming. Head end assets are defined as the electronic control center -- generally located at the antenna site of a CATV system -- usually including antennas, preamplifiers, frequency converters, demodulators, modulators and other related equipment which amplify, filter and convert incoming broadcast TV signals to cable system channels. Microwave systems include assets such as antennas, transmitting and receiving equipment, and broad band microwave assets. Program origination equipment includes assets such as cameras, film chains, video tape recorders, lighting, and remote location equipment excluding vehicles. Service and test assets include oscilloscopes, field strength meters, spectrum analyzers, and cable testing equipment. Subscriber connection and distribution systems include assets such as trunk and feeder cable, connecting hardware, amplifiers, power equipment, passive devices, directional taps, pedestals, pressure taps, drop cables, matching transformers, multiple set connector equipment, and converters. In recognition of the FCC mandated change from analog to digital broadcasting equipment in radio, television, and cable industries all analog equipment MAY be valued using a seven-year life. All other equipment will remain at the life indicated. The assessor will still be responsible for measuring obsolescence if any.

Itemized Equipment

Coaxial Cable, installed inside buildings 15
Fiber Optic Cable 15
Head end Equipment, except towers 10
Microwave Systems, except towers 10
Program Origination Equipment 10
Satellite Dish Relay; Earth station equipment 10
Box converters having specialized computer components 3
Service and Test Equipment 10
Subscriber Connection and Distribution Systems 10

518 Internet Service Providers, Web Search Portals, and Data Processing Services

For life expectancy, please see Special Properties

Personal property assets used by Internet Service Providers, Web Search Portals, and Data Processing Services to provide: (1) access to the Internet; (2) search facilities for the Internet; and (3) data processing, hosting, and related services.

519 Other Information Services 15

Personal property assets used in supplying information, storing information, providing access to information, and searching and retrieving information. The main components of this group are news syndicates, libraries, and archives. It includes law and medical libraries.

53 REAL ESTATE, RENTAL, AND LEASING

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

532 Rental and Leasing Services 15

Personal property includes a wide array of tangible goods, such as automobiles, computers, consumer goods, and industrial machinery and equipment, to customers in return for a periodic rental or lease payment.

Itemized Equipment

Formal wear and costume rental 3
Bottled water Dispensers & Equipment 7
Furniture Rental & Leasing 7
Heavy equipment ..... *See Construction (Code 23)*
Lawn and Garden equipment 7

Linens and Uniforms 3
Musical Instrument rentals 7
Rent-to-Own Merchandise 7
Ski Equipment Rentals 7
Video Tapes ..... *See Special Properties*
See also separate listings for specific types of equipment.

54 PROFESSIONAL, SCIENTIFIC, & TECHNICAL SERVICES

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

- See Itemized Equipment

Itemized Equipment

Laboratory equipment , except electronic and computerized 15
Laboratory equipment, electronic and computerized 7
Medical and law libraries (*See also other information services*)..... 15
Photography 15
Professional and scientific equipment (*See also NAICS Code 3345*) 7
Professional libraries..... 15

Surveying Equipment

GPS 7
Non-GPS 15

56 WASTE MANAGEMENT AND REMEDIATION SERVICES

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

5616 Investigation and Security Services 15

Personal property includes burglar and fire alarms and locking devices, along with equipment necessary for installation, repair, or monitoring services or (2) remote monitoring of electronic security alarm systems.

Itemized Equipment

Closed Circuit TV – Camera System 7
Firearms 20

Locksmith Equipment, including:

Mechanical and electronic locking devices 20

Safes and security vaults 20

5617 Services to Buildings and Dwellings 15

Includes the fixtures and equipment for the following:

56171 Exterminating and Pest Control Services
56172 Janitorial Services
56173 Landscaping Services
56174 Carpet and Upholstery Cleaning Services

Itemized Equipment

Carpet Cleaning 15

Lawn mowing Equipment 7

562 Waste Management and Remediation Services 10

Personal property used in the collection, treatment, and disposal of waste materials. This includes establishments engaged in local hauling of waste materials; operating materials recovery facilities (i.e., those that sort recyclable materials from the trash stream); providing remediation services (i.e., those that provide for the cleanup of contaminated buildings, mine sites, soil, or ground water); and providing septic pumping and other miscellaneous waste management services.

Itemized Equipment

Garbage Dumpsters..... 10

Portable toilets 10

62 HEALTH CARE AND SOCIAL ASSISTANCE

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

621 Ambulatory Health Care Services 15

Personal property used by health practitioners in the provision of outpatient services, with the facilities and equipment not usually being the most significant part of the production process. Includes the fixtures and equipment for the following:

6211 Offices of Physicians

6212 Offices of Dentists

6213 Offices of Other Health Practitioners, including Chiropractors, Optometrists, Mental Health Practitioners, and Physical, Occupational, and Speech Therapists

Medical and Dental Instruments Not Otherwise Noted in Special Properties, include:

All Portable Units of Same

Angiographic X-ray units
Chest X-ray Units
Dental X-ray Units
Exam tables and chairs
Fluorographic X-ray Units
Lensometer
Mammographic X-ray Units
Mesoptometers
Microscopes
Portable X-ray Units
Radiographic X-ray Units
Special Procedure X-ray Units
Sterilizers

622 Hospitals 15

Personal property used to provide inpatient health services, particularly specialized facilities and equipment that form a significant and integral part of the production process. *See list above for examples of equipment.*

See also Special Properties for Medical Diagnostic and Medical Lab.

6244 Child Day Care Facilities 10

Personal property used in providing day care of infants or children.

71 ARTS, ENTERTAINMENT, AND RECREATION

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

711 Performing Arts, Spectator Sports, and Related 10

Includes projection equipment, furniture and trade fixtures such as movable set props, aerial and acrobatic equipment, rigging, costumes, production lighting, and special effects equipment.

Itemized Equipment

Electronic Equipment including Sound Systems 7
Seating, stages including fixed set designs, hydraulics, fountains 15
Support operations, including equipment and furniture for dressing rooms, ticket booths, snack bars, offices ..... 15[8]
Water tanks..... 20[9]

[8] May be considered to be real property fixtures. The cost may be established from Marshall & Swift.

711212 Car racing – race cars 3

713 Amusement, Gambling and Recreation Industries 15

Personal property used to (1) operate facilities where patrons can primarily engage in sports, recreation, amusement, or gambling activities and/or (2) provide other amusement and recreation services, such as supplying and servicing amusement devices in places of business operated by others; operating sports teams, clubs, or leagues engaged in playing games for recreational purposes; and guiding tours without using transportation equipment.

Itemized Equipment

Amusement Park (does not include structures) 15
Bowling Alley Pinsetters and Other Equipment 15
Bowling Electronic Scoring Machines 7

Gaming Equipment:
Electronic Slots, or Computers 7
Player Tracking Systems 7
Mechanical Slots 15
Other 15
Golf Carts, Electric 7
Golf Course Machinery and Equipment, except Lawn Mowing Equipment 15
Golf Course Lawn Mowing Equipment 7
Juke Box 15
Ski Area Equipment: Snow Cats and Packers 7
Ski Rentals 7
Video and Flipper Games 7

72 ACCOMMODATION AND FOOD SERVICES

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

721 Accommodation 15

Personal property used in: (1) traveler accommodation, (2) recreational accommodation, and (3) rooming and boarding houses.

Itemized Equipment

Apartment Furnishings 15
Hotel Furnishings 10

[9] May be considered to be real property fixtures. The cost may be established from Marshall & Swift.

Outdoor Patio Furnishings 7
Fire and Security Equipment 15
Health Spa Equipment: Manual 15
Health Spa Equipment: Electronic 7
Heavy Use Washers 7
Linens, Glassware, Silverware, and Uniforms (not rented) 3
Televisions 5
Telephone Systems (*See also NAICS Code 517*) 5

722 Food Services and Drinking Places 15

The industry groups are full-service restaurants; limited-service eating places; special food services, such as food service contractors, caterers, and mobile food services; and drinking places.

Itemized Equipment

Bar 15
Coffee Brewing Equipment 15
Walk-in Coolers (*See Also NAICS 311*) 15
Linens, Glassware, Silverware, and Uniforms (not rented) 3
Televisions, Digital 5
Televisions, Analog 5
Vending Machines 15

81 OTHER SERVICES

For the purposes of this manual, the following descriptions apply only to those items which can be classified as Personal Property. The designated life does not apply to Real Property or fixtures which have been converted to Real Property.

Establishments in this sector are primarily engaged in activities, such as equipment and machinery repairing, promoting or administering religious activities, grant making, advocacy, and providing dry cleaning and laundry services, personal care services, death care services, pet care services, photofinishing services, temporary parking services, and dating services.

811 Repair and Maintenance 15

Personal property used to restore machinery, equipment, and other products to working order. These establishments also typically provide general or routine maintenance (i.e., servicing) on such products to ensure they work efficiently and to prevent breakdown and unnecessary repairs.

Includes the fixtures and equipment for the following:

8111 Automobile Repair and Maintenance

811192 Car Washes

8112 Electronic & Precision Equipment

8113 Commercial Equipment Repair and Maintenance

8114 Personal and Household Goods Repair and Maintenance

81143 Footwear and Leather Goods Repair

Itemized Equipment

Auto Repair Diagnostic Equipment (Electronic) 7
Small Tools (See Hand Tools, NAICS 423120) 7
Welding Equipment 15
EV Charging Stations 15

812 Personal and Laundry Services 15

Includes the equipment and some trade fixtures for the following (*See Appendix D for determination of real or personal property*):

8121 Personal Care Services

81211 Hair, Nail and Skin Care Services

81219 Other, including Diet and Weight Reducing – Fitness

8122 Death Care Services

81221 Funeral Homes

81222 Cemeteries and Crematories

8123 Dry Cleaning and Laundry Services

81231 Coin-operated Laundries and Dry Cleaners

81232 Dry Cleaning and Laundry, except Coin-operated

8129 Other Personal Services

81291 Pet Care (except Veterinary)

81292 Photo-finishing

Itemized Equipment

Coin Laundries 15
Heavy Use Washers 7
Commercial Dry Cleaning Equipment 15

APPENDIX A

2025-26 PERSONAL PROPERTY MANUAL

NEVADA REVISED STATUTES AND NEVADA ADMINISTRATIVE CODE RELATED TO PERSONAL PROPERTY

(This listing may not be comprehensive. Please consult the statutes and regulations. You may find the statutes and regulations on the internet at http://leg.state.nv.us/law1.cfm).

Nevada Revised Statutes

NRS 361.013 "Billboard" defined. "Billboard" means a sign that directs attention to a business, commodity, service, entertainment or attraction that is sold, offered or exists at a location other than the premises on which the sign is located.

(Added to NRS by 1989, 1817)

NRS 361.028 "Manufactured home" defined. "Manufactured home" has the meaning ascribed to it in NRS 489.113.

(Added to NRS by 2001, 1540)

NRS 361.029 "Mobile home" defined. "Mobile home" means a vehicular structure, built on a chassis or frame, which is designed to be used with or without a permanent foundation and is capable of being drawn by a motor vehicle. It may be used as a dwelling when connected to utilities or may be used permanently or temporarily for the advertising, sales, display or promotion of merchandise or services. The term does not include a recreational park trailer as defined in NRS 482.1005.

(Added to NRS by 1989, 169; A 2001, 1727

NRS 361.030 "Personal property" defined.

1. "Personal property" means:

(a) All household and kitchen furniture.

(b) All law, medical and miscellaneous libraries.

(c) All goods, wares and merchandise.

(d) All chattels of every kind and description, except vehicles as defined in NRS 371.020.

(e) Stocks of goods on hand.

(f) Any vehicle not included in the definition of vehicle in NRS 371.020.

(g) All locomotives, cars, rolling stock and other personal property used in operating any railroad within the State.

(h) All machines and machinery, all works and improvements, all steamers, vessels and watercraft of every kind and name navigating or used upon the waters of any river or lake within this State or having a general depot or terminus within this State.

(i) The money, property and effects of every kind, except real estate, of all banks, banking institutions or firms, bankers, moneylenders and brokers.

(j) All property of whatever kind or nature, except vehicles as defined in NRS 371.020, not included in the term "real estate" as that term is defined in NRS 361.035.

2. Gold-bearing and silver-bearing ores, quartz or minerals from which gold or silver is extracted, when in the hands of the producers thereof, shall not mean, not be taken to mean, nor be listed and assessed under the term "personal property" as used in this section, but are specially excepted therefrom, and shall be listed, assessed and taxed as provided by law. [Part 3:344:1953]—(NRS A 1963, 305, 1121; 1983, 1191; 2013, 3115)

NRS 361.035 "Real estate" and "real property" defined.

1. "Real estate" or "real property" means:

(a) All houses, buildings, fences, ditches, structures, erections, railroads, toll roads and bridges, or other improvements built or erected upon any land, whether such land is private property or property of this state or of the United States, or of any municipal or other corporation, or of any county, city or town in this state.

(b) Any mobile home, factory-built housing or manufactured home which meets the requirements of NRS 361.244.

(c) The ownership of, or claim to, or possession of, or right of possession to any lands within this state.

(d) The claim by or the possession of any person, firm, corporation, association or company to any land.

2. The property described in subsection 1 must be listed under the head of "real estate."

3. Except as otherwise provided in NRS 361.2445, when an agreement has been entered into, whether in writing or not, or when there is sufficient reason to believe that an agreement has been entered into, for the dismantling, moving or carrying away or wrecking of the property described in subsection 1, the property must be classified as personal property, and not real estate.

4. For the purposes of this chapter, "real estate" or "real property" does not include leasehold or other possessory interests in land owned by the Federal Government on which land the Federal Government is paying taxes to the State of Nevada or is, pursuant to contractual obligation, paying any sum in lieu of taxes to the State of Nevada.

[Part 3:344:1953]—(NRS A 1957, 358; 1975, 1655; 1979, 824; 1993, 1183; 1999, 3465)

NRS 361.045 Taxable property. Except as otherwise provided by law, all property of every kind and nature whatever within this state shall be subject to taxation.

[Part 1:344:1953; A 1954, 29; 1955, 340]

NRS 361.227 Determination of taxable value.

1. Any person determining the taxable value of real property shall appraise:

(a) The full cash value of:

(1) Vacant land by considering the uses to which it may lawfully be put, any legal or physical restrictions upon those uses, the character of the terrain, and the uses of other land in the vicinity.

(2) Improved land consistently with the use to which the improvements are being put.

(b) Any improvements made on the land by subtracting from the cost of replacement of the improvements all applicable depreciation and obsolescence. Depreciation of an improvement made on real property must be calculated at 1.5 percent of the cost of replacement for each year of adjusted actual age of the improvement, up to a maximum of 50 years.

2. The unit of appraisal must be a single parcel unless:

(a) The location of the improvements causes two or more parcels to function as a single parcel;

(b) The parcel is one of a group of contiguous parcels which qualifies for valuation as a subdivision pursuant to the regulations of the Nevada Tax Commission; or

(c) In the professional judgment of the person determining the taxable value, the parcel is one of a group of parcels which should be valued as a collective unit.

3. The taxable value of a leasehold interest, possessory interest, beneficial interest or beneficial use for the purpose of NRS 361.157 or 361.159 must be determined in the same manner as the taxable value of the property would otherwise be determined if the lessee or user of the property was the owner of the property and it was not exempt from taxation, except that the taxable value so determined must be reduced by a percentage of the taxable value that is equal to the:

(a) Percentage of the property that is not actually leased by the lessee or used by the user during the fiscal year; and

(b) Percentage of time that the property is not actually leased by the lessee or used by the user during the fiscal year, which must be determined in accordance with NRS 361.2275.

4. The taxable value of other taxable personal property, except a mobile or manufactured home, must be determined by subtracting from the cost of replacement of the property all applicable depreciation and obsolescence. Depreciation of a billboard must be calculated at 1.5 percent of the cost of replacement for each year after the year of acquisition of the billboard, up to a maximum of 50 years.

5. The computed taxable value of any property must not exceed its full cash value. Each person determining the taxable value of property shall reduce it if necessary to comply with this requirement. A person determining whether taxable value exceeds that full cash value or whether obsolescence is a factor in valuation may consider:

(a) Comparative sales, based on prices actually paid in market transactions.

(b) A summation of the estimated full cash value of the land and contributory value of the improvements.

(c) Capitalization of the fair economic income expectancy or fair economic rent, or an analysis of the discounted cash flow.

➥ A county assessor is required to make the reduction prescribed in this subsection if the owner calls to his or her attention the facts warranting it, if the county assessor discovers those facts during physical reappraisal of the property or if the county assessor is otherwise aware of those facts.

6. The Nevada Tax Commission shall, by regulation, establish:

(a) Standards for determining the cost of replacement of improvements of various kinds.

(b) Standards for determining the cost of replacement of personal property of various kinds. The standards must include a separate index of factors for application to the acquisition cost of a billboard to determine its replacement cost.

(c) Schedules of depreciation for personal property based on its estimated life.

(d) Criteria for the valuation of two or more parcels as a subdivision.

7. In determining, for the purpose of computing taxable value, the cost of replacement of:

(a) Any personal property, the cost of all improvements of the personal property, including any additions to or renovations of the personal property, but excluding routine maintenance and repairs, must be added to the cost of acquisition of the personal property.

(b) An improvement made on land, a county assessor may use any final representations of the improvement prepared by the architect or builder of the improvement, including, without limitation, any final building plans, drawings, sketches and surveys, and any specifications included in such representations, as a basis for establishing any relevant measurements of size or quantity.

8. The county assessor shall, upon the request of the owner, furnish within 15 days to the owner a copy of the most recent appraisal of the property, including, without limitation, copies of any sales data, materials presented on appeal to the county board of equalization or State Board of Equalization and other materials used to determine or defend the taxable value of the property.

9. The provisions of this section do not apply to property which is assessed pursuant to NRS 361.320.

(Added to NRS by 1965, 1445; A 1969, 1451; 1975, 65, 1656; 1977, 1318; 1979, 79; 1981, 788, 789; 1983, 1047, 1884, 1885; 1987, 2075; 1989, 668, 1818; 1993, 2312; 1997, 1111; 1999, 1029; 2001, 842; 2003, 2758; 2009, 1216; 2013, 3116)

NRS 361.265 Written statement concerning personal property: Demand; contents; return of statement; valuation of unlisted property claimed by absent or unknown person; penalties.

1. To enable the county assessor to make assessments, he or she shall demand from each natural person or firm, and from the president, cashier, treasurer or managing agent of each corporation, association or company, including all banking institutions, associations or firms within the county, a written statement, signed under penalty of perjury, on forms and in the format prescribed by the county assessor of all the personal property within the county, owned, claimed, possessed, controlled or managed by those persons, firms, corporations, associations or companies. The signature required by this subsection may include an electronic signature as defined in NRS 719.100.

2. The statement must include:

(a) A description of the location of any taxable personal property that is owned, claimed, possessed, controlled or managed by the natural person, firm, corporation, association or company, but stored, maintained or otherwise placed at a location other than the principal residence of the natural person or principal place of business of the firm, corporation, association or company;

(b) The cost of acquisition of each item of taxable personal property including the cost of any improvements of the personal property, such as additions to or renovations of the property other than routine maintenance or repairs, and the year in which each item of taxable personal property was acquired; and

(c) If the natural person, firm, corporation, association or company owns at least 25 mobile or manufactured homes that are being leased within the county for commercial purposes, and those homes have not been converted to real property pursuant to NRS 361.244, the year, make or model, size, serial number and location of each such mobile or manufactured home.

3. The statement must be returned not later than July 31, except for a statement mailed to the taxpayer after July 15, in which case it must be returned within 15 days after demand for its return is made. Upon petition of the property owner showing good cause, the county assessor may grant one or more 30-day extensions.

4. If the owners of any taxable property not listed by another person are absent or unknown, or fail to provide the written statement as described in subsection 1, the county assessor shall make an estimate of the value of the property and assess it accordingly. If the name of the absent owner is known to the county assessor, the property must be assessed in that name. If the name of the owner is unknown to the county assessor, the property must be assessed to “unknown

owner," but no mistake made in the name of the owner or the supposed owner of personal property renders the assessment or any sale of the property for taxes invalid.

5. If any person, officer or agent neglects or refuses on demand of the county assessor or his or her deputy to give the statement required by this section, or gives a false name, or refuses to give his or her name or sign the statement, the person, officer or agent is guilty of a misdemeanor.

[Part 5:344:1953]—(NRS A 1967, 558; 1969, 1452; 1981, 327; 1983, 519, 1193; 1985, 748; 1987, 531; 1989, 1820; 2003, 2761; 2005, 2656)

NRS 361.325 Nevada Tax Commission to establish valuations of mobile homes and land; property escaping taxation to be placed on assessment roll.

1. On or before the first Monday in June of each year, the Nevada Tax Commission shall:

(a) Fix and establish the valuation for assessment purposes of all mobile homes in the State.

(b) Classify land and fix and establish the valuation thereof for assessment purposes. The classification of agricultural land must be made on the basis of crop, timber or forage production, either in tons of crops per acre, board feet or other unit, or animal unit months of forage. An animal unit month is the amount of forage which is necessary for the complete sustenance of one animal unit for 1 month. One animal unit is defined as one cow and calf, or its equivalent, and the amount of forage necessary to sustain one animal unit for 1 month is defined as 900 pounds of dry weight forage.

2. The valuation of mobile homes and land so fixed and established is for the next succeeding year and is subject to equalization by the State Board of Equalization.

3. In establishing the value of new mobile homes sold on or after July 1, 1982, the Nevada Tax Commission shall classify them according to those factors which most closely determine their useful lives. In establishing the value of other mobile homes, the Commission shall begin with the retail selling price and depreciate it by 5 percent per year, but not below 20 percent of its original amount.

4. The Nevada Tax Commission shall cause to be placed on the assessment roll of any county property found to be escaping taxation coming to its knowledge after the adjournment of the State Board of Equalization. This property must be placed upon the assessment roll prior to the delivery thereof to the ex officio tax receiver. If such property cannot be placed upon the assessment roll of the proper county within the proper time, it must be placed upon the tax roll for the next ensuing year, in addition to the assessment for the current year, if any, and taxes thereon must be collected for the prior year in the same amount as though collected upon the prior year's assessment roll.

5. The Nevada Tax Commission shall not raise or lower any valuations established by the State Board of Equalization unless, by the addition to any assessment roll of property found to be escaping taxation, it is necessary to do so.

6. Nothing in this section provides an appeal from the acts of the State Board of Equalization to the Nevada Tax Commission.

[7:177:1917; A 1929, 299; 1939, 279; 1945, 78; 1953, 576]—(NRS A 1957, 314; 1963, 1123; 1967, 825; 1975, 1105, 1660, 1762; 1981, 859; 1983, 1195)

Nevada Administrative Code

NAC 361.1127 "Fixture" defined. (NRS 360.090, 360.250) "Fixture" means an item, other than a trade fixture, that was originally personal property which has been installed or attached to land or an improvement in a permanent manner. As used in this section, "installed or attached to land or an improvement in a permanent manner" means that:

1. Either:

(a) An item is attached to, imbedded in or permanently resting upon land or an improvement, or is attached by other means that are normally used for permanent installation, and cannot be removed without substantially damaging the item or the land or improvement with which it is being used; or

(b) The use or purpose of an item that is not otherwise physically annexed to land or an improvement is so adapted that it is:

(1) A necessary, integral or working part of the land or improvement;

(2) Designed or committed for use with the land or improvement; or

(3) So essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item; and

2. A reasonable person would consider the item to be a permanent part of the land or improvement, taking into account annexation, adaptation and other objective manifestations of permanence, including, without limitation, whether:

(a) Removal of the item would destroy the item or cause significant damage to the real property to which it is installed or attached;

(b) The historic use of the item indicates an intention to leave the item in place;

(c) The terms of a written agreement between parties indicates the intention of a tenant or lessee to remove or transfer ownership of the item; or

(d) Ownership of the item would be conveyed with a transfer of the real property to which it is installed or attached.

(Added to NAC by Tax Comm'n by R039-10, 8-13-2010, eff. 7-1-2012; A by R068-12, 9-14-2012)

NAC 361.11715 "Real property" defined. (NRS 360.090, 360.250)

1. "Real property" has the meaning ascribed to it in NRS 361.035 and includes:

(a) Land;

(b) Fixtures;

(c) Improvements;

(d) On-site enhancements; and

(e) Any rights, interests, benefits and privileges belonging or attached to the land.

2. The term does not include a trade fixture.

(Added to NAC by Tax Comm'n by R039-10, 8-13-2010, eff. 7-1-2012; A by R068-12, 9-14-2012)

NAC 361.130 Mobile or manufactured home. (NRS 360.090, 360.250, 361.227, 361.2445, 361.325)

1. The taxable value of a mobile home or manufactured home which constitutes real property is the cost of replacement of the mobile home or manufactured home less depreciation and obsolescence.

2. In determining the taxable value of a mobile home or manufactured home which constitutes personal property, each county assessor shall, if the mobile home or manufactured home was sold as new:

(a) Before July 1, 1982, value it at its retail selling price when sold to the original owner less depreciation at 5 percent per year, to a maximum depreciated value of 20 percent of its original retail selling price.

(b) On or after July 1, 1982, value it at replacement cost, when new, less depreciation. Replacement cost when new is the retail selling price to the original owner adjusted by factors reflected in the annual *Personal Property Manual*.

➥ Depreciation must be calculated pursuant to the schedule located in the annual *Personal Property Manual*. Additional depreciation and obsolescence may be calculated separately.

3. The retail selling price of a mobile home or manufactured home includes all charges for transportation, installation, accessories, profit and overhead.

4. If the owner of a mobile home or manufactured home which has been converted to real property wishes to convert the mobile home or manufactured home back to personal property, the county assessor shall provide the owner with a form for an affidavit of conversion which has been approved by the Commission and which must be recorded in the county recorder's office pursuant to NRS 361.2445 before the mobile home or manufactured home may be removed from the tax rolls. The affidavit of conversion may include information concerning the cost of acquisition of the mobile home or manufactured home. All signatures required pursuant to NRS 361.2445 to effectuate the conversion must be notarized.

5. The county assessor shall value the mobile home or manufactured home as personal property upon satisfaction of all the requirements set forth in NRS 361.2445 if the mobile home or manufactured home remains within the jurisdiction of the county assessor.

6. If a mobile home or manufactured home which has been converted to real property is completely destroyed and removed from real property, the county assessor shall remove the mobile home or manufactured home from the tax roll.

[Tax Comm'n, Property Tax Reg. part No. 2, eff. 1-14-82]— (NAC A 10-10-83; 6-29-84; 5-16-86; R031-03, 8-4-2004; R166-07, 6-17-2008)

NAC 361.1305 Billboards. (NRS 360.090, 360.250, 361.227)

1. The taxable value of a billboard is the cost of replacement of the billboard less depreciation and obsolescence.

2. The cost of replacement of a billboard must be computed by multiplying the cost of acquisition to the current owner by the appropriate factor located in the annual *Personal Property Manual*. The factor that corresponds to the year the billboard was acquired must be used. Additional depreciation and obsolescence may be calculated separately.

(Added to NAC by Tax Comm'n, eff. 8-2-90; A by R031-03, 8-4-2004)

Determination of Taxable Value of Personal Property

NAC 361.1345 Definitions. (NRS 360.090, 360.250, 361.227) As used in NAC 361.1345 to 361.139, inclusive, unless the context otherwise requires, the words and terms defined in NAC 361.1351, 361.1355 and 361.1361 have the meanings ascribed to them in those sections.
(Added to NAC by Tax Comm'n by R034-03, eff. 12-4-2003)

NAC 361.1351 "Acquisition cost" and "original cost" defined. (NRS 360.090, 360.250, 361.227) "Acquisition cost" or "original cost" means the actual cost of property to its present owner, including, without limitation, the costs of transportation and the costs of installation.
(Added to NAC by Tax Comm'n by R034-03, eff. 12-4-2003)

NAC 361.1355 "Costs of installation" defined. (NRS 360.090, 360.250, 361.227) "Costs of installation" means the costs of direct labor, direct overhead and the capitalized expense of interest or imputed charges for interest which are necessary to make the property operational.
(Added to NAC by Tax Comm'n by R034-03, eff. 12-4-2003)

NAC 361.1361 *"Personal Property Manual"* defined. (NRS 360.090, 360.250, 361.227) *"Personal Property Manual"* means a manual for the valuation of personal property that is published by the Department annually pursuant to NAC 361.1365.
(Added to NAC by Tax Comm'n by R034-03, eff. 12-4-2003)

NAC 361.1365 *Personal Property Manual*: Publication; contents; approval; use. (NRS 360.090, 360.250, 361.227)
1. The Department will annually publish a *Personal Property Manual* which describes the methods and standards that must be used for the valuation of personal property. The manual must include, without limitation, annually updated:
(a) Cost-index factors that must be used in the conversion of acquisition cost into an estimate of replacement cost new;
(b) Expected-life schedules that indicate the category of expected life for each type of property or type of industry in which the property is used; and
(c) Percent-good tables which indicate the rate of depreciation that must be applied.
2. The *Personal Property Manual* must be approved by the Commission before publication. The Department, at least 1 month before presenting the manual to the Commission for approval, must disclose all proposed modifications to the manual and hold a public workshop on the modifications.
3. Each county assessor shall use the *Personal Property Manual* in determining the taxable value of personal property.
(Added to NAC by Tax Comm'n by R034-03, eff. 12-4-2003)

NAC 361.1371 Procedure for determination of taxable value. (NRS 360.090, 360.250, 361.227)
1. The taxable value of personal property must be determined by adjusting the acquisition cost of the property by a cost-index factor and reducing the adjusted acquisition cost by an estimate of applicable depreciation. The taxable value so determined shall be deemed to be the indicator of value of replacement cost new less depreciation.
2. In determining taxable value, a county assessor shall use the schedules in the *Personal Property Manual* that show the cost-index factors, the rates of depreciation and the percent good by year. The assessor shall use the schedules by:
(a) Selecting the appropriate expected useful life of the personal property; and
(b) Selecting the appropriate cost-index factor, based on the year of acquisition of the property, and applying it to the acquisition cost of the property.
➥ The result shall be deemed to be the replacement cost new of the property.
3. The assessor shall select the method of applying depreciation to the personal property by either:

(a) Multiplying the adjusted acquisition cost of the property by the rate of depreciation and subtracting the result from the adjusted acquisition cost; or

(b) Multiplying the adjusted acquisition cost of the property by the percent-good factor.

➥ The result from either approach shall be deemed to be the taxable value of the property.

(Added to NAC by Tax Comm'n by R034-03, eff. 12-4-2003)

NAC 361.1375 Determination of expected life, cost-index factors and depreciation. (NRS 360.090, 360.250, 361.227)

1. Personal property must be categorized by the specific type of property that it is or by the type of industry in which it is used. Each category must be assigned to a schedule of expected life which is based on commonly available sources of information, including, without limitation, the life expectancy guidelines published by the Marshall and Swift Valuation Service and any other sources published in the *Personal Property Manual*.

2. The cost-index factors published in the *Personal Property Manual* must be determined by calculating the average change in costs over time. The Department shall identify the sources used to calculate the average change.

3. For purposes of calculating the amount of applicable depreciation, personal property must be assigned to one of the following expected lives:

(a) Three-year life;

(b) Five-year life;

(c) Seven-year life;

(d) Ten-year life;

(e) Fifteen-year life;

(f) Twenty-year life; or

(g) Thirty-year life.

4. Depreciation must be calculated over the expected life of the personal property by using the declining balance method, except that tables which provide a method other than the declining balance method for calculating depreciation may be used if the tables have been approved by the Commission and included in the *Personal Property Manual*.

5. For purposes of calculating the rate of depreciation, a residual amount of 5 percent must be used. Percent-good tables using a residual amount other than 5 percent may be adopted by the Commission if the Department has conducted a market study or has otherwise obtained information which indicates that a different residual amount is appropriate for the category in which the personal property is placed pursuant to subsection 1.

(Added to NAC by Tax Comm'n by R034-03, eff. 12-4-2003)

NAC 361.138 Reported acquisition cost for leased equipment. (NRS 360.090, 360.250, 361.227) For leased equipment, the reported acquisition cost is the cost which the user of the property would incur if the equipment were purchased, less any discount customarily allowed by a seller.

(Added to NAC by Tax Comm'n, eff. 10-10-83; A by R034-03, 12-4-2003)

NAC 361.139 Personal property acquired with real property for lump sum; use of other valuation techniques. (NRS 360.090, 360.250, 361.227)

1. In determining the taxable value of personal property which was acquired with real property for a lump sum, the assessor may refer to appropriate guides which list the cost of equipment to determine the value of the personal property in relation to the value of the real property. In addition, the assessor may estimate the age of the equipment by inspecting it or discussing the approximate value of the equipment with manufacturers, dealers or other persons in the business who have knowledge of the value of the equipment. The serial number, if it exists, may enable a manufacturer to determine the date of manufacture and the original cost.

2. If sufficient data is not otherwise available to establish acquisition cost, or if the assessor determines that a reported acquisition cost is not equal to the fair market value of the property at the time of acquisition plus any costs of transportation and costs of installation, the assessor may use any nationally recognized valuation technique to determine the acquisition cost, including, without limitation:

(a) Establishing the current cost of replacement of the property with new property by reference to current manufacturing costs. If the current cost of replacement is known, the assessor shall apply depreciation to that cost to determine the taxable value.

(b) Using a guide which lists the cost or a procedure recognized by businesses which use such equipment to determine the taxable value. Before such a guide or procedure may be used, an assessor must receive approval from the Executive Director.

(c) Using information based on current market data.

3. Upon request, the Division of Local Government Services of the Department will provide information on various guides which may be used to determine original cost.

(Added to NAC by Tax Comm'n, eff. 10-10-83; A 6-29-84; R034-03, 12-4-2003; R068-12, 9-14-2012)

NAC 361.11745 "Trade fixture" defined. (NRS 360.090, 360.250) "Trade fixture" means an item of personal property that:

1. Is installed or attached nonpermanently to real property by an owner or tenant for the purpose of conducting a business or trade and not for the enhancement of the real property to which it is installed or attached; and

2. Has a unique identity and function which is related to the business or trade for which it is installed or attached, and which is distinct from the real property to which it is installed or attached.

(Added to NAC by Tax Comm'n by R068-12, eff. 9-14-2012)

Excerpts from Department of Taxation Letter of Guidance

Letter dated December 2, 2004, responding to County Assessors' Question:

"In determining the proper amount of depreciation to be applied to personal property using the Department's Personal Property Manual, does the year of acquisition refer to a calendar year or a fiscal year?"

Short Answer:

The use of the year of acquisition is dependent on the fiscal year only with regard to the correct selection of the Personal Property Manual to be used. The year of acquisition is otherwise an actual date during a calendar year that indicates the age of the property to be used in the expected life tables.

(Please ask the department for a copy of the letter if you wish to read the entire discussion.)

APPENDIX B

Methodology Used to Estimate Cost Indexes

The percent change in each index is measured between the current year and the prior year. The mean of the sum of the changes for each year of the expected life table is calculated and becomes the basis for the cost index to trend acquisition cost to a current replacement cost.

Sources Used to Estimate Cost Indexes

Producer Price Index (PPI)

The Producer Price Index (PPI) is a family of indexes that measures the average change over time in selling prices received by domestic producers of goods and services. PPIs measure price change from the perspective of the seller. This contrasts with other measures, such as the Consumer Price Index (CPI), that measure price change from the purchaser's perspective. Sellers' and purchasers' prices may differ due to government subsidies, sales and excise taxes, and distribution costs.

Data Source

- The PPI sample includes over 16,000 establishments providing approximately 64,000 price quotations per month supplemented with data from other sources for some areas.
- Establishments are selected for the PPI survey via systematic sampling of a list of all firms in the industry.
- Participation by firms is completely voluntary.
- Participating establishments report price data online through a secure website.
- Good and services included in the PPI are weighted by value-of-shipments data contained in the 2017 economic censuses.
- Industries and products undergo systematic resampling as needed, to account for changing market conditions.

The Producer Price Index series reference has been updated from a Stage of Processing ID code to a Final Demand-Intermediate Demand Goods Index. The conversion may be found in an Index Concordance Table located at http://www.bls.gov/ppi/fdidconcordance.htm, which converts SOP3200, Capital equipment, to FD41312, Private capital equipment. The PPI Index using FD41312 may be found at http://www.bls.gov/ppi/fdidsf16.htm.

Consumer Price Indexes (CPI)

The consumer price index (CPI) is a measure of the average change over time in the prices paid by urban consumers or households for a market basket of consumer goods and services. The Bureau of Labor Statistics publishes CPIs for two population groups: (1) the CPI for Urban Wage Earners and Clerical Workers (CPI-W), which covers households of wage earners and clerical workers that comprise approximately 29 percent of the total population and (2) the CPI for All Urban Consumers (CPI-U) and the

Chained CPI for All Urban Consumers (C-CPI-U), which cover approximately 93 percent of the total population and include in addition to wage earners and clerical worker households, groups such as professional, managerial, and technical workers, the self-employed, short-term workers, the unemployed, and retirees and others not in the labor force.

