“E”

Water Availability Analysis, Wastewater Feasibility Study, & Stormwater Control Plan

Silverado Resort & Spa Project
Minor Modification to Non-Winery Use Permit
P24-00141-MM
Planning Commission Hearing – October 15, 2025

Water Availability Analysis

For

The Grove at the Silverado Resort & Spa

APN 060-010-001

1600 Atlas Peak Rd,
Napa, CA 94558

May 2024

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ATTACHMENTS

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1.0 PROJET SUMMARY

The Silverado Resort and Spa located at 1600 Atlas Peak Road in Napa County is proposing to enclose an existing events space within the golf course area on the subject parcel. The project proposes the demolition of existing paved surfaces and the construction of two (2) event buildings (the Pavilion and the Lounge). As requested by Napa County Planning, Building & Environmental Services (PBES) Department, this analysis provides a Tier 1 analysis per the Water Availability Analysis (WAA) guidance document to evaluate the existing and proposed groundwater uses for the project.

1.1 Site Description

The 278 acre subject parcel is located approximately four miles north east of the City of Napa off Atlas Peak road and within the Milliken-Sarco-Tulocay (MST) area of Napa County. The project site is currently developed with a golf course, resort buildings, a spa, and private club homes. The parcel is relatively flat and falls within a designated groundwater deficient area as defined in Napa County Code, Section 13.15.010.C.

1.1.1 Land Use

The Silverado Resort & Spa is located in the Urban Residential (UR) area and is zoned for Planned Development (PD). The site is predominately vegetated with golf course turf and areas of oak woodland. An unnamed blue line stream[1] flow through two portions of the parcel until converging into Milliken Creek. A vicinity Napa per the Napa County Geological Information Systems (GIS) online mapping database is shown below:

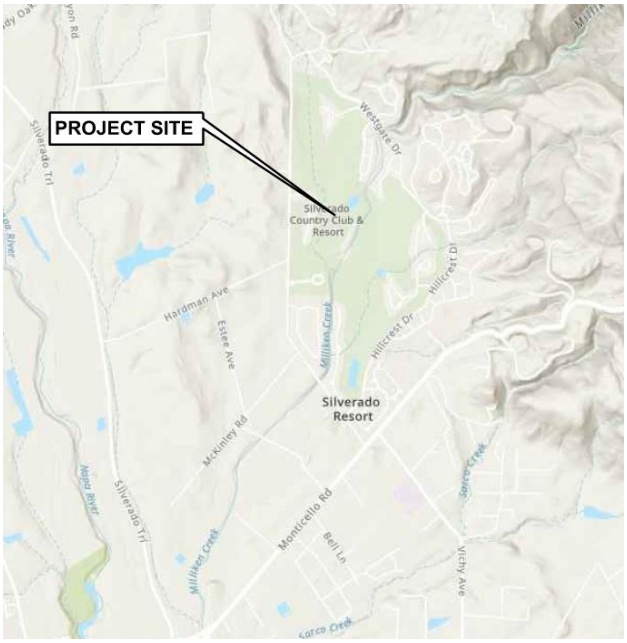

Figure 1 Vicinity Map

1.1.2 Water Use

The domestic and fire water uses for the project are currently served by the City of Napa municipal water system. The project does not propose an increase in new water usage. Existing water lines will be extended to the proposed buildings for water and fire protection services that are provided through an existing meter connection. The water line extension is shown on the Use Permit Minor Modification Plans sheet C4.0. The landscape water usage for the project will be served through the existing onsite wells. The project proposes to decrease water demand for landscape irrigation by replacing turf grass with low to moderate water use plants and native grasses.

[1] National Hydrography Dataset (NHD) Permanent Identifier 41663111

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2.0 WATER DEMAND

2.1 Existing Landscape Irrigation Demand

The existing landscape areas at the Grove include:

- 61,550 square feet (sf) of turf grass
- 16,150 sf of low to moderate water usage plants.

Existing water meter readings were not available for the Grove area for landscape irrigation values. The existing landscape water usage is estimated based on the Model Water Efficient Landscape Ordinance (MWELO) worksheet for estimating water usage based on plant type, irrigation efficiency, and climate. The plant types are based on observation of existing plant type as well as discussions with the landscape architect. The plant factors for the corresponding plant types are referenced from the Department of Water Resources 2000 publication of "Water Use Classification of Landscape Species (WUCOLS). The Estimated Total Water Usage (ETWU) for the existing landscape areas is calculated to be 6.42 acre-feet/year. Refer to the Existing Landscape Area Exhibit in Attachment 1 for the proposed landscape areas, plant types, and the corresponding plant factors. Refer to Attachment 2 of the MWELO water use calculations.

2.2 Proposed Landscape Irrigation Demand

The proposed landscape areas at the Grove include:

- 19,062 sf of turf grass
- 23,456 sf of low to moderate water usage plants
- 41,224 native grasses

The proposed irrigation demand is estimated based on the proposed landscape areas and the MWELO worksheet for estimating water usage. The proposed plant types and corresponding Plant Factors are included in Attachment 3. The ETWU for the existing landscape areas is calculated to be 3.62 acre-feet/year.

The MWELO criteria requires the ETWU for the project to be equal or less than the Maximum Applied Water Usage (MAWA) for the proposed development. The MAWA for the proposed landscape area is calculated to be 4.34 acre-feet/year. The calculated ETWU is less than the calculated MAWA which is compliant with the MWELO criteria for water efficiency.

Refer to the Proposed Landscape Area Exhibit in Attachment 1 for the location of proposed landscape areas, plant types, and the corresponding plant factors. Refer to Attachment 2 for the MWELO water use calculations.

3.0 CONCLUSION

Per Table 2A of the WAA Guidance Document the MST Groundwater Deficient Area screening criterion is 0.3 acre-feet per acre per year or "no net increase" over existing conditions. Domestic water is sourced from the City of Napa municipal water system and is not proposed to increase as part of this project. The project is proposing a decrease in landscape irrigation water which is sourced from groundwater wells. The project proposes a decrease in water usage from 6.42 acre-feet per year to 3.62 acre-feet per year by replacing turf grass with lower water use plantings.

The proposed decrease in water usage associated with the Minor Modification Permit Application are within the Tier 1 criteria set forward by the WAA guidance document.

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Attachment 1:
Existing & Proposed Landscape Area Exhibit

Landscape Design Informaiton

Planter Areas[3]	Area (sf)	PF	CF	SLA	IE	
A	61,550	0.8	0.62	0	0.71	*Irrigated Turf*
B	0	0.4	0.62	0	0.71	*Medium-High Water Shrubs*
C	16,150	0.3	0.62	0	0.71	*Low-Moderate Water Planting*
D	0	0.2	0.62	0	0.71	*Native Grass/Seed Mix*
Total	77,700	sf				
	0.24	acres				

NORTH

0 15 30 60
ORIGINAL SCALE: 1"=30'

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SILVERADO RESORT & SPA . THE GROVE

ISSUE
NAPA COUNTY WELO

RELEASE DATE
03/08/24

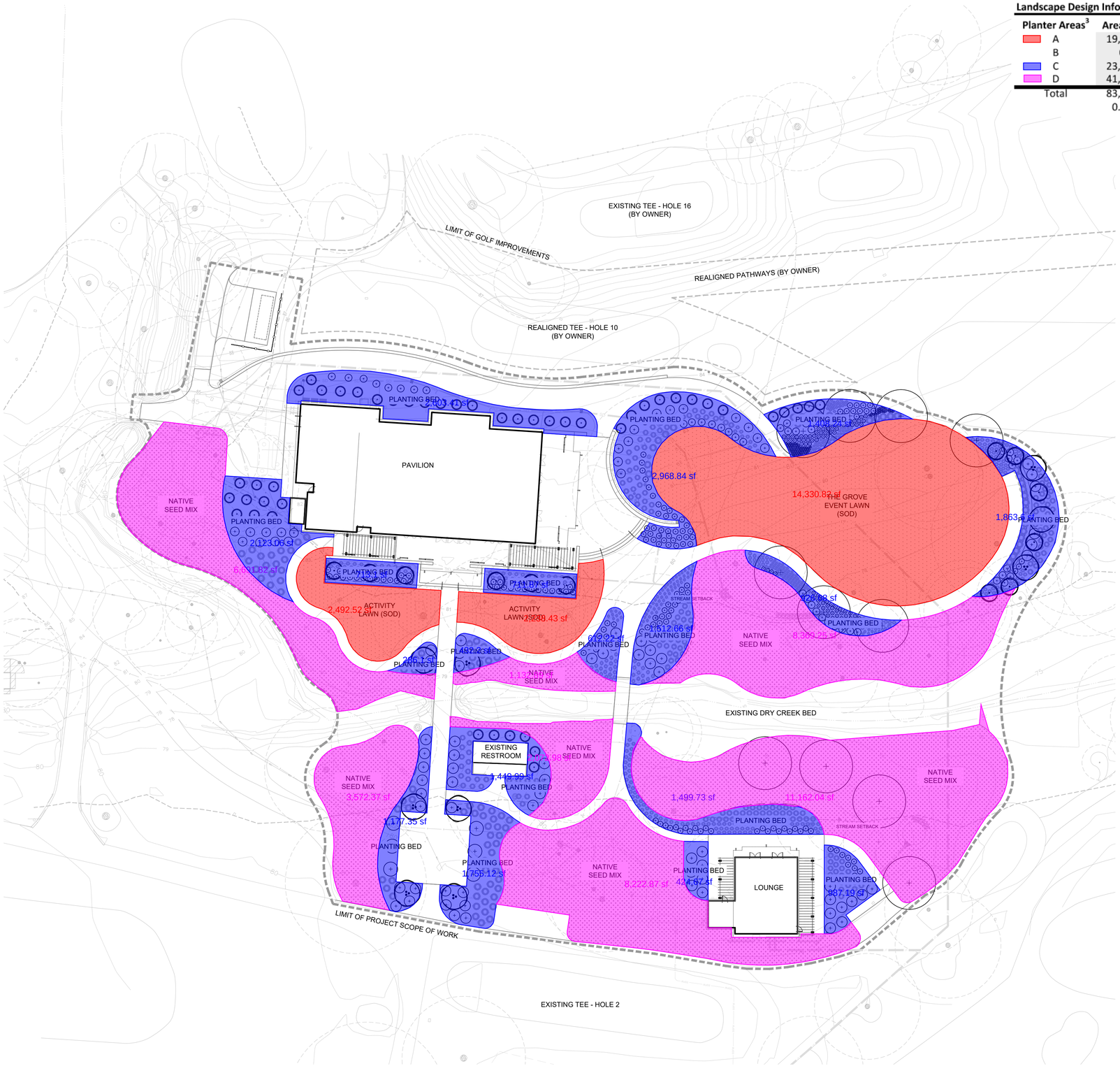
REVISIONS

PROJECT NO.	7174
MADE BY	KC/HL
REVIEWED BY	SB

EXISTING LANDSCAPE AREA EXHIBIT

Landscape Design Informaiton

Planter Areas[3]	Area (sf)	PF	CF	SLA	IE	
A	19,062	0.8	0.62	0	0.71	*Irrigated Turf*
B	0	0.4	0.62	0	0.71	*Medium-High Water Shrubs*
C	23,456	0.3	0.62	0	0.71	*Low-Moderate Water Planting*
D	41,224	0.2	0.62	0	0.71	*Native Grass/Seed Mix*
Total	83,742	sf				
	0.26	acres				



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NOT FOR CONSTRUCTION

SILVERADO RESORT & SPA . THE GROVE

ISSUE
90% CD PERMIT SET

RELEASE DATE
05/01/24

REVISIONS

PROJECT NO.	7174
MADE BY	KC/HL
REVIEWED BY	SB

PROPOSED LANDSCAPE AREA EXHIBIT

NORTH

0 15 30 60
ORIGINAL SCALE: 1"=30'

L0.02

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Attachment 2:
Existing & Proposed Water Demand Calculations

Model Water Efficient Landscape Ordinance (MWELO)
Existing Landscape Irrigation Calculations

MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration from Appendix A (inches per year)
0.7 = ET Adjustment Factor (ETAF)
LA = Landscaped Area includes Special Landscape Area (square feet)
0.62 = Conversion factor (to gallons per square foot)
SLA = Portion of the landscape area identified as Special Landscape Area (square feet)
0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 - 0.7 = 0.3)

Project Specific Climate Data

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Total
ETO[1] (in)	1.30	1.70	2.80	3.90	5.10	6.00	7.10	6.10	4.80	3.10	1.50	0.90	44.30	in/year
Rainfall (in)[2]	3.97	4.00	3.49	1.63	0.54	0.13	0.00	0.00	0.16	1.51	2.55	4.81	22.79	in/year
Eppt (in)	0.99	1.00	0.87	0.41	0.14	0.03	0.00	0.00	0.04	0.38	0.64	1.20	5.70	in/year

Landscape Design Informaiton

Planter Areas[3]	Area (sf)	PF[4]	CF	SLA	IE	
A	61,550	0.8	0.62	0	0.71	*Irrigated Turf*
B	0	0.4	0.62	0	0.71	*Medium-High Water Shrubs*
C	16,150	0.3	0.62	0	0.71	*Low-Moderate Water Planting*
D	0	0.2	0.62	0	0.71	*Native Grass/Seed Mix*
Total	77,700	sf				
	0.24	acres				

Existing ETWU

$$ETWU = (ETo)(0.62)\left(\frac{PF\,x\,HA}{IE} + SLA\right)$$

where:

ETWU = Estimated total water use per year (gallons per year)
ETo = Reference Evapotranspiration (inches per year)
PF = Plant Factor from WUCOLS (see Definitions)
HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
SLA = Special Landscape Area (square feet)
0.62 = Conversion Factor (to gallons per square foot)
IE = Irrigation Efficiency (minimum 0.71)

Planter Areas[3]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec		Total
A	55,898	73,097	120,395	167,693	219,291	257,990	305,288	262,290	206,392	133,295	64,497	38,698	1,904,825	gal/year
B	0	0	0	0	0	0	0	0	0	0	0	0	0	gal/year
C	5,500	7,192	11,846	16,500	21,577	25,385	30,039	25,808	20,308	13,116	6,346	3,808	187,426	gal/year
D	0	0	0	0	0	0	0	0	0	0	0	0	0	gal/year
Total	61,398	80,290	132,242	184,194	240,869	283,375	335,327	288,098	226,700	146,410	70,844	42,506	2,092,252	gal/year
													6.42	**acre-feet/year**

Notes/References

1. ETO values are referenced from Appendix A - Reference Evapotranspiration (ETo) Table from the Model Efficient Landscape Ordinace (WELO) for Yountville (see Attachment 3).
2. Monthly average rainfall amounts are taken from PRISM https://prism.oregonstate.edu/ for the project site (4km cell) and averaged monthly from Jan 2012 to Jan 2022
3. Refer to the WELO Irrigation Exhibit for the Softscape Reference Plan provided by the project Landscape Architect Design Works.
4. The existing plant types are based on discussions with the landscape architect and the plant factors are based on the Department of Water Resources 2000 publication of "Water Use Classification of Landscape Species (WUCOLS)".

Model Water Efficient Landscape Ordinance (MWELO)
Proposed Landscape Irrigation Calculations

MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration from Appendix A (inches per year)
0.7 = ET Adjustment Factor (ETAF)
LA = Landscaped Area includes Special Landscape Area (square feet)
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Project Specific Climate Data

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
ETO[1] (in)	1.30	1.70	2.80	3.90	5.10	6.00	7.10	6.10	4.80	3.10	1.50	0.90	44.30	in/year
Rainfall (in)[2]	3.97	4.00	3.49	1.63	0.54	0.13	0.00	0.00	0.16	1.51	2.55	4.81	22.79	in/year
Eppt (in)	0.99	1.00	0.87	0.41	0.14	0.03	0.00	0.00	0.04	0.38	0.64	1.20	5.70	in/year

Landscape Design Informaiton

Planter Areas[3]	Area (sf)	PF[4]	CF	SLA	IE	
A	19,062	0.8	0.62	0	0.71	*Irrigated Turf*
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C	23,456	0.3	0.62	0	0.71	*Low-Moderate Water Planting*
D	41,224	0.2	0.62	0	0.71	*Native Grass/Seed Mix*
Total	83,742	sf				
	0.26	acres				

MAWA w/ Eppt

If considering Effective Precipitation, use 25% of annual precipitation. Use the following equation to calculate Maximum Applied Water Allowance:

MAWA= (ETo – Eppt) (0.62) [(0.7 x LA) + (0.3 x SLA)]

Planter Areas[3]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
A	2543.889	5790.966	15,946	28,893	41,074	49,368	58,737	50,464	39,379	22,523	7,135	0	321,854	gal/year
B	0	0	0	0	0	0	0	0	0	0	0	0	0	gal/year
C	3130.324	7125.942	19,622	35,553	50,543	60,749	72,277	62,097	48,456	27,715	8,780	0	396,050	gal/year
D	5501.578	12523.92	34,486	62,485	88,830	106,766	127,028	109,137	85,163	48,709	15,431	0	696,061	gal/year
Total	11175.79	25440.83	70,053	126,932	180,448	216,883	258,043	221,699	172,998	98,947	31,347	0	1,413,965	gal/year
													4.34	acre-feet/year

ETWU

$$ETWU = (ETo)(0.62)\left(\frac{PF\,x\,HA}{IE} + SLA\right)$$

where:

ETWU = Estimated total water use per year (gallons per year)
ETo = Reference Evapotranspiration (inches per year)
PF = Plant Factor from WUCOLS (see Definitions)
HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
SLA = Special Landscape Area (square feet)
0.62 = Conversion Factor (to gallons per square foot)
IE = Irrigation Efficiency (minimum 0.71)

Planter Areas[3]	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total	
A	17,311	22,638	37,286	51,934	67,914	79,898	94,546	81,230	63,919	41,281	19,975	11,985	589,916	gal/year
B	0	0	0	0	0	0	0	0	0	0	0	0	0	gal/year
C	7,988	10,446	17,205	23,965	31,339	36,869	43,628	37,483	29,495	19,049	9,217	5,530	272,215	gal/year
D	9,360	12,240	20,159	28,079	36,719	43,198	51,118	43,918	34,559	22,319	10,800	6,480	318,948	gal/year
Total	34,659	45,324	74,651	103,978	135,971	159,966	189,293	162,632	127,972	82,649	39,991	23,995	1,181,079	gal/year
													3.62	acre-feet/year

Notes/References

1. ETO values are referenced from Appendix A - Reference Evapotranspiration (ETo) Table from the Model Efficient Landscape Ordinace (WELO) for Yountville (see Attachment 3).
2. Monthly average rainfall amounts are taken from PRISM https://prism.oregonstate.edu/ for the project site (4km cell) and averaged monthly from Jan 2012 to Jan 2022
3. Refer to the WELO Irrigation Exhibit for the Softscape Reference Plan provided by the project Landscape Architect Design Works.
4. The plant factors are based on the plant types and seed mixes provided by the landscape architect and included in Attachment 3.

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Attachment 3:
WELO Appendix A – Reference Evapotranspiration (ETo) Table, The Grove Proposed Planting Species