The CPI represents all goods and services purchased for consumption by the reference population (CPI-U or CPI-W). BLS has classified all expenditure items into more than 200 categories, arranged into eight major groups. Major groups and examples of categories in each are as follows:

- FOOD and BEVERAGES (breakfast cereal, milk, coffee, chicken, wine, full-service meals and snacks)
- HOUSING (rent of primary residence, owners' equivalent rent, fuel oil, bedroom furniture)
- APPAREL (men's shirts and sweaters, women's dresses, jewelry)
- TRANSPORTATION (new vehicles, airlines fares, gasoline, motor vehicle insurance)
- MEDICAL CARE (prescription drugs and medical supplies, physicians' services, eyeglasses and eye care, hospital services)
- RECREATION (televisions, cable television, pets and pet products, sports equipment, admissions)
- EDUCATION AND COMMUNICATIONS (college tuition, postage, telephone services, computer software and accessories)
- OTHER GOODS AND SERVICES (tobacco and smoking products, haircuts and other personal services, funeral expenses)

Also included within these major groups are various government-charged user fees, such as water and sewerage charges, auto registration fees, and vehicle tolls. The CPI also includes taxes (such as sales and excise taxes) that are directly associated with the prices of specific goods and services. However, the CPI excludes taxes (such as income and Social Security taxes) not directly associated with the purchase of consumer goods and services.

The CPI does not include investment items, such as stocks, bonds, and life insurance. (These items relate to savings and not to day-to-day consumption expenses.)

The Consumer Price Index series ID reference is CUUR0400SA0, CUUS0400SA0 for area West Urban, All Items. The base period is 1982-84 = 100. The data may be found at http://data.bls.gov/pdq/SurveyOutputServlet?data_tool=dropmap&series_id=CUUR0400SA0,CUUS0400SA0.

Marshall Valuation Service

Marshall Valuation Service publishes a national average equipment cost index based on industry type. The Department measures the change in the index for each category of industry from the prior year.

Market Tests

In addition to the sources already cited, the Department conducts market tests to validate the results of applying the cost indices to particular items of personal property. The original cost of a selected sample of personal property items is trended using the proposed cost index conversion factor. The result of this calculation is compared to the actual average resale of the item obtained from various market research sources. The purpose of the market test is to ensure the proposed cost indices do not result in a value which exceeds full cash value. The market tests are also used to establish hypothetical market-based depreciation schedules. The sources of information for the market comparisons include the following:

- N.A.D.A., The Manufactured Housing Cost Guide, (Online Version) (J.D. Power) The Guide provides the average retail book value by manufacturer, model, and region of mobile home, with tables for options. Values are provided for homes one to fourteen years of age, and conversion tables for homes older than 14 years.
- Aircraft Bluebook Price Digest Online, (Online Version) (Price Digests, Informa Business Media, Inc., Overland Park, KS). The Bluebook provides representative average retail prices of fixed wing aircraft and helicopters.
- Grounds Maintenance Equipment Blue Book Online, (Online Version) (Price Digests, Informa Media, Overland Park, KS). The Blue Book provides the estimated average resale or retail price, excluding options of power equipment.
- Powersport Vehicle Blue Book, (Online Version) (Price Digests, Informa Business Media, Inc., Overland Park, KS). The Blue Book provides pricing in the powersports industry, including snowmobiles, personal watercraft, trailers, and motorcycles.
- The Official Tractor Blue Book Online, (Online Version) (Price Digests, Informa Business Media, Inc., Overland Park, KS). The Blue Book provides the estimated average resale or retail price, excluding options of power equipment.
- Green Guide for Construction Equipment, (Online Version) (Equipment Watch, 6151 Powers Ferry Road, Suite 200, Atlanta, GA 30339) The values in this guide are derived from a reporting system of equipment dealers, distributors, manufacturers, auctioneers and contractors. It is based on both surveys and averaging of actual sales. These volumes include Volume 1: Earthmoving Equipment, Volume 2: Lifting Equipment and Volume 3: Other Equipment (Compaction, Concrete and Crushers).
- Orion Research Corporation, (Roger Rohrs Publisher) (http://www.usedprice.com) The website is the electronic successor to the Orion Blue Book. It determines the used prices of computers and peripherals based on dealer surveys gathered nationwide. Dealers are asked to provide the “asking price,” “Selling price,” and “days to sell.” The used price is then calculated based on what an average store could sell the product for in 30 days or less. Orion Research states that this data is updated on an ongoing basis.

APPENDIX C

Methodology Used to Estimate Expected Useful Life

The Department estimates the expected useful life of different types of personal property by surveying a variety of sources. Expected useful life is defined as the amount of time an item of personal property can be expected to last before it wears out, decays, gets used up, becomes obsolete, or loses its value from natural causes. The life is measured from the time the property is first put into service until it is retired from service or permanently withdrawn from use in a trade or business, or when the production of income ceases because the property has been sold, exchanged, converted to personal use, abandoned, or otherwise destroyed.

The Department does not have the resources available to perform its own mortality or actuarial studies. However, there are other sources that do perform this service. The sources itemized below include actuarial studies of the Internal Revenue Service, Marshall and Swift Costing Service, and the California State Board of Equalization. Also included are the surveys of several western states and certain industries.

Sources Used to Estimate Expected Useful Life

Marshall Swift Valuation Service, "Residential Cost Handbook", (Marshall & Swift, L.P., December 2022) Costs ranges are based on averages created for the US and Canada, and other items listed are based on what is readily available today.

Marshall Swift Valuation Service, "Life Expectancy Guidelines," (Marshall & Swift, L.P., January 2023)

Depreciable assets are listed by industry group and are extracted from U.S. Treasury Department Internal Revenue Service Publication 534 titled "Depreciation." The Guidelines list ranges of life. In certain cases, the IRS was not the primary source. In those cases, the range of life is based on a composite of studies of equipment, bookkeeping practices and appraisers' opinions as compiled from a consensus of recognized trade groups, suppliers and other interested parties. Computers and terminals are one example of an independent study conducted by Marshall & Swift.

Department of the Treasury, Internal Revenue Service, Publication 946, "How to Depreciate Property," and Publication 534, "Depreciating Property Placed in Service Before 1987."

These two publications specifically identify types of property and the expected useful life. For instance, an example of five-year property is computers and peripheral equipment.

Arizona:

Arizona Department of Revenue Personal Property Manual

California:

California Assessors' Handbook Section 581, January

California Assessors' Association Economic Life and Minimum Percent Good Table (Section IV)

California Assessors' Association Business Assessment Factors, January

Colorado:

Colorado Department of Local Affairs Personal Property Manual,

Montana:

Montana Department of Revenue Personal Property Depreciation Schedules and Trend Tables

New Mexico:

New Mexico Taxation and Revenue Department Business Personal Property Valuation Guidelines

Oregon:

Oregon Department of Revenue Personal Property Valuation Guidelines

Utah:

Utah State Tax Commission Recommended Personal Property Valuation Schedules and Registered Vehicle Uniform Fees

Washington:

Washington State Department of Revenue Personal Property Manual,

Personal and Industrial Property Valuation Guidelines,

Combined Trended Investment Tables for Personal and Industrial Property (Percent Good Indicators)

Wyoming:

Wyoming Department of Revenue Personal Property Valuation Manual,

Life, Trending, and Depreciation Tables

APPENDIX D

2025-26 PERSONAL PROPERTY MANUAL: VALUATION GUIDELINES

Exemptions from Property Taxes

Article 10, Section 1 of the Nevada Constitution requires the "valuation for taxation of **all** property, real, personal and possessory...." NRS 361.045 also provides that, except as otherwise provided by law, all property of every kind and nature whatever within this state shall be subject to taxation. Other statutes, however, grant exemptions to particular types of property. Some are granted exemption at face-value, and other types of property must qualify according to specific criteria in order to receive the exemption.

The types of exemptions range from partial exemptions granted to veterans, disabled veterans, surviving spouses and blind persons to exemptions from taxation for all real and personal property granted to governmental entities, religious, charitable and non-profit organizations, and individual organizations which are specifically cited. In many cases, the statutes specifically recite that the property must be used to carry out the legitimate function of the organization, and if not, the property becomes taxable.

For the types of exemptions which must go through a qualification process, the county assessors must collect, evaluate and process the various claims for property tax exemptions. Application forms which have been approved by the Nevada Tax Commission should be made available. Each form should request information regarding taxpayer contact information, the type of exemption being claimed, the property which the exemption, if granted, would affect, a statement or statements why the property qualifies for the exemption, and supporting documentation if necessary. The purpose of any form is to provide sufficient information to help assessors make a reasoned determination to approve or deny applications.

In the event a claim for exemption is ambiguous or open to interpretation, how the property is used may indicate whether or not an exemption applies. The general rule espoused by the courts is that strict construction of exemption statutes applies to exemptions for property held in private ownership but not to exemptions for public property where exemption is the rule and taxation the exception. 2 Thomas M. Cooley, *The Law of Taxation*, § 673 at 1414-15 (4th ed. 1924). Said another way, property held in private ownership must strictly comply with all the criteria established for the exemption because “taxation is the rule and exemption the exception.” On the other hand, for property held by a public entity, the rule is reversed to say “exemption is the rule and taxation the exception.”

The purpose in establishing a broad construction of exemption for public entities is to prevent an escalating spiral of unnecessary taxation and administrative costs with no benefit to the public. 16 Eugene McQuillin, *The Law of Municipal Corporations*, § 44.57 at 206 (3rd ed. 1994). If one governmental entity chooses to tax the property of another governmental entity, the governmental entity forced to pay taxes may have to levy and collect new taxes to meet the demands of the tax. 2 Cooley, *supra*, § 621 at 1313. The effect of such a tax spiral is that the public would be taxing itself to raise money to pay itself.

In cases where it is not clear whether an exemption should be granted, assessors should solicit legal advice from the county district attorney's (D.A.) office.

The attached chart lists the current status of specific exemptions available in the statutes, in alphabetical order.

Legend:
Due Date for Application:
(1) No application required
(2) One time only until status changes. The claim must be made by June 15th. *See NRS 361.155 (1) and (3)*
(3) Annually, by June 15th. *See NRS 361.155 (1)*
(4) Annually, by July 1st. *See NAC 361.062*
(5) Annually, by December 30th. *See NRS 362.050*

Exemption Type	NRS Reference	NAC Reference	Property Type	Due Date for Application See Legend	Explanation
Airport	361.061(1)		Real	(2)	Improvement of land by the public as an airport is a municipal purpose, whether or not the airport is owned or operated by a local government.
American Land Conservancy	361.111		Real	(2)	Real property including improvements is exempt if: the property is held for acquisition by a Federal, state or local government and the said government has agreed in writing to consider acquiring said real property; or if the property will be held indefinitely and vested in the listed conservancy organization. If the property is held for purposes of conservation for any entity other than the State or local government, the land must be assessed as first-class pasture. If the property is transferred for purposes other than conservation, taxes must be collected for each year it was exempt.

Exemption Type	NRS Reference	NAC Reference	Property Type	Due Date for Application See Legend	Explanation
American National Red Cross and Nevada Chapters	361.110		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also YMCA, YWCA, American National Red Cross, Salvation Army Corp, GSA, Camp Fire Girls, BSA, Sierra Arts Foundation, Nevada Museum of Art, Inc.*
Apprenticeship Programs	361.106		Both	(2)	Real and personal property of an apprenticeship program is exempt if (1) the property is held in a trust created by 29 U.S.C. § 186 or (2) is owned by a local or state apprenticeship committee and the program is operated by a qualifying organization and registered and approved by the state apprenticeship council.
Archaeological Conservancy	361.111, AB 209 (2007)		Real	(2)	See explanation under American Land Conservancy.
Architectural Barrier Removal for Disabled Persons	361.087		Real	(2)	Improvements to a residence occupied by a person with a disability are exempt. The person must claim the benefit by filing an affidavit setting forth the nature of the improvement and the date of making the improvement. See statute for examples.
Bank Deposits	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Bee Colonies	361.068		Personal	(1)	Bee colonies are exempt personal property.

Blind Persons	361.085		Both	(3)	Property of blind persons up to an assessed value of $3,000, as modified by CPI, is exempt. The original affidavit of claim must be accompanied by a certificate from a physician certifying the person is blind. Renewal affidavits must be completed each year.
Boats	361.068		Personal	(1)	All boats are exempt.
Bonds	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Book Accounts	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Boulder City Museum and Historical Association	361.110		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also YMCA, YWCA, American National Red Cross, Salvation Army Corp, GSA, Camp Fire Girls, BSA, Sierra Arts Foundation.*
Boy Scouts of America	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*
Business Inventories & Consumables	361.068	361.065	Personal	(1)	Property consumed during the operation of the business, as differentiated from a component part of a manufactured item, is exempt. The property must meet the criteria listed in NAC 361.065.
Camp Fire Girls Inc.	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*
Campers, Slide-in & Shells	361.068		Personal	(1)	All slide-in campers and camper shells are exempt.

Carnival, Circus, Convention, Display, Exhibition, Fair	361.068		Personal	(1)	Personal property, transient in nature, owned by a non-resident and located in this state for use by or in a carnival, circus, convention, display, exhibition or fair is exempt. *See also transient personal property.*
Cost of collection	361.068		Personal	(1)	Personal property for which the annual taxes would be less than the cost of collecting those taxes is exempt. NTC determines level of cost.
Cemeteries and Graveyards - Public	361.130		Real	(1)	Exempt cemeteries and graveyards must be open to the public and no charge is made for burial.
Cemeteries and Graveyards – Private	361.132		Real	(2)	Real property of a nonprofit corporation governed by the provisions of NRS Chapter 82 formed for the purposes of procuring and holding lands to be used exclusively for a cemetery are exempt, so long as the lots or plats remain dedicated to the purpose of a cemetery.
Charitable Foundation: *See University*	361.098		Both	(2)	All property owned by the charitable foundation established by the Board of Regents of University of Nevada is exempt unless it is used for a purpose other than carrying out the legitimate functions of the foundation.
Charitable Organizations	361.135		Both	(2)	See Lodges
Charitable Corporations	361.140		Both	(2)	Property actually occupied and used by corporation meeting certain qualifying criteria is exempt.
Charter School Leased Property	361.096		Both	(2)	All property leased or rented to a charter school is deemed to be used for an educational purpose and is exempt. Only the portion of the property that is used for the lease or rental to a charter school is exempt.

Churches & Chapels	361.125		Both	(2)	Buildings and personal property used for religious worship other than marriage chapels, is exempt. The property must be owned by a recognized religious society or corporation. If the property is used for other than church purposes and a rent is received, the property is not exempt.
Church Land, see *also "Land Used for Worship"*	361.125		Real	(2)	Parcels of land used exclusively for worship, including without limitation, both developed and undeveloped portions of a parcel.
Counties, Town, Municipal Corp	361.060		Both	(1)	Property of counties, domestic municipal corporations, irrigation drainage, reclamation district, or town, except for certain community pastures, is exempt. *See also Nevada Rural Housing Authority, Irrigation Districts*
Conservation District	361.060		Real	(1)	Real property acquired on or after 7-1-2003 by a conservation district is exempt.
Defenders of Wildlife	361.135		Both	(2)	*See Lodges for explanation.*
Disabled Veterans	361.091		Both	(3)	Up to $20,000 assessed value of property, adjusted by CPI, may be exempt, based on a sliding scale of disability of the veteran-owner. Only the property of residents or their surviving spouses meeting certain qualifying criteria is eligible for exemption.
Drainage Ditches, Canals & Irrigation Systems	361.070		Real	(1)	Drainage ditches and canals along with the lands included in the right-of-way of the ditch or canal are exempt. Each part of a permanently installed irrigation system, including pipes, concrete linings of ditches and headgates, are exempt.
Elderly & Handicapped Housing	361.086		Real and personal used for housing	(2)	All real property and mobile or modular housing and related facilities for elderly or handicapped persons are exempt if certain qualifying criteria are met.
Eagles Club	361.135		Both	(2)	*See Lodges for explanation*
Elks Club	361.135		Both	(2)	See Lodges for explanation.

Energy Systems (fka Heating & Cooling Systems)	701A.200 (fka 361.079)	361.052-361.058	Both	(1)	The value of a qualified system is not included in the assessed value of the building of which it is a part. Qualified systems in commercial or industrial buildings receiving certain other abatements or exemptions are ineligible for this exemption. System must conform to standards established by the Department.
Fine Art for Public Display	361.068; 361.186	361.030 – 361.044	Personal	(3)	The exemption is limited to certain kinds of works of art purchased for $25,000 or more and meets certain public display requirements. When a taxpayer collects an admission fee, the amount of exemption is reduced by the net revenue received by taxpayer. *See NRS and NAC requirements.*
Girl Scouts of America	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*
Habitat for Humanity	361.115		Both	(2)	All property is exempt unless it is used for a purpose other than carrying out the legitimate functions of the organization. *See also Nevada Children's Foundation, Nevada Heritage Association.*
Hospital	361.083		Real	(2)	Property on which stands a hospital or other charitable asylum for the care or relief of orphans or sick, infirm or indigent persons owned by a qualifying non-profit corporation, is exempt. If the property is used for a different purpose, the property is taxable. *See also orphan children.*
Household Goods and Furniture	361.069	361.085	Personal	(1)	Household goods, furniture except certain appliances and furniture of time-share projects, are exempt. Examples are in both statute and regulation.
Irrigation, Drainage, Reclamation District	361.060		Both	(1)	See Counties, Towns for explanation.
Knights of Pythias	361.135		Both	(2)	*See Lodges for explanation.*
Knights of Columbus	361.135		Both	(2)	*See Lodges for explanation.*

Lahontan Audubon Society	361.135		Both	(2)	*See Lodges for explanation.*
Land Used for Worship	361.125		Real	(2)	*See Church Land for explanation.*
Livestock	361.068		Personal	(1)	Livestock is exempt. Livestock is defined at NAC 361A.055. See also Article 10 (6).
Lodges & Other Charitable Organizations	361.135		Both	(2)	Funds, furniture, paraphernalia and regalia owned by certain charitable organizations as well as real estate and fixtures are exempt. If the real estate is leased, the exemption does not apply to the portion so leased or rented.
Low Income Housing Projects	361.082	361.089	Both	(3)	That portion of real property and tangible personal property used for housing and related facilities for persons with low incomes is exempt if the property meets certain criteria.
Masons	361.135		Both	(2)	*See Lodges for explanation.*
Mortgages	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Motor Vehicles	361.067		Personal	(1)	Vehicles defined in NRS 371.020 are exempt, except mobile homes. NRS 371.020 refers to NRS 482 and 706. Under NRS 482.210, special mobile equipment is not licensed and is therefore taxable for property tax.
Nathan Adelson Hospice	361.088		Both	(2)	All property is exempt, unless it is used for any purpose other than carrying out the legitimate functions of hospice care.
National Audubon Society	361.135		Both	(2)	*See Lodges for explanation.*
Nature Conservancy	361.111		Real	(2)	*See explanation under American Land Conservancy.*
Nevada Children's Foundation	361.115		Both	(2)	*See Habitat for Humanity for explanation.*
Nevada Heritage Association	361.115		Both	(2)	*See Habitat for Humanity for explanation.*
Nevada Land Conservancy	361.111		Real	(2)	*See explanation under American Land Conservancy.*

Nevada Museum of Art	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also YMCA, YWCA, American National Red Cross, Salvation Army Corp, GSA, Camp Fire Girls, BSA, Sierra Arts Foundation.*
Nevada Rural Housing Authority	361.060		Real	(1)	*See explanation under Counties, Cities*
Noncommercial Theaters	361.145		Both	(2)	Buildings, furniture & equipment of noncommercial theaters owned and operated by nonprofit educational corporations organized for the exclusive purpose of conducting theater practice classes and the production of plays on a nonprofessional basis are exempt.
Nonprofit Private Schools	361.105		Both	(2)	All property is exempt from taxation.
Odd Fellows	361.135		Both	(2)	*See Lodges for explanation.*
Orphan Children or Sick, Infirm or Indigent Persons	361.083		Real	(2)	Land and buildings use for the care or relief of orphans or of sick, infirm or indigent persons owned by a nonprofit corporation organized or existing pursuant to NRS 82, is exempt. *See also Hospitals.*
Patented Mining Claims	362.010-362.095		Real	(5)	Upon receipt of an affidavit from the county recorder pursuant to NRS 362.050, the assessor shall exclude from the roll the assessment against the patented mine or mining claim named in the affidavit.
Pershing County Kids, Horses, Rodeo Inc.	361.107		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization.
Personal Property Held for Sale by Merchant	361.068		Personal	(1)	Personal property held for sale by a merchant is exempt.
Personal Property Held for Sale by Manufacturer	361.068		Personal	(1)	Personal property held for sale by a manufacturer is exempt.

Personal Property in Transit	361.160-361.185	361.062	Personal	(4)	Claims must be submitted to county assessor in which the warehouse is located and a certification from the warehouse as to the status of the property must be attached.
Pipe & Irrigation Equipment	361.068		Personal	(1)	Pipe and other agricultural equipment used to convey water for the irrigation of legal crops is exempt.
Pollution Control Devices	361.077	361.046-361.050	Both	(3)	Property used as a facility, device, or method for the control of air or water pollution is exempt. Taxpayer must supply an annual affidavit to assessor on a form approved by Department. Certain property is not exempt per NAC 361.046.
Possessory Interest – Vending Stands	361.159		Personal	(3)	The possessory interest in otherwise exempt property is taxable, except for vending stands operated by blind persons under the auspices of the Bureau of Services to the Blind – DETR.
Possessory Interest – Public Airport	361.159		Personal	(2)	The possessory interest in otherwise exempt property is taxable, except for personal property owned and used in a public airport.
Possessory Interest – Public Airport, Park, Market, Fairground	361.157(2)(a)		Real	(2)	The possessory interest in otherwise exempt property is taxable, except for real property located upon a public airport, park, market, or fairground. Certain leased property on a public airport made available for purposes other than the purposes of a public airport is taxable.
Possessory Interest – Federal Property	361.157(2)(b)		Real	(1)	A possessory interest in federal property for which PILT payments are made is exempt.
Possessory Interest – State-supported Educational Institution	361.157(2)c		Real	(1)	A possessory interest in the property of any state-supported educational institution is exempt, except any part located within a TIA created pursuant to NRS 278C.155.

Possessory Interest – Taylor Grazing Act, USFS, BuRec	361.157(2)(d)		Real	(1)	A possessory interest in property used by persons, associations or corporations according to the Taylor Grazing Act, United States Forest Service or the Bureau of Reclamation is exempt.
Possessory Interest – Indian Tribe	361.157(2)(e)		Real	(1)	A possessory interest in property of any Indian held in trust by the U.S. is exempt.
Possessory Interest – Vending Stands of the Blind	361.157(2)(f)		Real	(1)	A possessory interest in vending stand locations operated by blind persons under the auspices of the Bureau of Services to the Blind and Visually Impaired – DETR, is exempt.
Possessory Interest – Geothermal Leases	361.157(2)(g)		Real	(1)	A possessory interest in geothermal leases for resources which have not been put into commercial production, is exempt.
Possessory Interest – Public Officer or Employee	361.157(2)(h)		Real	(1)	A possessory interest in property that is leased, loaned or made available to a public officer or employee in the course of public employment, is exempt.
Possessory Interest – Parsonage	361.157(2)(i)		Real	(1)	A possessory interest in a parsonage owned by a recognized religious society or corporation when used exclusively as a parsonage, is exempt.
Possessory Interest – Charitable or Religious Residence	361.157(2)(j)		Real	(1)	A possessory interest in a residence used by a person carrying out the activities of a charitable or religious organization is exempt
Possessory Interest – Shelter for Elderly or Indigent	361.157(2)(k)		Real	(1)	A possessory interest in property which is used to provide shelter at a reduced rate to the elderly or indigent is exempt.
Possessory Interest – Rental of Meeting Rooms	361.157(2)(l)		Real	(1)	A possessory interest in property used as meeting rooms or similar facilities for periods of less than 30 consecutive days is exempt.
Possessory Interest – Daycare	361.157(2)(m)		Real	(1)	A possessory interest in property used as a daycare by a nonprofit organization is exempt.

Promissory Notes	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Privately Owned Airports Used by Public	361.061(2)		Real	(2)	Privately owned airport property used for a public purpose, except areas from which income is derived, is exempt.
Privately Owned Parks Used by Public	361.0605	361.080	Real	(2)	The initial claim for exemption must be accompanied by a copy of the agreement with a local government that the property may be used by the public without charge. A sign must also be posted at each entrance to park. The exemption does not include areas from which income is derived.
Public Function Trusts	361.062		Both	(2)	Property of a trust created for the benefit of any public function pursuant to law is exempt, however, PILT monies may be paid to the beneficiary if so, provided in any agreement contained in creating the trust.
Radioactive Fallout Shelters	361.078		Real	(3)	Residential property is exempt up to $1,000 in assessed value if it meets certain qualifying conditions.
Raw Materials & Components Consumed in the Process of Manufacture	361.068		Personal	(1)	Raw materials are exempt when they are held by a manufacturer for manufacture into products. Supplies consumed in the process of manufacture are also exempt.
Salvation Army Corps	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*
School Districts	361.065		Both	(1) school dist	All property owned by any legally created school district or charter school and devoted to public school purposes is exempt.
				(2) charter school	

Sierra Arts Foundation	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*
State Lands	361.055		Both	(1)	All property owned by the state, except land assigned to the Department of Wildlife, is exempt. PILT payments are made by the Department of Wildlife.
Stocks	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Surviving Spouse	361.080		Both	(3)	Property of surviving spouses up to an assessed value of $1,000, as modified by CPI, is exempt. The original affidavit of claim must be accompanied by a death certificate showing the claimant was married to the deceased at the time of their death. Renewal affidavits must be completed each year.
Surviving Spouses of Disabled Veterans	361.091		Both	(3)	See Disabled Veterans.
Transient Personal Property	361.068		Personal	(1)	Personal property owned by a non-resident and located in Nevada for purposes of a display, exhibition, convention, carnival, fair or circus is exempt. *See also Carnival, fair circus.*
United States	361.050		Both	(1)	All property owned by the United States is exempt.
University Fraternities & Sororities	361.100		Real	(2)	Real property owned by fraternities and sororities whose members are students at UNR or UNLV and use the property as their home, is exempt.
University System: Charitable Foundation	361.098		Both	(2)	All property owned by a charitable foundation established by the Board of Regents of the University of Nevada is exempt, unless it is used for a purpose other than the legitimate functions of the foundation.

University System Leased Property	361.099	361.070	Both	(2)	Property leased to the Nevada System of Higher Education is exempt if the total consideration from the lease is less than 10 percent of the fair market value of the property. Certain documentation must be provided. *See NAC 361.070.*
Unpatented Mines & mining Claims	361.075		Real	(1)	Unpatented mines and mining claims are exempt, except for possessory interests in lands held by U.S. or state of Nevada.
Vehicles	361.067		Personal	(1)	*See Motor Vehicles*
Veterans	361.09		Both	(3)	Up to $2,000 assessed value, adjusted by CPI, of property may be exempt. Only the property of residents meeting certain qualifying criteria is eligible for exemption.
Veteran Organizations	361.095		Both	(2)	Up to $10,000 assessed value, adjusted by CPI, of Funds, furniture, paraphernalia and regalia owned by certain charitable organizations as well as real estate and fixtures, is exempt. If the real estate is leased, the exemption does not apply to the portion so leased or rented.
Volunteer Fire Departments	361.150		Both	(2)	All property is exempt, unless it is used for any purpose other than carrying out the legitimate functions of a volunteer fire department.
Water Users' Nonprofit Associations	361.073		Both	(2)	All property is exempt, unless it is used for any purpose other than carrying out the legitimate functions of a water users' nonprofit cooperative corporation.
Young Men's Christian Association	361.110		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*
Young Women's Christian Association	361.110		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*

APPENDIX E

2025-26 PERSONAL PROPERTY MANUAL: VALUATION GUIDELINES

Determining Whether Fixtures are Real or Personal Property

NRS 361.333 requires that each major class of property be examined to determine whether there is equality of assessment. One of the principal classes of property is personal property, pursuant to NRS 361.227(4). Uniformity and equality of assessment thus depend on proper classification. Although NRS 361.035 defines real estate and NRS 361.030 defines personal property, in practice it is sometimes difficult to tell whether an item is personal property or a fixture that is part of the real estate. As the Attorney General stated in Opinion #41 (1963), "the classification depends on the facts of each particular case." The assessor is encouraged to consult the Division of Local Government Services and/or the District Attorney in difficult cases.

A fixture may be defined as an item that was originally personal property which has been installed or attached to land or an improvement in a permanent manner. There is an abundant amount of case law which discusses three tests often used in deciding whether an item is a fixture. The tests are:

1. Physical Annexation;
2. Constructive Annexation, also called Adaptation; and
3. Intent

Under the first test, annexation, an item is a fixture if it is attached to, imbedded in or permanently resting upon land or an improvement, or is attached by other means that are normally used for permanent installation, and cannot be removed without substantially damaging the item or the land or improvement with which it is being used. For example, an item which is attached to real property for stability and has quick disconnect attachments such as simple wiring and conduit connections may not meet the test for a permanent fixture.

Under the second test, constructive annexation, an item is a fixture if the use or purpose of an item that is not otherwise physically annexed to land or an improvement is so adapted that it is:

A. A necessary, integral or working part of the land or improvement;
B. Designed or committed for use with the land or improvement; or
C. So essential to the land or improvement that the land or improvement cannot perform its desired function without the nonattached item.

Using the constructive annexation test, if the purpose of the item is to augment the use of the improvement no matter how it is attached, such as an elevator, the item must be considered a fixture. Another example would be heating, ventilation, and air conditioning equipment (HVAC). Equipment used to heat, ventilate, or cool a structure is considered to be real property.

Permanently attached personal property may be temporarily removed for repair or renovation onsite and still be considered permanently attached. Permanently attached fixtures do not include movable tangible personal property that is attached for convenience, stability, or an obviously temporary purpose.

Underlying both the physical or constructive annexation tests is a determination of intent. An assessor must consider whether the item is intended to be a permanent part of the land or improvement, taking into account

physical or constructive annexation, and other objective manifestations of permanence. NAC 361.1127 provides examples of objective manifestations of permanence.

A trade fixture may be distinguished from a fixture. It is an item of personal property that is non-permanently attached to real property for the purpose of conducting a business or trade; and has a unique identity and function separate from the real property to which it is attached. NAC 361.11745 provides a definition of trade fixture.

Pursuant to NRS 361.244, a mobile or manufactured home becomes real property when the Assessor has listed it on the tax roll as real property. The classification of mobile and manufactured homes as real property may be made when the requirements enumerated in NRS 361.244(1) and (2) are met. This includes the issuance of a Real Property Notice by the Manufactured Housing Division of the Department of Business and Industry. Factory-built housing becomes real property once it is permanently affixed to the land. These housing units conform to the Uniform Building Code and are not titled. As such they are not personal property nor are they considered "conversions". These "UBC" homes do not exhibit the HUD placards found on manufactured housing. Instead, they may have a placard referencing NRS 461.080 and their serial numbers may begin with the characters "UBC".

In general, personal property is defined by exception pursuant to NRS 361.030. Property that does not meet the criteria of real property is personal property. To assist in making the determination on real and personal property, which occurs on a case-by-case basis, the six-factor Whiteco test, in which the following questions were developed in helping determine if property was/is considered tangible personal property or real property. The six questions are:

1. Is the property capable of being moved, and has it in fact been moved?
2. Is the property designed or constructed to remain permanently in place?
3. Are there circumstances which tend to show the expected or intended length of affixation — that is, are there circumstances which show that the property may or will have to be moved?
4. How substantial a job is removal of the property and how time consuming is it? Is it "readily removable"?
5. How much damage will the property sustain upon its removal?
6. What is the manner of affixation of the property to the land? Can it be removed without causing damage?

The Assessor should recognize that certain fixtures such as bars, stages, walk-in coolers, or bank drive-ups, may already be included in the real property component of the Assessor's Taxable Value. The Assessor should review the differing building occupancies of the Marshall-Swift cost manuals to ensure that a component of real or personal property is not double-assessed. The improper classification of any component of taxable property as real or personal does not render the valuation void or invalid.

For further research and explanation, please consult:

Attorney General Opinion 2012-10 (10-31-2012) (as it applies to fixtures, not to trade fixtures)
Attorney General Opinion #41 (1963)
Attorney General Opinion No. 2000-04
Marvin Arnold, Respondent, v. Goldfield Third Chance Mining Co, 32 Nev. 447; 109 P. 718 (1910)
National Advertising Co. v. State Department of Transportation, 116 Nev. Adv. Op. No. 10, (Feb. 2, 2000)

Fondren, et al, v. K/L Complex Ltd., et al., 106 Nev. 705; 800 P.2d 719; (1990)
Morse Signal Devices of California v. County of Los Angeles, 161 Cal. App. 3d 570; 207 Cal Rptr. 742 (1984)
Crocker National Bank v. City and County of San Francisco, 782 P.2d 278 (1989)
State v. Pioneer Citizens Bank of Nevada, 85 Nev. 395 (1969)
Kaiser Co. v. *Reid* (1947) 30 Cal.2d 610
Whiteco Industries, Inc. v. Commissioner, 65 T.C. 664 (1975)

References:

International Association of Assessing Officers, Standard on the Valuation of Personal Property, December 2005. This publication may be obtained free of charge from the IAAO website at http://docs.iaao.org/media/standards/StandardValuationPersonalProperty.pdf

The Appraisal Institute: The Appraisal of Real Estate, 14th Edition, Chicago: 2013

APPENDIX F

UTILITY SCALE PHOTOVOLTAIC SOLAR FARM
30 YEAR LIFE
200% DECLINING BALANCE

NAC 361.1375 requires that each category of property must be assigned to a schedule of expected life which is based on commonly available sources of information, including, without limitation, the life expectancy guidelines published in Marshal and Swift Valuation Service and any other sources published in the Personal Property Manual.

NAC 361.1375(4) allows that Depreciation must be calculated over the expected life of the personal property by using the declining balance method, except that tables which provide a method other than the declining balance method for calculating depreciation may be used if the tables have been approve by the Commission.

Utility Scale Solar Farms have provided for a unique study in depreciation. There has been rapid de-appreciation of the cost to construct and build solar farms. With this the normal cost indexes which generally account for an appreciating market to bring prior years costs current have proven insufficient in determining a current acquisition cost to be depreciated. The below proposed table is made in accordance with subsection 4 of NAC 361.1375. A market study was conducted to produce a depreciation table to better reflect and ensure that taxable value of such structures do not exceed full cash value according to NRS 361.227.

This table would only be applicable to Utility Scale Solar Farms that are classified as personal property. That classification is made on a case by case basis with the assistance of the guidance provided in Appendix E. Cost Indexes are currently only provided back to 2007 as that is availability of data but will be updated in future years.

UTILITY SCALE PHOTOVOLTAIC SOLAR FARM 30 YEAR LIFE
200% DECLINING BALANCE

YEAR ACQUIRED	AGE	PROPOSED COST INDEX	PERCENT DEPRECIATION	PERCENT GOOD	PROPOSED CONVERSION FACTOR
2025	0	1.00	0.0	100.0	1.0000
2024	1	0.93	7.0	93.0	0.8649
2023	2	0.87	13.0	87.0	0.7569
2022	3	0.81	19.0	81.0	0.6561
2021	4	0.76	24.0	76.0	0.5776
2020	5	0.70	29.0	71.0	0.4970
2019	6	0.64	34.0	66.0	0.4224
2018	7	0.57	38.0	62.0	0.3534
2017	8	0.51	42.0	58.0	0.2958
2016	9	0.45	46.0	54.0	0.2430
2015	10	0.40	50.0	50.0	0.2000
2014	11	0.35	53.0	47.0	0.1645
2013	12	0.30	56.0	44.0	0.1320
2012	13	0.25	59.0	41.0	0.1025
2011	14	0.21	62.0	38.0	0.0798
2010	15	0.17	64.0	36.0	0.0612
2009	16	0.13	67.0	33.0	0.0429
2008	17	0.10	69.0	31.0	0.0310
2007	18	0.06	71.0	29.0	0.0174
2006	19		73.0	27.0	
2005	20		75.0	25.0	
2004	21		77.0	23.0	
2003	22		79.0	21.0	
2002	23		81.0	19.0	
2001	24		83.0	17.0	
2000	25		85.0	15.0	
1999	26		87.0	13.0	
1998	27		89.0	11.0	
1997	28		91.0	9.0	
1996	29		93.0	7.0	
1995	30		95.0	5.0	
Residual			95.0	5.0	

Used 2022-2023 data from Berkley Labs.
30 years of solar data unavailable.
Currently, solar data only goes back to 2007.

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Exhibit R

NEVADA DEPARTMENT OF TAXATION

Division of Excise & Local Government Services

Nevada Property Tax:

Elements and Application

NEVADA DEPARTMENT OF TAXATION

Nevada Property Tax: Elements and Application

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Chapter

1

Historical Overview

"The subject of taxation is not necessarily so abstract and technical that it is devoid of interest to the ordinary citizen. It has its human interest."

Romanzo Adams,
Taxation in Nevada, A History, 1918

Nevada has a history rich in adapting the system of taxation to meet the needs of her people. The early history of the tax system in Nevada reflects the heavy reliance on property taxes; the relative economic importance of mining within the state, and the experience with property tax systems of the eastern United States that the miners brought with them.

Prior to 1901, the property tax system relied wholly on county assessors, guided by general laws, and motivated by a system of incentives, including commissions and penalties, to enforce a fair and equal property tax. Equitable results varied, and the need became apparent that a centralized agency was necessary for continuity of decision-making and to ensure that equity and fairness were maintained throughout the state. Checks and balances were imposed when the State Board of Assessors was created in 1901. The centralized state agency provided additional oversight and guidance to county officials and was responsible for establishing the value of property of an interstate or intercounty nature.

Tax System turns modern in the '70's

Reorganization

Prior to 1975, the Division of Assessment Standards (now called the Division of Excise and Local Government Services) was responsible for oversight of

the property tax system and was a direct operating arm of the Nevada Tax Commission. The Commission was composed of nine members who directed the work of the Division and also acted as the State Board of Equalization for appeals.

Based on the findings of the Governor's Tax Assessment and Equity Study committee, several proposals were made to improve the property tax system. AB 317, enacted into law in 1975, reduced the number of Tax Commission members from 9 to 7. The bill changed the language of the requirements for serving on the Commission so that business experience would be more general and not necessarily related to specific industries. In addition, the bill created the Department of Taxation headed by a chief administrative officer with the title executive director who is appointed by the Governor.

AB 317 gave the executive director the authority to make final decisions on matters coming within the jurisdiction of the Department of Taxation but provided for an appeal process before the Tax Commission. Many of the powers, authorities, and responsibilities of the Tax Commission were transferred to the Department; however, the Tax Commission remains the statutory head of the Department. Some of the transferred duties included assistance to county assessors in the appraisal of property, development of assessment standards, conducting ratio studies and carrying on a program of in-service training.

The Tax Commission was also separated from the State Board of Equalization and different individuals are appointed to each board thus providing an additional check and balance in the system. Prior to the change, there was a perceived conflict of interest for the Commission members to serve in both a rule-making and adjudicatory capacity with regard to first establishing property values and then hearing the appeals on those values. Separation of the two bodies eliminated the perception of any bias during appeals. The State Board of Equalization became responsible for all appeals of value established by the Tax Commission and for appeals from the County Boards of Equalization.

New Parceling System

The bill also provided for a parceling system so that all land in the state could be described. Prior to 1975, assessors were not required to maintain a complete set of maps. Under AB 317, approved May 27, 1975, NRS 360.280 was amended to require assessors to "maintain a complete set of maps to accurately describe and illustrate all parcels of land as provided in chapter 361 of NRS." In addition, the bill provided that not later than July 1, 1979, the parceling system would be completed.

All land was to be described according to a parcel numbering system, and the department was to assist any county that did not have the

capacity to prepare such maps. The Department was to ensure that the maps were properly updated (Section 51 of the bill); see NRS 361.189 through 361.220. The purpose of these laws was to standardize mapping practices, to ensure assessors can account for all of the rights, title and interest inherent with the taxpayers' ownership or use of real property. As a result, most county offices today use computer-aided drafting and design or GIS systems. The standard model was adapted from California's map-book and page system.

The definition of a parcel of land for assessment purposes is described as "a contiguous area of land under one ownership and in one general use." It is identified using an assessor's parcel number (APN). A parcel of land for assessment purposes can be a different parcel from that of a lot or a series of lots plotted on subdivision maps and other plats. The assessor's parcel consists of the largest area of land that the assessor can legally and practically "parcel" (assign an APN). This "parceled" area of land may have been conveyed by one or several deeds; it may contain numerous lots or only a fraction of a lot. Examples of parcels described for assessment purposes by an APN are:

- Several subdivision lots covered by an office or other buildings and in one ownership;

- An entire block subdivided into lots but used as a unit and in one ownership;

- An area covered by an industrial plant and in one ownership. It might consist of several subdivision lots or even parts of two or more subdivisions.

- An area covered by a store building with a parking lot used in connection with the business and in the same ownership.

- There are instances when two separate properties under a single ownership can be considered as two separate parcels. This occurs when each property has a residence situated on the lot. A distinct parcel number is assigned to each property even though the properties are under a single ownership or are lots in a new subdivision held by one owner whose intent is to sell these lots individually.

Professional Assessing Officials

The Governor's Tax Assessment and Equity Study committee recommended that "it would be better to have assessors and their staff attend school to become better qualified, and that before reelection, assessors must become certified as competent by the Nevada Tax

Commission." (Dr. Glen Atkinson, reporting to the Assembly Taxation Committee, March 13, 1975).

The Division of Excise and Local Government Services today administers the appraiser certification program, including developing and administering the certification examination, which tests the knowledge of appraisal principles and property tax law of those persons who perform appraisals for property tax purposes; and granting appraisal certificates to every applicant who passes the exam. The Division also maintains the training records for all certified appraisers and independent contractors.

In connection with this program, the Appraiser Certification Board may recommend to the Division that the certificate of any person who fails to complete or carry forward the minimum number of continuing education hours may be suspended or revoked. In addition, the Board advises the Division what courses may be accepted for credit as continuing education.

Monitoring Assessment Work

The viability of a property tax depends on the accuracy of county assessors in estimating taxable value; a ratio study provides a means for evaluating the accuracy of those appraisals. The requirement to study and measure assessment accuracy began in 1965 with S.B. 15. The requirements in the statute were changed several times in subsequent years, with the most substantial changes made in 1973 and 1975. Today, NRS 361.333(1) requires the Department to determine the ratio of assessed value of each type or class of property for which the county assessor has the responsibility of assessing to:

(1) the assessed value of comparable property in the remaining counties; and

(2) the taxable value of that type or class of property within that county.

In addition, the Division also conducts performance audits pursuant to regulations that were adopted in 2010. A performance audit is an independent assessment of the performance of a county official in carrying out his or her responsibilities relating to the preparation of the assessment roll and the collection of property taxes; see *NAC 360.720 through 360.736.*

Tax Relief in 1979 and the Tax Shift of 1981

California's Prop 13

In 1978, California voters staged what has been described as a property tax revolt by approving a

statewide ballot initiative known as Proposition 13. "Full cash value" was defined as the assessed valuation as of the 1975-76 tax year, or "thereafter, the appraised value of real property when purchased, newly constructed, or a change in ownership has occurred after the 1975 assessment". The assessment "may reflect from year to year the inflationary rate not to exceed 2 percent for any given year."

Over time, this acquisition-value system created dramatic disparities in the taxes paid by persons owning similar pieces of property. Property values in California inflated far more than the allowed 2% cap on increases in assessments for property that is not newly constructed or that has not changed hands. As a result, longer-term property owners pay lower property taxes reflecting historic property values, while newer owners pay higher property taxes reflecting more recent values. For that reason, Prop 13 has been labeled by some as a "welcome stranger" system – the newcomer to an established community is "welcome" in anticipation that he will contribute a larger percentage of support for local government than his settled neighbor who owns a comparable home (*see Nordlinger v. Hahn (1992) 120 L. Ed. 2d 1).*

Tax Reform Enacted in Nevada

In the wake of California's Proposition 13, some major changes occurred in 1979 in response to the ballot initiative known as Question 6, which itself was a response to Prop 13 in California. In 1979, the Legislature passed SB 204 to provide property tax relief.

One of the main features of the bill was the provision of a lower limit on the tax rate from $5.00 allowed by the Nevada Constitution to $3.64. Essentially this reduction in the tax rate was paid for by replacing one mandatory school district levy of 70 cents with money appropriated to the Distributive School Fund, and a second school district levy of 80 cents would be reduced to 50 cents, with the difference to be state funded. Also, a Medicaid levy of 11 cents would be state funded and the state tax of 25 cents would not be levied, for a total of $1.36 reduction in the overall property tax rate.

SB 204 also provided that all household goods and furniture were exempt; it provided for a process of requiring landlords to inform tenants of the amount of rent which represents property taxes; it provided for a limitation on expenditures by local governments, except school districts, and other governmental accounting controls, such as a reasonable ending fund balance.

Tax Shift of 1981

Additional property tax relief was enacted in 1981. The incentive during the Tax Shift of 1981 was to provide additional property tax relief to homeowners, while still providing an adequate source of revenue for local governments. The tax shift reduced property tax collections by 50 percent and placed a greater reliance on sales taxes for revenues for local governments.

SB 69, one of three pieces of enabling legislation, changed the method of appraisal from market value to "taxable value." Taxable value adds the market value for land, based on the use to which it is actually put, rather than highest and best use, plus replacement cost new less depreciation for improvements. "Taxable value" remains the standard of valuation today.

As defined in NRS 361.227, the taxable value of vacant land is limited to the full cash value, based on the actual current use of the land. If the property is improved, taxable value is equal to the full cash value of the land plus the replacement cost new less depreciation of the improvements. Depreciation is set at the rate of 1.5 percent per year for each year of adjusted actual age of the improvement, up to a maximum of 50 years.

AB 369 was a second piece of enabling legislation. The bill provided for monthly reporting instead of quarterly reporting of the sales tax; the City-County Relief tax portion of the sales tax was made mandatory rather than optional; it also provided for increased rates.

The third piece of enabling legislation was SB 411, which provided for revenue expenditure capping measures, regulatory fee limitations, state involvement in the audit process, limitations on the scope of enterprise and reserve fund accounting and increasing Department of Taxation authority with regard to local government budgets.

Tax Relief in 2005: Property Tax Abatements

In 2005, the Nevada Legislature determined that rising real property values had placed an unreasonable property tax burden on taxpayers:

> *The Legislature hereby finds and declares that an increase in the tax bill of the owner of a home by more than 3*

percent over the tax bill of that homeowner for the previous year constitutes a severe economic hardship within the meaning of subsection 10 of Section 1 of Article 10 of the Nevada Constitution. The Legislature therefore directs a partial abatement of taxes for such homeowners…

To address the problem, the Legislature adopted an abatement scheme which has been codified at NRS 361.471 to 361.4735, inclusive. The abatement in effect is a limitation on the increase in taxes and is generally called a "tax cap."

The cap applies to the taxes only and not to the taxable or assessed values as established by the county assessors. Thus, the county assessors must continue to appraise the land and improvements according to the applicable statutory methodologies and without reference to the abatement scheme. In other words, the abatement scheme does not apply until after the county assessors have established the taxable and assessed values for the year. The assessors continue to notify taxpayers annually of the taxable and assessed values which have been established for real property in the state. The abatement is then applied to reduce the tax bill. The amount of the abatement is computed by reference to the taxes as assessed for the preceding year.

See Chapter 5 for a more complete discussion of the "Tax Cap" abatements.

Administrative Roles

The Nevada Tax Commission (Commission), the Nevada Department of Taxation (Department), County Assessors, County Treasurers, County Commissioners, the State and County Boards of Equalization (State Board / County Board), the Committee on Local Government Finance (CLGF), and the Appraiser Certification Board (ACB) each have an important role to play in administering the property tax system.

Nevada Tax Commission

The Commission consists of eight members appointed by the Governor; and at least 5 of the members must have ten years of experience in various fields of business including real property, utilities, agriculture, finance, and mining. The Commission is responsible for prescribing regulations to carry on the business of the Commission and the Department *(NRS 360.090).* Decisions of the Department may be appealed to the Commission and the Commission may review any decisions of the Department *(NRS 360.245).* The Commission may confer with, advise, and direct county officials regarding the preparation of the tax roll, collection of taxes and other revenues *(NRS 360.250).*

The Commission also adopts the formulas used by the Department to establish the taxable value of centrally assessed properties and certifies the values of centrally assessed properties appraised by the Department *(NRS 361.320).* The Commission establishes the unit values to be used for agricultural land and mobile homes *(NRS 361.325),* as well as the standards and schedules to be used for the valuation of personal property *(NRS 361.227).* The Commission may also take equalization action if it finds that any class of property is assessed at less or more than the proper percentage provided by law *(NRS 361.333).*

Pursuant to NRS 361.4547, the Commission certifies to the board of county commissioners of each county, the combined tax rate necessary to produce the amount of revenue required by the approved budgets.

Nevada Department of Taxation

The Department exercises general supervision and control over the entire revenue system of the State *(NRS 360.200)*. In terms of the property tax, the Department, through the Division of Excise and Local Government Services, directly appraises the property of an interstate or intercounty nature *(NRS 360.210; 361.320);* determines the net proceeds of minerals *(NRS 362.100)*; and bills, collects and distributes the property tax for centrally assessed property and net proceeds taxes. The Department also appraises and assesses all mine facilities and equipment *(NRS 362.100)* but does not bill, collect, or distribute the property tax for mining facilities. Instead, the assessed values of mine property are transmitted to the counties, who then bill, collect, and distribute the property tax.

The Department may assist and consult with County Assessors in appraising property and developing and maintaining standard assessment

procedures *(NRS 360.215).* The Department annually conducts a ratio study to determine whether property values are equalized among the counties *(NRS 361.333)*. In addition, the Department conducts the certification and continuing education program of property tax appraisers at county and state levels *(NRS 361.221).*

The Department also administers the provisions of the Local Government Budget and Finance Act *(NRS 354.470 to 354.626, inclusive),* including overseeing the revenue limitations, indebtedness, budgets, and audits of local governments. The Department establishes and monitors the maximum allowed revenue a local government may receive from property taxes; calculates and prepares property tax rates to be certified by the Nevada Tax Commission; prepares and publishes the Property Tax Rate Report (Redbook) for local governments; and reviews and approves final budgets submitted by local governments and determines whether the proposed tax rates exceed the allowed rate *(NRS 361.4547).*

County Assessors

The County Assessor is an elected official who discovers, lists, and determines the taxable value of all real and personal property in his or her county, except property to be valued by the Department *(NRS 361.260).* For real property not reappraised in the current year, the Assessor also determines an assessed value by applying land and improvement factors approved by the Commission *(NRS 361.260; 361.261).* The Assessor is required to use standards for appraising and reappraising land established by the Tax Commission *(NRS 361.260).*

The County Assessor produces and publishes the assessment roll and notifies each taxpayer of the assessed value of his property *(NRS 361.300).* The tax roll is certified to the Commission that the assessor has complied with the regulations of the Tax Commission *(NRS 360.250)* and a copy of the tax roll is provided to the State Board of Equalization *(NRS 361.390).* The County Assessor adopts and uses the manuals and regulations prescribed by the Commission, keeps assessment rolls in the form and manner prescribed by the Department, requires the appropriate property statement forms to be used by taxpayers, and maintains a complete set of maps describing all parcels of land within his or her county *(NRS 360.280).*

The County Assessor produces a variety of reports for the Department including a segregation report showing actual and projected assessed values for each taxing entity within the county for budgeting purposes and a statistical analysis of the roll after all appeals have been

heard *(NRS 361.390).* The Assessor also defends values before the County and State Boards of Equalization in the event of an appeal.

Nevada State Board of Equalization

The State Board consists of five members appointed by the Governor. At least one member must be a certified public accountant, one member must be a property appraiser with a professional designation, and one member who is versed in the valuation of centrally assessed properties *(NRS 361.375).*

The State Board hears appeals from the decisions of County Boards of Equalization and direct appeals of values certified by the Commission or the Department as well as values established by the county assessor that could not otherwise be heard by the County Board *(NRS 361.360; 361.400; 361.403).* The State Board may adopt regulations governing its own procedures and practices but does not adopt regulations regarding the valuation of property, which is the prerogative of the Commission.

County Boards of Equalization

County Boards of Equalization (County Board) consist of three or five members depending on the population of the county. The Board of County Commissioners appoints the members of the County Board. The County Board may change and correct any valuation of the county assessor found to be incorrect and hear all protests regarding locally assessed properties.

County Treasurers

The County Treasurer is an elected official who bills and collects all taxes assessed upon the real property tax roll *(NRS 361.480; 361.475).* In certain cases, the County Assessor bills and collects property taxes for personal property *(NRS 361.483; 361.5605).* The County Treasurer manages the collection of delinquent taxes and the seizure and sale of property in the event taxes remain unpaid *(NRS 361.5648 through 361.595).*

The County Treasurer calculates and applies the appropriate amount of any primary residential abatement and general abatement and consults with the County Assessor to determine whether a property is eligible for abatement *(NAC 361.6055).* The County Treasurer also administers any claims for the postponement of payment of the property

tax *(NRS 361.736 through 361.7898).* The County Treasurer remits a portion of the property tax to the State (NRS 361.745) and apportions the taxes received among the various funds and local governments within the county (NRS 361.755).

County Commissioners

The Board of County Commissioners consists of elected officials who are required to provide the County Assessor "suitable books" for the tax list *(NRS 361.255).* In modern day terms, this is generally interpreted to mean that certain supplies and computer programs must be provided. The members of the County Board of Equalization are appointed by the County Commission *(NRS 361.340)* and the County Commission may provide for additional panels of the County Board of Equalization. The County Commission may correct clerical errors and over-assessments on the tax roll *(NRS 361.767; 361.768).*

The County Commission, as the governing body of the county, also adopts tentative and final budgets pursuant to NRS 354.597 and 354.598 and the regulations of the Committee on Local Government Finance. The County Commissioners must also provide in the budget a reasonable amount of money and levy a tax to provide for the payment of interest with respect to judgements which may be secured against the county *(NRS 361.425).* In the event the combined tax rate adopted by the various governing boards of local jurisdictions exceeds the limit imposed by NRS 361.453, the chairman of the County Commission convenes a meeting of all the governing boards to establish a combined tax rate that conforms to the statutory limit *(NRS 361.455).* Once the combined tax rate has been certified by the Tax Commission, the County Commissioners levy the tax rate (NRS 361.460).

Committee on Local Government Finance

The Committee on Local Government Finance (CLGF) consists of 11 members. The Nevada League of Cities, the Nevada Association of County Commissioners, and the Nevada Association of School Boards each appoint three members; the Nevada State Board of Accountancy appoints two members.

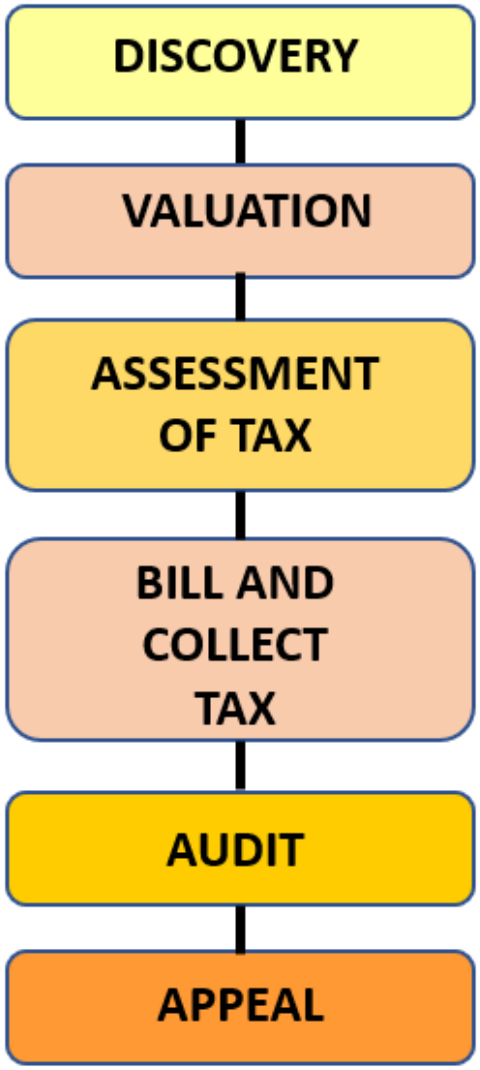
CLGF has the authority to promulgate regulations regarding the Local Government Budget and Finance Act *(NRS Chapter 354)* as well as NRS Chapter 350, Municipal Obligations. CLGF monitors the fiscal health of local jurisdictions through a variety of reports submitted to the Department *(NRS 354.665).* CLGF reviews plans of corrective action to mitigate possible financial emergency submitted by local governments,

provides observations and recommendations to the local governments, and periodically reviews the status of the financial operations of the local governments *(NRS 354.685).*

Appraiser Certification Board

The Appraiser Certification Board (ACB) consists of six members, three of whom are county assessors appointed by their peers and three from the Department appointed by the Tax Commission *(NRS 361.221).* ACB advises the Department regarding the certification and continuing education of property tax appraisers, reviews and approves courses for continuing education and determines whether individuals have met the training requirements for certification as a property tax appraiser.

Table I: Steps in Property Tax Appraisal Administration



TASKS

- Identify all taxable property
- Identify legal owners
- Classify property in terms of use
- Develop process to report property on an annual cycle

➢ Develop processes for determining appraised value

➢ Apply processes to property

○ Taxable value is multiplied by assessment ratio to establish assessed value

○ Property owners are informed of assessed value

❑ Set tax rates

❑ Bill taxpayer

❑ Collect revenue from taxpayer

✓ Determine if all taxable property is identified

✓ Determine if correct value is being estimated for property

❖ Informal processes to "question" facts of the appraisal

❖ Formal processes to "challenge" appraisal

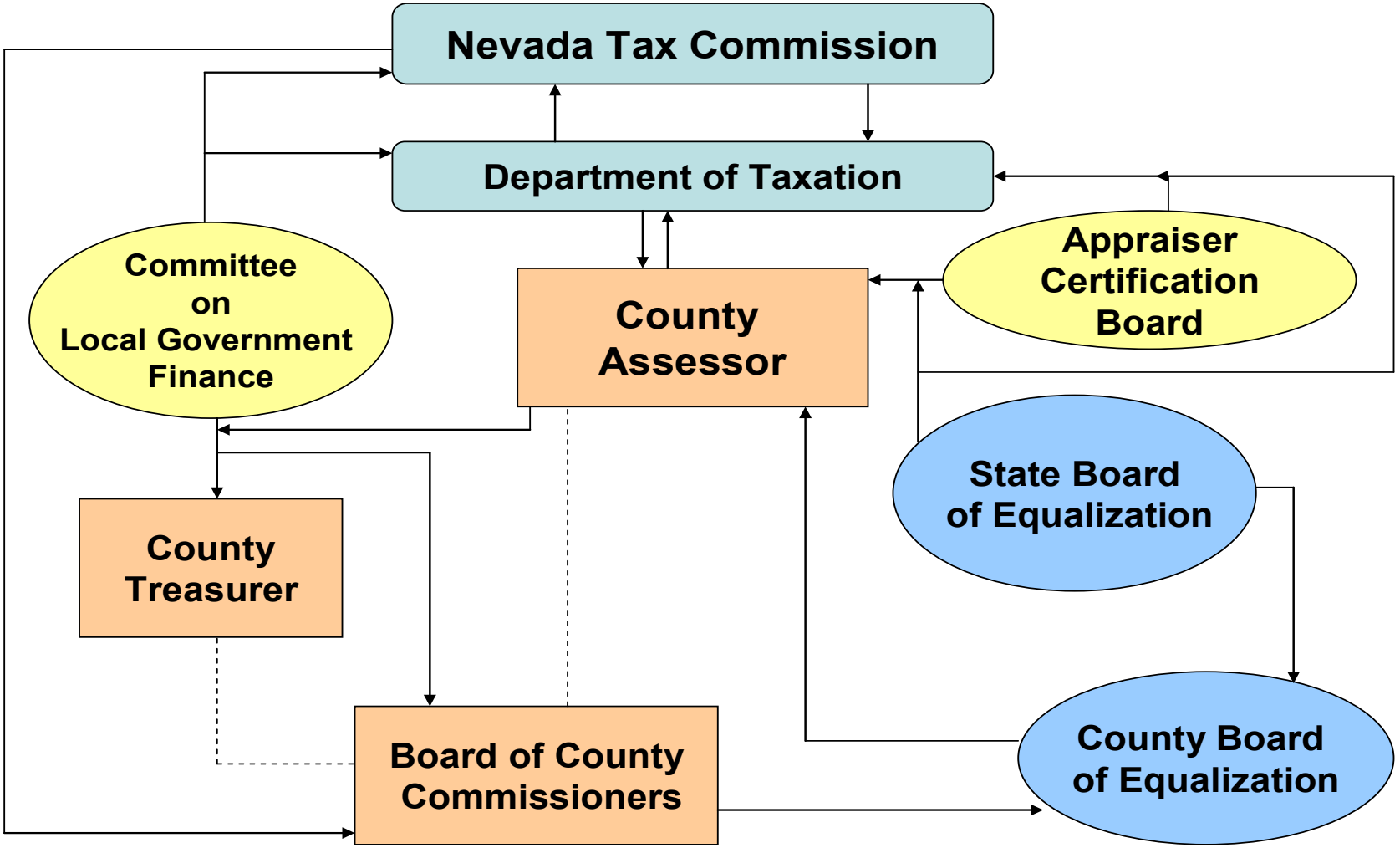


Table II: Organization Chart

PROPERTY TAX TIMELINE
2025 CALENDAR YEAR

	2024-2025 FISCAL YEAR						2025-2026 FISCAL YR					
	Jan	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Discovery, List, Valuation - Secured Roll	**NRS 361.310(1):** **25-26** Secured Roll is Published **NRS 361.310(2):** Changes may be made to **25-26** Secured Roll	**NRS 361.310(2):** Changes that occur before **July 1** may be made to **25-26** Secured Roll for certain specified reasons.					**NRS 361.260(1):** Property on **25-26** Secured Roll is Assessed; the lien date is **July 1, 2025**					**NRS 361.300 (6)(a):** Publish List of all taxpayers on the **26-27** Secured Roll on or before **Dec 18**
	NAC 361.128(1)(b)(1): **26-27 Secured** Roll - Use Marshall/Swift published **Jan. 2024** for improvement values on **26-27** secured roll	**NRS 361.260(1):** **26-27** Secured Roll Work year begins. Improvement costs based on Marshall/Swift in **Jan. 2024**	**NRS 361.318:** Reports for centrally-assessed properties are due **March 31** for the **26-27** secured roll (lien date **July 1, 2026**).		Department publishes Personal Property Manual for the **26-27** Secured and Unsecured Rolls.	**NRS 361.155:** Claims for personal tax exemptions must be filed by **June 15**. **NRS 361A.110:** Applications for ag designation due **June 1**				**NRS 361.320(1):** NTC establishes centrally-assessed values for **26-27** Secured Roll and **25-26** Unsecured Roll.		**NRS 361.310(2):** **26-27** Roll Closes on day list is delivered for publication.
			NRS 361.260(5): NTC adopts improvement factors for **26-27** Secured and Unsecured Roll.		Department publishes Ratio Study for property on **25-26** Secured and **24-25** Unsecured Rolls.		**NRS 361.260(7):** **26-27** Land values are established based on sales occuring before **July 1, 2025**			**NRS 361.310(4):** Log of all changes made to **25-26** Secured Roll delivered to Department by **Oct. 31.**		
Discovery, List, Valuation - Unsecured Roll	**NRS 361.260(1):** Continuing discovery and placement of unsecured real or personal property on **24-25** Unsecured roll. It must have been in existence in county on **July 1, 2024.**			**NRS 361.260(1):** Continuing discovery and placement of unsecured real or personal property on **24-25** Unsecured roll. It must have been in existence in county on **July 1, 2024.** **24-25** Unsecured Roll closes **April 30**.	**NRS 361.260(1):** **25-26** Unsecured Roll Work Year begins. Lien date is **July 1, 2025.**		**NRS 361.260(1):** Property on **25-26** Unsecured Roll is Assessed; the lien date is **July 1, 2025.**					
							NRS 361.265(3): Declarations of personal property due by **July 31** for the **25-26** Unsecured Roll.	**NRS 361.265(3):** Declarations sent to taxpayers after **July 15** have to be returned within 15 days.				
Collection	**NRS 361.483(5):** 3rd installment of taxes due on first Monday in January for **24-25 Secured** Roll (Lien date **July 1, 2024**).		**NRS 361.483(5):** 4th installment of taxes due on first Monday in March for **24-25** Fiscal Year (Lien date **July 1, 2024**).					**NRS 361.483(5):** 1st installment due on 3rd Monday in August for **25-26 Secured** Roll; and certain personal property on **24-25 Unsecured** Roll. (Lien date **July 1, 2025**)		**NRS 361.483(5):** 2nd installment due on 1st Monday in October for **25-26** Secured Roll; and certain personal property on **24-25** Unsecured Roll. (Lien date **July 1, 2025**)	**NRS 361.320(9):** **25-26** Unsecured Centrally assessed private carlines, unsecured, PET billed	**NRS 361.320(9):** **25-26** Unsecured Centrally-assessed taxes are due by **Dec. 15**.

PROPERTY TAX TIMELINE
2025 CALENDAR YEAR

	2024-2025 FISCAL YEAR						2025-2026 FISCAL YR					
	Jan	**Feb**	**Mar**	**April**	**May**	**June**	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
Appeal	**NRS 361.356(1) & NRS 361.357(1):** Appeals of values on **25-26** Secured may be made to County Board of Equalization by **January 15, 2025**.	**NRS 361.360 (3):** Appeals of values on **24-25** Unsecured Roll made after **12-15-24** but before **4-30-25** may be heard by SBE if filed prior to **5-15-25**.										
	NRS 361.355(2): Appeals of values placed on **24-25** Unsecured Roll between **5-01-24** and **12-15-24** may go to CBE	**NRS 361.340(10):** CBE ends on **2-28-25** for appeals of values on the **25-26** Secured and **24-25** Unsecured Rolls.	**NRS 361.380(1):** SBE session begins on 4th Monday for **25-26** Secured Roll direct from NTC and appeals from CBE. Appeals from CBE must be filed by **3-10-25**.		**NRS 362.135:** NPM appeals for **2024** calendar year generally must be filed by **5-20-2025**.						**NRS 361.380(1):** SBE concludes hearings by Nov. 1 for the **25-26** Secured Roll and **24-25** Unsecured Roll.	
	NAC 361.7012(5): Direct appeals to SBE of NTC certified values for **25-26** must be filed by **January 15, 2025**. Mine properties must be directly appealed to SBE.		**NRS 361.390 (1):** **2025-26** Tax roll filed with SBE on or before **March 10, 2025**.	**NRS 361.340(11):** CBE may reconvene for matters remanded by the SBE.			**NRS 361.340(11):** CBE may reconvene for matters remanded by the SBE.					
	NRS 361A.273(1): Appeals of conversions from ag land designation occurring between **7-1-24** and **12-15-24** may go to CBE.	**NRS 361A.273(2):** Appeals of conversions from ag land designation occurring between **12-16-24** and **7-1-25** may go to SBE if filed prior to **7-15-25**.										
Budget	**NRS 361.390** Assessor (and Department) to file preliminary segregation report for **25-26** year prior to **Jan. 31**	**NRS 360.690:** Department to provide preliminary revenue projections for **25-26** year to local governments by **Feb. 15**	**NRS 361.390** Assessor files final segregation report prior to **March 5**. Dept. provides final revenue projections to local govts by **March 15**; abatement reports by **March 25**; Taxpayers file net proceeds revenue projection reports on **March 1** **(NRS 362.115)**	**NRS 362.115:** Dept reports to counties by **March 15**. **NRS 354.596:** Tentative budget filed to Dept by **April 15**.	**NRS 354.596:** Budget hearings for **25-26** year held 3rd week to end of May for local jurisdictions	**NRS 354.598:** Final budget adopted by local governments by **June 1** (**June 8** for school districts); **NRS 361.455:** Tax rates adopted by NTC **June 25**; Abatement Summary Report for **24-25** Unsecured Roll due **June 1**	**NRS 387.1235:** Department to provide estimate of local funds available to school districts to Dept. of Education by **July 15**.		**NAC 361.609** Abatement summary report due from treasurers for **25-26** Secured Roll			

Chapter

2

Elements of the Property Tax

"Just principles of valuation of property for taxation are those which, in their application, will result in distributing the burden of taxation in due proportion among owners of different kinds of property. . . Any principle of valuation which is unjust in valuing houses would also be unjust if applied to the valuation of railroads"

Nevada Supreme Court, State v. Central Pacific R.R., 10 Nev. 47 (1875).

The principle elements of the property tax consist of the tax rate and the tax base. The tax base is calculated by first appraising the value of property according to statutory requirements to determine "taxable value." "Taxable value" in turn is multiplied times the level of assessment. The resulting assessed value is the tax base against which a tax rate is applied to determine the total amount of taxes due. The elements of the property tax can be shown in this simple formula:

Taxable Value x Level of Assessment = Assessed Value
Assessed Value x Tax Rate = Total Property Tax

Element One: Taxable Value

The Constitution of Nevada provides the first guidance in how taxable value will be determined. Article 10, § 1 states:

1. The legislature shall provide by law for a uniform and equal rate of assessment and taxation and shall prescribe such regulations *as shall secure a just valuation for taxation of all property,* real, personal and

possessory, except mines and mining claims, which shall be assessed and taxed only as provided in section 5 of this article (*Italics* added).

In 1981, the Legislature determined that a just valuation of real property should no longer be based strictly on the full cash value of the total property. Instead, the value of real property was bifurcated into two components: full cash value of the land and replacement cost new less depreciation of the improvements, with the rate of depreciation set by statute rather than by the marketplace. Taxable value equals the sum of the full cash value of the land plus the replacement cost new less depreciation of the improvements. Taxable value must not exceed the full cash value of the entire property *(NRS 361.227).* Full cash value is defined as "the most probable price which property would bring in a competitive and open market under all conditions requisite for a fair sale" (*NRS 361.025).*

The Cost Approach

In general appraisal terms, the cost approach is sometimes called the summation approach. It is based on the idea that the value of an existing property is the value of the land plus the replacement cost of the improvements less depreciation. The cost approach is based on the principle of substitution, in which the value of an improvement tends to be set by the cost of acquiring an equally desirable and valuable substitute improvement, assuming that no costly delay is encountered in making the substitution.[1]

There are different kinds of costs, including historical acquisition cost, book cost, reproduction cost, and replacement cost. NRS 361.227 directs the use of replacement cost less depreciation (RCNLD) to appraise improvements for taxation purposes. Replacement cost is the cost of producing a building or improvement having the same utility, but using modern materials, design, and workmanship, as opposed to reproduction cost, which is the cost of producing an exact replica of a building or improvement using the same or very similar materials, design, and workmanship.[2]

[1] See IAAO, Glossary for Property Appraisal and Assessment, International Association of Assessing Officers, 1997

[2] Ibid.

The following regulations also apply:

- The actual age of the property must be determined *(NAC 361.124).*
- The total replacement made to an improvement must be considered *(NAC 361.127).*
- The cost of replacement of an improvement must include all costs for labor, materials, supervision, contractor's profit and overhead, architects' plans and specifications, sales taxes, and insurance *(NAC 361.128).*
- The cost manuals published by the Marshall and Swift Publication Company or "other" recognized cost manuals or subscription services, if approved, must be used to determine costs *(NAC 361.128).*

In general appraisal applications, the cost approach requires estimates of land value, accrued depreciation, and the current cost of constructing the improvements. Depreciation is subtracted from current construction costs to obtain an estimate of improvement value. In appraisal, the concept of depreciation does not refer to accounting depreciation, based on the number of years used, but instead means the loss in value caused by physical deterioration, functional obsolescence, or changes in the economy or neighborhood, also called external or economic obsolescence.

Nevada law directs assessors to subtract depreciation at a set rate of 1.5% of the cost of replacement for each year of adjusted actual age of the improvement, up to a maximum of 50 years *(NRS 361.227 (1)(b)).* Limiting depreciation to 1.5% per year may or may not reflect actual market depreciation. Market depreciation is defined as the difference between the current construction cost and the market value of the structure and is extracted from market sales data, which can vary from year to year and area to area. As property ages, the accrued depreciation dictated by statute at 1.5% may not be an accurate reflection of actual market depreciation.

Assessors then add the full cash value of land to the RCNLD of improvements. The full cash value of the land is determined by applying the sales comparison approach, if there are sufficient sales, or alternative methods if there are insufficient sales *(NAC 361.118; 361.119).*

If the taxable value so derived exceeds the full cash value of the property, then Nevada law directs the appraiser to measure the additional obsolescence and reduce the taxable value downward *(NRS 361.227(5)).* The appraiser may use the comparative sales approach,

the income approach, or the cost summation approach to measure the amount of obsolescence present.

The Sales Comparison Approach

The comparative sales approach is used to estimate the value of land or the amount of obsolescence present by analyzing the sales prices of similarly situated property. In general, the comparative sales approach is the most reliable valuation approach when verifiable, valid sales data are available.[3]

NAC 361.118 requires that the sales prices or unit values of comparable properties be adjusted to reflect differences between the comparable properties and the subject property. Points of comparison between the subject and the comparable sales include the real property rights conveyed, financing terms, conditions of sale, market conditions, location, physical characteristics, size, zoning, and governmental restrictions, among others. The appraiser estimates the full cash value of the subject property based on the adjusted sales prices of the comparable properties.

The Nevada Tax Commission adopted regulations providing that *mass appraisal techniques* may be used to develop valuation models (*See NAC 361.11795).* Mass appraisal models attempt to represent the market for a specific type of property in a specified area. In general, the assessor applies the comparative sales approach by stratifying properties into groups based upon location, zoning, use or other relevant characteristics. Then, using techniques such as multiple regression analysis, sales-resales analysis or paired sales analysis, the assessor establishes a base lot or comparative unit model representing the typical value for units of land in a neighborhood or other stratification. Adjustments are made to the base lot or comparative unit model to reflect differences of the individual subject property from the model.

The Income Capitalization Approach

From an investment standpoint, the critical element affecting value is the earning power of the asset. The income capitalization approach is used to estimate market value because it converts the right to receive future earnings and benefits into an estimate of present value.

[3] IAAO, Standard on Mass Appraisal of Real Property, 1984, Section 4.2.

The capitalization rate is extracted from actual income and sale price data of properties that have recently sold. The income approach is based on the principle of anticipation, in which the full cash value is the present worth of all the anticipated future benefits to be derived from the property.

The basic steps in the income approach are (1) estimate potential gross income; (2) deduct for vacancy and collection loss; (3) add miscellaneous income; (4) determine operating expenses; (5) deduct operating expenses to determine net income before discount, recapture, and taxes; (6) select the proper capitalization rate; (7) determine the appropriate capitalization procedure to be used; (8) capitalize the net income into an estimate of property value by dividing the net operating income by the capitalization rate.[4]

Advantages and Disadvantages of the Three Approaches

The reliability of all three approaches is dependent upon the quality of the data used in the development of the applicable valuation equations. The cost approach requires current and accurate estimates of cost data and accrued depreciation from all causes. In Nevada, this is generally obtained from the Marshall and Swift Publication Company. The advantage of the cost approach is that it is applicable to most improved properties.