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
MODOC													
Modoc/Alturas	0.9	1.4	2.8	3.7	5.1	6.2	7.5	6.6	4.6	2.8	1.2	0.7	43.2
MONO													
Bridgeport	0.7	0.9	2.2	3.8	5.5	6.6	7.4	6.7	4.7	2.7	1.2	0.5	43.0
MONTEREY													
Arroyo Seco	1.5	2.0	3.7	5.4	6.3	7.3	7.2	6.7	5.0	3.9	2.0	1.6	52.6
Castroville	1.4	1.7	3.0	4.2	4.6	4.8	4.0	3.8	3.0	2.6	1.6	1.4	36.2
Gonzales	1.3	1.7	3.4	4.7	5.4	6.3	6.3	5.9	4.4	3.4	1.9	1.3	45.7
MONTEREY													
Greenfield	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
King City	1.7	2.0	3.4	4.4	4.4	5.6	6.1	6.7	6.5	5.2	2.2	1.3	49.6
King City-Oasis Rd.	1.4	1.9	3.6	5.3	6.5	7.3	7.4	6.8	5.1	4.0	2.0	1.5	52.7
Long Valley	1.5	1.9	3.2	4.1	5.8	6.5	7.3	6.7	5.3	3.6	2.0	1.2	49.1
Monterey	1.7	1.8	2.7	3.5	4.0	4.1	4.3	4.2	3.5	2.8	1.9	1.5	36.0
Pajaro	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.1
Salinas	1.6	1.9	2.7	3.8	4.8	4.7	5.0	4.5	4.0	2.9	1.9	1.3	39.1
Salinas North	1.2	1.5	2.9	4.1	4.6	5.2	4.5	4.3	3.2	2.8	1.5	1.2	36.9
San Ardo	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
San Juan	1.8	2.1	3.4	4.6	5.3	5.7	5.5	4.9	3.8	3.2	2.2	1.9	44.2
Soledad	1.7	2.0	3.4	4.4	5.5	5.4	6.5	6.2	5.2	3.7	2.2	1.5	47.7
NAPA													
Angwin	1.8	1.9	3.2	4.7	5.8	7.3	8.1	7.1	5.5	4.5	2.9	2.1	54.9
Carneros	0.8	1.5	3.1	4.6	5.5	6.6	6.9	6.2	4.7	3.5	1.4	1.0	45.8
Oakville	1.0	1.5	2.9	4.7	5.8	6.9	7.2	6.4	4.9	3.5	1.6	1.2	47.7
St Helena	1.2	1.5	2.8	3.9	5.1	6.1	7.0	6.2	4.8	3.1	1.4	0.9	44.1
Yountville	1.3	1.7	2.8	3.9	5.1	6.0	7.1	6.1	4.8	3.1	1.5	0.9	44.3
NEVADA													
Grass Valley	1.1	1.5	2.6	4.0	5.7	7.1	7.9	7.1	5.3	3.2	1.5	0.9	48.0
Nevada City	1.1	1.5	2.6	3.9	5.8	6.9	7.9	7.0	5.3	3.2	1.4	0.9	47.4
ORANGE													
Irvine	2.2	2.5	3.7	4.7	5.2	5.9	6.3	6.2	4.6	3.7	2.6	2.3	49.6
Laguna Beach	2.2	2.7	3.4	3.8	4.6	4.6	4.9	4.9	4.4	3.4	2.4	2.0	43.2
Santa Ana	2.2	2.7	3.7	4.5	4.6	5.4	6.2	6.1	4.7	3.7	2.5	2.0	48.2
PLACER													
Auburn	1.2	1.7	2.8	4.4	6.1	7.4	8.3	7.3	5.4	3.4	1.6	1.0	50.6
Blue Canyon	0.7	1.1	2.1	3.4	4.8	6.0	7.2	6.1	4.6	2.9	0.9	0.6	40.5
Colfax	1.1	1.5	2.6	4.0	5.8	7.1	7.9	7.0	5.3	3.2	1.4	0.9	47.9
Roseville	1.1	1.7	3.1	4.7	6.2	7.7	8.5	7.3	5.6	3.7	1.7	1.0	52.2
Soda Springs	0.7	0.7	1.8	3.0	4.3	5.3	6.2	5.5	4.1	2.5	0.7	0.7	35.4
Tahoe City	0.7	0.7	1.7	3.0	4.3	5.4	6.1	5.6	4.1	2.4	0.8	0.6	35.5
Truckee	0.7	0.7	1.7	3.2	4.4	5.4	6.4	5.7	4.1	2.4	0.8	0.6	36.2
PLUMAS													
Portola	0.7	0.9	1.9	3.5	4.9	5.9	7.3	5.9	4.3	2.7	0.9	0.5	39.4
Quincy	0.7	0.9	2.2	3.5	4.9	5.9	7.3	5.9	4.4	2.8	1.2	0.5	40.2
RIVERSIDE													
Beaumont	2.0	2.3	3.4	4.4	6.1	7.1	7.6	7.9	6.0	3.9	2.6	1.7	55.0
Blythe	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Cathedral City	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Coachella	2.9	4.4	6.2	8.4	10.5	11.9	12.3	10.1	8.9	6.2	3.8	2.4	88.1

The Grove Proposed Planting Species

ENHANCED PLANTING

Plant Name	Water Use	WUCOLS Plant Factor	Notes
Achillea millefolium 'Island Pink'	low, moderate	0.1-0.3	Native cultivar according to Calscape (Santa Cruz)
Deschampsia cespitosa 'Goldtau'	moderate, regular	0.1-0.3	
Heteromeles arbutifolia	moderate	0.1-0.3	
Muhlenbergia rigens	low, moderate	0.1-0.3	
Penstemon mexical 'Pikes Peak Purple'	low, moderate	0.1-0.3	
Salvia greggii 'Mirage Salmon'	moderate	0.1-0.3	
Salvia leucantha	moderate, regular	0.1-0.3	
Sisyrinchium bellum	low, moderate	<0.1	
Stipa ichu	moderate, regular	0.1-0.3	

NATIVE BUFFER

Plant Name	Water Use	WUCOLS Plant Factor	Notes
Achillea millefolium 'Island Pink'	low, moderate	0.1-0.3	
Aquilegia formosa	regular	0.1-0.3	
Carex divulsa	moderate	0.1-0.3	
Ceanothus hearstiorum	low	0.1-0.3	
Ceanothus thyrsiflorus 'Skylark'	low	0.1-0.3	
Deschampsia cespitosa 'Goldtau'	moderate, regular	0.1-0.3	
Epilobium canum	low, moderate	0.1-0.3	
Eriogonum grande rubescens	low, moderate	0.1-0.3	
Eriophyllum lanatum	low, moderate	0.1-0.3	
Festuca californica	moderate, regular	0.1-0.3	
Festuca idahoensis 'Tomales Bay'	moderate, regular	<0.1	
Festuca glauca 'Elijah Blue'	moderate, regular	0.1-0.3	
Frangula californica	low, moderate	<0.1	
Glandularia lilacina 'De La Mina'	low, moderate	0.1-0.3	
Iris douglasiana	low, moderate	0.1-0.3	
Leymus condensatus 'Canyon Prince'	low, moderate	0.1-0.3	Elymus condensatus
Melica californica	low, moderate	Not in List	Melica imperfecta is <0.1
Monardella villosa 'Russian River'	low	<0.1	
Muhlenbergia rigens	low, moderate	0.1-0.3	
Pennisetum massaicum	moderate, regular	0.1-0.3	
Penstemon heterophyllus 'Blue Springs'	low, moderate	0.1-0.3	
Penstemon heterophyllus 'Margarita BOP'	low, moderate	Unknown	
Sisyrinchium bellum	low, moderate	<0.1	
Solanum xanti	moderate, regular	0.1-0.3	
Stipa pulchra	low	<0.1	