The income approach requires reliable income and expense data from the taxpayers, as well as objective evidence of the relationship between income and present value. If a representative income cannot be attributed or imputed to the subject property, then the income approach must be foregone. The income approach tends to reflect the behavior of investors and can be effective in the appraisal of properties that are purchased based on their ability to generate income.

The comparative sales approach depends on whether enough sales data exists from which to determine trends in a statistically valid manner. This can be difficult in the case of special purpose properties where an insufficient number of comparable sold properties may exist. The comparative sales approach tends to be the most objective when adequate data on comparable properties that have been sold are available.

[4] IAAO, Property Assessment Valuation (Chicago, 1977), p. 204.

Element Two:
Level of Assessment and Assessed Value

The level of assessment is also known as the "rate of assessment" and is generally expressed as the overall ratio of assessed value to market value. Whether assessments are at full value, or a portion thereof is usually a constitutional or legislative policy decision.

In Nevada, NRS 361.225 requires that all property subject to taxation be assessed at 35 percent of its taxable value. For example, restating the formula expressed in NRS 361.225:

Taxable Value x Level of Assessment = Assessed Value

If the taxable value of a single-family residence was estimated at $200,000, the assessed value would be $70,000 ($200,000 x .35 = $70,000).

Element Three: The Tax Rate

The State of Nevada Constitution, Article 10, section 2, limits the property tax rate to 5 cents per $1.00 of assessed value, which translates to $5.00 per $100 of assessed value. In the 1979 session, the Nevada Legislature set the property tax rate at no more than $3.64 per $100 of assessed value, plus $.02 added to the state debt component for capital projects,[5] for a total of $3.66, where it remains to the present time.

Pursuant to NRS 354.59811, local government entity property tax revenues are allowed to be increased by a maximum of 6% per year. The previous fiscal year's property tax revenue is multiplied by 106%. This amount is then divided by the projected assessed valuation for the upcoming fiscal year to determine the tax rate necessary to generate that amount of revenue. The NRS also provides for a "hold harmless" scenario in which the new calculated tax rate cannot be less than the previous fiscal year's rate.

[5] 2 cents added to the state tax rate pursuant to AB 564 (2009); SB 507 (2003).

The tax rate is comprised of the following elements:

School Operating Rate

Pursuant to NRS 387.195, each county board of commissioners shall levy a tax of $0.75 per $100 of assessed valuation for the support of public schools within the county.

General or Special Improvement Districts

Most general improvement districts in the State of Nevada were created pursuant to the provisions of NRS 318. Some have been established under Special and Local Acts of the Legislature. Depending on the primary purpose for their existence, many of these districts have and exercise property taxing authority.

Legislatively Approved Overrides

At various times the Legislature has enacted additional property taxes to fund several particular programs on a statewide basis. For example, NRS 428.185 provides for each county to levy a property tax of 1.5 cents per $100 of assessed valuation to fund the costs of providing medical treatment to indigent persons injured in automobile accidents. NRS 549.020 provides for a levy of not less than 1 cent per $100 of assessed valuation to fund cooperative extension work in agriculture and home economics.

Voter Approved Overrides

Pursuant to NRS 354.5982, a local government may exceed the limitations of 354.59811 by proposing an additional property tax levy. The proposal must be placed on a general or special election ballot, but not on a primary election ballot. The question must state the proposed additional rate, the purpose, duration of the additional levy and an estimate of the amount of annual increase to the property tax bill for the owner of a new home with a fair market value of $100,000. The duration of the levy, if approved, cannot exceed 30 years, and may be discontinued before it expires. For example, on 11/2/2010, the citizens of Elko County School District approved an override of 75 cents for 10 years to fund capital projects.

State Debt Rate

Pursuant to AB 371, an initial property tax of 5 cents per $100 of assessed valuation was levied for state purposes. In the ensuing years,

the rate has fluctuated somewhat, depending on the state's need to fund debt service on its capital improvement projects throughout the state. At the present time, the state debt rate is 15 cents per $100 which is included in the statutory cap plus 2 cents, enacted by SB 507 (2003), which is outside the cap. 1 cent is added to the "regular" 15 cents while the second penny is used to fund the debt service for bonds issued specifically for state projects for the conservation of the state's natural resources.

Process to Establish Rate if Combined Tax Rate Exceeds the Statutory $3.64 Cap

Pursuant to NRS 361.455, the chairman of the county board of commissioners convenes a public meeting of a majority of the governing boards of all affected local governments on or before June 20 of each year for the purpose of establishing a combined tax rate which conforms to the statutory limit. After discussions regarding changes to tax rates, each affected governing board must unanimously approve the changes. Immediately following the meeting, the county clerk advises the Department of the results. If no agreement can be reached, or no quorum exists for one or more of the affected local government entities, then the Department reviews the record of the discussions and the budgets of the affected entities and makes a recommendation to the Nevada Tax Commission.

The Nevada Tax Commission is mandated statutorily to meet on June 25 each year to certify the property tax rates for the succeeding fiscal year. Prior to the certification vote, the Commission will determine the property tax rates for the entities in any county which exceed the statutory cap while considering any local government testimony and the Department's recommendation. Any local government entity affected by a tax rate adjustment made by the Commission files a copy of its revised final budget by July 30.

Chapter

3

Elements of the Tax Roll

"Assessors are responsible for administering the ad valorem tax system, and their chief task is to identify and appraise all property in their jurisdictions."

> *International Association of Assessing Officers, Property Appraisal and Assessment Administration, 1990.*

The assessor lists all property subject to taxation in his or her county, along with the "names of all persons, corporations, associations, companies or firms owning the property" *(NRS 361.260)* and the total valuation of the property *(NRS 361.300)*. Then the assessor prepares a certificate attesting to the sufficiency of the roll and to compliance with the statutory provisions for its preparation. He or she delivers the tax roll, by January 1st each year, to the county clerk who accepts the list on behalf of the county commissioners. The assessor also posts a physical copy of the roll in the courthouse for public inspection and publishes the roll in the local newspaper or delivers the roll by mail to taxpayers within the county. A copy, which must contain the land use code and other information, must also be filed with the Secretary of the State Board of Equalization no later than March 10th *(NRS 361.390; NAC 361.154)*.

At the same time, a notice of assessed value assigned to each property is delivered to individual taxpayers. The notice also advises the taxpayers of the appeal process in the event they disagree with the value so assigned.

Secured and Unsecured Tax Rolls

What is the difference between the secured and unsecured tax rolls? The principal difference has to do with the levy of the tax. Pursuant to NRS 361.450, every tax levied is a perpetual lien against the property assessed until the tax and any penalty charges and interest which may accrue are paid. The lien attaches on July 1st each year, upon all [real] property within the county. NRS 361.450(2) states: "if real and personal property are assessed against the same owner, a lien attaches upon such real property also for the tax levied upon the personal property within the county." Thus, the lien for taxes levied is "secured" by real property. Taxes levied on property not secured by real property is "unsecured." The only way to collect unpaid taxes for unsecured property is to seize, seal or lock enough of the property to satisfy the unpaid debt, as opposed to the legal creation of a perpetual lien for secured property.

The secured roll is therefore principally made up of real property assessments; however, personal property may also appear on the secured roll (*See NRS 361.260(1)).* For example, mining personal property, such as conveyor belts, may be integrally related to the mining improvements (mill house). Both could be placed together on the secured roll as one taxpayer account.

The unsecured roll is also known as the "personal property roll" and the "supplemental roll". The unsecured roll is primarily a list of property tax assessments that have not been placed on the secured roll, generally including personal property, migratory personal property, certain mobile homes and new construction. New construction originally assessed on the unsecured roll is considered a supplemental billing because its value was not included on the secured roll. It would likely appear the following year on the secured roll as real property.

In determining which roll to use, the assessor must consider whether the property was in existence within the jurisdiction on or before the lien date. For example, for the 2025-2026 fiscal year, if the property was in existence on or before July 1, 2025, the assessor may place the property on either the 2026-2027 secured roll, depending on the type of property, or the 2025-2026 unsecured roll, depending on the time of first existence.

Central Assessment Tax Rolls

The Department of Taxation produces a central assessment roll of property of an interstate or inter-county nature *(NRS 361.3205).* The roll lists all unitary values and six-month construction-work-in-progress (CWIP). The roll is considered to be a secured tax roll and does not distinguish between real and personal property *(See the discussion on unitary value in Chapter 4).* An unsecured roll is also produced and consists of the values for carlines, property escaping taxation, property which may be migratory in nature and twelve-month CWIP. The Department notifies each taxpayer of the assessment certified by the Commission on or before January 1st of each year, as well as publishes a Bulletin by taxpayer name and amount of assessed value.

Classification of Property as Real or Personal

The practice of appraisal often requires the appraiser to distinguish between real property and personal property. NRS 361. 030 defines personal property as:

> (j) All property of whatever kind or nature, except vehicles . . . not included in the term "real estate" as that term is defined in NRS 361.035.

NRS 361.035 defines real property as

> "all houses, buildings, fences, ditches, structures, erections, railroads, toll roads and bridges or other improvements built or erected upon any land . . ."

When an item of personal property becomes attached to real property, it is called a "fixture." In determining whether an article is a fixture attached to real property, there are three tests:

1. The manner of its annexation (physical annexation);
2. Its adaptability to the use and purpose for which the realty is used (constructive annexation); and
3. The intention of the party making the annexation.

Property is physically annexed if it is attached, imbedded, permanently resting upon land or improvements or is attached by other means that are normally used for permanent installation. If the item cannot be removed without substantially damaging it or the real property with which it is being used, it is considered to be physically annexed.

An item of property not physically annexed to real property is constructively annexed to real property if the nonattached item is:

1. A necessary, integral or working part of the real property, and
2. Designed or committed for use with real property, and
3. So essential to the real property that the real property cannot perform its desired function without the nonattached item.

Finally, the courts have found that for purposes of taxation, whether the parties intended to make the article a permanent part of the realty is the crucial factor and that intention is manifested by the physical facts or reasonably manifested outward appearances.

An example of property that meets the test for real property is billboards. The Nevada Legislature specifically recognized that billboards meet the physical or construction annexation test because the depreciation allowed for billboards must be calculated as if they were real property *(See NRS 361.227(4))*. Another example is found in NRS 361.244 - A mobile or manufactured home is eligible to become real property if it becomes permanently affixed to land owned or leased by the owner of the mobile home and certain other legal criteria. Conversely, NRS 361.2445 provides a process for converting a mobile or manufactured home from real property to personal property.

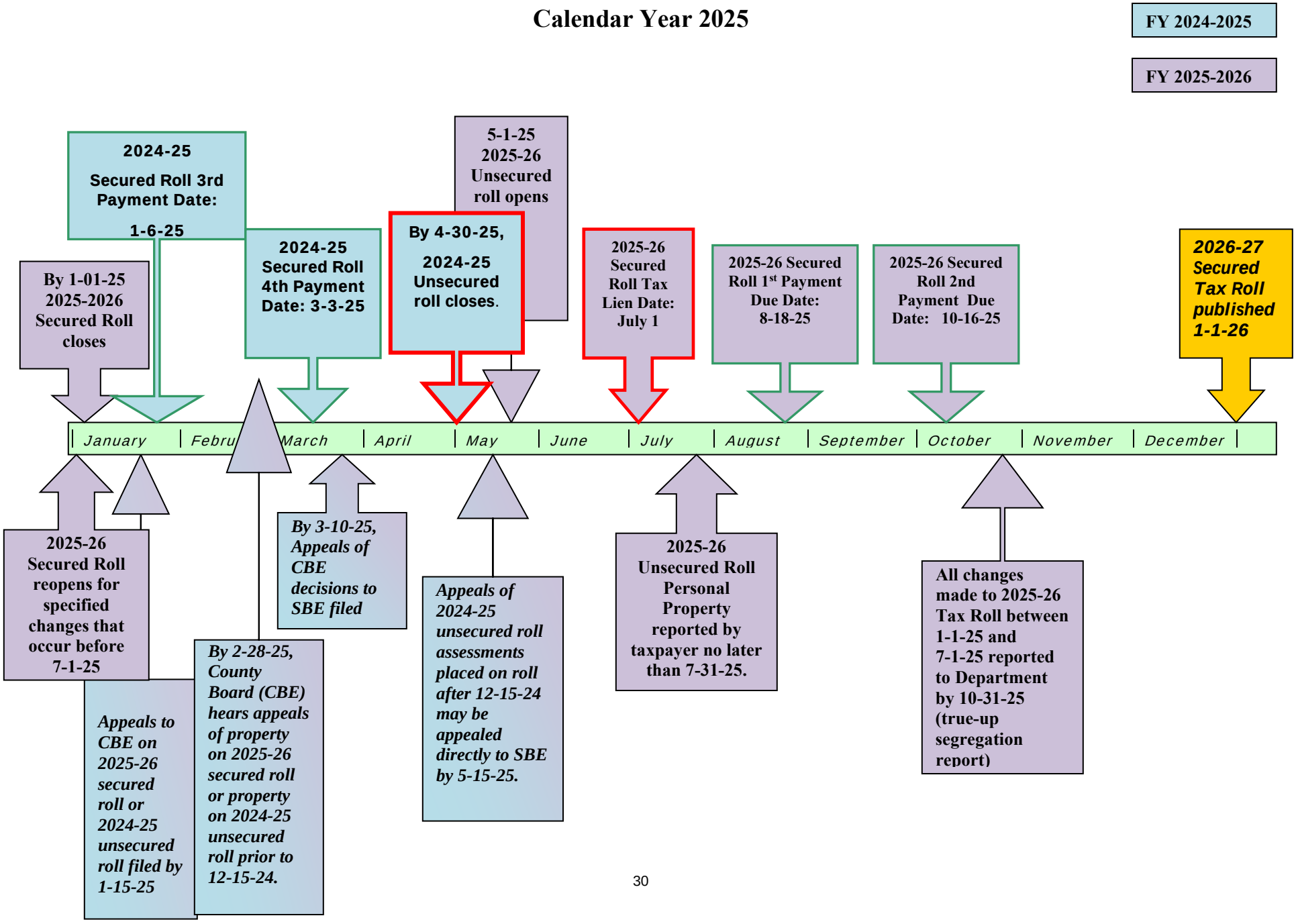
The Nevada Tax Commission adopted regulations in 2010 regarding the fixture test, discussed above, to clarify how an assessor should determine whether property is real or personal. In particular, the regulations provide a definition related to fixtures stating that it means an item that was originally personal property which has been installed or attached to land or an improvement in a permanent manner.[1] In 2012, the Tax Commission provided an exception to the fixture test for trade fixtures which are items of personal property that are attached non-permanently for the purpose of conducting a business or trade and not for the enhancement of real property.[2] A more complete discussion on the treatment of fixtures may also be found in The Personal Property Manual Appendix published by the Department and approved by the Commission annually.

[1] NAC 361.1127.

[2] LCB File No. R068-12A

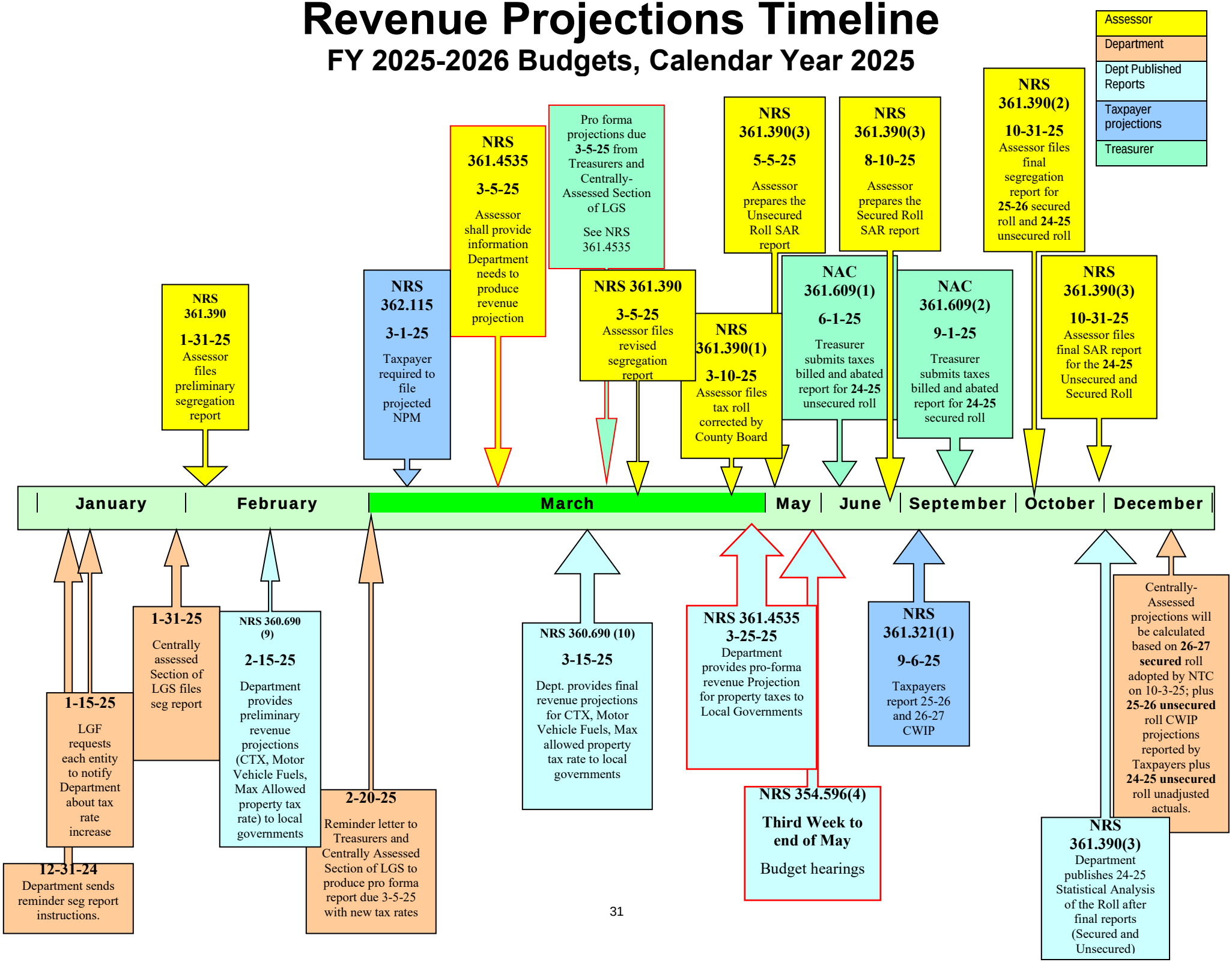
Under NRS 361.227, improvements and fixtures are depreciated at the rate of 1.5% annually, up to 50 years, thus leaving a residual value of 25% at the end of the 50-year period. By contrast, personal property is depreciated using a 200% double-declining balance methodology, at varying rates depending on the life assigned to the property, with a residual value of 5%. The proper classification of property is therefore very important in order to value property correctly.

Secured and Unsecured Roll Timeline



Revenue Projections Timeline

FY 2025-2026 Budgets, Calendar Year 2025



Chapter

4

Agricultural, Personal, Special Purpose, Mines and Mineral Properties

But the value of property results from the use to which it is put and varies with the profitableness of that use, present and prospective, actual and anticipated.

Cleveland, C.C. & St. Louis RR Co. v. Backus (1893) 154 U.S. 445.

As the pundits will say, "every rule has an exception." In Chapter Two, it was very clear that taxable value for improved properties was defined as the replacement cost new less depreciation of the improvement plus the full cash value of the land. Exceptions to this valuation methodology have been created, however, to accommodate the unique nature of certain kinds of property. Chapter Four discusses these variations.

Valuation of Agricultural Property

For many years, the legislature tried to give the assessors the right to assess agricultural land based on a "use" value, and they were doing that until a lawsuit was filed challenging the ability to apply use value. The Supreme Court held it was unconstitutional to do so because the constitution of Nevada requires all land to be assessed at a uniform and equal rate.

In 1973, AJR 23 was then presented to the voters of Nevada who subsequently amended the Constitution to say that the legislature may

provide for use value assessment or for a lower assessment value on agricultural land, but the legislature must also pass a measure to allow for the recapture of taxes for at least seven years if the land is converted to a higher use. So, in 1975, the legislature passed SB 167. As NRS 361A.090 states: "It is the intent of the legislature to (a) constitute agricultural and open-space real property as a separate class for taxation purposes; and (b) provide a separate plan for the appraisal and valuation of such property and partial deferred taxation of such property with tax recapture. The legislature hereby declares that it is in the best interest of the state to maintain, preserve, conserve, and otherwise continue in existence adequate agricultural and open-space lands and the vegetation thereon to assure continued public health and the use and enjoyment of natural resources and scenic beauty for the economic and social well-being of the state and its citizens."

For example, if a farmer or a rancher has some acreage that has an actual market value of $1,000 per acre because it could be subdivided into housing lots, but he is assessed instead at a use value of $100 per acre, he pays the tax on the lower value. Seven years from now, if he converts or subdivides it, then he is required to pay the deferred tax, the tax that he didn't pay during those years.

An assessor may determine that property is no longer used as agricultural or open space when the property has been converted to a higher use. In determining whether the property has been converted to a higher use, the assessor must consider whether one or more of the following events have occurred:

(1) A physical alteration of the surface of the property enabling it to be used for a higher use;

(2) The recording of a final map or parcel map which creates one or more parcels not intended for golf course use; or

(3) A change in zoning to a higher use made at the request of the owner.

Agricultural Land Classification and Valuation

NRS 361.325 (1)(b) requires the Nevada Tax Commission to classify land and fix and establish the valuation thereof for assessment purposes. The classification of agricultural land must be made based on crop, timber or forage production, either in tons of crops per acre, board feet or other unit, or animal unit months of forage.

NRS 361A.140 requires the Commission to:

> (a) Define the classifications of agricultural real property;
>
> (b) Determine the valuations for each classification on the basis provided in NRS 361.325;
>
> (c) Determine the value of land covered by a residence or necessary to support the residence in the same manner as other real property pursuant to NRS 361.227; and
>
> (d) Prepare a bulletin listing all classifications and values thereof for the following assessment year.

Valuation methodology for agricultural land is based on a capitalized earnings approach, whereby an estimated income stream is capitalized into an estimate of value. There are two major components to the capitalized earnings approach. First, an income stream is developed from information obtained from an annual survey of agriculturalists throughout the state.

The survey requests information about the price per ton of alfalfa hay, estimated tonnage and total tons. The survey also asks for information regarding wild or other hay, watered pasture rental prices per animal unit month (AUM) and grazing rental prices per AUM. The information is then compared to statistics developed by the Nevada Agricultural Statistics Service (NASS) to verify reasonableness. The NASS develops average price-per-month for alfalfa hay and the average price-per-month for wild hay used to compare information for cultivated land values and native meadow or wild hay land, respectively.

Each year, a mean average for the price of hay and for pasture and grazing land rentals is calculated from the annual survey data. A five-year, weighted average using the mean average for five years is then calculated. The weighting is intended to reflect a normalized, typical drought cycle estimate of typical gross revenue for cultivated lands. The same process is used to develop a normalized, typical drought cycle estimate of typical gross revenue for native meadow or wild hay lands using the average price of wild hay reported by survey participants.

Estimated expenses are then deducted from the normalized gross revenue for each category. The actual cost of production of hay varies widely year by year and area to area. All other costs, including fuel, fences, payroll, insurance and maintenance, are included in the estimate.

Procedures for the administration of the assessment of agricultural lands may be found in NAC Chapter 361A. For instance, real property owners may apply for an agricultural use assessment on real property qualifying as agricultural land. To qualify, the lands must meet the requirements of NRS 361A.020-361A.030 and NAC Chapter 361A. County assessors determine the eligibility of agricultural use applications for properties of 20 acres or more and the Division of Excise and Local Government Services reviews those applications of less than 20 acres.

Open-Space Land Classification

NRS 361A.170 requires the governing bodies of every city or county, as part of their master plan, to establish and promote the conservation, maintenance, and protection of open-space property. If a property is designated as open-space property, it is eligible for an open-space use assessment. In addition, property used as a golf course is classified as open-space real property and must be assessed as an open-space use.

Except for property designated as open-space golf course property, open-space use applications are filed with county assessors who forward the applications to the county commissioners or city governing body. The county commissioners or governing bodies evaluate open-space use assessment applications and act based on procedures adopted by ordinance. Golf course owners, however, do not need to apply for the open-space designation. Under NRS 361A.170(1), county assessors must automatically apply the open-space designation.

Pursuant to NRS 361A.050, historic sites may also qualify for open-space use assessment. The following conditions must be met:

1. Department of Cultural Affairs, State Historic Preservation Office must designate the site as historical.

2. In addition, an historic site must meet the requirements of NRS 361A.170 through 361A.210.

Disqualification of Property for Open-Space Designation

NRS 361A.230 states there are three ways to disqualify property from an open-space use designation. Those are:

> (1) The sale or transfer of the property to an owner who is exempt from property taxation;
>
> (2) Upon discovery, if the property is no longer being used as open-space, the assessor may remove the property from open-space use status if the board of county commissioners concurs; and
>
> (3) For properties other than golf-courses if the applicant notifies the assessor to remove the open-space designation or fails to renew the application.

Under these provisions, golf course property must remain designated as open space until the property is either sold to an owner with an exempt status such as a local government or if the assessor discovers the golf course is no longer being currently used as a golf course.

Open-Space Land Valuation

If an application is approved, the assessor calculates an open-space use assessment by discounting the property's equalized taxable value. The formula for all open space uses other than golf courses is to discount the taxable value by a factor of .74, which represents a long-standing decision of the Nevada Tax Commission to derive the present worth of 1 at a discount rate of 9% for a term of 3-1/2 years. The 3-1/2-year period represents half, or the median, of seven years. Seven years is the recapture period for which the deferred tax may be imposed in the event the open-space or agricultural use no longer applies (*See NRS 361A.280).*

In the case of golf courses, NRS 361A.225 states that the value of open-space golf course land must not exceed the product of $2,860 per acre, based on its classification, times the percentage change in the Consumer Price Index from July 1, 2004. Using that formula, the 2025-26 taxable value per acre was $4,948.

Personal Property Valuation

For taxable personal property, assessors are directed to subtract all applicable depreciation and obsolescence from the cost of replacement (NRS 361.227(4)). The Commission has defined the cost of replacement to be the "acquisition" or "original" cost of the property to the present owner, including the costs of transportation and costs of installation, appropriately adjusted by a cost-index factor *(NAC 361.1351; 361/1371).*

- An assessor begins with the reported original acquisition cost, including the costs of installation *(NAC 361.1371).*
- The written statement from the taxpayer listing personal property must be returned no later than July 31st *(NRS 361.265).*
- The assessor determines the expected life of the property. Using the Personal Property Manual developed by the Department, a conversion factor is applied which converts the original cost of the property to an estimate of the current cost of replacement. The Manual also provides a formula for depreciation *(NAC 361.1375).*

The Commission annually adopts the Personal Property Manual developed by the Department. The Manual contains Life Expectancy Guidelines stratified into major industrial classifications. Each industrial category is assigned an expected life. Certain types of equipment within the industry are identified separately as "Itemized Equipment." The "Itemized Equipment" Section under each industry group provides a specific life which may be different from the industry as a whole. If the itemized equipment can be identified, the specific life is preferable to the industry classification expected life.

The Manual also contains Cost Conversion Indices by the expected life of the property. Once the appropriate expected life is selected, a conversion factor is applied, appropriate to the age of the property, to the original acquisition cost to determine the taxable value.

Special Purpose Properties: Unit Valuation

NRS 361.043 specifically provides that "taxable value" for interstate and inter-county property is defined differently than property that is locally assessed. The Commission is required to establish the valuation "of any property of an interstate and inter-county nature" which includes, for example, all interstate or inter-county railroads, airlines, power companies and telephone companies *(NRS 361.320)*. The statute goes

on to require the Commission to value the operating property as a "collective unit." Properties valued as a collective unit are also known as "centrally-assessed properties."

Unit valuation means estimating the value of an integrated group of assets functioning as an economic unit as "one thing" without reference to the independent value of the component parts. The logic of this concept is that informed buyers and sellers will most likely buy or sell a viable operating unit as "one thing."

Unit appraisal was originally devised, and basically has been supported, by the courts for over a hundred years because components of a system are often located in more than one taxing jurisdiction, such as when an electric utility generating plant is located in one jurisdiction, transmission lines run through several other jurisdictions and all the customers are located in yet other jurisdictions. The courts have commented for years that assets taken separately have little value. The value of assets working together, however, may have tremendous value and should be allocated amongst the jurisdictions.

There are practical advantages to unit valuation to the taxpayer. If each county were to value a portion of an interstate company, the company conceivably would receive hundreds of tax bills. Multiple assessments mean duplication of work and duplication of cost. Unit valuation promotes uniformity in methodology and uniformity in value. Furthermore, unit valuation is principally driven by financial information rather than physical inspection. Interstate companies are typically very large in size and have many assets located all over the country. Physical inspection would be extremely difficult for either local or central assessment personnel.

The cost indicator used for centrally assessed properties is gross book cost less accrued book depreciation *(NAC 361.421).* Book value (or cost) is generally defined as the net amount at which an asset or asset group appears on the books of account, as distinguished from its market value or some intrinsic value. *Gross book value* is the amount appearing in an asset account while *book value (or net book value)* is the gross book value less any applicable portion of accumulated depreciation or other *valuation account.*[1] Generally book value is based on the historical money amount attaching to any asset or expense, generally representing cost, and does not involve market value.

[1] Kohler, Eric L., A Dictionary for Accountants, 5th Edition, (Prentice-Hall, Englewood Cliffs, NJ: 1975), p. 70.

As amended by SB 411 in 1999, NRS 361.320 (4) requires the development of cost and income indicators of value, "but the taxable value may not exceed the cost of replacement as appropriately depreciated."

Allocation and Apportionment

When centrally assessed property extends into two or more states, the Department is required to first estimate the value of the system in all states and then allocate a portion of the system value to Nevada. Based on a series of U.S. Supreme Court decisions on taxable nexus (location), one state cannot tax property physically located in another state; therefore, a process of allocation is required.

The goal of allocation is to reasonably reflect the property value contained in each state.[2] The formulas for allocation are generally based on a combination of property, use and revenue factors.

In Nevada, the comparison of system value to state value is limited to book cost, gross operating revenues and certain use factors, depending on the information available. Book cost is a property factor intended to identify and describe the distribution of various physical assets throughout the system. Gross operating revenue is a revenue factor based on actual earnings within the system compared to actual earnings in Nevada. This factor tends to be least used because large corporations often do not distinguish from where revenues were earned. Use factors, such as airtime, ground time, line haul and terminal statistics, are most often found in the railroad and airline industries.

Once a system value is allocated to Nevada, it is further apportioned to various jurisdictions within Nevada based on a mile/unit valuation methodology *(NRS 361.320(2)).* Table VI shows the allocation and apportionment formulas by industry.

[2] Western States Association of Tax Administrators, Appraisal Handbook, (1989), p. 116.

Valuation of Mines

The Department is charged with the valuation of all reduction, smelting and milling works, plants and facilities, whether or not associated with the mine, all drilling rigs and all supplies, machinery, equipment, apparatus, facilities, buildings, structures and other improvements used in connection with any mining, drilling, reduction, smelting or milling operation *(NRS 362.100)*. The valuation of mines must use the methodologies provided in NRS Chapter 361. Most of the mines are valued using the same cost methodology prescribed for locally assessed properties pursuant to NRS 361.227. Some mines, however, meet the criteria of property of an interstate or inter-county nature. When that occurs, the methodology used is the same as for "centrally-assessed properties," that is, a unitary value as provided in NRS 361.320.

Valuation of Minerals for Net Proceeds

The net proceeds of minerals tax is annually determined by the Department and is based on the actual production of minerals from all operating mines, oil and gas wells, and geothermal operations in Nevada.

The Department determines the net proceeds of minerals tax due based on the information filed by the taxpayer, as well as from available data, evidence, and reports. The net proceeds are determined by subtracting from the gross yield certain deductions for costs incurred during the calendar year immediately preceding the reporting year. Costs available for deduction may be ascertained from NRS 362.120 and NAC 362.030 through 362.070. Royalties paid by operators are reported as net proceeds, as no costs are allowed to be deducted from the gross royalty. The Department certifies most net proceeds no later than April 20th for production occurring in the previous year, although under certain circumstances, some certifications are not issued until April 30th. Taxes must be paid on or before May 10th of the year in which the certificate is received *(NRS 362.130).*

The tax rate applied to the net proceeds is based on a sliding scale between 2% and 5%, depending on the ratio of net proceeds to gross proceeds *(NRS 362.140).* Of the total tax rate, the local portion of

the overall tax liability is based on the local rate where the mine is located and the balance, up to the constitutional limit of five percent, is the state portion of the tax. For example, if a company generates $1,000,000 in net proceeds, out of a total of $2,000,000 gross yield, then, according to the statutes, the ratio of net proceeds to gross proceeds is 50%, and the rate of tax would be 5%. If the local tax rate where the mine is located is .0364, then the balance after subtraction from 5% would be the state portion of the tax, or .0136.

During a special session in 2020, the Legislature amended the billing and collection statutes related to the Net Proceeds of Minerals tax. SB 3 (2020 special session) amended NRS 362.110 by establishing a pre-payment system. Under the pre-payment system, operators are required to pay the estimated taxes due to the General Fund of the State of Nevada. This prepayment system expired June 30th, 2023.

Table III:
Allocation and Apportionment Factors and Weights by Industry Type

Railroads

Allocation by:

Road Property	40%
Line Haul	45%
Terminal	15%

Apportionment by:
Track miles by tax district

Telecommunications

Allocation by:

System to Nevada Cost	75%
System to Nevada Income	25%

Apportionment by:
Wire or air miles by tax district

Electric Utilities

Allocation by:

System to Nevada Cost	75%
System to Nevada Income	25%

Apportionment by:
Wire miles by tax district

Natural Gas Pipelines

Allocation by:
System to Nevada Cost Mostly 100%

Apportionment by:
Inch miles by tax district

Liquid Product Pipelines

Allocation by:
System to Nevada Cost 100%

Apportionment by:
Inch miles by tax district

Airlines – National & Regional

Allocation of:
Flight Equipment (System to Nevada):

Air to ground time	50%
Revenue Ton Miles flown	35%
Orig/Term tons	15%

Apportionment by:
Air miles by tax district

Airlines – Charter & Feeder

Allocation of:
Flight Equipment (System to Nevada):

Airtime	25%
Ground time	25%
Revenue Ton Miles flown	25%
Orig/Term tons	25%

Apportionment by:
Air miles by tax district

Chapter

5

Tax Relief

As a general rule of law, assessment and taxation of property are the rule, with exemptions being the exception.

City of Cheyenne v. Board of County Commissioners (1971), 484 P. 2d 706

A key principle of property tax systems is that all property is taxable unless it is specifically exempt and exemptions are to be narrowly construed.[1] Nevada follows suit in this respect because, by constitution and statute, all property within the state is subject to taxation, except as otherwise provided by law (Nevada Constitution, Article 10, Section 1; NRS 361.045).

Property tax relief programs are designed to help alleviate property tax burdens or encourage publicly desired objectives. There are two principal kinds of relief available: property tax limitations and property tax credits or abatements and exemptions.

Property tax limitations can be broken down into six categories:

- Tax rate limits
- Revenue limits
- Property tax rollbacks
- Spending limits
- Assessment limits
- Truth-in-taxation provisions

There are a variety of property tax credits and exemptions, but the common categories are:

- Partial exemptions
- Full exemptions
- Abatements
- Classification of property
- Deferrals

[1] IAAO, Standard on Property Tax Policy, 1997, p. 20.

Property Tax Limitations

Constitutional and Statutory Tax Rate Limits

The State of Nevada Constitution, Article 10 § 2, limits the property tax rate to 5 cents per $1.00 of assessed value, which translates to $5.00 per $100 of assessed value. In the 1979 session, the Nevada Legislature set the property tax rate at no more than $3.64 per $100 of assessed value, where it remains to the present time *(NRS 361.453).* In 2003, the Legislature passed SB 507 which authorized an additional 2 cents for capital projects and conservation of natural resources. The 2 cents are outside the tax rate limit so that a total of $3.66 per $100 of assessed value may actually be assessed.

In addition, the Nevada Constitution limits the tax upon the net proceeds of minerals to no more than 5 percent of the net proceeds *(Nevada Constitution, Article 10* § 5*).*

Revenue Limits: Local Government Operating Rule

Pursuant to NRS 354.59811, the revenue a local government entity receives from property taxes is allowed to be increased by a maximum of 6% per year. The previous fiscal year's property tax revenue is multiplied by 106%. This amount is then divided by the projected assessed valuation for the upcoming fiscal year to determine the tax rate necessary to generate that amount of revenue. The NRS also provides for a "hold harmless" scenario, in which the new calculated tax rate cannot be less than the previous fiscal year's rate.