TREES

Plant Name	Water Use	WUCOLS Plant Factor	Notes
Ceanothus x 'Ray Hartman'		0.1-0.3	
Cercis occidentalis		<0.1	
Quercus garryana		0.1-0.3	

SEED MIX

Plant Name	Water Use	WUCOLS Plant Factor	Notes
Achillea millefolium	low, moderate	0.1-0.3	
Claytonia perfoliata	low, moderate-high (in winter)	Not in List	
Collinsia heterophylla	low	Not in List	
Festuca idahoensis	moderate, regular	<0.1	
Festuca rubra 'Molate'	moderate, regular	0.1-0.3	
Iris douglasiana	low, moderate	0.1-0.3	
Melica californica	low, moderate	Not in List	Melica imperfecta is <0.1
Monardella villosa	low	<0.1	

Wastewater Feasibility Study
For

The Grove at the Silverado Resort & Spa
APN 060-010-001

1600 Atlas Peak Rd,
Napa, CA 94558

May 2024

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ABBREVIATIONS

BOD_5		Biochemical Oxygen Demand (5 day)
	gal/sf/day	Gallons per square feet per day
	cap	Capita
GPD	gpd	Gallons per day
HRT	hrt	Hydraulic Retention Time
	lbs	Pounds
LF	lf	Linear / Lineal feet
	mg/l	Milligrams per liter
OLR		Organic Loading Rate
OWTS		Onsite Wastewater Treatment System
SF	sf	Square Feet

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1.0 PROJECT SUMMARY

The Silverado Resort and Spa located at 1600 Atlas Peak Road in Napa County is proposing to enclose an existing events space within the golf course area on the subject parcel. The project proposes the demolition of existing paved surfaces and the construction of two (2) event buildings (the Pavilion and the Lounge) within the existing "Grove" event area. As requested by Napa County Planning, Building & Environmental Services (PBES) Department, this Wastewater Feasibility Study is provided to summarize the design criteria for the onsite wastewater treatment system (OWTS) and demonstrate feasibility for onsite dispersal per jurisdictional requirements. The wastewater system will be designed to accommodate all Napa County PBES Department setbacks.

1.1 Site Description

The 278 acre subject parcel is located approximately four miles north east of the City of Napa off Atlas Peak road and within the Milliken-Sarco-Tulocay (MST) area of Napa County. The project site is currently developed with a golf course, resort buildings, a spa, and private club homes. The parcel includes relatively flat terrain and falls within a designated groundwater deficient area as defined in Napa County Code, Section 13.15.010.C.

1.2 Land Use

The Silverado Resort & Spa is located in the Urban Residential (UR) area and is zoned for Planned Development (PD). The site is predominately vegetated with golf course turf and areas of oak woodland. An unnamed blue line stream[1] flow through two portions of the parcel until converging into Milliken Creek. A vicinity Napa per the Napa County Geological Information Systems (GIS) online mapping database is shown below:

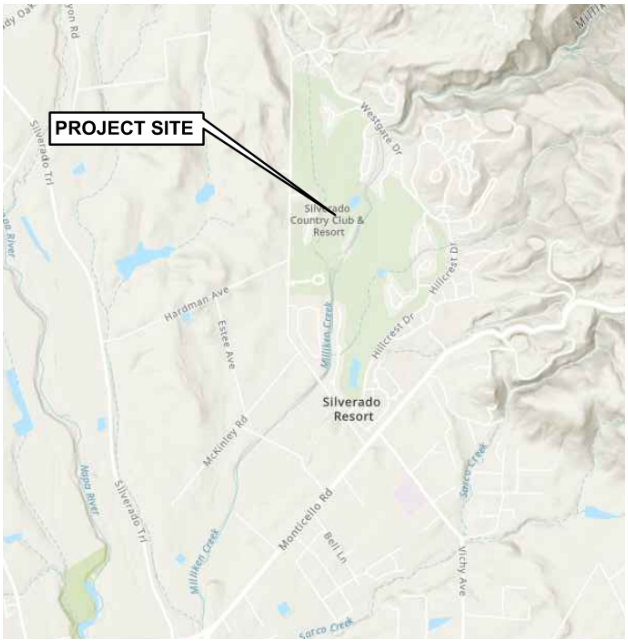

Figure 1 Vicinity Map

2.0 EXISTING WASTEWATER SYSTEM

Sanitary wastewater generated from the Silverado Resort & Spa is predominately discharged to the Napa Sanitation District. The project is not proposing any modifications to the existing wastewater system nor an increase in wastewater flows to the Napa Sanitation District. The project is proposing to disperse wastewater generated from the Grove event buildings to a designated and proposed OWTS. The existing

[1] National Hydrography Dataset (NHD) Permanent Identifier 41663111

restroom building located near the Grove area will remain and the existing septic system that serves the restroom will also remain in place.

3.0 PROPOSED ONSITE WASTEWATER TREATMENT SYSTEM

3.1 Wastewater Demand

Sanitary wastewater from the proposed project will be generated by employees and visitors using the event area. The Use Permit Minor Modification does not propose an increase in employees and visitors. The events are already occurring onsite and are proposed to occur in the proposed event buildings.

Based on discussions with the Silverado Resort & Spa, the Grove event area is anticipated to include the following uses on a peak day scenario:

Table 1 Large Event

No.	Description
470	Maximum Guests (at Pavilion)
65	Maximum Employees (at Pavilion)
30	Maximum Guests (at Lounge)
15	Maximum Employees (at Lounge)

The kitchen included at the Pavilion is designed to be a warmup kitchen. Meal preparation for the events will be catered or prepared at existing kitchen areas onsite and then transferred to the Grove Pavilion for warmup and storage. Employees working at the event space are assumed to use the restroom facilities at the buildings 75% of the time. Employees will have access to a formal breakroom at a different onsite location. Using Napa County PBES sizing requirements, the peak daily wastewater flow is calculated below:

Table 2 Wastewater Calculations

No.	Description	Generation Rate[1] (gal/cap/day)	Utilization Rate (%)	Daily SS Flow (gpd)
470	Maximum Guests (at Pavilion)	3	100%	1,410
65	Maximum Employees (at Pavilion)	15	75%	731
30	Maximum Guests (at Lounge)	3	100%	90
15	Maximum Employees (at Lounge)	15	75%	169
			Total =	2,400

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4.0 LOCATION & SITE EVALUATION

A site evaluation will be performed following the initial submittal of the Use Permit Minor Modification and is anticipated to occur in May. The site evaluation will occur in the desired area for the subsurface drip dispersal field shown on sheet C4.2 of the Use Permit Minor Modification Plans. Soil types and application rates have been assumed for the initial sizing of the OWTS. Following the site evaluation, the wastewater feasibility study will be updated to include the site-specific information.

5.0 PRETREATMENT SYSTEM & DISPERSAL FIELD

The OWTS is anticipated to include a subsurface drip dispersal system with pretreatment. A pretreatment system will be utilized to meet secondary effluent requirements prior to entering the subsurface drip field. The pretreatment system will include a septic tank, a recirculation/dosing tank and an Orenco Systems AdvanTex AX20 filter pods.

5.1 Collection and Treatment Tank Sizing

Wastewater generated from the Pavilion will be collected in a septic tank located near the back of the house entrance. A grease interceptor tank is also provided for collection of kitchen wastewater. Wastewater from the grease interceptor will flow into the septic tank. Wastewater generated from the Lounge will be collected in a designated septic tank located north of the Lounge building.

Septic tank effluent will flow and be combined in a dual compartment recirculation/blending and dosing tank that is located north of the Lounge building. The first compartment is the recirculation and blending tank. The second and final compartment is the dosing tank. The recirculation/blending tank is used to dose effluent to the AdvanTex AX20 filter pods. Treated effluent from the filter pods flows into the dosing tank. Treated wastewater is then discharged by a time dosed pumping system to the subsurface drip dispersal field.

Table 3 Treatment Tank Summary

Tank Description	HRT (days)	Min Volume (gallons)	Volume Provided (gallons)
Pavilion Septic Tank	3	4,230	5,000
Lounge Septic Tank	3	776	1,000
Recirculation/Blending tank	1	2,400	3,000
Pump/Dosing tank	1.5	3,600	4,000
		Total =	13,000

5.2 AdvanTex Pods

Sizing for the AdvanTex filter pods is based on the Orenco Systems Commercial Design criteria. Two sizing criteria were evaluated to determine the largest surface area required from the biological and hydraulic loading requirements for the system. A summary of these calculations is shown below:

Table 4 Pretreatment System Summary

Organic Loading Rate (OLR) Calculation	Value	Units	Notes
Estimated BOD_5	350	mg/L	*assumed*
BOD^5 Reduction in primary settling	50%		
Estimated BOD_5 to AdvanTex Unites	175	mg/L	
Mass Loading Rate	3.5	lbs/day	
Design Maximum OLR	0.08	lbs/sf-day	
Min Treatment Surface Area (for OLR)	43.8	sf	

Hydraulic Loading Rate (HLR) Calculation	Value	Units	Notes
Design Maximum Day	2,400	gpd	
Peaking Factor	1.2		*assumed*
Peak HLR	50	gpd/sf	
Min Treatment Surface Area (for HLR)	57.6	sf	
Area of AX20 Unit	20	sf	
No. of AX20s Required	3	units	

Based on the minimum surface area calculated, three (3) AdvanTex filer pods are recommended.

5.3 Subsurface Drip Field Sizing

A sub surface drip field is desired to accommodate limited space available onsite for the OWTS. This method of treatment and dispersal provides a small footprint. The design of the subsurface drip field will include landscaping to help with evapotranspiration of wastewater and provide beneficial plants to promote a diversified insect habitat. Below is a list of beneficial plants that could be incorporated into the insectary / subsurface drip field area.

Table 5 Dispersal Field Plant Types

Name		Promotes Species	Type
Creek Dogwood	*Cornus sericea*	Bird, Butterfly	Winter Deciduous
California Wildrose	*Rosa californica*	Bird, Butterfly, Bee	Winter Deciduous
Cream Bush	*Holodiscus discolor*	Butterfly	Winter Deciduous
Dark Star Ceanothus	*Ceanothus 'Dark Star'*	Bee, Bird	Evergreen

Onsite soil is assumed to be similar to loam type soils. The application rate for the drip field is assumed to be 0.5 gallons per square foot per day. Sizing for the primary and replacement dispersal field areas is summarized on the following table:

Table 6 Dispersal Field Layout

Description	Value	Units	Notes
Test Pit Location (primary area)	TBD		*pending site evaluation*
Soil Type	TBD		*pending site evaluation*
Soil Application Rate	0.5	gal/sf/day	*Per GeoFlow, assumed*
Soil Depth	34	inches	*assumed, pending site evaluation*
System Type	Subsurface Drip		
Minimum Field Size	4,800	sf	
Lateral Length	95	lf	
Lateral Spacing	2	ft	
Number of Laterals	26		
Total Area Provided	4,940	sf	
Number of Zones	1		
Area per Zone	4,940	sf	
Test Pit Location (replacement area)	TBD		*pending site evaluation*
Soil Type	TBD		*pending site evaluation*
Soil Application Rate	0.5	gal/sf/day	*Per GeoFlow, assumed*
Soil Depth	34	inches	
System Type	Subsurface Drip		
200% Area	9,600	sf	*Minimum*

The proposed primary dispersal field is estimated to include 4,800 sf of dispersal area and the 200% replacement area is estimated to include 9,600 sf of dispersal area.

6.0 CONCLUSION

Wastewater generated by project is proposed to be collected, treated, and dispersed onsite through a subsurface drip dispersal field with pretreatment. The location of the dispersal field and replacement area are included on sheet C4.2 of the Use Permit Minor Modification Plans. A site evaluation will be conducted to verify the sizing and location of the dispersal field presented in this feasibility study.