Assessment Limits: Taxable Value

The assessment of real property is limited to the full cash value of land and, if improved, the full cash value of land plus the replacement cost new less depreciation of the improvements. Depreciation is limited to 1.5% per year for the first 50 years, or a maximum of 75% *(NRS 361.227).*

Truth-in-taxation provisions

The Taxpayers' Bill of Rights affords taxpayers certain rights. For instance, each taxpayer has the right to a prompt response from the Department and to provide the minimum documentation and information necessary to determine the tax, to written instructions and explanations and other provisions to enhance the transparency of governing the property tax (*NRS 360.291).*

Property Tax Exemptions and Tax Credits

Article 10, Section 1 of the Nevada Constitution requires the "valuation for taxation of **all** property, real, personal and possessory..." NRS 361.045 also provides that, except as otherwise provided by law, all property of every kind and nature whatever within this state shall be subject to taxation. Other statutes, however, grant exemptions to particular types of property. Some are granted exemption at face-value and other types of property must qualify according to specific criteria to receive the exemption.

The types of exemptions range from partial exemptions granted to veterans, disabled veterans, surviving spouses and blind persons to exemptions from taxation for all real and personal property granted to governmental entities, religious, charitable, and non-profit organizations, and individual organizations which are specifically cited. In many cases, the statutes specifically recite that the property must be used to carry out the legitimate function of the organization and if not, the property becomes taxable.

For the types of exemptions which must go through a qualification process, the county assessors must collect, evaluate, and process the various claims for property tax exemptions. Application forms which have been approved by the Nevada Tax Commission should be made available to the claimant. Each form requests information regarding taxpayer contact information, the type of exemption being claimed, the property which the exemption, if granted, would affect, a statement regarding why the property qualifies for the exemption and supporting documentation if necessary. The purpose of any form is to provide sufficient information to help assessors make a reasoned determination to approve or deny applications.

In the event a claim for exemption is ambiguous or open to interpretation, how the property is used may indicate whether or not an exemption applies. The general rule espoused by the courts is that strict construction of exemption statutes applies to exemptions for property held in private ownership but not to exemptions for public property where exemption is the rule and taxation the exception (2 Thomas M. Cooley, *The Law of Taxation*, § 673 at 1414-15 (4th ed. 1924)). Said another way, property held in private ownership must strictly comply with all the criteria established for the exemption because “taxation is the rule and exemption the exception.” On the other hand, for property held by a public entity, the rule is reversed to say, “exemption is the rule and taxation the exception.”

The purpose in establishing a broad construction of exemption for public entities is to prevent an escalating spiral of unnecessary taxation and administrative costs with no benefit to the public (16 Eugene McQuillin, *The Law of Municipal Corporations*, § 44.57 at 206 (3rd ed. 1994)). If one governmental entity chooses to tax the property of another governmental entity, the governmental entity forced to pay taxes may have to levy and collect new taxes to meet the demands of the tax (2 Cooley, *supra*, § 621 at 1313). The effect of such a tax spiral is that the public would be taxing itself to raise money to pay itself.

Partial Exemptions

Partial exemptions are those in which a percentage or fixed dollar amount of value is removed from the otherwise taxable value of a property. Some examples are:

- Property of surviving spouses *(NRS 361.080)*
- Property of blind persons *(NRS 361.085)*
- Veterans' exemptions *(NRS 361.090)*
- Property of lodges and other charitable organizations *(NRS 361.135)*

Full exemptions

Full exemptions are granted to property, such as federal government property, that may be subject to constitutional immunity from taxation. Some examples include:

- State lands *(NRS 361.055)*
- Property of political subdivisions of State *(NRS 361.060)*
- Property of school districts and charter schools *(NRS 361.065)*
- Business inventories and consumables *(NRS 361.068)*
- Household goods and furniture *(NRS 361.069)*
- Irrigation systems *(NRS 361.070)*
- Property used for pollution control *(NRS 361.077)*
- Qualifying low-income housing projects *(NRS 361.082)*
- Churches and chapels *(NRS 361.125)*

See Appendix I for a complete list of all exemptions.

Property Tax Abatements

Tax Limitation by Abatements

Pursuant to AB 489 and SB 509 (2005), property owners are eligible for a partial abatement of property taxes assessed upon real and personal property in Nevada. The legislation has been codified from NRS 361.471 through 361.4735.

AB 489 imposes a system of calculating an abatement, or reduction, of tax liability. Two types of abatements were created. The first type of abatement applies to owner-occupied, single-family residences which constitute the primary residence of the owner, as well as for certain qualifying rental properties. The primary residence of the owner is defined as being the residence designated as the primary residence of the owner, exclusive of any other residence of the owner within the state and is not rented or leased for exclusive occupancy by any person other than the owner and members of his or her family (NRS 361.4723 and 361.4724). The abatement for qualifying residential properties is calculated by multiplying last year's tax liability times 1.03, or by a lower factor if the general abatement is less than 1.03. This result is then compared to this year's tax liability. Any amount of this year's tax liability which exceeds the result of multiplying last year's tax liability times 1.03 is abated.

Residential rental properties that qualify for the abatement are low-income housing using the standards of the U.S. Department of Housing and Urban Development (HUD). The property tax bill on these dwellings cannot increase by more than 3 percent over the prior year's tax levy. To qualify for this partial abatement, the amount of rent collected from each tenant of the residential rental dwelling cannot exceed the fair market rent of the county in which the dwelling is located, as established by HUD.

The second type of abatement is applied to all other parcels or other taxable unit of property, including centrally assessed property, with certain exceptions, and is known as the "general" abatement *(NRS 361.4722).*

The same basic calculation is applied to all other property; however, the level of abatement varies from county to county and is based on a complicated two-part formula. The current system for calculating the general tax cap for each individual county requires the following steps:

1. Calculate twice the CPI,
2. Calculate the moving average growth rate based on a 9-year rolling average of assessed value for each individual county, including net proceeds of minerals,
3. Determine which one is higher, up to 1.08 (8%).

The percentage used to determine the limit of increase on a property tax bill under this partial abatement is the greater of the percentages calculated in the first and second parts of the formula. *See the Appendix for the current Level of Abatement Tables.*

The partial abatements do not apply under the following conditions:

- Properties that had no assessed valuation established for the preceding fiscal year;

- Properties whose value is in the first year of existence on the tax roll, including changes as the result of new improvements or enhancements to existing improvements; or
- Properties with a change in actual or authorized use.

Before AB 489 (2005), calculating property taxes followed a simple model that appraisers often call IRV (Income = Rate * Value). Assessors determined the taxable value of all property under their jurisdiction according to NRS 361.227 and applied the 35% assessment ratio pursuant to NRS 361.225 to calculate its assessed value. Taxes due thus equaled total assessed value (gross assessed less exemptions) times levied tax rate.

Correct tax computation under AB 489, however, requires splitting value into several components: Existing Value, New Value, Exempt Value, and under certain circumstances, Recapture Value. Because some portion of the combined overlapping ad valorem tax rate may be exempt from abatement, different tax rates may apply to each value component (*See NRS 361.4726 - .4728).*

The actual taxes due now equal the Taxes Otherwise Due Prior to Application of the Abatement (TODPAA) less the tax abatement, if any. In simple terms, the new tax computation model looks like this:

TODPAA = (Existing AV * Combined Tax Rate) + (Existing AV * Cap-Exempt Tax Rate) + (New AV * Total [Combined + Cap-Exempt] Tax Rate) + (Recapture AV * Recapture Tax Rate + Recapture Carry Forward) – (Exempt AV * Total Tax Rate)

Where:

- Nominal Tax = (Existing AV * Combined Tax Rate)

- Capped Tax = [(Prior Year Gross (Existing + New) AV * Prior Year Combined Tax Rate – Prior Year Abatement] * Current Year Tax Cap Factor

- If Nominal Tax > Capped Tax, Then
Tax Abatement = Nominal Tax – Capped Tax Else
Tax Abatement = 0

- Taxes Due = TODPAA – Tax Abatement

"Existing Value" has been interpreted broadly through regulation while "New Value" has been restricted, resulting in a widely applied abatement. NRS 361.4722 and 361.4723 provide for valuation exceptions to the abatement, specifically "remainder" parcels and changes in "actual or authorized use." Because of the regulatory definitions found in NAC 361.61002 through 361.61038, certain changes which occur that add value to property and would otherwise be

captured as taxable value are subject to abatement. As a result, assessors essentially must keep track not only of taxable value based on the full cash value of the land and the replacement cost new of the improvements but also taxable value subject to abatement and not subject to abatement.

When first added to the tax roll as new property value, land is valued at full cash value and improvements are valued at replacement cost new less depreciation. After April 6, 2005, if a legislative act requires a local government to levy a new property tax rate or increases the tax rate on a currently existing assessment, the amount of the new tax is exempt from all of the partial abatements provided by AB 489.

Other Abatements and Tax Increment Financing

Property tax abatements and tax increment financing systems are also used to attract businesses to economically depressed areas. The Governor's Office on Economic Development (fka Commission on Economic Development) grants and administers a variety of incentives to attract businesses, including personal property tax abatements and real property tax abatements for recycling and retail wheeling.

In addition, the Office of Energy certifies properties for abatement that qualify as "green" based on LEED standards (Leadership in Environmental and Energy Design). County tax receivers administer the abatements after the grant is awarded by other agencies. The amount of the LEED abatement varies from 25% to 35%, depending on the level of LEED standard achieved. Property taxes of renewable energy companies, including geothermal companies, are also subject to abatement at the rate of 55% abatement. The LEED abatement program has been changed by statute and is no longer available for new applicants, but existing properties still receive the abatement until the terms expire.

Property Tax Deferrals

Deferrals delay but do not excuse taxes which accrue as an increasing lien until property is sold or the estate is settled. Deferred taxes are subject to interest charges. The postponement of payment of tax program is administered by County Treasurers *(NRS 361.736 through 361.7398).* Property qualifying as agricultural or open space may also enjoy deferred taxes (*See Chapter 4).*

Chapter

6

Equalization

The ancient principles of uniformity, equality, justness, and fairness permeate the law; principles which cannot now be ignored.
Nevada Supreme Court, Boyne v. State , 390 P. 2d 228.

Equalization is the process of assuring all locally assessed and state assessed properties are treated uniformly and fairly, according to the valuation standards and methods set by law.

In order to ensure property in the state is appraised equitably by county assessors, the Department tests a variety of information using applied statistics to determine if inequity or assessment bias exists. The Department also audits assessor work practices to ensure the uniform application of valuation and assessment methodology as provided by law and assessment standards. If inequity or bias is discovered, NRS 360.215 and 361.333 provide the Nevada Tax Commission the authority to pursue certain procedures designed to correct inequitable conditions. NRS 361.395 also provides the State Board of Equalization with the authority to equalize. County Boards of Equalization also can equalize pursuant to NAC 361.624.

Ratio Study

To facilitate the analysis of equitable appraisal, the Department of Taxation conducts a ratio study each year designed to measure the level of appraisal accuracy of local county assessors. Generally speaking, a “ratio study” is “designed to evaluate appraisal performance or determine taxable value through a comparison of appraised or assessed values estimated for tax purposes with independent estimates of value based on either sales

prices or independent appraisals."[1] The comparison of the estimate of assessed value produced by the assessor on each parcel in the sample to the estimate of taxable value produced by the Department is called a "ratio."

The Department independently appraises a sample of randomly selected properties in the study areas and compares the results to the assessed values established by the county assessor. The properties comprising the sample are physically inspected by Department appraisers and valued according to statutory and regulatory requirements. The independent appraisals conducted by the Department comprise a *sample* of the *universe or population* of all properties within the jurisdiction being reviewed. From the information about the *sample*, the Department *infers* what is happening to the population as a whole.

The Department examines the ratio information for *appraisal accuracy.* Two essential elements of appraisal accuracy are *appraisal level* and *appraisal uniformity.* Appraisal level compares how close the assessor's estimate of assessed value is to the legally mandated standard of 35% of taxable value. Appraisal level is measured by a descriptive statistic called a *measure of central tendency.* A measure of central tendency, such as the mean, median or aggregate ratio, is a single number or value that describes the center or the middle of a set of data. In the case of this ratio study, the median describes the middle of the array of all ratios comparing the assessed value to the taxable value established for each parcel.

Assessment uniformity refers to the degree to which different properties are assessed at equal percentages of taxable value. If taxable value could be described as the center of a "target," then assessment uniformity looks at how much variation or distance there is between each ratio and the "target." The statistical measure known as the coefficient of dispersion measures uniformity or the distance from the "target."

The ratio study by law must include the overall ratio (also known as the aggregate ratio or weighted mean ratio) of the total property within each subject county and each class of property. The study must also include two comparative statistics known as the median and the coefficient of dispersion (COD) of the median for both the total property in each subject county and for each major class of property within the county. NRS 361.333 (5) (c) defines the major classes of property as:

I. Vacant land;
II. Single-family residential;

[1] International Association of Assessing Officers, Standard on Ratio Studies, (1999), P. 6.

III. Multi-residential;
IV. Commercial and industrial; and
V. Rural

Section 5 of NRS 361.333 outlines how the Tax Commission may equalize properties if in fact the ratio study indicates that equalization is necessary. The actions the Tax Commission may take include (1) no action if it finds that all property has been assessed at the proper percentage; (2) applying a specified percentage to correct any deficiency if any class of property is assessed at less or more than the allowed range (32% to 36%); and (3) ordering reappraisal if the range is exceeded in the reappraisal area if the land and improvement factors are not being appropriately applied in the non-reappraisal areas or if the board of county commissioners does not agree with a specified percentage to correct any deficiency.

The State Board also has authority to equalize property pursuant to NRS 361.395. The State Board adopted regulations in 2010 providing for the process for determining whether equalization action is required. The State Board regulations reference the International Association of Assessing Officers (IAAO) standards to determine assessment accuracy and uniformity. The State Board may order additional analyses beyond the ratio study performed for the Nevada Tax Commission.[2]

Performance Audits

NRS 361.333 (1)(b)(2) requires the Department to make a determination about whether each county has adequate procedures to ensure that all property subject to taxation is being assessed in a correct and timely manner, and to note any deficiencies. In addition, the Department reviews assessments in those areas where land and improvement factors are applied pursuant to NRS 361.260 (5) to ensure the factors are appropriately applied.

In addition, NAC 360.728 requires the Department to periodically conduct performance audits of the books and records of county officers to determine:

(a) Whether the appraisals of the county assessor comply with all applicable laws and regulations governing the assessment of property taxes;
(b) Whether any county procedures relating to the preparation of the assessment roll or the collection of property taxes comply with law;
(c) Whether the system of management controls of the county relating to the preparation of the assessment roll and the collection of property taxes are accurate and reliable; and

[2] LCB File No. R153-09, Section 12, effective October 1, 2010.

(d) Whether there is an adequate system of management controls.

Department auditors travel to the offices of county assessors to review the procedures used to discover, value, and assess all real and personal property within the jurisdiction of the county assessor. The Department reviews the resources of the office, reviews a sample of property files and interviews assessors and their staffs. Departures from required or accepted appraisal practices are noted and recommendations for improvement are made to the Tax Commission. The Tax Commission has adopted regulations relating to the conduct of performance audits.[3]

[3] NAC 360.720 through 360.736.

Chapter

7

The Appeal Process

Assessment appeals are an important component in the assessment process. They provide property owners with an opportunity to meet with the assessor, to inquire about their assessments and to learn about the procedures used and the various factors considered in the appraisal of their properties.

Standard on Assessment Appeal, IAAO, 1982.

The State and County Boards of Equalization correct errors on tax rolls and hear complaints. Persons appealing to the County Board may do so by claiming overvaluation by reason of undervaluation of other properties *(NRS 361.355)*, inequity of treatment exists between properties *(NRS 361.356),* or the full cash value of the property is less than its taxable value *(NRS 361.357)*. The State Board hears and determines all appeals from the action of the County Board *(NRS 361.400)* or direct appeals from valuations of the Nevada Tax Commission *(NRS 361.403)* or other miscellaneous reasons. The two boards may also add property to the secured roll for property escaping taxation *(NRS 361.769)*.

The State and County Boards are public bodies subject to the Open Meeting Law (NRS Chapter 241) and the Public Records law. All meetings of the State and County Boards must be open to the public with an agenda of items and topics to be discussed and acted upon clearly and completely described. The agenda must be posted at least three full working days before the meeting of the State or County Board.

The Nevada Administrative Procedure Act (APA) (NRS Chapter 233B) also applies to the proceedings of the State and County Boards to supplement those proceedings specifically set forth in NRS Chapter 361 and NAC Chapter 361. The APA requires that a party be given

reasonable notice of a hearing in which the legal rights, duties or privileges of a party are to be determined *(NRS 233B.032, 233B.121)*. Additionally, the State Board is specifically required to provide reasonable notice to all parties appearing before it *(NAC 361.702)*.

County Board of Equalization

The session of the County Board may begin prior to January 15th and ends on the last day in February *(NRS 361.340 (10))*, except as to matters remanded by the State Board. If the business of the County Board is such that these time constraints make it impossible to fully hear the cases before the County Board, the County Board may consider extending the statutory deadline *(AGO 94, 8-12-55 and reconfirmed in AGO 2001-17).*

The County Board has the power to change and correct any valuation of the County Assessor which is found to be incorrect. Any change so made is effective only for the fiscal year for which the assessment was made *(NRS 361.345)*.

With the prior approval of the State Board, each County Board may adopt more detailed rules of procedure *(NAC 361.622).*

State Board of Equalization

The State Board convenes each session on the fourth Monday in March in Carson City, Nevada, and holds as many meetings as necessary to complete the business of the State Board. Typically, the State Board meets about 15 to 20 days during the session. If a proposed equalization action affects local governmental entities in more than one county and the action is likely to have a substantial effect on tax revenues, the State Board must notify the local governments on or before April 30th. All other individual appeals must be heard before November 1st. This deadline is directory and not mandatory, but the State Board makes all efforts to finish hearing such cases before that deadline *(NRS 361.380).*

All appeals of County Board decisions must be based upon the same facts and evidence submitted to the County Board *(NRS 361.360, 361.400, NAC 361.739(2))*. New evidence is not admitted unless it is discovered after the County Board hearing and could not, by due diligence, have been discovered before the final adjournment of the County Board *(NRS 361.360, 361.400, NAC 361.739(3))*.

Hearings that are on appeal from a County Board are reviewed to determine the correctness of the county board's decision and are not hearings de novo. Accordingly, there is no cross examination of witnesses, and no new evidence should be submitted, except as noted above. Hearings on direct appeals are conducted to allow all relevant evidence to be admitted and witnesses may be examined, and the opposing party may cross-examine such witnesses, and such witnesses may be impeached *(NAC 361.733)*. Such hearings are not conducted according to the technical rules of evidence and procedures as practiced in civil actions and any relevant evidence may be admitted, if it is of a type commonly relied upon by reasonable and prudent persons *(NAC 361.737).*

Nevada Tax Commission

The Tax Commission may hear the appeals of taxpayers in the event the County Treasurer or County Assessor has denied relief from interest and penalties imposed when the taxpayer has failed to make a timely return or payment of the tax *(NRS 361.4835)*. The Tax Commission also hears the appeals of taxpayers seeking relief from penalties and interest imposed by the Department *(NAC 360.402).*

The Tax Commission has a process in place to hear appeals of taxpayers denied an abatement of tax liability (*See Chapter 5).* Once written notice of an appeal is received by the Commission, the appeal is assigned to a hearing officer. The hearing officer makes recommendations to the Commission about whether the abatement should be granted, and the Commission may adopt, modify, or reverse the hearing officer's decision (*See NAC 361.6105 through 361.61074).*

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Appendix I:

Property Tax
Exemptions and Abatements

Nevada Department of Taxation

List of Property Tax Exemptions

Due Date for Application:
(1) No application required
(2) One time only until status changes. The claim must be made by June 15th. *See NRS 361.155 (1) and (3)*.
(3) Annually, by June 15th. *See NRS 361.155 (1)*
(4) Annually, by July 1st. *See NAC 361.062*
(5) Annually, by December 30th. *See NRS 362.050*

Exemption Type	NRS Reference	NAC Reference	Property Type	Due Date for Application See Legend	Explanation
Airport	361.061(1)		Real	(2)	Improvement of land by the public as an airport is a municipal purpose, whether or not the airport is owned or operated by a local government.
American Land Conservancy	361.111		Real	(2)	Real property including improvements is exempt if: the property is held for acquisition by a Federal, state or local government and the said government has agreed in writing to consider acquiring said real property; or if the property will be held indefinitely and vested in the listed conservancy organization. If the property is held for purposes of conservation for any entity other than the State or local government, the land must be assessed as first class pasture. If the property is transferred for purposes other than conservation, taxes must be collected for each year it was exempt.
American National Red Cross and Nevada Chapters	361.110		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also YMCA, YWCA, American National Red Cross, Salvation Army Corp, GSA, Camp Fire Girls, BSA, Sierra Arts Foundation, Nevada Museum of Art, Inc.*
Apprenticeship Programs	361.106		Both	(2)	Real and personal property of an apprenticeship program is exempt if (1) the property is held in a trust created by 29 U.S.C. § 186 or (2) is owned by a local or state apprenticeship committee and the program is operated by a qualifying organization and registered and approved by the state apprenticeship council.
Archaeological Conservancy	361.111 AB 209 (2007)		Real	(2)	See explanation under American Land Conservancy.
Architectural barrier Removal for Disabled Persons	361.087		Real	(2)	Improvements to a residence occupied by a person with a disability are exempt. The person must claim the benefit by filing an affidavit setting forth the nature of the improvement and the date of making the improvement. See statute for examples.
Bank Deposits	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Bee colonies	361.068		Personal	(1)	Bee colonies are exempt personal property.
Blind Persons	361.085		Both	(3)	Property of blind persons up to an assessed value of $3,000, as modified by CPI, is exempt. The original affidavit of claim must be accompanied by a certificate from a physician certifying the person is blind. Renewal affidavits must be completed each year.
Boats	361.068		Personal	(1)	All boats are exempt.
Bonds	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Book Accounts	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Boulder City Museum and Historical Association	361.110		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also YMCA, YWCA, American National Red Cross, Salvation Army Corp, GSA, Camp Fire Girls, BSA, Sierra Arts Foundation.*
Boy Scouts of America	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*

Nevada Department of Taxation

List of Property Tax Exemptions

Exemption Type	NRS Reference	NAC Reference	Property Type	Due Date for Application See Legend	Explanation
Business Inventories & Consumables	361.068	361.065	Personal	(1)	Property consumed during the operation of the business, as differentiated from a component part of a manufactured item, is exempt. The property must meet the criteria listed in NAC 361.065.
Camp Fire Girls Inc.	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*
Campers, slide-in & shells	361.068		Personal	(1)	All slide-in campers and camper shells are exempt.
Carnival, circus, convention, display, exhibition, fair	361.068		Personal	(1)	Personal property, transient in nature, owned by a non-resident and located in this state for use by or in a carnival, circus, convention, display, exhibition or fair is exempt. *See also transient personal property.*
Cost of collection	361.068		Personal	(1)	Personal property for which the annual taxes would be less than the cost of collecting those taxes is exempt. NTC determines level of cost.
Cemeteries and Graveyards - Public	361.130		Real	(1)	Exempt cemeteries and graveyards must be open to the public and no charge is made for burial.
Cemeteries and Graveyards –Private	361.132		Real	(2)	Real property of a nonprofit corporation governed by the provisions of NRS Chapter 82 formed for the purposes of procuring and holding lands to be used exclusively for a cemetery are exempt, so long as the lots or plats remain dedicated to the purpose of a cemetery.
Charitable Foundation: *See University*	361.098		Both	(2)	All property owned by the charitable foundation established by the Board of Regents of University of Nevada is exempt unless it is used for a purpose other than carrying out the legitimate functions of the foundation.
Charitable Organizations	361.135		Both	(2)	See Lodges
Charitable Corporations	361.140		Both	(2)	Property actually occupied and used by corporation meeting certain qualifying criteria is exempt.
Charter School Leased Property	361.096		Both	(2)	All property leased or rented to a charter school is deemed to be used for an educational purpose and is exempt. Only the portion of the property that is used for the lease or rental to a charter school is exempt.
Churches & Chapels	361.125		Both	(2)	Land, buildings, and personal property used for religious worship other than marriage chapels, is exempt. The property must be owned by a recognized religious society or corporation. If the property is used for other than church purposes and a rent is received, the property is not exempt. AB 391(2015) expanded the exemption to parcels of land used exclusively for worship, including both developed and undeveloped portions of a parcel.
Counties, Town, Municipal Corp	361.060		Both	(1)	Property of counties, domestic municipal corporations, irrigation drainage, reclamation district, or town, except for certain community pastures, is exempt. *See also Nevada Rural Housing Authority, Irrigation*
Conservation District	361.060		Real	(1)	Real property acquired on or after 7-1-2003 by a conservation district is exempt.
Defenders of Wildlife	361.135		Both	(2)	*See Lodges for explanation.*
Disabled Veterans	361.091		Both	(3)	Up to $20,000 assessed value of property, adjusted by CPI, may be exempt, based on a sliding scale of disability of the veteran-owner. Only the property of residents or their surviving spouses meeting certain qualifying criteria is eligible for exemption.
Drainage Ditches, Canals & Irrigation Systems	361.070		Real	(1)	Drainage ditches and canals along with the lands included in the right-of-way of the ditch or canal are exempt. Each part of a permanently installed irrigation system, including pipes, concrete linings of ditches and head gates, are exempt.
Elderly & Handicapped Housing	361.086		Real and personal used for housing	(2)	All real property and mobile or modular housing and related facilities for elderly or handicapped persons are exempt if certain qualifying criteria are met.
Eagles Club	361.135		Both	(2)	*See Lodges for explanation*
Elks Club	361.135		Both	(2)	See Lodges for explanation.

Nevada Department of Taxation

List of Property Tax Exemptions

Exemption Type	NRS Reference	NAC Reference	Property Type	Due Date for Application See Legend	Explanation
Energy Systems (fka Heating & Cooling Systems)	701A.200 (fka 361.079)	361.052-361.058	Both	(1)	A qualified energy system is exempt. A qualified energy system is defined as any system, method, construction, installation, machinery, equipment, device or appliance which is designed, constructed or installed in or adjacent to one or more buildings or an irrigation system in an agricultural operation to heat or cool the building or buildings or water used therein if the source is a renewable energy source.
Fine Art for public display	361.068; 361.186	361.030 – 361.044	Personal	(3)	The exemption is limited to certain kinds of works of art purchased for $25,000 or more and meets certain public display requirements. When a taxpayer collects an admission fee, the amount of exemption is reduced by the net revenue received by taxpayer. *See NRS and NAC requirements.*
Girl Scouts of America	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*
Habitat for Humanity	361.115		Both	(2)	All property is exempt unless it is used for a purpose other than carrying out the legitimate functions of the organization. *See also Nevada Children's Foundation, Nevada Heritage Association.*
Hospital	361.083		Real	(2)	Property on which stands a hospital or other charitable asylum for the care or relief of orphans or sick, infirm or indigent persons owned by a qualifying non-profit corporation, is exempt. If the property is used for a different purpose, the property is taxable. *See also orphan children.*
Household goods and furniture	361.069	361.085	Personal	(1)	Household goods, furniture except certain appliances and furniture of time-share projects, are exempt. Examples are in both statute and regulation.
Irrigation, Drainage, Reclamation District	361.060		Both	(1)	See Counties, Towns for explanation.
Knights of Pythias	361.135		Both	(2)	*See Lodges for explanation.*
Knights of Columbus	361.135		Both	(2)	*See Lodges for explanation.*
Lahontan Audubon Society	361.135		Both	(2)	*See Lodges for explanation.*
Livestock	361.068		Personal	(1)	Livestock is exempt. Livestock is defined at NAC 361A.055. See also Article 10 (6).
Lodges & other charitable organizations	361.135		Both	(2)	Funds, furniture, paraphernalia and regalia owned by certain charitable organizations as well as real estate and fixtures are exempt. If the real estate is leased, the exemption does not apply to the portion so leased or rented.
Low income housing projects	361.082	361.089	Both	(3)	That portion of real property and tangible personal property used for housing and related facilities for persons with low incomes is exempt if the property meets certain criteria.
Masons	361.135		Both	(2)	*See Lodges for explanation.*
Mortgages	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Motor Vehicles	361.067		Personal	(1)	Vehicles defined in NRS 371.020 are exempt, except mobile homes. NRS 371.020 refers to NRS 482 and 706. Under NRS 482.210, special mobile equipment is not licensed and is therefore taxable for property tax.
Nathan Adelson Hospice	361.088		Both	(2)	All property is exempt, unless it is used for any purpose other than carrying out the legitimate functions of hospice care.
National Audubon Society	361.135		Both	(2)	*See Lodges for explanation.*
Nature Conservancy	361.111		Real	(2)	*See explanation under American Land Conservancy.*
Nevada Children's Foundation	361.115		Both	(2)	*See Habitat for Humanity for explanation.*

Exemption Type	NRS Reference	NAC Reference	Property Type	Due Date for Application See Legend	Explanation
Nevada Heritage Association	361.115		Both	(2)	*See Habitat for Humanity for explanation.*
Nevada Land Conservancy	361.111		Real	(2)	*See explanation under American Land Conservancy.*
Nevada Museum of Art	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also YMCA, YWCA, American National Red Cross, Salvation Army Corp, GSA, Camp Fire Girls, BSA, Sierra Arts Foundation.*
Nevada Rural Housing Authority	361.060		Real	(1)	*See explanation under Counties, Cities*
Noncommercial theaters	361.145		Both	(2)	Buildings, furniture & equipment of noncommercial theaters owned and operated by nonprofit educational corporations organized for the exclusive purpose of conducting theater practice classes and the production of plays on a nonprofessional basis are exempt.
Nonprofit private schools	361.105		Both	(2)	All property is exempt from taxation.
Odd Fellows	361.135		Both	(2)	*See Lodges for explanation.*
Orphan children or sick, infirm or indigent persons	361.083		Real	(2)	Land and buildings use for the care or relief of orphans or of sick, infirm or indigent persons owned by a nonprofit corporation organized or existing pursuant to NRS 82, is exempt. *See also Hospitals.*
Patented Mining Claims	362.010-362.095		Real	(5)	Upon receipt of an affidavit from the county recorder pursuant to NRS 362.050, the assessor shall exclude from the roll the assessment against the patented mine or mining claim named in the affidavit.
Pershing County Kids, Horses, Rodeo Inc.	361.107		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization.
Personal Property held for sale by merchant	361.068		Personal	(1)	Personal property held for sale by a merchant is exempt.
Personal Property held for sale by manufacturer	361.068		Personal	(1)	Personal property held for sale by a manufacturer is exempt.
Personal property in transit	361.160-361.185	361.062	Personal	(4)	Claims must be submitted to county assessor in which the warehouse is located and a certification from the warehouse as to the status of the property must be attached.
Pipe & Irrigation Equipment	361.068		Personal	(1)	Pipe and other agricultural equipment used to convey water for the irrigation of legal crops is exempt.
Pollution control devices	361.077	361.046-361.050	Both	(3)	Property used as a facility, device, or method for the control of air or water pollution is exempt. Taxpayer must supply an annual affidavit to assessor on a form approved by Department. Certain property is not exempt per NAC 361.046.
Possessory Interest –Vending stands	361.159		Personal	(3)	The possessory interest in otherwise exempt property is taxable, except for vending stands operated by blind persons under the auspices of the Bureau of Services to the Blind – DETR.
Possessory Interest – Public Airport	361.159		Personal	(2)	The possessory interest in otherwise exempt property is taxable, except for personal property owned and used in a public airport.
Possessory Interest – Public airport, park, market, fairground	361.157(2)(a)		Real	(2)	The possessory interest in otherwise exempt property is taxable, except for real property located upon a public airport, park, market, or fairground. Certain leased property on a pubic airport made available for purposes other than the purposes of a public airport is taxable.
Possessory Interest – Federal Property	361.157(2)(b)		Real	(1)	A possessory interest in federal property for which PILT payments are made is exempt.
Possessory interest – state-supported educational institution	361.157(2)c		Real	(1)	A possessory interest in the property of any state-supported educational institution is exempt, except any part located within a TIA created pursuant to NRS 278C.155.

Nevada Department of Taxation

List of Property Tax Exemptions

Exemption Type	NRS Reference	NAC Reference	Property Type	Due Date for Application See Legend	Explanation
Possessory interest – Taylor Grazing Act, USFS, BuRec	361.157(2)(d)		Real	(1)	A possessory interest in property used by persons, associations or corporations according to the Taylor Grazing Act, United States Forest Service or the Bureau of Reclamation is exempt.
Possessory interest – Indian tribe	361.157(2)(e)		Real	(1)	A possessory interest in property of any Indian held in trust by the U.S. is exempt.
Possessory interest – Vending stands of the blind	361.157(2)(f)		Real	(1)	A possessory interest in vending stand locations operated by blind persons under the auspices of the Bureau of Services to the Blind and Visually Impaired – DETR, is exempt.
Possessory interest – geothermal leases	361.157(2)(g)		Real	(1)	A possessory interest in geothermal leases for resources which have not been put into commercial production, is exempt.
Possessory interest – public officer or employee	361.157(2)(h)		Real	(1)	A possessory interest in property that is leased, loaned or made available to a public officer or employee in the course of public employment, is exempt.
Possessory interest – parsonage	361.157(2)(i)		Real	(1)	A possessory interest in a parsonage owned by a recognized religious society or corporation when used exclusively as a parsonage, is exempt.
Possessory interest – Charitable or religious residence	361.157(2)(j)		Real	(1)	A possessory interest in a residence used by a person carrying out the activities of a charitable or religious organization is exempt
Possessory interest – shelter for elderly or indigent	361.157(2)(k)		Real	(1)	A possessory interest in property which is used to provide shelter at a reduced rate to the elderly or indigent is exempt.
Possessory interest – rental of meeting rooms	361.157(2)(l)		Real	(1)	A possessory interest in property used as meeting rooms or similar facilities for periods of less than 30 consecutive days is exempt.
Possessory interest – daycare	361.157(2)(m)		Real	(1)	A possessory interest in property used as a daycare by a nonprofit organization is exempt.
Possessory interest - easements from RTC of Southern Nevada - Boulder City Bypass	361.157(2)(n)		Real	(1)	A possessory interest in any lease, easement, operating agreement, license, permit or right entry for exempt state property granted by Department or RTC of Southern Nevada pursuant to Boulder City Bypass Toll Road Demonstration Project Act
Promissory Notes	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Privately owned airports used by public	361.061(2)		Real	(2)	Privately owned airport property used for a public purpose, except areas from which income is derived, is exempt.
Privately owned parks used by public	361.0605	361.080	Real	(2)	The initial claim for exemption must be accompanied by a copy of the agreement with a local government that the property may be used by the public without charge. A sign must also be posted at each entrance to park. The exemption does not include areas from which income is derived.
Public Function Trusts	361.062		Both	(2)	Property of a trust created for the benefit of any public function pursuant to law is exempt, however, PILT monies may be paid to the beneficiary if so provided in any agreement contained in creating the trust.
Radioactive fallout shelters	361.078		Real	(3)	Residential property is exempt up to $1,000 in assessed value if it meets certain qualifying conditions.

Nevada Department of Taxation

List of Property Tax Exemptions

Exemption Type	NRS Reference	NAC Reference	Property Type	Due Date for Application See Legend	Explanation
Raw materials & components consumed in the process of manufacture	361.068		Personal	(1)	Raw materials are exempt when they are held by a manufacturer for manufacture into products. Supplies consumed in the process of manufacture are also exempt.
Salvation Army Corps	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*
School districts	361.065		Both	(1) school dist. (2) charter school	All property owned by any legally created school district or charter school and devoted to public school purposes is exempt.
Sierra Arts Foundation	361.11		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*
State lands	361.055		Both	(1)	All property owned by the state, except land assigned to the Department of Wildlife, is exempt. PILT payments are made by the Department of Wildlife.
Stocks	Article 10		Personal	(1)	Articles of personal property deemed to represent an interest in real or personal property already assessed and taxed is exempt.
Surviving Spouse	361.080		Both	(3)	Property of surviving spouses up to an assessed value of $1,000, as modified by CPI, is exempt. The original affidavit of claim must be accompanied by a death certificate showing the claimant was married to the deceased at the time of their death. Renewal affidavits must be completed each year.
Surviving Spouses of Disabled Veterans	361.091		Both	(3)	See Disabled Veterans.
Transient Personal Property	361.068		Personal	(1)	Personal property owned by a non-resident and located in Nevada for purposes of a display, exhibition, convention, carnival, fair or circus is exempt. *See also Carnival, fair circus.*
United States	361.050		Both	(1)	All property owned by the United States is exempt.
University Fraternities & Sororities	361.100		Real	(2)	Real property owned by fraternities and sororities whose members are students at UNR or UNLV and use the property as their home, is exempt.
University System: Charitable Foundation	361.098		Both	(2)	All property owned by a charitable foundation established by the Board of Regents of the University of Nevada is exempt, unless it is used for a purpose other than the legitimate functions of the foundation.
University System Leased Property	361.099	361.070	Both	(2)	Property leased to the Nevada System of Higher Education is exempt if the total consideration from the lease is less than 10 percent of the fair market value of the property. Certain documentation must be provided. *See NAC 361.070.*
Unpatented Mines & mining Claims	361.075		Real	(1)	Unpatented mines and mining claims are exempt, except for possessory interests in lands held by U.S. or state of Nevada.
Vehicles	361.067		Personal	(1)	*See Motor Vehicles*
Veterans	361.09		Both	(3)	Up to $2,000 assessed value, adjusted by CPI, of property may be exempt. Only the property of residents meeting certain qualifying criteria is eligible for exemption.
Veteran Organizations	361.095		Both	(2)	Up to $10,000 assessed value, adjusted by CPI, of Funds, furniture, paraphernalia and regalia owned by certain charitable organizations as well as real estate and fixtures, is exempt. If the real estate is leased, the exemption does not apply to the portion so leased or rented.
Volunteer Fire Departments	361.150		Both	(2)	All property is exempt, unless it is used for any purpose other than carrying out the legitimate functions of a volunteer fire department.
Water Users' Nonprofit Associations	361.073		Both	(2)	All property is exempt, unless it is used for any purpose other than carrying out the legitimate functions of a water users' nonprofit cooperative corporation.