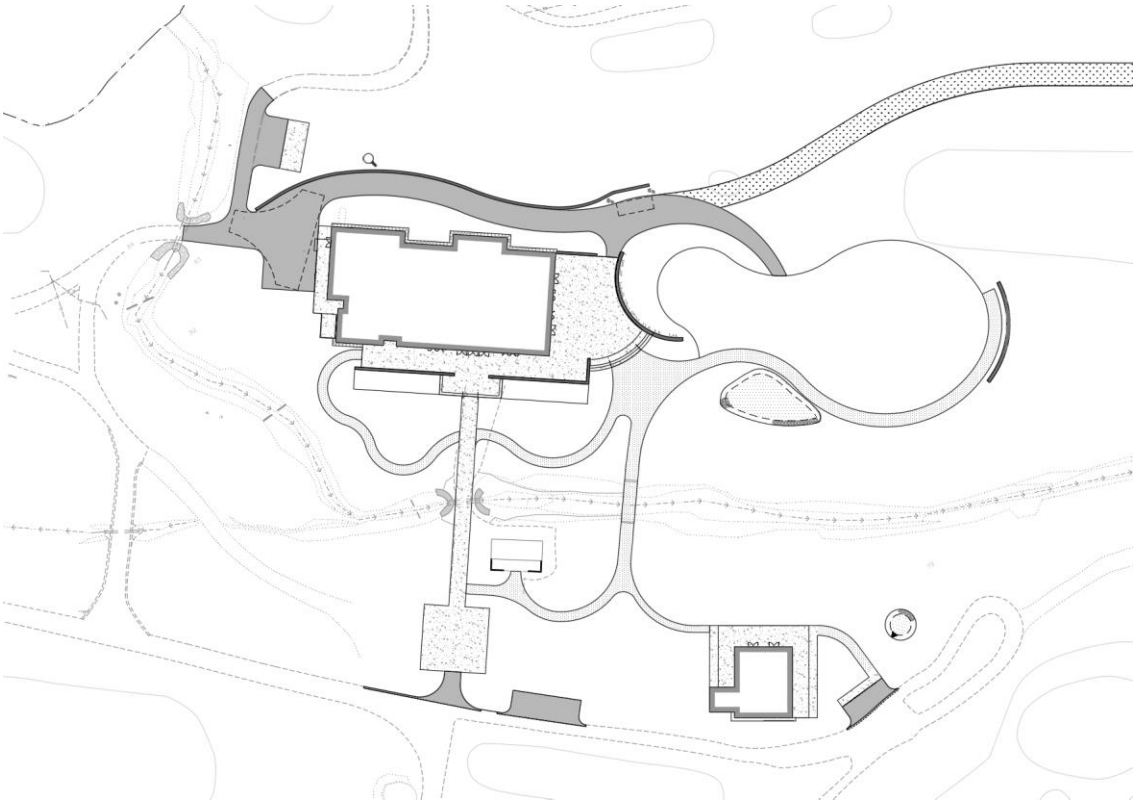
Stormwater Control Plan

For a Regulated Project

Silverado Resort & Spa – The Grove

1600 Atlas Peak Rd,

Napa, CA 94558



January 2025

Prepared by:

SHERWOOD
DESIGN ENGINEERS

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Attachments

Stormwater Control Plan Exhibit

This Stormwater Control Plan was prepared using the Bay Area Stormwater Management Agency Association (BASMAA) template and design guidelines dated January 2019.

I. Project Data

Table 1. Project Data Form

Project Name/Number	23-293 Silverado Resort – The Grove
Application Submittal Date	Revised January 2025
Project Location	1600 Atlas Peak Rd, Napa, CA 94558
Project Phase No.	Use Permit Minor Modification
Project Type and Description	New mixed-use development (event space)
Total Project Site Area (acres)	2 ± acres
Total New and Replaced Impervious Surface Area	37,990 SF
Total Pre-Project Impervious Surface Area	24,725 SF
Total Post-Project Impervious Surface Area	37,990 SF

II. Setting

II.A. Project Location and Description

The property consists of the Silverado Resort and Spa located at 1600 Atlas Peak Road in Napa County. The building sites are found at “The Grove” area of the resort and golf course. The project involves the demolition of existing paved surfaces and buildings, and the construction of an Atrium Event Space, Lounge Pavilion, restaurant, and golf cart parking. A vicinity map is shown below as well as on the Civil Improvement Plans that is submitted in conjunction with this Stormwater Control Plan (SCP) for review and approval.

Figure 1 Vicinity Map

VICINITY MAP
SCALE: NTS

NORTH

Figure 2 Existing Site Conditions

II.B. Existing Site Features and Conditions

The 2 ± acre project site is currently developed with several existing buildings and paved areas on a relatively flat terrain. The existing soil conditions consist of alluvial fan deposits underlain by dense volcanic material.

Stormwater collected on the project site is currently conveyed via sheet flow to the unnamed blue line stream with National Hydrography Dataset (NHD) Permanent Identifier 41663111 which bisects the project site.

II.C. Opportunities and Constraints for Stormwater Control

Constraints for the proposed project include the presence of soft to loose undocumented fills and soft to firm native soils in the upper five feet. The site is also very flat, thus making the construction of gravity driven systems challenging. The project is also constrained by a creek setback and floodways as demonstrated on the Civil Site plan.

Opportunities explored include multiple Best Management Practices (BMPs), such as the use and installation of a bioretention system, self-retaining landscape, and vegetated areas throughout the project site.

III. Low Impact Development Design Strategies

III.A. Optimization of Site Layout

III.A.1. Limitation of development envelope

The development has been carefully designed to minimize impacts to existing trees and the existing mature oak trees will be preserved on the site.

III.A.2. Preservation of natural drainage features

Proposed features have been placed to preserve natural drainage features and drainage patterns to the maximum extent feasible.

III.A.3. Setbacks from creeks, wetlands, and riparian habitats

The project site is bisected by an unnamed blue line stream with National Hydrography Dataset (NHD) Permanent Identifier 41663111. Applicable setbacks from this creek are displayed on the Civil Improvement Plans which are submitted in conjunction with this Stormwater Control Plan (SCP).

III.A.4. Minimization of imperviousness

The project proposes an increase in the replaced impervious area for the development. Impervious surfaces have been minimized to the maximum extent feasible for the site via the use of self-treating areas and self-retaining areas.

III.A.5. Use of drainage as a design element.

The overall drainage design takes an integrated approach where stormwater is dispersed to vegetated and pervious areas throughout the site. The site is constrained and grading is limited within the creek setback which includes pipe trenching. Planter areas are utilized as self-retaining areas and two bioretention areas are proposed for treatment of stormwater.

III.B. Use of Permeable Pavements

There are no permeable pavements proposed on the project site. Grasspave is proposed for the emergency vehicle access (EVA) route that is permeable.

III.C. Dispersal of Runoff to Pervious Areas

This proposed project will utilize some pervious/vegetative areas on the site as self-retaining areas. The self-retaining areas are listed and shown on the SCP Exhibit.

All pervious areas functioning as receiving self-retaining areas will receive less than the maximum 2-parts impervious area to 1-part pervious area ratio allowed per the BASMAA requirements.

III.D. Stormwater Control Measures

This project proposes to utilize a combination of self-treating areas, as well as dispersal to vegetated areas and bioretention areas for stormwater collection, storage, and treatment. Refer to the SCP in the appendix of this report for layout and sizes of drainage management features.

III.E. Documentation of Drainage Design

III.E.1. Descriptions of Each Drainage Management Area

The project will consist of Drainage Management Areas (DMA) that include Vegetated Areas, Areas draining to Vegetated Areas, Self-Treating Areas, Areas draining to Bioretention facility, and Bioretention facility. Each DMA type proposed for this project is described below and the corresponding area(s) can be seen in Table IV.A.2-1.

Areas Draining to Self-Retaining Areas or Vegetated Areas on this site consist of all areas starting with the prefix "DSRA" or "DVA" and include the remainder of the impervious areas not flowing to the bioretention areas. These areas consist of walkways and cart paths that do not drain to a bioretention facility.

Self-Treating Areas on this site consist of all areas starting with the prefix "STA". These areas consist of landscaped or vegetated areas that do not drain to a Self-Retaining Area or Bioretention Facility, but rather drain directly offsite or to the storm drain system. These hatched on the plan but not itemized as areas as the site consists of various vegetated areas throughout the site.

Areas Draining to Bioretention facility on this site consist of all areas starting with the prefix "DBA". These areas consist of roofs, parking lot, and impervious walkways. All runoff collected within "DBA" areas are routed towards the two bioretention areas.

The drainage management areas are all delineated per the categories discussed above on the SCP Exhibit.