Exemption Type	NRS Reference	NAC Reference	Property Type	Due Date for Application See Legend	Explanation
Young Men's Christian Association	361.110		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*
Young Women's Christian Association	361.110		Both	(2)	All real and personal property is exempt, unless it is used for a purpose other than the legitimate functions of the organization. *See also Nevada Museum of Art.*

Nevada Department of Taxation

List of Abatements

Abatement Type	NRS Reference	NAC Reference	Property Type	Explanation
Aircraft and associated personal property	360		Personal	Qualifying businesses that own, operate, manufacture, service, maintain, test, repair, overhaul or assemble an aircraft or any component of an aircraft will receive a partial abatement for a duration of not more than 20 years. The abatement is granted by the Governor's Office of Economic Development.
Data centers and each colocated business	360			Qualifying businesses will receive a partial abatement of not more than 75% of the property taxes on personal property, for a duration of at least 10 years but not more than 20 years. *See SB 170 (2015).* The abatement is granted by the Governor's Office of Economic Development.
Businesses that invest in institutions of higher education	360.752		Personal	Qualifying businesses will receive a partial abatement of not more than 50% of the property taxes on personal property or 50% of the amount of capital investment, whichever is less, for a duration of 5 years.
New or expanded businesses	361.0687		Personal	Duration of abatement not to exceed 10 years and must not exceed 50% of the taxes on personal property payable by a business each year. The Governor's Office on Economic Development determines whether abatement may be awarded using certain criteria.
Property acquired by governments	361.484		Both	Taxes on property acquired by Federal, state, or local governments must be abated ratably for the portion of the fiscal year in which the property is owned by the said government.
All property except qualifying residential	361.4722	361.606-361.613	Both	Taxes on property other than residential must be partially abated for the amount which exceeds up to 108% of the prior year's taxes. See statute and regulations for guidance.
Residential property	361.4723	361.606 - 361-613	Real	Taxes on qualifying residential property must be partially abated for the amount which exceeds 103% of the prior year's taxes. See statute and regulations for guidance.
LEED property	701A.110	LCB File R003-08	Real	Taxes on qualifying property is abated for a duration of not more than 10 years and in an amount which varies with the LEED level of certification.
Recycled material businesses	701A.210		Both	Duration of abatement not to exceed 10 years and must not exceed 50% of the taxes on personal property payable by a business each year. Commission on Economic Development determines whether abatement may be awarded using certain criteria.
Renewable energy facilities	701A.370		Both	Duration of abatement must be for 20 years and be equal to 55% of the taxes on real and personal property. The Nevada Energy Commissioner approves applications.

Appendix II:

Descriptions of Publications

Division of Excise & Local Government Services

DEPARTMENT OF TAXATION
LIST OF PUBLICATIONS

DIVISION OF EXCISE & LOCAL GOVERNMENT SERVICES

General

1. Pursuant to NRS 361.0445, the Department provides information regarding the assessment process and an explanation of the manner in which property taxes are calculated. The publication is entitled "Nevada Property Tax: Elements and Applications" and can be found at: http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Elements_and_Applications/.

Tax Roll Reports

2. Property Tax Rolls

A tax roll is a list of all persons, firms, corporations, associations or companies, the property they own within each county, and the assessed value of each property. County assessors are responsible for producing property tax rolls of locally assessed property (*See NRS 361.260(1) and NRS 361.310).*

Secured Roll - The listing of real property and some types of personal property values by owner as of July 1st each year. The payment of the tax is secured by a lien against the real property (*See NRS 361.450 ". . .every tax levied under the provisions of or authority of this chapter is a perpetual lien against the property assessed until the tax and any penalty charges and interest which may accrue thereon are paid.").* Each county assessor produces a secured roll.

Unsecured Roll – Personal property includes "migratory" property values not secured by the ownership of real property, new construction which has not yet been added to the secured roll and possessory interests (*See NRS 361.505; NRS 361.535. – payment upon demand; failure to pay results in seizure, lock and seal procedure).* A portion of the unsecured roll is referred to as the "supplemental roll" indicating the new construction added to the roll. Each county assessor produces an unsecured roll.

The unsecured roll runs from May 1st and closes April 30th, nine months after the lien date for the secured roll for the same fiscal year. For example, the 2025-2026 secured roll lien date is July 1, 2025; and the 2024-2025 unsecured roll closes on April 30, 2024.

The Department produces the following tax rolls:

a) Centrally-assessed Secured Roll Bulletin, published in October annually (NRS 361.3205) *See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Property_Tax_Rolls_Secured/*
b) Centrally-assessed Unsecured Roll Bulletin, published in November annually (NRS 361.3205). *See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Property_Tax_Rolls_Unsecured/*
c) Net Proceeds of Minerals Bulletin, A list of each operating mine by industry and by county and a list of royalty recipients by county together with information on the

gross proceeds, net proceeds, county and state taxes due. Published in June annually. *See* *http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Net_Proceeds_of_Minerals/*

3. Segregation of the Roll, Statistical Data

The segregation of the roll reports the aggregate amount of assessed value of property located in each taxing entity. Segregation reports are required three times a year pursuant to NRS 361.390. County assessors report the assessed values of all property, both taxable and exempt, for each taxing entity. The January segregation report is a preliminary projection; the March segregation report is a final projection; the October segregation report contains both the final actual prior year unsecured values and the final actual current year secured values, i.e., 2024-25 unsecured roll and 2025-2026 secured roll.

4. Statistical Analysis of the Roll

The Statistical Analysis of the Roll (SAR) provides locally and centrally-assessed values by category of property for the fiscal year. The SAR provides the most accurate reporting of assessed values because it contains all changes in any given fiscal year that occur on the Secured Roll through October following the July 1 lien date of the current year and all entries on the Unsecured Roll when it closes on April 30 following the July 1 lien date of the prior year. For example, the 2023-2024 SAR contains the assessed values by type of property from the 2023-2024 secured roll and re-opened roll which closed 7-1-2023 and the 2023-2024 unsecured roll which closed 4-30-2024.

NRS 361.390(3) requires a county assessor to report final assessed values for all categories of property as follows:

(1) Current fiscal year Secured Roll, lien date of July 1, statistical analysis report due August 10;
(2) Current fiscal year Unsecured Roll, closing date April 30th (9 months after Secured Roll lien date), statistical analysis report due May 5 of the year following the lien date; and
(3) Current fiscal year Secured and Unsecured Rolls, statistical analysis report due October 31st of the year following the current year July 1 lien date. This is to allow for completion of the unsecured roll which closes on April 30 following the July 1 lien date and because assessors are allowed to change the secured roll pursuant to NRS 361.310(4) until October 31 following the July 1 lien date (re-opened roll).

The SAR is published in December annually. *See* *http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Statistical_Analysis_of_the_Roll/*

Assessment Standards Publications

5. Agricultural Land Values, Open Space Property Procedures

The Ag Bulletin defines classifications of agricultural real property and provides valuations for each classification on the basis provided in NRS 361.325. The bulletin also provides the valuation methodology for lands designated as open-space, including golf courses. *See* *http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/LGS_Ag_Bulletin/.*

6. Billing Cost Exemption Report

NRS 361.068(2) provides that the Nevada Tax Commission may exempt from taxation personal property for which the annual taxes would be less than the cost of collecting those taxes. The Department annually prepares a report which evaluates the cost of collection of taxes (*See NTC hearing records).*

7. Capitalization Rate Study

The Department analyzes and calculates appropriate capitalization rates for use in the income approach in the valuation of centrally-assessed properties and mining properties. The Study is published annually about June 1.
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Capitalization_Rate_Study/ .

8. Improvement and Land Factor Reports

NRS 361.260(5) provides that assessors may either apply factors to improvements and land in non-reappraisal areas or, in the case of improvements, they have the option of determining the replacement cost and subtracting all applicable depreciation and obsolescence for improvements in non-reappraisal areas. The Department calculates the improvement factor based on the change in costs reported by the Marshall and Swift Costing Service from the previous year. Assessors calculate land factors which are reviewed by the Department. The Nevada Tax Commission reviews and approves all proposed factors. The Improvement Factor report is generally published about July 1.
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Improvement_Factors/ .

9. Land Use Code Manuals

Annually, a land use code manual is published. Land use codes are used for categorizing property in the assessment roll, the statistical analysis of the roll and other purposes required by the Department of Taxation, such as selection of parcels included in Department ratio studies or performance audits. The manual includes descriptions and assigns code numbers, as well as appendices on occupancy codes, special property codes, special ownership codes, agricultural land classifications, exemption codes and glossary. The Land Use Code Manual is generally published in October.
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Land_Use_Code_Manuals/.

10. Manual of Rural Building Costs

The Manual of Rural Building Costs provides replacement costs for different quality classes of farm buildings, sheds or other rustic structures which do not conform to any applicable building code adopted by a local governmental entity or are constructed with the use of unskilled farm labor, pursuant to NAC 361.128(2). *The Manual of Rural Building Costs is generally published in March.*
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Rural_Building_Cost_Manual/ .

11. Personal Property Manual

The Personal Property Manual is an annual publication that sets forth the cost conversion factor and depreciation schedules used to determine taxable value for personal property. It is used in conjunction with NAC 361.134 through 361.140. The Personal Property Manual is generally published in May.
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Personal_Property_Manuals/.

12. Ratio Study Report

A "ratio study" is "designed to evaluate appraisal performance by comparing the estimate of assessed value produced by the assessor on each parcel in the sample to the estimate of taxable value produced by the Department. The comparison is called a "ratio." The Department examines the ratio information for *appraisal level* and *appraisal uniformity.* The Ratio Study is published annually in May, pursuant to NRS 361.333.
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Ratio_Studies/.

13. Performance Audit Reports

The Performance Audit Report supplements the ratio study with more specific analysis of critical parts of property tax administration. Performance Audits generally include all 17 counties instead of one-third of the counties each year. The reports are published when audits are completed. *See NAC 360.736;*
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Performance_Audit/.

TAX ABATEMENT PUBLICATIONS

14. Fair Market Rents Report

Certain qualifying residential rental properties may be eligible for the residential abatement at 3% (as opposed to the general abatement ranging up to 8%). The Department annually notifies county assessors of the amounts of the applicable fair market rents for the current years, as published for March 31 of that year by the Department of Housing and Urban Development. Tables are also published showing the fair market rents as adjusted downward to reflect applicable utility allowances reported by various Nevada regional housing authorities (*NAC 361.607(3)).*
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/FairMarketRents/.

15. Tax Cap Tables

For purposes of applying the general abatement ("tax cap"), the Department publishes a table showing the appropriate abatement percentage for the application of a general abatement in each county each year. Generally, the Department publishes a preliminary table so that county tax receivers can calculate and complete the Pro-Forma Property Tax Projections which are due to the Department annually on March 5th. A final Tax Cap Table is published in June (*NAC 361.605(1)(a)).*
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/General_Abatement_Factors/.

16. Property Tax Billing Summary and Preliminary Summary Reports of Property Tax (PSOPT)

The Property Tax Billing Summary combines data from county tax receivers who submit reports on actual billed amounts for property taxes for properties on the secured and unsecured tax rolls pursuant to NAC 361.609. The Summary contains the total number of parcels, the total assessed value of the property for which the property taxes were billed, the total amount of property taxes that would have been billed were it not for the abatement, the total amount of reduction as a result of abatement and other exemptions and other information. Because the secured and unsecured rolls close at different times during the year, two billing reports are required. The billing report for the Secured Roll is due September 1 after the lien date and the billing report for the Unsecured Roll is due June 1 after the close of the Unsecured Roll on April 30th (nine months after the close of the Secured Roll).

Because the assessed value reported in the Segregation Reports and Redbook is insufficient to determine actual property tax revenue because of the partial abatement of property taxes, the Pro Forma Report was developed. In addition, to check the accuracy of the Pro Forma Report, NAC 361.609 requires the county tax receiver to submit reports on actual billed amounts for property taxes for properties on the secured and unsecured tax rolls.

PSOPT

Although the billing reports are a good check on the accuracy of the property tax revenue projected in the Pro Forma Report, some state agencies require even more exact analysis of property tax revenue. The distribution of support funds from the state to the local government is dependent on analysis of actual collected revenue. The Distributive School Account (DSA) administered by the Department of Education and the State Medical Indigent Levy are both dependent on an accounting of actual property tax revenue collections.

As a result, the Committee on Local Government Finance (CLGF) adopted NAC 354.566 through NAC 354.577 which required the county tax receiver to report actual property tax receipts paid pursuant to NRS 361.483 as well as deferred agricultural property taxes, taxes on property escaping taxation, property taxes on the unsecured roll, taxes from the centrally-assessed tax rolls and net proceeds of minerals taxes. The county tax receiver must also report that portion of the various receipts listed that is distributed to the school districts. These reports do not contain assessed values but are restricted to taxes collected.

LOCAL GOVERNMENT FINANCE REPORTS

17. Tax Rate Book (also known as the “Redbook”)

“Property Tax Rates for Nevada Local Governments,” also known as the “Redbook,” is approved by the Nevada Tax Commission annually on June 25th, and contains total property tax rates by taxing unit by county, combined property tax rates by component by

taxing unit, property tax overrides and the relative impact thereof and overlapping taxing districts. This annual publication schedules the certified ad valorem tax rates for all local governments by county. The report totals the operating rate, debt rate, school rate, state rate and overlapping special district rates to denote combined unit rate.
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Redbook/.

The assessed value shown in the Redbook is based on the March 15th segregation reports by county assessors and the reports from the Department, ELGS's Centrally Assessed Section regarding centrally assessed properties, mines and net proceeds of minerals taxes.

The assessed value reported in the Segregation Reports and the Redbook contains projections for new property on the unsecured roll, as well as projections of production from mines. Because projections are included, the actual assessed value as billed and collected over the ensuing year can and does vary from the amounts reported in the Redbook. In addition, the assessed value reported in the Redbook does not consider the effects of abatements and so cannot be used in a direct calculation of projected revenue from property taxes.

18. Report of Local Government Indebtedness

Pursuant to NRS 354.6025, the Department compiles local government reports of indebtedness. Part A of the report presents the assessed value, general obligation debt limit, outstanding general obligation debt and debt margin for each category of local government entity, pursuant to the statutes governing that entity. For example, the total bonded indebtedness for school districts cannot exceed 15 percent of the assessed value, pursuant to NRS 387.400. Part B presents the overlapping total debt for each entity and the percentage of debt to assessed value. Part C presents a five-year debt requirement projection, including the principal and interest for each type of indebtedness by entity and for each total county, as well as the fiscal year in which final maturity will occur.
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/LGF_Indebtedness_Report/.

19. Local Government Syllabus

This publication provides reference to *Nevada Revised Statutes, Nevada Administrative Code* and guidelines pertaining to Nevada Local Government Finance. Included is the Local Government Budget and Finance Act, Securities Law and General Improvement District Law.
See
http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Local_Government_Finance_Documents/

20. Revenue Projections

Annual projections are made for local governments' budgeting purposes. Projections are made for County Option Gasoline Tax, 2.35 cents Gasoline Tax, BCCRT, liquor and cigarette tax, LSST, GST, RPTT and the property tax (with abatements). The revenue projections report includes the local government allowed revenue from ad valorem and Supplemental City-County Relief Tax calculation. The Department prepares a preliminary revenue projection for local governments, published by February 15 (*See NRS 360.690 (10)).* The final report is published by March 15 (See NRS 360.690(11)).

The Revenue Projection reports include on the first page a summary of assessed value by county for both the secured and unsecured rolls and the net proceeds of minerals. The current year assessed value used in the tax rate calculations for the Preliminary and Final Revenue Projections is based on the information reported in the segregation reports, as well as net proceeds of minerals projection estimates received from mine operators.

Section A in each report contains the maximum allowable property tax rate calculation based on the revenue limitations required by NRS 354.59811 and other statutes. In general, the property tax rate is a function of revenue divided by assessed value. Stated another way, assessed value times a tax rate produces revenue. Section A therefore calculates the maximum allowable tax rates taking into account increases or decreases in assessed value of property as well as statutory limitations in revenue. The calculation does not take into account the effects of the partial abatement of property taxes allowed by NRS 361.4722, 361.4723, and 361.4724 enacted in 2005. A separate report is now issued with regard to the property tax revenue projections net of the abatement (*See discussion on the Pro Forma report).*

The segregation reports due on January 31st are used to produce the Preliminary Revenue Projections published on February 15th; and the segregation reports due on March 5th are used to produce the Final Revenue Projections published on March 15th.

The Preliminary and Final Revenue Projection Reports contain the following:

Section A: Property Tax Rate Calculation
NRS 354.59811 limits the amount of revenue that can be generated from property taxes to no more than 106% of the maximum allowable revenue from the preceding year. There are several exceptions and additions to the calculation, described below.

Section B: Revenue from Motor Vehicle Fuel Taxes, including:
(1) County Option Motor Vehicle Fuel Tax;
(2) 1.25 cents Motor Vehicle Fuel Tax;
(3) 1.75 cents Motor Vehicle Fuel Tax; and
(4) Allocation of the 2.35 cents Motor Vehicle Fuel Tax.

Section C: Revenue for Nevada School Districts from:
(1) Local School Support Tax; and
(2) Governmental Services Tax.

Section D: Consolidated Tax Distribution, including:
(1) Basic City-County Relief Tax (BCCRT);
(2) Supplemental City-County Relief Tax (SCCRT);
(3) Cigarette Tax;
(4) Liquor Tax;
(5) Real Property Transfer Tax; and
(6) Governmental Services Tax (GST).

See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/LGF_Revenue_Projections/.

21. Pro-Forma Property Tax Projections

Information regarding the effects of the residential and general property tax abatements is produced annually by County Treasurers, due on March 5th. The Department then uses that information to produce a report due on March 25th, called the Pro Forma Projection report. The report shows the total pre-abated tax revenue less the amount of abatement for a net property tax. From the net tax are deducted amounts for redevelopment agencies and LEED abatements and renewable energy abatements (*See NRS 361.4535).*

As a result of the partial abatement of property taxes enacted in 2005 (AB 489 and SB 509), also called the "tax cap," revenue projections could no longer be a simple function of assessed value times tax rate equals revenue. NRS 361.471 through NRS 361.4735 describe complex formulas for the calculation of the abatement as well as numerous exceptions from the abatement. Certain kinds of assessed value are exempt from the partial abatement, as well as certain components of tax rates.

As a result of the complex formulas and exemptions of portions of assessed value or tax rates from abatement, aggregate estimates of the amount of total abatement by jurisdiction were found to be relatively inaccurate. To improve the accuracy, county assessors now apply the abatement formula or exemption from the abatement, as needed, to each individual property. The assessor transmits the information to the Treasurer who applies the proposed tax rates for the current year as if the tax bills were going to be produced (hence the name, "pro forma"). The aggregate assessed value information from most counties is reported on a "net" basis, meaning that the assessed value reported does not include the assessed value for properties exempt from taxation.
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/LGF_ProForma_Tax/.

22. Top Ten Reports

The Top Ten Taxpayer Report is a list of taxpayers and assessed value who are reported as the ten highest assessed taxpayers statewide and for each county.
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Top_Ten_Taxpayers/.

REAL PROPERTY TRANSFER TAX REPORTS

23. Real Property Transfer Tax Quarterly and Year-End Reports

The Real Property Transfer Tax (RPTT) is collected in each county when deeds are presented for recording, with some exceptions. The quarterly and year-end reports provide total tax by county, distribution of the tax, number of exemptions granted by type and county and historical trends.
See http://tax.nv.gov/LocalGovt/PolicyPub/ArchiveFiles/Real_Property_Transfer_Tax/

Other Publications

The Department develops and publishes a variety of reporting and claim forms for taxpayers, as well as guidelines on a variety of subjects, such as templates for ballot language which involve tax or tax rate questions, budget augmentation guidelines, medium term obligation guidelines, real property transfer tax exemption guidelines and many other topics. The Department also publishes summaries of abatement appeal decisions of the Nevada Tax Commission, fiscal notes on renewable energy projects and worksheets for use by assessors, taxpayers, and others in determining other property tax abatements.

Appendix III:

Tax Cap Factor Tables

Nevada Department of Taxation
Division of Local Government Services

FINAL NRS 361.4722 TAX CAP FACTORS

FISCAL 2025-26

Tax cap may be no higher than:			3.00%	8.00%		
COUNTY	MOVING AVERAGE GROWTH RATE	2 X 2.9% CPI CHANGE	RESIDENTIAL CAP	GENERAL CAP	RESIDENTIAL CAP FACTOR	GENERAL CAP FACTOR
CARSON CITY	7.1%	5.8%	3.0%	7.1%	1.030	1.071
CHURCHILL	5.4%	5.8%	3.0%	5.8%	1.030	1.058
CLARK	8.5%	5.8%	3.0%	8.0%	1.030	1.080
DOUGLAS	6.1%	5.8%	3.0%	6.1%	1.030	1.061
ELKO	4.4%	5.8%	3.0%	5.8%	1.030	1.058
ESMERALDA	15.7%	5.8%	3.0%	8.0%	1.030	1.080
EUREKA	1.6%	5.8%	3.0%	5.8%	1.030	1.058
HUMBOLDT	4.1%	5.8%	3.0%	5.8%	1.030	1.058
LANDER	8.1%	5.8%	3.0%	8.0%	1.030	1.080
LINCOLN	4.4%	5.8%	3.0%	5.8%	1.030	1.058
LYON	9.0%	5.8%	3.0%	8.0%	1.030	1.080
MINERAL	8.8%	5.8%	3.0%	8.0%	1.030	1.080
NYE	4.3%	5.8%	3.0%	5.8%	1.030	1.058
PERSHING	11.4%	5.8%	3.0%	8.0%	1.030	1.080
STOREY	27.4%	5.8%	3.0%	8.0%	1.030	1.080
WASHOE	8.7%	5.8%	3.0%	8.0%	1.030	1.080
WHITE PINE	10.7%	5.8%	3.0%	8.0%	1.030	1.080
STATEWIDE	8.3%	5.8%	3.0%	8.0%	1.030	1.080

Note (1) : The General Tax Cap is calculated by taking the greater of the moving average growth rate or twice the CPI, up to a maximum of 8%. *See NRS 361.4722(1)(b).*
Note (2): The Residential Tax Cap is 3% unless the General Tax Cap is less than 3%. If the General Tax Cap is less than 3%, then the Residential Tax Cap must equal the General Tax Cap. *See NRS 361.4723(2)(b).*
Note (3): The Consumer Price Index (CPI) used is All Urban Consumers, Series ID CUUR0000SA0, Not Seasonally Adjusted, U.S. City Average All Items, Annual Average. Source: Bureau of Labor Statistics. This year, the CPI annual average for 2025 is 2.9%. Twice the CPI is therefore 5.8%
Note (4): The Moving Average Growth Rate is based on data from the Statistical Analysis of the Roll from 2016-17 through 2023-24 published by the Department of Taxation; the October 2024 Segregation Report for the 2024-25 Secured and Unsecured Rolls; and the March 2025 Final Projected Segregation Report for 2025-26 Secured and Unsecured Rolls reported by County Assessors.

NEVADA DEPARTMENT OF TAXATION
NRS 361.4722 TAX CAP FACTORS
ANNUAL CPI GROWTH

YEAR	ANNUAL CPI	PRICE RELATIVE	CHANGE
2008	215.303		
2009	214.537	0.996	-0.4%
2010	218.056	1.016	1.6%
2011	224.939	1.032	3.2%
2012	229.594	1.021	2.1%
2013	232.957	1.015	1.5%
2014	236.736	1.016	1.6%
2015	237.017	1.001	0.1%
2016	240.007	1.013	1.3%
2017	245.120	1.021	2.1%
2018	251.107	1.024	2.4%
2019	255.658	1.018	1.8%
2020	258.811	1.012	1.2%
2021	270.970	1.047	4.7%
2022	292.655	1.080	8.0%
2023	304.702	1.041	4.1%
2024	313.689	1.029	2.9%

Updated CPI 1/15/2025 for Preliminary

CPI SOURCE **ALL URBAN CONSUMERS**

Series Id: CUUR0000SA0
Not Seasonally Adjusted
Area: US city average
Item: All items
Base Period: 1982-84=100

NEVADA DEPARTMENT OF TAXATION
NRS 361.4722 TAX CAP FACTORS
FINAL TEN-YEAR AVERAGE ASSESSED VALUE GROWTH

YEAR	SECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	UNSECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	TOTAL PROPERTY SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE
CARSON CITY	**9.4%**		**7.3%**	**6.6%**		**5.4%**	**20.3%**		**7.1%**
2025-26	2,642,623,941	0.993	-0.7%	128,675,725	1.038	3.8%	2,771,299,666	0.995	-0.5%
2024-25	2,661,540,206	1.083	8.3%	123,941,107	1.103	10.3%	2,785,481,313	1.084	8.4%
2023-24	2,457,495,144	1.256	25.6%	112,322,251	1.002	0.2%	2,569,817,395	1.242	24.2%
2022-23	1,956,624,060	1.001	0.1%	112,049,280	1.033	3.3%	2,068,673,340	1.002	0.2%
2021-22	1,955,219,301	1.122	12.2%	108,448,010	1.054	5.4%	2,063,667,311	1.118	11.8%
2020-21	1,742,529,792	1.040	4.0%	102,851,739	1.157	15.7%	1,845,381,531	1.046	4.6%
2019-20	1,675,871,083	1.068	6.8%	88,900,763	1.021	2.1%	1,764,771,846	1.065	6.5%
2018-19	1,569,221,307	1.041	4.1%	87,074,125	1.029	2.9%	1,656,295,432	1.041	4.1%
2017-18	1,506,861,799	1.051	5.1%	84,607,213	1.047	4.7%	1,591,469,012	1.050	5.0%
2016-17	1,434,421,183			80,833,359			1,515,254,542		
CHURCHILL	**7.3%**		**5.9%**	**4.0%**		**3.8%**	**17.6%**		**5.4%**
2025-26	983,293,315	1.019	1.9%	245,958,700	1.116	11.6%	1,229,252,015	1.037	3.7%
2024-25	965,167,062	1.149	14.9%	220,350,217	1.005	0.5%	1,185,517,279	1.119	11.9%
2023-24	840,118,381	1.140	14.0%	219,150,240	1.158	15.8%	1,059,268,621	1.143	14.3%
2022-23	737,137,450	1.068	6.8%	189,295,987	0.964	-3.6%	926,433,437	1.045	4.5%
2021-22	690,392,139	1.033	3.3%	196,282,997	0.932	-6.8%	886,675,136	1.009	0.9%
2020-21	668,343,170	1.033	3.3%	210,629,003	1.044	4.4%	878,972,173	1.036	3.6%
2019-20	646,974,132	1.047	4.7%	201,793,851	0.962	-3.8%	848,767,983	1.025	2.5%
2018-19	618,048,935	1.030	3.0%	209,744,050	1.132	13.2%	827,792,985	1.054	5.4%
2017-18	600,115,497	1.011	1.1%	185,344,045	1.027	2.7%	785,459,542	1.015	1.5%
2016-17	593,808,316			180,420,343			774,228,659		

NEVADA DEPARTMENT OF TAXATION
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FINAL TEN-YEAR AVERAGE ASSESSED VALUE GROWTH

YEAR	SECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	UNSECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	TOTAL PROPERTY SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE
CLARK	**11.8%**		**8.4%**	**13.5%**		**9.7%**	**23.0%**		**8.5%**
2025-26	148,285,609,114	1.033	3.3%	13,247,968,155	0.980	-2.0%	161,533,577,269	1.029	2.9%
2024-25	143,479,326,321	1.108	10.8%	13,521,452,659	1.275	27.5%	157,000,778,981	1.121	12.1%
2023-24	129,503,024,569	1.153	15.3%	10,607,598,928	1.271	27.1%	140,110,623,497	1.161	16.1%
2022-23	112,317,417,942	1.108	10.8%	8,342,639,162	0.957	-4.3%	120,660,057,104	1.096	9.6%
2021-22	101,379,205,967	1.040	4.0%	8,721,977,726	1.098	9.8%	110,101,183,693	1.044	4.4%
2020-21	97,488,045,111	1.075	7.5%	7,942,551,129	1.059	5.9%	105,430,596,240	1.074	7.4%
2019-20	90,708,745,219	1.100	10.0%	7,502,297,397	1.112	11.2%	98,211,042,616	1.101	10.1%
2018-19	82,472,767,822	1.074	7.4%	6,745,619,522	1.055	5.5%	89,218,387,344	1.073	7.3%
2017-18	76,771,114,845	1.068	6.8%	6,396,146,755	1.070	7.0%	83,167,261,600	1.068	6.8%
2016-17	71,907,267,179			5,977,534,899			77,884,802,078		
DOUGLAS	**7.6%**		**6.0%**	**12.3%**		**9.1%**	**18.8%**		**6.1%**
2025-26	4,844,081,691	1.013	1.3%	129,851,634	1.105	10.5%	4,973,933,325	1.015	1.5%
2024-25	4,781,724,001	1.068	6.8%	117,508,798	1.113	11.3%	4,899,232,798	1.069	6.9%
2023-24	4,477,984,560	1.108	10.8%	105,545,539	1.105	10.5%	4,583,530,099	1.108	10.8%
2022-23	4,041,392,151	1.101	10.1%	95,542,498	0.966	-3.4%	4,136,934,649	1.097	9.7%
2021-22	3,671,798,332	1.037	3.7%	98,874,315	0.915	-8.5%	3,770,672,647	1.033	3.3%
2020-21	3,542,480,769	1.067	6.7%	108,022,376	1.143	14.3%	3,650,503,145	1.069	6.9%
2019-20	3,319,498,592	1.086	8.6%	94,518,293	1.122	12.2%	3,414,016,885	1.087	8.7%
2018-19	3,056,976,694	1.037	3.7%	84,222,949	1.070	7.0%	3,141,199,643	1.038	3.8%
2017-18	2,948,292,526	1.025	2.5%	78,729,770	1.277	27.7%	3,027,022,296	1.030	3.0%
2016-17	2,876,939,794			61,636,321			2,938,576,115		

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YEAR	SECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	UNSECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	TOTAL PROPERTY SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE
ELKO	**3.6%**		**3.3%**	**10.8%**		**26.7%**	**15.5%**		**4.4%**
2025-26	2,183,601,146	0.946	-5.4%	418,701,275	1.239	23.9%	2,602,302,421	0.984	-1.6%
2024-25	2,307,302,223	1.127	12.7%	337,895,752	1.711	71.1%	2,645,197,975	1.179	17.9%
2023-24	2,046,753,281	1.087	8.7%	197,525,979	0.368	-63.2%	2,244,279,260	0.928	-7.2%
2022-23	1,882,196,287	1.040	4.0%	536,785,310	0.612	-38.8%	2,418,981,597	0.900	-10.0%
2021-22	1,810,273,704	1.010	1.0%	876,861,710	1.052	5.2%	2,687,135,414	1.023	2.3%
2020-21	1,792,531,083	1.050	5.0%	833,667,491	2.187	118.7%	2,626,198,574	1.258	25.8%
2019-20	1,706,438,434	1.001	0.1%	381,146,246	0.895	-10.5%	2,087,584,680	0.980	-2.0%
2018-19	1,705,073,775	1.034	3.4%	425,758,569	0.784	-21.6%	2,130,832,344	0.972	-2.8%
2017-18	1,649,631,094	0.998	-0.2%	542,824,474	2.558	155.8%	2,192,455,568	1.176	17.6%
2016-17	1,652,457,290			212,168,067			1,864,625,357		
ESMERALDA	**9.4%**		**7.7%**	**42.5%**		**35.9%**	**31.4%**		**15.7%**
2025-26	127,109,555	1.139	13.9%	163,412,099	1.214	21.4%	290,521,654	1.180	18.0%
2024-25	111,603,532	1.327	32.7%	134,655,240	0.735	-26.5%	246,258,772	0.921	-7.9%
2023-24	84,094,535	1.244	24.4%	183,199,054	1.950	95.0%	267,293,589	1.655	65.5%
2022-23	67,601,196	1.016	1.6%	93,953,873	3.153	215.3%	161,555,069	1.677	67.7%
2021-22	66,557,124	1.037	3.7%	29,797,127	1.290	29.0%	96,354,251	1.104	10.4%
2020-21	64,201,149	0.974	-2.6%	23,103,996	0.885	-11.5%	87,305,145	0.949	-5.1%
2019-20	65,895,558	1.009	0.9%	26,098,659	0.487	-51.3%	91,994,217	0.774	-22.6%
2018-19	65,298,306	0.976	-2.4%	53,553,146	1.311	31.1%	118,851,452	1.103	10.3%
2017-18	66,894,266	0.970	-3.0%	40,849,338	1.206	20.6%	107,743,604	1.048	4.8%
2016-17	68,958,268			33,872,141			102,830,409		

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YEAR	SECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	UNSECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	TOTAL PROPERTY SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE
EUREKA	**-2.0%**		**-1.6%**	**3.1%**		**6.7%**	**11.5%**		**1.6%**
2025-26	799,036,286	1.029	2.9%	1,086,861,967	1.084	8.4%	1,885,898,253	1.060	6.0%
2024-25	776,433,077	1.104	10.4%	1,002,846,291	0.985	-1.5%	1,779,279,368	1.034	3.4%
2023-24	703,085,752	1.102	10.2%	1,018,022,057	0.993	-0.7%	1,721,107,809	1.035	3.5%
2022-23	637,757,451	0.840	-16.0%	1,025,628,492	0.911	-8.9%	1,663,385,943	0.883	-11.7%
2021-22	758,814,027	1.120	12.0%	1,125,635,411	0.876	-12.4%	1,884,449,438	0.960	-4.0%
2020-21	677,451,224	1.019	1.9%	1,285,206,888	1.492	49.2%	1,962,658,112	1.286	28.6%
2019-20	664,765,531	0.882	-11.8%	861,400,928	1.631	63.1%	1,526,166,459	1.190	19.0%
2018-19	754,102,529	0.943	-5.7%	528,125,995	1.020	2.0%	1,282,228,524	0.973	-2.7%
2017-18	799,988,395	0.818	-18.2%	517,648,643	0.608	-39.2%	1,317,637,038	0.720	-28.0%
2016-17	977,687,717			852,007,833			1,829,695,550		
HUMBOLDT	**1.1%**		**1.3%**	**9.3%**		**9.1%**	**15.2%**		**4.1%**
2025-26	1,035,515,932	0.943	-5.7%	1,021,189,689	0.925	-7.5%	2,056,705,621	0.934	-6.6%
2024-25	1,098,410,362	1.111	11.1%	1,104,263,450	1.105	10.5%	2,202,673,812	1.108	10.8%
2023-24	988,983,349	1.085	8.5%	999,470,877	1.289	28.9%	1,988,454,226	1.178	17.8%
2022-23	911,863,507	1.092	9.2%	775,417,617	0.737	-26.3%	1,687,281,124	0.894	-10.6%
2021-22	835,063,591	0.959	-4.1%	1,052,307,247	1.261	26.1%	1,887,370,838	1.107	10.7%
2020-21	870,486,414	1.046	4.6%	834,576,921	1.249	24.9%	1,705,063,335	1.137	13.7%
2019-20	832,266,547	0.945	-5.5%	667,979,290	1.341	34.1%	1,500,245,837	1.088	8.8%
2018-19	881,116,026	1.003	0.3%	498,019,078	0.818	-18.2%	1,379,135,104	0.927	-7.3%
2017-18	878,702,958	0.931	-6.9%	609,196,775	1.098	9.8%	1,487,899,733	0.993	-0.7%
2016-17	943,791,295			554,855,325			1,498,646,620		

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YEAR	SECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	UNSECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	TOTAL PROPERTY SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE
LANDER	**-0.5%**		**-0.1%**	**5.9%**		**12.5%**	**15.3%**		**8.1%**
2025-26	339,653,253	1.048	4.8%	1,450,084,394	1.654	65.4%	1,789,737,647	1.491	49.1%
2024-25	324,088,848	1.018	1.8%	876,589,936	0.637	-36.3%	1,200,678,784	0.709	-29.1%
2023-24	318,457,190	1.065	6.5%	1,375,835,278	1.470	47.0%	1,694,292,468	1.372	37.2%
2022-23	299,137,582	0.960	-4.0%	935,731,310	0.624	-37.6%	1,234,868,892	0.682	-31.8%
2021-22	311,755,098	0.993	-0.7%	1,499,460,567	1.123	12.3%	1,811,215,665	1.098	9.8%
2020-21	313,805,626	1.068	6.8%	1,335,705,843	1.179	17.9%	1,649,511,469	1.157	15.7%
2019-20	293,731,690	0.991	-0.9%	1,132,511,310	0.830	-17.0%	1,426,243,000	0.859	-14.1%
2018-19	296,411,595	1.076	7.6%	1,364,480,412	0.796	-20.4%	1,660,892,007	0.835	-16.5%
2017-18	275,545,552	0.773	-22.7%	1,713,239,056	1.810	81.0%	1,988,784,608	1.526	52.6%
2016-17	356,554,179			946,717,181			1,303,271,360		
LINCOLN	**5.0%**		**4.4%**	**5.9%**		**9.7%**	**16.1%**		**4.4%**
2025-26	407,195,429	1.203	20.3%	10,175,675	1.020	2.0%	417,371,103	1.198	19.8%
2024-25	338,520,834	1.066	6.6%	9,979,952	0.899	-10.1%	348,500,786	1.061	6.1%
2023-24	317,462,505	1.048	4.8%	11,095,288	1.148	14.8%	328,557,793	1.051	5.1%
2022-23	302,999,449	1.018	1.8%	9,662,780	1.319	31.9%	312,662,229	1.025	2.5%
2021-22	297,716,686	1.044	4.4%	7,324,810	1.084	8.4%	305,041,496	1.045	4.5%
2020-21	285,128,130	1.029	2.9%	6,755,855	1.354	35.4%	291,883,985	1.034	3.4%
2019-20	277,215,030	1.002	0.2%	4,988,191	0.527	-47.3%	282,203,221	0.987	-1.3%
2018-19	276,577,767	1.016	1.6%	9,465,054	1.678	67.8%	286,042,821	1.030	3.0%
2017-18	272,095,302	0.969	-3.1%	5,640,986	0.848	-15.2%	277,736,288	0.966	-3.4%
2016-17	280,715,058			6,653,379			287,368,437		

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YEAR	SECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	UNSECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	TOTAL PROPERTY SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE
LYON	**12.8%**		**9.1%**	**11.4%**		**17.2%**	**23.8%**		**9.0%**
2025-26	3,180,588,606	1.019	1.9%	226,851,926	1.174	17.4%	3,407,440,532	1.028	2.8%
2024-25	3,122,785,313	1.081	8.1%	193,274,983	2.613	161.3%	3,316,060,296	1.119	11.9%
2023-24	2,889,398,837	1.006	0.6%	73,964,066	0.652	-34.8%	2,963,362,903	0.992	-0.8%
2022-23	2,873,239,300	1.243	24.3%	113,364,337	0.705	-29.5%	2,986,603,637	1.208	20.8%
2021-22	2,311,916,893	1.045	4.5%	160,737,777	1.113	11.3%	2,472,654,670	1.050	5.0%
2020-21	2,211,605,840	1.124	12.4%	144,365,204	1.027	2.7%	2,355,971,044	1.118	11.8%
2019-20	1,967,514,082	1.130	13.0%	140,597,333	1.276	27.6%	2,108,111,415	1.139	13.9%
2018-19	1,741,212,183	1.098	9.8%	110,219,671	0.966	-3.4%	1,851,431,854	1.089	8.9%
2017-18	1,585,663,291	1.073	7.3%	114,103,555	1.018	1.8%	1,699,766,846	1.069	6.9%
2016-17	1,478,249,585			112,113,222			1,590,362,807		
MINERAL	**3.9%**		**3.8%**	**35.4%**		**62.5%**	**20.9%**		**8.8%**
2025-26	184,248,663	1.215	21.5%	133,300,868	0.974	-2.6%	317,549,531	1.101	10.1%
2024-25	151,621,844	0.915	-8.5%	136,895,801	1.031	3.1%	288,517,645	0.967	-3.3%
2023-24	165,728,959	1.093	9.3%	132,740,973	1.065	6.5%	298,469,932	1.080	8.0%
2022-23	151,640,374	0.979	-2.1%	124,682,036	1.082	8.2%	276,322,410	1.023	2.3%
2021-22	154,871,568	0.982	-1.8%	115,263,559	1.064	6.4%	270,135,127	1.015	1.5%
2020-21	157,728,648	1.075	7.5%	108,348,824	6.917	591.7%	266,077,472	1.638	63.8%
2019-20	146,785,008	1.123	12.3%	15,665,118	0.566	-43.4%	162,450,126	1.026	2.6%
2018-19	130,677,092	1.008	0.8%	27,672,416	1.198	19.8%	158,349,508	1.037	3.7%
2017-18	129,629,407	0.948	-5.2%	23,099,665	0.725	-27.5%	152,729,072	0.906	-9.4%
2016-17	136,724,644			31,868,436			168,593,080		

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YEAR	SECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	UNSECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	TOTAL PROPERTY SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE
NYE	**7.9%**		**6.4%**	**-3.4%**		**-1.1%**	**15.9%**		**4.3%**
2025-26	2,138,514,943	1.021	2.1%	330,568,586	1.305	30.5%	2,469,083,530	1.051	5.1%
2024-25	2,095,207,428	1.182	18.2%	253,304,631	0.896	-10.4%	2,348,512,059	1.143	14.3%
2023-24	1,772,779,209	1.039	3.9%	282,783,593	1.188	18.8%	2,055,562,802	1.057	5.7%
2022-23	1,706,293,445	1.019	1.9%	238,026,286	0.742	-25.8%	1,944,319,731	0.975	-2.5%
2021-22	1,673,708,760	1.037	3.7%	320,931,113	0.629	-37.1%	1,994,639,873	0.939	-6.1%
2020-21	1,613,380,467	0.952	-4.8%	510,035,561	1.056	5.6%	2,123,416,028	0.975	-2.5%
2019-20	1,694,339,592	1.099	9.9%	483,204,245	0.814	-18.6%	2,177,543,837	1.020	2.0%
2018-19	1,541,419,156	1.194	19.4%	593,873,421	0.923	-7.7%	2,135,292,577	1.104	10.4%
2017-18	1,290,790,583	1.034	3.4%	643,412,359	1.347	34.7%	1,934,202,942	1.120	12.0%
2016-17	1,248,497,906			477,760,670			1,726,258,576		
PERSHING	**5.1%**		**4.4%**	**34.9%**		**27.0%**	**25.8%**		**11.4%**
2025-26	270,070,863	1.016	1.6%	364,464,986	2.472	147.2%	634,535,848	1.535	53.5%
2024-25	265,789,741	1.039	3.9%	147,463,810	0.779	-22.1%	413,253,551	0.929	-7.1%
2023-24	255,821,802	1.110	11.0%	189,209,849	0.980	-2.0%	445,031,651	1.051	5.1%
2022-23	230,457,598	1.089	8.9%	193,101,003	0.921	-7.9%	423,558,601	1.005	0.5%
2021-22	211,610,234	1.021	2.1%	209,776,982	1.683	68.3%	421,387,216	1.270	27.0%
2020-21	207,312,449	1.035	3.5%	124,611,362	0.711	-28.9%	331,923,811	0.884	-11.6%
2019-20	200,277,888	0.992	-0.8%	175,378,649	1.025	2.5%	375,656,537	1.007	0.7%
2018-19	201,819,323	1.090	9.0%	171,138,669	1.104	10.4%	372,957,992	1.096	9.6%
2017-18	185,225,137	1.001	0.1%	154,969,890	1.759	75.9%	340,195,027	1.246	24.6%
2016-17	185,002,360			88,086,957			273,089,317		

NEVADA DEPARTMENT OF TAXATION
NRS 361.4722 TAX CAP FACTORS
FINAL TEN-YEAR AVERAGE ASSESSED VALUE GROWTH

YEAR	SECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	UNSECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	TOTAL PROPERTY SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE
STOREY	**26.9%**		**16.0%**	**229.0%**		**70.0%**	**74.5%**		**27.4%**
2025-26	1,880,679,477	1.015	1.5%	2,617,365,120	1.045	4.5%	4,498,044,597	1.032	3.2%
2024-25	1,852,848,390	1.665	66.5%	2,503,707,756	1.609	60.9%	4,356,556,146	1.633	63.3%
2023-24	1,112,547,075	1.211	21.1%	1,556,020,716	1.086	8.6%	2,668,567,791	1.135	13.5%
2022-23	918,480,996	1.053	5.3%	1,432,148,036	1.055	5.5%	2,350,629,032	1.054	5.4%
2021-22	872,639,329	1.120	12.0%	1,356,950,963	1.061	6.1%	2,229,590,292	1.083	8.3%
2020-21	779,368,057	1.052	5.2%	1,279,336,688	1.847	84.7%	2,058,704,745	1.436	43.6%
2019-20	741,093,597	1.068	6.8%	692,775,306	0.695	-30.5%	1,433,868,903	0.848	-15.2%
2018-19	694,073,074	1.045	4.5%	996,313,873	1.533	53.3%	1,690,386,947	1.286	28.6%
2017-18	664,439,070	1.208	20.8%	650,054,256	5.368	436.8%	1,314,493,326	1.958	95.8%
2016-17	550,190,029			121,106,695			671,296,724		
WASHOE	**12.4%**		**8.8%**	**8.4%**		**7.4%**	**23.3%**		**8.7%**
2025-26	31,518,314,419	1.042	4.2%	1,457,861,086	1.010	1.0%	32,976,175,504	1.040	4.0%
2024-25	30,259,895,766	1.098	9.8%	1,443,756,767	0.846	-15.4%	31,703,652,533	1.083	8.3%
2023-24	27,563,384,620	1.214	21.4%	1,705,861,285	1.145	14.5%	29,269,245,905	1.210	21.0%
2022-23	22,706,488,554	1.109	10.9%	1,489,469,049	1.103	10.3%	24,195,957,603	1.109	10.9%
2021-22	20,476,714,546	1.034	3.4%	1,350,786,674	1.362	36.2%	21,827,501,220	1.050	5.0%
2020-21	19,798,414,694	1.094	9.4%	991,632,168	0.977	-2.3%	20,790,046,862	1.088	8.8%
2019-20	18,100,890,535	1.108	10.8%	1,014,487,716	1.066	6.6%	19,115,378,251	1.105	10.5%
2018-19	16,341,063,786	1.054	5.4%	951,275,139	0.961	-3.9%	17,292,338,925	1.049	4.9%
2017-18	15,502,311,287	1.041	4.1%	989,593,680	1.194	19.4%	16,491,904,967	1.049	4.9%
2016-17	14,895,878,407			828,642,314			15,724,520,721		

NEVADA DEPARTMENT OF TAXATION
NRS 361.4722 TAX CAP FACTORS
FINAL TEN-YEAR AVERAGE ASSESSED VALUE GROWTH

YEAR	SECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	UNSECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	TOTAL PROPERTY SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE
WHITE PINE	**4.9%**		**4.4%**	**51.7%**		**59.3%**	**22.2%**		**10.7%**
2025-26	483,809,599	1.081	8.1%	292,343,253	0.887	-11.3%	776,152,852	0.998	-0.2%
2024-25	447,653,904	1.132	13.2%	329,765,962	1.778	77.8%	777,419,866	1.338	33.8%
2023-24	395,463,092	1.113	11.3%	185,476,909	0.538	-46.2%	580,940,001	0.830	-17.0%
2022-23	355,433,130	1.016	1.6%	344,661,000	0.632	-36.8%	700,094,130	0.782	-21.8%
2021-22	349,880,035	1.033	3.3%	545,660,303	1.598	59.8%	895,540,338	1.317	31.7%
2020-21	338,672,526	1.015	1.5%	341,363,167	1.427	42.7%	680,035,693	1.187	18.7%
2019-20	333,652,277	1.040	4.0%	239,181,480	0.655	-34.5%	572,833,757	0.835	-16.5%
2018-19	320,779,792	1.079	7.9%	365,057,528	1.272	27.2%	685,837,320	1.174	17.4%
2017-18	297,183,472	0.884	-11.6%	287,016,979	5.547	454.7%	584,200,451	1.505	50.5%
2016-17	336,332,583			51,744,776			388,077,359		
STATEWIDE	**11.3%**		**8.2%**	**13.3%**		**9.6%**	**22.6%**		**8.3%**
2025-26	201,303,946,233	1.032	3.2%	23,325,635,137	1.039	3.9%	224,629,581,370	1.033	3.3%
2024-25	195,039,918,852	1.109	10.9%	22,457,653,111	1.185	18.5%	217,497,571,962	1.116	11.6%
2023-24	175,892,582,860	1.156	15.6%	18,955,822,882	1.181	18.1%	194,848,405,742	1.159	15.9%
2022-23	152,096,160,472	1.104	10.4%	16,052,158,056	0.903	-9.7%	168,148,318,528	1.081	8.1%
2021-22	137,828,137,334	1.040	4.0%	17,777,077,291	1.099	9.9%	155,605,214,625	1.046	4.6%
2020-21	132,551,485,149	1.074	7.4%	16,182,764,215	1.179	17.9%	148,734,249,364	1.085	8.5%
2019-20	123,375,954,795	1.095	9.5%	13,722,924,775	1.038	3.8%	137,098,879,570	1.089	8.9%
2018-19	112,666,639,162	1.069	6.9%	13,221,613,617	1.014	1.4%	125,888,252,779	1.063	6.3%
2017-18	105,424,484,481	1.055	5.5%	13,036,477,439	1.228	22.8%	118,460,961,920	1.072	7.2%
2016-17	99,923,475,793			10,618,021,918			110,541,497,711		

NEVADA DEPARTMENT OF TAXATION

NRS 361.4722 TAX CAP FACTORS

FINAL TEN-YEAR AVERAGE ASSESSED VALUE GROWTH

YEAR	SECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	UNSECURED SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE	TOTAL PROPERTY SIMPLE	PRICE RELATIVE COMPOUND	PERCENT CHANGE AVERAGE

SOURCES:	2016-17 TO 2023-24 ALL	DOT STATISTICAL ANALYSIS OF TAX ROLL			FINAL
	2024-25 SECURED	DOT SEGREGATION REPORT		OCT 2024	FINAL
	2024-25 UNSECURED	DOT SEGREGATION REPORT		OCT 2024	FINAL
	2025-26 SECURED	DOT SEGREGATION REPORT		MAR 2025	PROJECTIONS
	2025-26 UNSECURED	DOT SEGREGATION REPORT		MAR 2025	PROJECTIONS

NEVADA DEPARTMENT OF TAXATION
NRS 361.4722 TAX CAP
2025-2026 DATA SOURCES

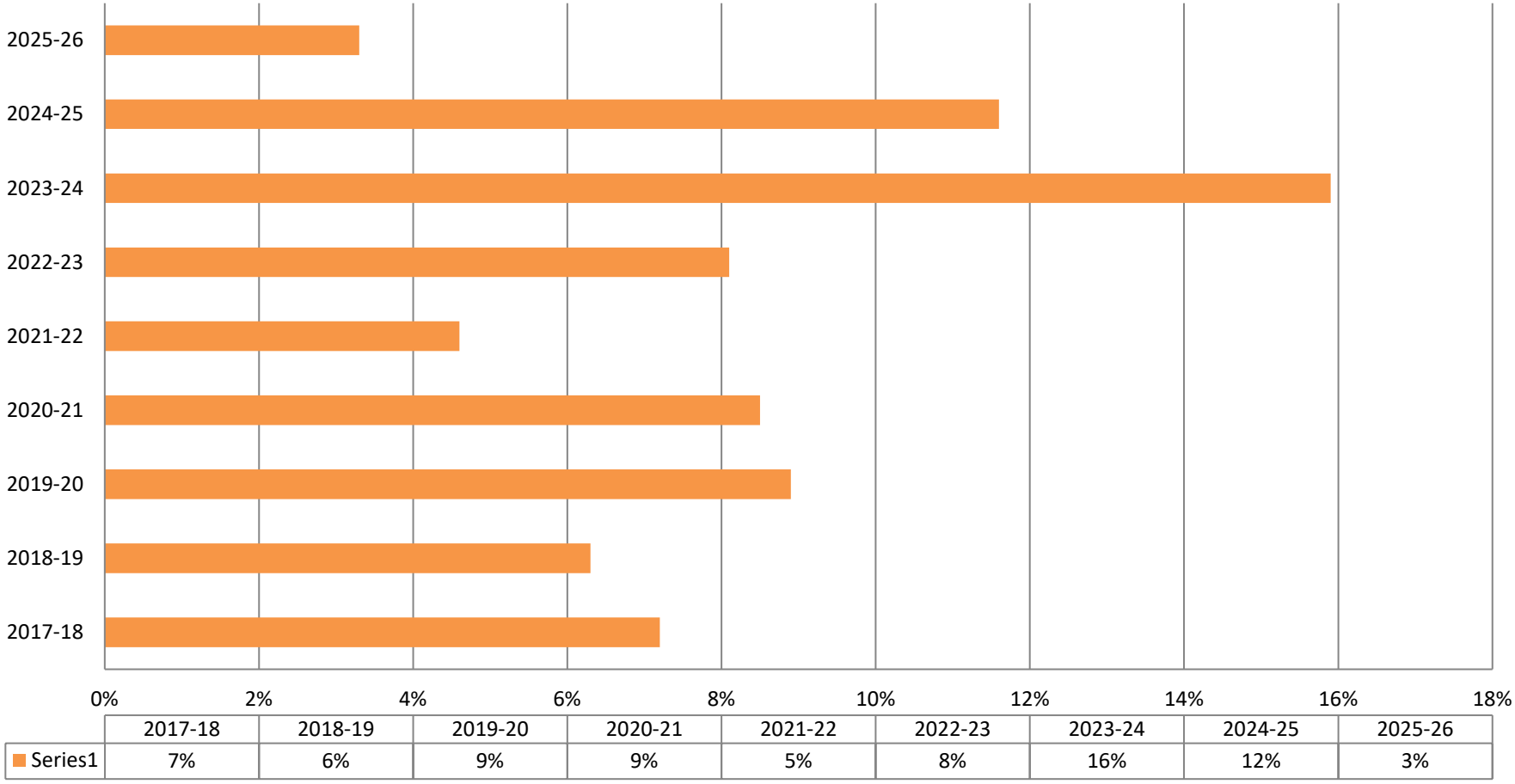
SECURED

2025-26	=SUM('[2025 MAR Segregation.xlsm]CC'!$J$8,'[2025 MAR Segregation.xlsm]CC'!$N$8,'[2025 MAR Segregation.xlsm]CC'!$O$8,'[2025 MAR Segregation.xlsm]CC'!$Q$8)	2025-26 (F) TOTAL SECURED + (I) SECURED REDEV + (J) UNITARY REDEV + 6 MO CWIP
2024-25	=SUM('[2024 OCT Segregation.xlsm]CC'!$J$8,'[2024 OCT Segregation.xlsm]CC'!$N$8,'[2024 OCT Segregation.xlsm]CC'!$O$8,'[2024 OCT Segregation.xlsm]CC'!$Q$8)	2024-25 (F) TOTAL SECURED + (I) SECURED REDEV + (J) UNITARY REDEV + 6 MO CWIP
2023-24	='S:\Div - DOAS\Locally Assessed\SAR\2023\[SAR 23-24.xlsx]CC report'!$B$30	TOTAL SECURED 2023-24
2022-23	='S:\Div - DOAS\Locally Assessed\SAR\2022\[SAR 22-23.xls]CC report'!$B$30	TOTAL SECURED 2022-23

UNSECURED

2025-26	='[2025 MAR Segregation.xlsm]CC'!$Q$108+'[[2025 MAR Segregation.xlsm] CC'!$D$8+'[[2025 MAR Segregation.xlsm]CC'!$E$8+'[[2025 MAR Segregation.xlsm]CC'!$F$8+'[[2025 MAR Segregation.xlsm]CC'!$M$8+'[[2025 MAR Segregation.xlsm]CC'!$R$8+'[[2025 MAR Segregation.xls] CC'!$P$8	2025-26 Ma + (A) SUPP REAL + (B) NEW PI & MH + (C) OTHER NEW + UNSEC REDEV + 12 MO CWIP + NET PROCEEDS
2024-25	='[2024 OCT Segregation.xlsm]CC'!$Q$108+'[[2024 OCT Segregation.xlsm] CC'!$D$8+'[[2024 OCT Segregation.xlsm]CC'!$E$8+'[[2024 OCT Segregation.xlsm]CC'!$F$8+'[[2024 OCT Segregation.xlsm]CC'!$M$8+'[[2024 OCT Segregation.xlsm]CC'!$R$8+'[[2024 OCT Segregation.xls] CC'!$P$8	2024-25 Ma + (A) SUPP REAL + (B) NEW PI & MH + (C) OTHER NEW + UNSEC REDEV + 12 MO CWIP + NET PROCEEDS
2023-24	='S:\Div - DOAS\Locally Assessed\SAR\2023\[SAR 23-24.xls]CC report'!$D$30	TOTAL UNSECURED 2023-24
2022-23	='S:\Div - DOAS\Locally Assessed\SAR\2022\[SAR 22-23.xls]CC report'$D$30	TOTAL UNSECURED 2022-23

STATEWIDE ASSESSMENT GROWTH RATE YEAR TO YEAR



	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Series1	7%	6%	9%	9%	5%	8%	16%	12%	3%

Exhibit T

Department of Comprehensive Planning

500 S Grand Central Pkwy · Box 551741 · Las Vegas NV 89155-1741
(702) 455-4314 · Fax (702) 455-3271

Nancy A. Amundsen, Director

NOTICE OF ADMINISTRATIVE DECISION

March 26, 2020

LINDA BULLEN
BULLEN LAW, LLC
8635 W SAHARA #454
LAS VEGAS, NV 89117

REFERENCE: UC-20-0130

On March 12, 2020, the Governor of Nevada declared a state of emergency related to the COVID-19 virus. Similarly, on March 15, 2020, the Clark County Manager declared a state of emergency related to the prevention of the spread of the COVID-19 virus. In light of the state of emergency and recognizing the importance of advancing routine development applications during this time of crisis, the Clark County Zoning Administrator is authorized to exercise discretion in approving or conditionally approving use permit, design review, waiver, and tentative map applications that otherwise would have been placed on the routine action item portion of the Clark County Zoning Commission and Clark County Planning Commission Agendas and that have not been met with more than nominal opposition.

The above-referenced application was **APPROVED** by the Zoning Administrator subject to the conditions listed below. You will be required to comply with all conditions prior to the issuance of a building permit or a business license, whichever occurs first.

Per Clark County Code Section 30.16.210.15.E, the Administrative Decision of the Zoning Administrator may be appealed to the Board of County Commissioners by submitting a written request by 5:00 p.m. of the fifth judicial day from the date indicated on this letter.

Time limits to commence, complete, or review this approval, apply only to this specific application. A property may have several approved applications on it with each having its own expiration date. **It is the applicant's responsibility to keep each application current.**

CONDITIONS:
Current Planning

- **Applicant shall submit to the County, every 6 months, verification that the applicant has a workforce of at least 50% Nevadans during construction.**
- **Applicant is advised that a substantial change in circumstances or regulations may warrant denial or added conditions to an extension of time; the extension of time may be denied if the project has not commenced or there has been no substantial work towards completion within the time specified; and that this application must commence within 2 years of approval date or it will expire.**

BOARD OF COUNTY COMMISSIONERS
MARILYN KIRKPATRICK, Chair · LAWRENCE WEEKLY, Vice Chair
LARRY BROWN · JAMES B. GIBSON · JUSTIN C. JONES · MICHAEL NAFT · TICK SEGERBLOM
YOLANDA T. KING, County Manager

Department of Environment and Sustainability,
Division of Air Quality
4701 W. Russell Rd. Suite 200 2nd Floor
Las Vegas, NV 89118
Main Number: (702)455-5942
Fax Number: (702)383-9994

Dust Control Operating Permit (DCOP) For Construction Activities

This permit does not exempt the permittee from compliance with the Endangered Species Act

Permit #: 52380 - Revision #0
Permittee: 325 MK 8 ME LLC
Project: Eagle Shadow Mountain Solar Project
Project Address: SW of Hwy 15 and SR 168
Cross Streets: Hwy 15/NV-168 SW
Effective Date: 5/20/2020
Expiration Date: 5/20/2021
Revision Date:
Project Acreage: 3.9
Area: ENE - East/Northeast

Notes/Additional Permit Conditions

Onsite Project Manager:	Responsible Official:
Name: Joe Berg	Name: Benjamin Droz
Company: Dashiell Corp	Company: 325 MK 8 ME LLC
Phone Number: 318.245.0159	Phone Number: 702.597.1010
	Cell Number: 917.224.4396

Dust control measures must occur 24 hours a day, 7 days a week.

This permit is not valid until all fees are paid in full and a complete copy of the permit with conditions and the dust mitigation plan is posted on the project site.

It is a condition of the issuance of any operating permit required by the commission or pursuant to any local ordinance for the control of air pollution that the holder of the operating permit agrees to permit inspection of the premises to which the permit relates by any authorized officer of the department at any time during the holder's hours of operation without prior notice. This condition must be stated on each application form and operating permit. NRS 445B.580.

The issuance of this PERMIT does not relieve the PERMITTEE from compliance with all other applicable federal, state, county and local ordinances and regulations. Issuance of this PERMIT shall not be a defense to violations of any applicable ordinances or regulations.

DCP#52380 MOD 0, DK

Dust Control Operating Permit (DCOP) Application

Clark County Department of Air Quality

NOTE: Demolition by implosion is not covered by this application -- use Implosion Operating Permit Application.

Application Type (Select One):	Applicant Type (Select One):	
(•) New	( ) Property Owner	(•) Developer
( ) Renewal	( ) Easement Holder	( ) Contractor
( ) Modification	( ) Government	

For DAQ Use Only

Invoice Number:

Received by email on 5-11-2020 at 1:58 PM
From: Jennifer Kraus

1. Responsible Official (Applicant) Information:

Responsible Official Name:	Responsible Official Title:	Permittee (Owner/Company/Organization Name):
BENJAMIN DROZ		325 MK 8ME LLC

Permittee Mailing and Email Address Information

Number:	Direction:	Street:	Street Type:	Suite:	PO Box:
10	E	53RD	ST	17TH FLOOR	

City:	NEW YORK	State:	NY	Zip:	10022

Email: BDROZ@CAPDYN.COM cc

Primary Communication Method: (•) Email ( ) US Postal

Phone Numbers

Office:	212-798-3420	Extension:		Cell:	917-224-4396	Fax:	

2. Construction Site Superintendent or other designated On-site Representative:

Name:	Title:	Company:
JOE BERG	PROJ MANAGER	DASHIELL CORP

Email: JOSEPH.BERG@DASHIELL.COM Dust Card #: SU 5/20/20 rd Expires:

Office:	713-578-6678	Extension:		Cell:	318-245-0159	Fax:	

3. Project Information:

Permit # (For new permit, enter NEW; otherwise, enter existing DCOP #): NEW

Project Name (same as signage): EAGLE SHADOW MOUNTAIN SOLAR PROJECT

Project Description:

REPLACEMENT OF AN 230 KV OVERHEAD TRANSMISSION LINE OF .333 MILES LOCATED ON BLM LAND IN CLARK COUNTY, NEVADA. THIS PORTION OF THE OVERHEAD LINE INCLUDES 2 TRANSMISSION LINE POLES, 1 PULL STATION, 0 LAYDOWN YARDS, 0 MILES OF NEW ACCESS ROADS. 5,556.7 LINEAR FT OF EXISTING DIRT TWO TRACK ROAD WILL BE UTILIZED FOR ACCESS. 5,140.3 FT OF THE EXISTING ROADS ARE 16 FEET WIDE, THE REMAINING 416.5 LINEAR FEET OF ROAD IS 22 FEET WIDE.

Modification Acreage Added:	0	Modification Acreage Removed:	0

Project Modification Description:

cc Jennifer Kraus-- kraus@corecivil.com

BLM N-97443

Project Attributes (check all that apply):

- [ ] Residential
- [x] Commercial
- [ ] Government Facility
- [x] Infrastructure Utilities
- [ ] Flood Control
- [ ] Airport
- [ ] Soil Remediation
- [ ] Structure Demolition
- [x] Roadway
- [ ] Blasting

Portable crushing and/or powered screening equipment supporting an on-site single construction activity and remaining onsite for less than 12 months is exempt from the stationary source permitting requirements of AQR Section 12.1 and will instead be subject to the conditions of the Dust Control Operating Permit issued pursuant to AQR Section 94. This exemption does not apply to equipment listed as emission units in a current minor source permit unless the permit states otherwise.

Will portable crushing or powered screening occur onsite? ( ) Yes (•) No

If yes, what is the anticipated date that equipment will be brought onsite?

What is the duration equipment will remain onsite?

Projects less than two weeks in duration may qualify for a sign waiver.

Does the project qualify for a sign waiver request? ( ) Yes (•) No

Is a sign waiver requested for this project? ( ) Yes (•) No

Project Physical Location				
Number:	Direction:	Street:	Street Type:	Suite:
XXX NA		XX NA SW OF HWY 15 AND SR 168.		

City:	State:	Zip:
XX NA MOAPA	NV	89025

List major cross streets and the proximity to the intersection:

1st Cross Street:	2nd Cross Street:	Proximity:
XXXXXXXXXXXXXXXX HIDDEN VALLEY ROAD HWY 15	NV-168	NE XX SW

4. Project Disturbed Surface Area:

a. Project Disturbed Surface Area Information:

Nonlinear Area Disturbed (Acreage in Tenths)

(e.g., project site, stockpiles, staging areas, etc.)

New/Current Total Nonlinear Project Acreage:	1.8	Total Proposed Nonlinear Project Acreage (new/renewal/modifications):	1.8

Linear Area Disturbed (Not Within Nonlinear Area)

(e.g., new unpaved access roads, off-site that may include trenching for utilities, street development, road work, etc.)

Enter total number of linear segments: 4

New/Current DCOP Maximum Linear Dimensions: (enter dimensions for new/current DCOP)			Proposed DCOP Maximum Linear Dimensions: (enter dimensions for DCOP modification/renewal DCOP)		
Linear Length:	Length Unit of Measure:	Linear Width (feet):	Linear Length:	Length Unit of Measure:	Linear Width (feet):
497	Feet	16	497	Feet	16
1,165	Feet	16	1,165	Feet	16
3,478	Feet	16	3,478	Feet	16
416	Feet	22	416	Feet	22
New/Current Total Linear Project Acreage:		2.1	Proposed Total Linear Project Acreage:		2.1

(1) Nonlinear Area Acreage Subtotal:	1.8	*(2) Linear Area Acreage Subtotal:*	2.1	*Total Project Area Disturbed (1) + (2):*	3.9	*Modification Acreage Increase:*	**0**

b. Project Parcel. List a parcel number for the project. Particulate Emission Potential (PEP) will automatically be determined by the parcel number. If your project spans multiple parcel numbers, DAQ reserves the right to request the parcel number be changed to account for a higher soil PEP.

Parcel Number	Project PEP
04207000004	LOW/MODERATE LOW

If the project acreage is ten acres or more or if project trenching activities are one mile in length or more, a detailed supplement to the Dust Mitigation Plan must be submitted with this application in accordance with Section 94.5.5 of the Clark County Air Quality Regulations (AQRs) and Appendix B of the Construction Activities Dust Control Handbook.

Project Map Must Be Attached to DCOP Application
NOTE: Air Quality does not accept engineering drawings.

5. Responsible Official (Applicant) Certification Statement. By signing this permit application, the signatory certifies the following:

a. As the Responsible Official (applicant), I am authorized on behalf of the Owner Builder/Company/Organization (permittee) listed in Section 1 to apply for this Dust Control Operating Permit (DCOP) and to commit to all of the terms and conditions therein.

b. Before disturbing soils on a parcel, enacting a grade change, constructing a structure and/or appurtenances, or installing, constructing, or modifying equipment that emits an air pollutant, you must contact and obtain all required permits from Clark County's Department of Comprehensive Planning, Building Department, Department of Air Quality (Title 30 Notice) and the municipality with jurisdiction.

c. The permit issued in response to this application is not a substitute for obtaining the property owner's permission to use land associated with the project. Issuance of the DCOP is intended only for controlling the emission of air pollutants and assuring compliance with the AQRs. Clark County cannot be held liable for any unauthorized use of the land.

d. If applying on behalf of the permittee listed in Section 1, the permittee shall be responsible for complying with requirements of this DCOP and the AQRs. Otherwise, the applicant listed in Section 1 shall be the responsible party.

e.	The permittee accepts responsibility for assuring that all contractors, subcontractors, and other persons on the construction site defined by this permit comply with the terms and conditions of the DCOP, the associated Dust Mitigation Plan and the AQRs.
f.	In accordance with the DCOP and the AQRs, the applicant and the permittee shall consent to inspection of the site during normal hours of operation by DAQ staff without prior notice to determine compliance with the terms and conditions of the DCOP and the AQRs.
g.	If the project has 50 or more acres of actively disturbed soil, the permittee shall notify DAQ and identify the on-site Dust Control Monitor for the project(s). In addition, this notification requirement applies to the following circumstances: · When the permittee has common control of multiple adjacent projects that individually have less than 50 acres of actively disturbed soil, but the combined project has 50 or more acres of actively disturbed soil; or · When the permittee has common control of multiple projects that are not adjacent, but are within a common master-planned community and have 50 or more acres of actively disturbed soil. The permittee shall notify DAQ using the current notification form, which is available on the DAQ website and at the front counter of the main office, before disturbing the soil. The Dust Control Monitor must be on-site at all times when construction activities occur and shall manage dust prevention and control on-site.

Applicant Certification

BENJAMIN DROZ	DocuSigned by: Benjamin Droz 5E243EA7362C424...	05/10/2020
Responsible Official Name	**Applicant's Signature**	**Signature Date**

Advisories

a.	DCOP acreage fee is based on total project acreage of disturbed surface area (Item 4.a. of this application), which is rounded up to the next whole acre. If the project is less than 1 acre, a minimum of 1 acre shall apply to the project for fee purposes. All fees must be paid in full at the time of application; otherwise, the application cannot be accepted.
b.	Any payment made to the department in conjunction with this application may only be refunded to the permittee with the approval of the Board of County Commissioners. Approved refunds may not be issued to a preparer. Only the applicant or permittee may request a refund, which must contain written justification, a completed federal W-9 Form, a copy of the invoice/receipt, a completed Clark County Supplier Addition/Maintenance/Update form, and a copy of the cancelled check (front & back) . The Control Officer shall have sole discretion to approve/disapprove the request for refund approval.
c.	Stormwater Advisory: Be advised that all land disturbances that exceed 1 acre or are adjacent to a waterway must submit a "Notice of Intent" to the Nevada Division of Environmental Protection that certifies a Storm Water Pollution Prevention Plan has been developed and is maintained for the site. Contact NDEP at (775) 687-9429 for an application, information, and instructions.
d.	Payment : Invoice payments must be made by check, money order, or credit card. Checks and money orders must be made payable to **Department of Air Quality** or **DAQ.** Credit card payment must be made in person at the DAQ main office.

ENE/218
HRM
5/20/20

Protecting the air we share

Air Quality

DUST MITIGATION PLAN

Permit # :	NEW

Project Name:	EAGLE SHADOW MOUNTAIN SOLAR PROJECT		
Company (Permittee):	325 MK 8ME LLC		
Total Project Area Disturbed:	3.9	Particulate Emission Potential (PEP):	LOW/MODERATE LOW

If the project acreage is ten acres or more or if project trenching activities are one mile in length or more, a detailed supplement to the Dust Mitigation Plan must be submitted with this application in accordance with Section 94.5.5 of the Clark County Air Quality Regulations (AQRs) and Appendix B of the Construction Activities Dust Control Handbook.

Water Source (check all that apply)	Water Application Method (check all that apply)
☐ Hydrant with Jones Valve	☐ Fire Hose
☐ Stand Tanks	☒ Water Trucks/Pulls
☐ Ponds	☐ Other (Describe Below):
☒ Well	
☒ Other (Describe Below):	
THE WATER SOURCE WOULD BE A WELL, IN CONJUNCTION WITH THE USE OF A J-STAND AND POTENTIALLY SOME BAKER TANKS.	

Project Activities:

The Dust Mitigation Plan applies to the following project activities: **Backfilling** (Filling area previously excavated or trenched); **Blasting - Abrasive** (Sandblasting and/or abrasive blasting); **Blasting Soil & Rock** (Explosive blasting of soil and rock); **Clearing & Grubbing** (Clearing and grubbing for site preparation and vacant land cleanup); **Clearing Forms, Foundations and Slabs** (Clearing and cleaning of forms, foundations and slabs prior to pouring concrete); **Crushing** (Crushing of construction and demolition debris, rock and soil); **Cut and/or Fill** (Cut and/or fill soils for site grade preparation); **Demolition - Mechanical/Manual** (Mechanical and manual demolition of walls, stucco, concrete, freestanding structures, buildings, load-bearing walls and/or removal of transit pipe); **Disturbed Soil** (Disturbed soil throughout project including between structures); **Disturbed Land - Long Term Stabilization** (Large tracts of disturbed land that will not have continuing activity for more than 30 days); **Dust Suppressants** (Selection and use of chemical and organic dust suppressing agents and other dust palliatives); **Importing/Exporting Materials** (Importing or exporting of soil, aggregate, decorative rock, debris, Type II and other bulk material); **Landscaping** (Installation of sod, decorative rock, desert or other landscape material); **Paving/Subgrade Preparation** (Subgrade preparation for paving streets, parking lots, etc.); **Sawing/Cutting Material** (Sawing or cutting materials such as concrete, asphalt, block or pipe); **Screening** (Screening of rock, soil or construction debris); **Staging Areas** (Staging areas, equipment storage, vehicle parking lots, and material storage areas); **Stockpiles** (Stockpiling of materials, such as Type II, other soils, rock or debris, for future use or export); **Trackout Prevention and Cleanup** (Prevention and cleanup of mud, silt and soil tracked out onto paved roads); **Traffic - Unpaved Routes and Parking** (Construction related traffic on unpaved interior and/or access roads and unpaved employee/worker parking areas); **Trenching** (Trenching with track or wheel mounted excavator, shovel, backhoe or trencher); and **Truck Loading** (Loading trucks with materials including construction and demolition debris, rock and soil).

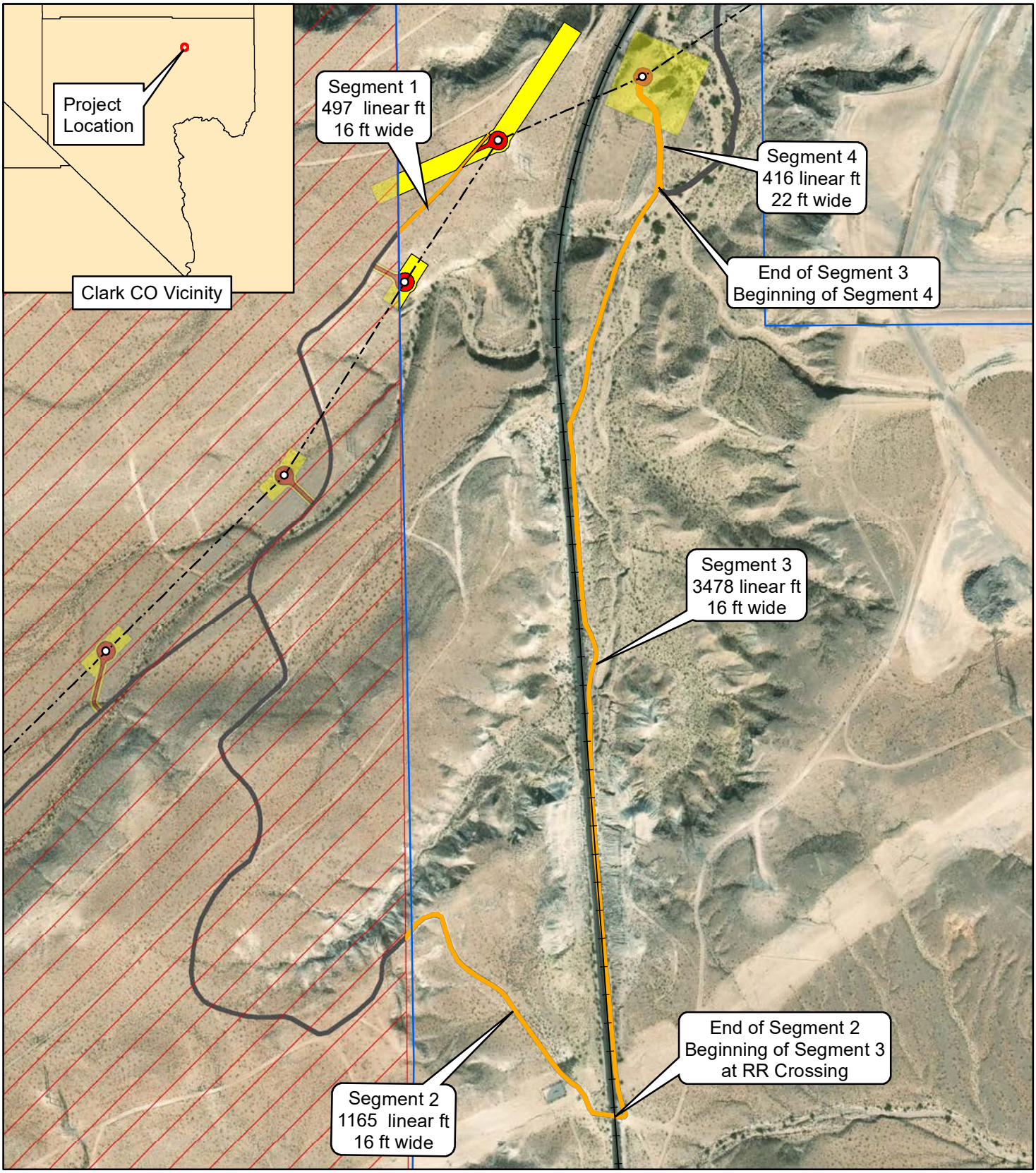
This DCP Application and Dust Mitigation Plan does not include project activities related to **Demolition - Implosion** (Implosive demolition of a structure, using explosives).

Best Management Practices (BMPs) - Control Measures:

The permittee shall comply with all requirements of Section 94 of the AQRs, all requirements of the current *Clark County Dust Control Handbook*, and all provisions of the DCOP issued from this application.

For each project activity listed in this Dust Mitigation Plan, the permittee shall comply with the requirements for the associated BMPs in the *Dust Control Handbook.* Where options are listed for a BMP requirement, the permittee shall apply one or more of the control measures to comply with the requirement. The permittee will apply corresponding control measures for the PEP for the project soil type(s).

DCP#52380 MOD 0 = 3.9 042 07 000 004 HRM 5/12/20



Eagle Shadow Mountain Solar Project

Dust Control Permit Location Map

Clark CO, Nevada

Property lines are approximate and are intended for planning purposes only

- BLM Parcel Boundary
- Linear Disturbance
- Permanent Non-Linear Disturbance (0.2 ac)
- Temporary Non- Linear Disturbance (1.6 ac)
- Proposed Poles
- Proposed Gen-Tie Line
- Moapa River Reservation

0 500

Feet

1 inch = 500 feet

Date: 5/7/2020

CORE Project #: 20-057

CORE CONSULTANTS

From: Jennifer Kraus
To: Heather Mackinnon
Subject: RE: 325 NK 8ME LLC-EABLE SHADOW MOUNTAIN SOLAR PROJECT
Date: Wednesday, May 20, 2020 2:09:01 PM
Attachments: image003.png

Heather,

CORE Consultants has been hired to coordinate permits for the Eagle Shadow Mountain Solar Project, therefore I was forwarded your email response to follow up with further information. The email chain is below.

On the dust control permit application, we are replacing the Construction Site Superintendent from Robert Mathews to Joe Berg.

Joe Berg, PMP
Project Manager
Dashiell Corporation
Joseph.Berg@Dashiell.com
Office: 713-578-6057
Cell: 713-494-9846
12301 Kurland Drive Suite 400
Houston, TX 77034

I will email a Dust Class Registration Form for Joe Berg to aqdcp@clarkcountynv.gov and cc you in a separate email.
The project developer, 325 NK 8ME LLC, has a BLM ROW Grant with serial number N-97443.
Could you please let me know how to pay for the dust control permit fee electronically with a credit card?

Thank you,

Jennifer Kraus
Senior Project Manager
Cell 720.724.3531

From: Benjamin Droz <BDroz@capdyn.com>
Sent: Tuesday, May 12, 2020 11:49 AM
To: 'Heather Mackinnon' <MacKinno@ClarkCountyNV.gov>
Cc: Jason Moretz <jmoretz@8minute.com>; Luke Shillington <lshillington@8minute.com>
Subject: RE: 325 NK 8ME LLC-EABLE SHADOW MOUNTAIN SOLAR PROJECT

Hi Heather,

Thank you, I am confirming receipt and adding Jason and Luke to the email chain. We are working to address the below expeditiously.

Regards,
Ben

CapitalDynamics

Benjamin Droz
Vice President, Clean Energy Infrastructure

10 East 53rd Street, 17th Floor
New York, NY 10022
bdroz@capdyn.com

Direct +1 212 798 3420
Mobile +1 917 224 4396
Main +1 212 798 3400

Visit our website capdyn.com

Please consider the environment in deciding whether to print this e-mail.

From: Heather Mackinnon <MacKinno@ClarkCountyNV.gov>
Sent: Tuesday, May 12, 2020 2:42 PM
To: Benjamin Droz <BDroz@capdyn.com>
Subject: 325 NK 8ME LLC-EABLE SHADOW MOUNTAIN SOLAR PROJECT
Importance: High

Greetings,
Please respond as soon as possible so not to delay the approval process. I have reviewed your Dust Control Operating Permit application and have questions and/or need additional information. Applications cannot be updated with verbal authorization so **please reply to this email**. If you have questions, feel free to email me those inquiries.

Robert Mathews needs to send in a dust class registration form ASAP **and cc me**. See link and info below. I will follow up with you once normal operations resume if he does not register.
http://www.clarkcountynv.gov/airquality/compliance/Pages/Compliance_DustForms.aspx

Dust Class registration forms can be submitted electronically at aqdcp@clarkcountynv.gov **without a designated class date listed**. DAQ will contact the registrant to confirm a class date and collect payment once normal operations are resumed. If your dust card expired or is expiring during this time period, DAQ will still honor the card.

The area highlighted on the map submitted includes acreage on BLM land. Is the area included in your temporary construction easement or do you have a contract, minerals contract, or bid number?

Regards,

Offices are currently closed, we are working remotely.

Heather Mackinnon
Clark County Department of
Environment and Sustainability
4701 W. Russell Rd, #200
Las Vegas NV 89118
Office 702-455-1524

For Dust Control Applications and Forms, click on link below.

You must use **INTERNET EXPLORER** as your search engine. If you have your default browser set to anything else, such as Chrome, the forms will not work.

Compliance_DustForms

Disclaimer: This message (incl. attachments) is confidential, for the exclusive use of the intended recipient and may contain privileged information. Capital Dynamics may be required to provide detailed information to regulatory, self-regulatory and governmental authorities of jurisdictions in which it operates as part of any inquiry or examination by such authorities. Such information may include details concerning your relationship with Capital Dynamics and any and all data you have provided to, and any communication with, Capital Dynamics or any of its managed funds. By using the services of Capital Dynamics, you consent to the disclosure of such information as indicated. For the full disclaimer please see www.capdyn.com/terms-of-use

Best Management Practices (BMPs) & Control Measures

BMP 01 **BACKFILLING**

Definition: Filling area previously excavated or trenched.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Stabilize backfill material when not actively handling.

01-01 Water backfill material to maintain moisture or to form crust when not actively handling.

01-02 Apply and maintain a dust palliative to backfill material to form crust when not actively handling.

01-03 Cover or enclose backfill material when not actively handling.

Requirement: Stabilize backfill material during handling.

01-04 Empty loader bucket slowly and minimize drop height from loader bucket.

01-05 Dedicate water truck or large hose to backfilling equipment and apply water as needed.

Requirement: Stabilize backfill material during handling based on project soil type.

01-07 L & ML: Apply and mix water into the backfill material until optimum moisture is reached.

01-08 MH: Apply and mix water and tackifier solution into the backfill material until optimum moisture is reached.

01-09 H: Apply and mix water and surfactant solution into the backfill material until optimum moisture is reached.

Requirement: Stabilize soil at completion of backfilling activity.

01-10 Apply water and maintain disturbed soils in a stable condition until permanent stabilization is complete.

01-11 Apply and maintain a dust palliative on disturbed soils to form a crust following backfilling activity.

Requirement: Stabilize material while using pipe padder equipment.

01-12 Mix moist soil with dry soil until the optimum moisture is reached.

01-13 Dedicate water truck or large hose to equipment and apply water as needed.

Best Management Practices (BMPs) & Control Measures

BMP 02 **BLASTING - ABRASIVE**

Definition: Sandblasting and/or abrasive blasting.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Stabilize surface soils where support equipment and vehicles will operate.

02-01 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

02-02 Apply and maintain a dust palliative on surface soils where support equipment and vehicles will operate.

Requirement: Limit visible emissions to no more than an average of 40% opacity for any period aggregating 3 minutes in any 60-minute period pursuant to Air Quality Regulations.

02-03 Hydro-blasting, using water as the propellant, must be conducted in a manner to maintain visible emissions within opacity standards.

02-04 Dry, unconfined blasting with abrasive material must use only those abrasives that are approved and certified by the California Air Resources Board (CARB) for such use (see Attachment 3: CARB-Approved Abrasives Information).

Requirement: Stabilize particulate matter in surrounding area following blasting.

02-05 Clean particulate material from surrounding area and water disturbed soils following blasting.

02-06 Apply and maintain a dust palliative to surrounding area following blasting.

Best Management Practices (BMPs) & Control Measures

BMP 03 **BLASTING - SOIL & ROCK**

Definition: Explosive blasting of soil and rock.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: A Blasting Supplemental form must be filled out, submitted and approved by the DAQEM prior to any blasting (see Appendix A: Dust Control Permit Supplemental Forms)

Requirement: No blasting within 1,500 feet of a residential area, occupied building or major roadway, when wind direction is toward these structures.

Requirement: Blasting shall be between the hours of 8:00 a.m. and 4:30 p.m., excluding Saturdays, Sundays and holidays unless prior permission is obtained from the Control Officer.

Requirement: No blasting allowed when the National Weather Service forecasts wind gusts above 25 miles per hour (mph).

03-01 Prior to setting explosive charges in holes, document current and predicted weather conditions as provided by the National Weather Service. If the current forecast is for wind gusts of 25 mph or greater or they are forecasted to be 25 mph or greater within the next 24 hours, do not charge any blast holes. When setting explosive charges, monitor weather reports for wind gusts of 25 mph or greater on the National Weather Service Radio and/or Internet sites. If wind gusts above 25 mph are stated, d

Requirement: Stabilize surface soils where drills, support equipment and vehicles will operate.

03-02 Pre-water and maintain surface soils in a stabilized condition where drills, support equipment and vehicles will operate.

03-03 Apply and maintain a dust palliative on surface soils where drills, support equipment and vehicles will operate.

Requirement: Stabilize soil during blast preparation activities.

03-04 Limit the blast footprint area to no larger than what can be practically stabilized immediately following the blast.

03-05 Maintain surface rock and vegetation where possible to reduce exposure of disturbed soil to wind.

Requirement: Stabilize soil during blast preparation activities based on project soil type.

03-06 L & ML: Presoak surface soils to depth of the caliche or bedrock with water using water trucks, water pulls, sprinklers or wobblers.

03-07 MH: Presoak surface soils to depth of the caliche or bedrock with water and tackifier mixture using water trucks, water pulls, sprinklers or wobblers.

03-08 H: Presoak surface soils to depth of the caliche or bedrock with water and surfactant mixture using water trucks, water pulls, sprinklers or wobblers.

Requirement: Stabilize soil after blasting.

03-09 Water disturbed soils to form crust immediately following blast and safety clearance.

03-10 Apply and maintain a dust palliative to form crust immediately following blast and safety clearance.

Best Management Practices (BMPs) & Control Measures

BMP 04 **CLEARING & GRUBBING**

Definition: Clearing and grubbing for site preparation and vacant land cleanup.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Stabilize surface soils where support equipment and vehicles will operate.

04-01 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

04-02 Apply and maintain a dust palliative on surface soils where support equipment and vehicles will operate.

Requirement: Stabilize soil during clearing and grubbing activities.

04-03 L & ML: Apply water during clearing and grubbing activities.

04-04 MH: Apply water and tackifier mixture during clearing and grubbing activities.

04-05 H: Apply water and surfactant mixture during clearing and grubbing activities.

Requirement: Stabilize disturbed soil immediately after clearing and grubbing activities.

04-06 Water disturbed soils to form crust immediately following clearing and grubbing activities.

04-07 Apply and maintain a dust palliative on disturbed soils to form crust immediately following clearing and grubbing activities.

Best Management Practices (BMPs) & Control Measures

BMP 05 **CLEARING FORMS, FOUNDATIONS AND SLABS**

Definition: Clearing and cleaning of forms, foundations and slabs prior to pouring concrete.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Limit visible emissions to no more than an average of 20% opacity for any period aggregating 3 minutes in any 60-minute period pursuant to Air Quality Regulations.

05-01 Use single stage pours, unless prohibited by engineering design or building code, to minimize clearing.

Requirement: Limit visible emissions to no more than an average of 20% opacity for any period aggregating 3 minutes in any 60-minute period by complying with at least one of the additional control measures.

05-02 Use water spray to clear forms, foundations and slabs.

05-03 Use sweeping and water spray to clear forms, foundations and slabs.

05-04 Use industrial vacuum to clear forms, foundations and slabs prior to the use of high pressure air to blow soil and debris.

05-05 Use industrial vacuum to clear forms, foundations and slabs.

Best Management Practices (BMPs) & Control Measures

BMP 06 **CRUSHING**

Definition: Crushing of construction and demolition debris, rock and soil.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Obtain the appropriate Operating Permit for powered crushers prior to engaging in crushing activity. Comply with permit conditions.

Requirement: Stabilize surface soils where support equipment and vehicles will operate.

06-01 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

06-02 Apply and maintain a dust palliative to surface soils where support equipment and vehicles will operate.

Requirement: Stabilize material before crushing.

06-03 Pre-water material prior to loading into crusher.

06-04 Test material to determine moisture content and silt loading, crush only material that is at optimum moisture content.

Requirement: Stabilize material during crushing.

06-05 Apply water to stabilize material so as to remain in compliance with opacity standards and permit conditions, during crushing.

06-06 Monitor emissions opacity. Make adjustments to remain in compliance with opacity standards and permit conditions.

Requirement: Stabilize material after crushing.

06-07 Water crushed material to form crust immediately following crushing.

06-08 Apply and maintain a dust palliative to crushed material.

Best Management Practices (BMPs) & Control Measures

BMP 07 **CUT AND/OR FILL**

Definition: Cut and/or fill soils for site grade preparation.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Stabilize surface soils where support equipment and vehicles will operate.

07-01 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

07-02 Apply and maintain a dust palliative to surface soils where support equipment and vehicles will operate.

Requirement: Pre-water soils based on project soil type.

07-03 Dig a test hole to depth of cut or equipment penetration to determine if soils are moist at depth. Continue to pre-water if not moist to depth of cut.

07-04 L & ML: Pre-water with sprinklers or wobblers to allow time for penetration.

07-05 L & ML: Pre-water with water trucks or water pulls to allow time for penetration.

07-06 MH: Pre-water with a water and tackifier mixture using sprinklers or wobblers to allow time for penetration.

07-07 MH: Pre-water with a water and tackifier mixture using water trucks or water pulls to allow time for penetration.

07-08 H: Pre-water with a water and surfactant mixture using sprinklers or wobblers to allow time for penetration.

07-09 H: Pre-water with a water and surfactant mixture using water trucks or water pulls to allow time for penetration.

Requirement: Stabilize soil during cut activities.

07-10 Apply water, using water truck or water pull, to depth of cut prior to subsequent cuts.

07-11 No cut activities fill only.

Requirement: Stabilize soil after cut and fill activities.

07-12 Water disturbed soils to form crust following fill and compaction.

07-13 Apply and maintain a dust palliative on disturbed soils to form crust following fill and compaction.

Best Management Practices (BMPs) & Control Measures

BMP 08 **DEMOLITION - IMPLOSION**

Definition: Implosive demolition of a structure, using explosives.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: A Demolition Supplemental form (see Appendix A) and a Supplement To The Dust Mitigation Plan (see Appendix B) must be filled out, submitted and approved by the Control Officer prior to implosion.

Requirement: An asbestos survey must be conducted on any facility before demolition can commence.

Requirement: A complete Clark County NESHAP Notification form must be submitted to the DAQEM at least ten working days prior to demolition. The asbestos survey must be attached to this notification.

Requirement: All friable and non-friable asbestos containing material must be removed from the facility prior to implosion.

Requirement: Confine blasting to times when wind direction is away from closest residential areas, occupied buildings and major roadways.

Requirement: Implosion time must be pre-approved by the Control Officer.

Requirement: Monitor and document current weather conditions and weather predictions from National Weather Service.

08-01 Prior to setting explosive charges, obtain and document current and predicted weather conditions as provided by the National Weather Service. If wind advisory (over 20 miles per hour gusts or average wind speed of 10 miles per hour) is current or forecasted for blast period, do not set charges and do not blast. Maintain a calibrated anemometer and log ambient air velocity and direction within 1,000 feet of the implosion site, beginning at least 1 (one) hour prior to and 15 minutes after the impl

Requirement: Stabilize surface area where support equipment and vehicles will be operated.

08-02 Restrict support equipment and vehicles to existing paved and/or stable areas.

08-03 If paved and/or stable areas do not already exist, pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

08-04 If paved and/or stable areas do not already exist, apply and maintain a dust palliative on surface soils where support equipment and vehicles will be operated.

Requirement: Stabilize demolition debris immediately following blast and safety clearance.

08-05 Apply water to debris immediately following blast and safety clearance.

08-06 Apply and maintain a dust palliative to debris immediately following blast and safety clearance.

Requirement: Stabilize and clean surrounding area immediately following blast and safety clearance.

08-07 Water all disturbed soil surfaces to establish crust and prevent wind erosion of soil.

08-08 Thoroughly clean blast debris from paved and other surfaces following blast and safety clearance.

Best Management Practices (BMPs) & Control Measures

BMP 09 **DEMOLITION - MECHANICAL/MANUAL**

Definition: Mechanical and manual demolition of walls, stucco, concrete, freestanding structures, buildings, load-bearing walls and/or removal of transit pipe.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: For renovation or demolition of a structure, a Demolition Supplemental form (see Appendix A) must be filled out, submitted and approved by the Control Officer prior to commencing demolition.

Requirement: An asbestos survey must be conducted on any facility or structure that is subject to NESHAP requirements before demolition can commence.

Requirement: A complete Clark County NESHAPS Notification form must be submitted to the DAQEM at least ten working days prior to demolition. The asbestos survey must be attached to this notification.

Requirement: Stabilize surface soils where support equipment and vehicles will operate.

09-01 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

09-02 Apply and maintain a dust palliative to surface soils where support equipment and vehicles will operate.

09-03 Area where support equipment and vehicles will operate is completely covered with paving or concrete.

Requirement: Stabilize demolition debris during handling.

09-04 Apply water to demolition debris during handling.

Requirement: Stabilize debris following demolition.

09-05 Apply water to stabilize demolition debris.

09-06 Apply a dust palliative to stabilize demolition debris.

Requirement: Stabilize surrounding area following demolition.

09-07 Apply water to stabilize surrounding area following demolition.

09-08 Apply and maintain a dust palliative to stabilize surrounding area following demolition.

Best Management Practices (BMPs) & Control Measures

BMP 10 **DISTURBED SOIL**

Definition: Disturbed soil throughout project including between structures.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: For each non-linear project to be permitted for 5 acres or less; install perimeter wind barrier 3 feet or more in height made of material with a porosity of 50% or less.

Requirement: Limit vehicle traffic and disturbance of soils where possible.

10-01 Limit vehicle traffic and disturbance of soils with the use of fencing, barriers, barricades, and/or wind barriers.

Requirement: Stabilize and maintain stability of all disturbed soil throughout construction site.

10-02 Apply water to stabilize disturbed soils. Soils must be kept in a sufficiently damp, crusted or covered condition.

10-03 Apply and maintain a dust palliative based on soil type and future plans.

Requirement: Soil conditions, including preventive and corrective measures, must be recorded every day the construction project is active.

10-04 Record soil conditions and dust control actions in daily project records.

Best Management Practices (BMPs) & Control Measures

BMP 11 **DISTURBED LAND - LONG TERM STABILIZATION**

Definition: Large tracts of disturbed land that will not have continuing activity for more than 30 days.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Stabilize soil to meet standards required by Air Quality Regulation Section 90.

11-01 Apply and maintain a dust palliative on disturbed soils for long-term stabilization.

11-02 Stabilize disturbed soil with vegetation for long-term stabilization.

11-03 Pave or apply surface rock for long-term stabilization.

11-04 Use wind breaks in accordance with a site-specific plan approved by the Control Officer and Region IX Administrator of the EPA.

11-05 Apply water and maintain soils in a visible damp or crusted condition for temporary stabilization.

Requirement: Prevent access to limit soil disturbance.

11-06 Prevent access by fencing, ditches, vegetation, berms or other suitable barrier or means approved by the Control Officer.

Best Management Practices (BMPs) & Control Measures

BMP 12 **DUST SUPRESSANTS - SELECTION AND USE**

Definition: Selection and use of chemical and organic dust suppressing agents and other dust palliatives.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Follow CCHD "Interim Policy on Dust Palliatives Use In Clark County, Nevada".

Requirement: Record use of suppressants and dust palliatives and retain records.

Requirement: Follow applicable federal and state regulations.

Requirement: Select method of long-term stabilization taking into consideration future land use.

12-01 For traffic area applications use Table 1: Traffic Area Application Requirements, Appropriate Use of Liquid Dust Palliatives and Application Rates, from the Interim Policy on Dust Palliatives Use in Clark County, Nevada.

12-02 For non-traffic area applications use Table 2: Non-Traffic Area Application Requirements, Appropriate Use of Liquid Dust Palliatives and Application Rates, from the Interim Policy on Dust Palliatives Use in Clark County, Nevada.

Best Management Practices (BMPs) & Control Measures

BMP 13 **IMPORTING/EXPORTING MATERIALS**

Definition: Importing or exporting of soil, aggregate, decorative rock, debris, Type II and other bulk material.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Limit visible dust opacity from vehicular operations.

13-01 Apply water and limit vehicle speeds to 15 mph on the work site.

13-02 Apply and maintain dust suppressant on haul routes.

Requirement: Check belly-dump truck seals regularly and remove any trapped rocks to prevent spillage.

Requirement: Maintain 3-6 inches of freeboard to minimize spillage.

Requirement: Stabilize materials during transport on site.

13-03 Use tarps or other suitable enclosures on haul trucks.

13-04 Stabilize materials with water.

Requirement: Clean wheels and undercarriage of haul trucks prior to leaving construction site.

Best Management Practices (BMPs) & Control Measures

BMP 14 **LANDSCAPING**

Definition: Installation of sod, decorative rock, desert or other landscape material.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Stabilize soils, materials and slopes during handling.

14-01 L & ML: Apply water prior to leveling or any other earth moving activity to keep the soil moist throughout the process.

14-02 MH: Apply a water and tackifier mixture prior to leveling or any other earth moving activity to keep the soil moist throughout the process.

14-03 H: Apply a water and surfactant mixture prior to leveling or any other earth moving activity to keep the soil moist throughout the process.

Requirement: Stabilize soils, materials and slopes at completion of activity.

14-04 Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slope.

14-05 Apply water and maintain sloping surfaces in a crusted condition.

14-06 Maintain effective cover over materials.

Best Management Practices (BMPs) & Control Measures

BMP 15 **PAVING/SUBGRADE PREPARATION**

Definition: Subgrade preparation for paving streets, parking lots, etc.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Stabilize soils prior to activities.

15-01 Pre-water subgrade surface until optimum moisture content is reached and maintained.

Requirement: Stabilize soils during activities.

15-02 Maintain at least 70% of optimum moisture content for Type II material while aggregate is being applied.

Requirement: Stabilize soils following activities.

15-03 Place tack coat on Type II aggregate base immediately after it is applied.

15-04 Apply water to Type II aggregate base immediately after it is applied.

Requirement: Stabilize adjacent disturbed soils following paving activities.

15-05 Stabilize adjacent disturbed soils following paving activities by crusting with water.

15-06 Stabilize adjacent disturbed soils following paving activities by applying a dust palliative.

15-07 Stabilize adjacent disturbed soils following paving activities with immediate landscaping activity or installation of vegetative or rock cover.

15-08 There are no soils adjacent to paving activities.

Best Management Practices (BMPs) & Control Measures

BMP 16 **SAWING/CUTTING MATERIAL**

Definition: Sawing or cutting materials such as concrete, asphalt, block or pipe.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Limit visible emissions to no more than an average of 20% opacity, pursuant to Air Quality Regulations.

16-01 Use water to control dust when cutting materials.

16-02 Use a vacuum to collect dust when cutting materials.

Best Management Practices (BMPs) & Control Measures

BMP 17 **SCREENING**

Definition: Screening of rock, soil or construction debris.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: If using a powered screen, obtain the appropriate Operating Permit for powered screens prior to engaging in screening activity. Comply with permit conditions.

Requirement: Drop material through the screen slowly and minimize drop height.

Requirement: Stabilize surface soils where support equipment and vehicles will operate.

17-01 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

17-02 Apply and maintain a dust palliative on surface soils where support equipment and vehicles will operate.

Requirement: Pre-treat material prior to screening.

17-03 Apply sufficient water to obtain at least 70% optimum moisture in material prior to screening.

17-04 Apply a dust suppressant to material prior to screening.

Requirement: Stabilize material during screening.

17-05 Dedicate water truck or large hose to screening operation and apply water as needed to prevent dust.

17-06 Apply water to material as it is being dropped through the screen.

17-07 Install wind barrier upwind of screen as high as the screen drop point and made of material with a porosity of 50% or less.

Requirement: Stabilize material and surrounding area immediately after screening.

17-08 Apply water to stabilize screened material and surrounding area after screening.

17-09 Apply and maintain a dust palliative to stabilize screened material and surrounding area after screening.

Best Management Practices (BMPs) & Control Measures

BMP 18 **STAGING AREAS**

Definition: Staging areas, equipment storage, vehicle parking lots, and material storage areas.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Limit visible dust opacity from vehicular operations.

18-01 Limit vehicle speeds to 15 mph in the staging area and on all unpaved access routes.

18-02 Apply and maintain dust suppressant on all vehicle traffic areas in the staging areas and unpaved access routes.

Requirement: Stabilize staging area soils during use.

18-03 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

18-04 Apply and maintain a dust palliative to surface soils where support equipment and vehicles will be operated.

Requirement: Stabilize staging area soils at project completion.

18-05 Apply a dust palliative.

18-06 Apply screened or washed Type II aggregate.

18-07 Use wind breaks in accordance with a site-specific plan approved by the Control Officer and Region IX Administrator of the EPA.

18-08 Pave with thin paving.

18-09 Completed project will cover staging area with buildings, paving, and/or landscaping.

18-10 Apply water to form adequate crust and prevent access.

Best Management Practices (BMPs) & Control Measures

BMP 19 **STOCKPILES**

Definition: Stockpiling of materials, such as Type II, other soils, rock or debris, for future use or export.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: To the extent possible, maintain stockpile to avoid steep sides or faces.

Requirement: Stockpile location and height must be maintained pursuant to Air Quality Regulations. Stockpiles located within 100 yards of occupied buildings must not be constructed over 8 feet in height.

19-01 Stockpiles will not be constructed over 8 feet in height.

19-02 Stockpiles will be constructed over 8 feet high and must have a road bladed to the top to allow water truck access or must have a sprinkler irrigation system installed, used and maintained.

Requirement: Stabilize surface soils where support equipment and vehicles will operate.

19-03 Pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

19-04 Apply and maintain a dust palliative on surface soils where support equipment and vehicles will operate.

Requirement: Stabilize stockpile materials during handling.

19-05 Maintain stockpile materials with at least 70% optimum moisture content.

19-06 Remove material from the downwind side of the stockpile, when safe to do so.

Requirement: Stabilize stockpile materials during handling based on the project soil type.

19-07 L & ML: Apply water during stacking, loading and unloading operations.

19-08 MH: Apply a water and tackifier mixture during stacking, loading and unloading operations.

19-09 H: Apply a water and surfactant mixture during stacking, loading and unloading operations.

Requirement: Stabilize stockpiles at completion of activity.

19-10 Water stockpiles to form a crust immediately at the completion of activity.

19-11 Apply and maintain a dust palliative to all outer surfaces of the stockpiles.

19-12 Provide and maintain wind barriers on 3 sides of the pile, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and made of material with a porosity of 50% or less.

19-13 Apply a cover or screen to stockpiles.

Best Management Practices (BMPs) & Control Measures

BMP 20 **TRACKOUT PREVENTION AND CLEANUP**

Definition: Prevention and cleanup of mud, silt and soil tracked out onto paved roads.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: In soils that have a PEP classification of "High", pave construction activities roadways as early as possible.

Requirement: Use of soil to create a ramp for vehicle access over a curb is prohibited.

Requirement: Trackout conditions, including preventive and corrective measures, must be recorded daily for every day that the construction project access is used by vehicles.

20-01 Record soil conditions and dust control actions in daily project records.

Requirement: Prevent dust from trackout.

20-02 Immediately clean trackout from paved surfaces to maintain dust control. Trackout must not extend 50 feet or more.

20-03 Maintain dust control during working hours and clean trackout from paved surfaces at the end of the work shift/day. Trackout must not extend 50 feet or more and must be cleaned daily, at minimum.

Requirement: Install and maintain trackout control devices in effective condition at all access points where paved and unpaved access or travel routes intersect.

20-04 Install gravel pad(s) consisting of 1" to 3" rough diameter, clean, wellgraded gravel or crushed rock. Minimum dimensions must be 30 feet wide by 3 inches deep, and, at minimum, 50' or the length of the longest haul truck, whichever is greater. Re-screen, wash or apply additional rock in gravel pad to maintain effectiveness.

20-05 Install wheel shakers. Clean wheel shakers on a regular basis to maintain effectiveness.

20-06 Install wheel washers. Maintain wheel washers on a regular basis to maintain effectiveness.

20-07 Install wheel shakers in the event that trackout cannot be controlled with gravel pads.

20-08 Install wheel washer in the event that trackout cannot be controlled with gravel pads and wheel shakers.

20-09 Motorized vehicles will only operate on paved surfaces.

Requirement: All exiting traffic must be routed over selected trackout control device(s).

20-10 Clearly establish and enforce traffic patterns to route traffic over selected trackout control device(s).

20-11 Limit site accessibility to routes with trackout control devices in place by installing effective barriers on unprotected routes.

Best Management Practices (BMPs) & Control Measures

BMP 21 **TRAFFIC - UNPAVED ROUTES AND PARKING**

Definition: Construction related traffic on unpaved interior and/or access roads and unpaved employee/worker parking areas.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Limit visible dust opacity from vehicular operations.

21-01 Limit vehicle speeds to 15 mph on all unpaved routes and parking areas.

21-02 Apply and maintain dust palliative on all vehicle travel areas.

Requirement: Stabilize all haul routes.

21-03 Apply water to haul routes and maintain in a stabilized condition.

21-04 Apply a dust palliative to haul routes and maintain in a stabilized condition.

21-05 Apply gravel to haul routes and maintain in a stabilized condition.

21-06 Supplement dust palliative or aggregate applications with watering, if necessary.

Requirement: Stabilize all off-road and parking areas.

21-07 Apply water to off-road traffic and parking areas and maintain in a stabilized condition.

21-08 Apply gravel to off-road traffic and parking areas and maintain in a stabilized condition.

21-09 Apply recycled asphalt (or other suitable material) to off-road traffic and parking areas and maintain in a stabilized condition.

21-10 Apply and maintain a dust palliative (designed for vehicle traffic) to off-road traffic and parking areas and maintain in a stabilized condition.

Best Management Practices (BMPs) & Control Measures

BMP 22 **TRENCHING**

Definition: Trenching with track or wheel mounted excavator, shovel, backhoe or trencher.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Stabilize surface soils where trenching equipment, support equipment and vehicles will operate.

22-01 Pre-water and maintain surface soils in a stabilized condition where trenching equipment, support equipment and vehicles will operate.

22-02 Apply and maintain a dust palliative to surface soils where trenching equipment, support equipment and vehicles will operate.

Requirement: Presoak soils prior to trenching activities based on the project soil type.

22-03 Pre-water surface, pre-trench to 18” depth, soak soils via pre-trench prior to deep trenching.

22-04 L & ML: Presoak soil with water using sprinklers or wobblers.

22-05 L & ML: Presoak with water, using water truck and/or water pull.

22-06 MH: Presoak soil with a water and tackifier mixture using water pulls and/or water trucks.

22-07 MH: Presoak soil with a water and tackifier mixture using sprinklers or wobblers.

22-08 H: Presoak soil with a water and surfactant mixture using water pulls and/or water trucks.

22-09 H: Presoak soil with a water and surfactant mixture using sprinklers or wobblers.

Requirement: Stabilize soil during trenching activities based on the project soil type.

22-10 L & ML: Complete trenching with a dedicated water truck or large hose maintaining water as needed to prevent dust.

22-11 L & ML: Use spray nozzles mounted on trenching machine.

22-12 MH: Complete trenching with a dedicated water truck or large hose maintaining a water and tackifier mixture as needed to prevent dust.

22-13 H: Complete trenching with a dedicated water truck or large hose maintaining a water and surfactant mixture as needed to prevent dust.

Requirement: Stabilize soils at the completion of trenching activities.

22-14 Use water to form crust on excavated soil windrow as it is formed.

22-15 Use dust palliative to form crust on excavated soil windrow as it is formed.

Best Management Practices (BMPs) & Control Measures

BMP 23 **TRUCK LOADING**

Definition: Loading trucks with materials including construction and demolition debris, rock and soil.

PEP/Soil Type: L (Low), ML (Moderate Low), MH (Moderate High) & H (High).

The permittee shall comply with all applicable requirements for activities performed persuant to this Dust Control Operating Permit (DCOP). If a requirement has control measures listed, permittee shall comply with one or more of the control measures. If control measures for the requirement are contingent on the project PEP/Soil Type, permitee shall comply with one or more of the control measure for the designated PEP/Soil Type.

Requirement: Ensure all loads are covered prior to leaving the construction site and traveling on public roadways.

Requirement: Stabilize surface soils where loaders, support equipment and vehicles will operate.

23-01 Pre-water and maintain surface soils in a stabilized condition where loaders, support equipment and vehicles will operate.

23-02 Apply and maintain a dust palliative on surface soils where loaders, support equipment and vehicles will operate.

Requirement: Stabilize material during loading.

23-03 Empty loader bucket slowly and keep loader bucket close to the truck to minimize the drop height while dumping.

Requirement: Stabilize material during loading based on the project soil type.

23-04 L & ML: Mix material with water prior to loading.

23-05 L & ML: Spray material with water while loading.

23-06 MH: Mix material with a water and tackifier mixture prior to loading.

23-07 MH: Spray material with a water and tackifier mixture while loading.

23-08 H: Mix material with a water and surfactant mixture prior to loading.

23-09 H: Spray material with a water and surfactant mixture while loading.