III.F. Drainage Management Area Tables

DMA TABLE		
NAME	**SURFACE TYPE**	**AREA (SF)**
BA-A	BIORETENTION AREA	976
DBA-A1	ATRIUM ROOF	5,790
DBA-A2	ATRIUM ROOF	2,740
DBA-A2.1	ATRIUM ROOF	3,530
DBA-A3	HARDSCAPE	2,490
DBA-A3.1	HARDSCAPE	70
DBA-A4	HARDSCAPE	520
DBA-A4.1	HARDSCAPE	70
DBA-A5	HARDSCAPE	5,079
DBA-A6	HARDSCAPE	1,970
DBA-A7	HARDSCAPE	1,760
BA-B	BIORETENTION AREA	130
DBA-B1	COTTAGE ROOF	1,180
DBA-B2	COTTAGE ROOF	920
DBA-B3	HARDSCAPE	720
DBA-B4	HARDSCAPE	270

VA-A	LANDSCAPE	13,420
DVA-A1	HARDSCAPE	1,460
DVA-A2	HARDSCAPE	910
DVA-A3	HARDSCAPE	300
DVA-A3.1	HARDSCAPE	700
DVA-A4	HARDSCAPE	690
DVA-A5	HARDSCAPE	370
VA-B	LANDSCAPE	2,380
DVA-B	HARDSCAPE	1,260
VA-C	LANDSCAPE	1,950
DVA-C	HARDSCAPE	520
VA-D	LANDSCAPE	4,080
DVA-D1	HARDSCAPE	470
DVA-D2	HARDSCAPE	450
DVA-D3	HARDSCAPE	670
DVA-D4	HARDSCAPE	790
VA-E	LANDSAPE	9,200
DVA-E1	HARDSCAPE	2,170
DVA-E2	HARDSCAPE	300
DVA-E3	HARDSCAPE	620
VA-F	LANDSCAPE	16,427
DVA-F	HARDSCAPE	13,725
STA-A	LANDSCAPE	6,177
STA-B	LANDSCAPE	2,381

III.G. **Tabulation and Sizing Calculations**

III.G.1. Information Summary for Bioretention Facility Design

Bioretention Area A collects runoff for treatment from the easterly side of the project. Runoff on the westerly side is collected within Bioretention Area B. The Bioretention areas will collect runoff from nearby roof areas and surrounding hardscape areas. The minimum Bioretention facility size must be at least 4% of the tributary impervious area which is satisfied on this project per the calculations shown below. Treated water from the bioretention basin outlets through a low point to vegetated areas located upstream of the existing onsite stream.

III.G.2. Self-Treating Areas/Vegetated Areas

Vegetated areas consist of landscape or natural grasses. To minimize grading in the creek setback, the vegetated areas will not be graded to be self-retaining areas but provide the 2:1 treatment ratio for vegetated areas. This meets the same practical overall effect while meeting local creek setback requirements and minimizing grading.

The self-treatment area consists of the permeable turfgrass emergency vehicle access path that is not connected to the storm drain system and is self-draining.

III.G.3. Area Draining to Bioretention Facilities

BIORETENTION AREA A CALCULATION TABLE

DMA NAME	DMA AREA (SF)	SURFACE TYPE	DMA RUNOFF FACTOR	DMA AREA X RUNOFF FACTOR	SIZING FACTOR	MINIMUM AREA	PROPOSED AREA
DBA-A1	5,790	ATRIUM ROOF	1	5,790			
DBA-A2	2,740	ATRIUM ROOF	1	2,740			
DBA-A2.1	3,530	ATRIUM ROOF	1	3,530			
DBA-A3	2,490	HARDSCAPE	1	2,490			
DBA-A3.1	70	HARDSCAPE	1	70			
DBA-A4	520	HARDSCAPE	1	520			
DBA-A4.1	70	HARDSCAPE	1	70			
DBA-A5	5,079	HARDSCAPE	1	5,079			
DBA-A6	1,970	HARDSCAPE	1	1,970			
DBA-A7	1,760	HARDSCAPE	1	1,760			
			TOTAL =	24,019	4.0%	961	976

BIORETENTION AREA B CALCULATION TABLE

DMA NAME	DMA AREA	SURFACE TYPE	DMA RUNOFF FACTOR	DMA AREA X RUNOFF FACTOR	SIZING FACTOR	MINIMUM AREA	PROPOSED AREA
DBA-B1	1,180	COTTAGE ROOF	1	1,180			
DBA-B2	920	COTTAGE ROOF	1	920			
DBA-B3	720	HARDSCAPE	1	720			
DBA-B4	270	HARDSCAPE	1	270			
				0			
			TOTAL =	3,090	4.0%	124	130

The above tables demonstrate the minimum 4% sizing factor is achieved on the site to meet the BASMA requirements for both bioretention basins.

III.G.1. Area Draining to Vegetated Areas

VEGETATED AREA A CALCULATION TABLE

DMA NAME	DMA AREA	SURFACE TYPE	DMA RUNOFF FACTOR	DMA AREA X RUNOFF FACTOR	SIZING FACTOR	MINIMUM AREA	VEGETATED AREA
DVA-A1	1,460	HARDSCAPE	1	1,460	0.5	730	
DVA-A2	910	HARDSCAPE	1	910	0.5	455	
DVA-A3	300	HARDSCAPE	1	300	0.5	150	
DVA-A3.1	700	HARDSCAPE	1	700	0.5	350	
DVA-A4	690	HARDSCAPE	1	690	0.5	345	
DVA-A5	370	HARDSCAPE	1	370	0.5	185	
			TOTAL =	4,430	0.5	2,215	13,420

VEGETATED AREA B CALCULATION TABLE

DMA NAME	DMA AREA	SURFACE TYPE	DMA RUNOFF FACTOR	DMA AREA X RUNOFF FACTOR	SIZING FACTOR	MINIMUM AREA	VEGETATED AREA
DVA-B	1,260	HARDSCAPE	1	1,260	0.5	630	
			TOTAL =	1,260	0.5	630	2,380

VEGETATED AREA C CALCULATION TABLE

DMA NAME	DMA AREA	SURFACE TYPE	DMA RUNOFF FACTOR	DMA AREA X RUNOFF FACTOR	SIZING FACTOR	MINIMUM AREA	VEGETATED AREA
DVA-C	520	HARDSCAPE	1	520	0.5	260	
			TOTAL =	520	0.5	260	1,950

VEGETATED AREA D CALCULATION TABLE

DMA NAME	DMA AREA	SURFACE TYPE	DMA RUNOFF FACTOR	DMA AREA X RUNOFF FACTOR	SIZING FACTOR	MINIMUM AREA	VEGETATED AREA
DVA-D1	470	HARDSCAPE	1	470	0.5	235	
DVA-D2	450	HARDSCAPE	1	450	0.5	225	
DVA-D3	670	HARDSCAPE	1	670	0.5	335	
DVA-D4	790	HARDSCAPE	1	790	0.5	395	
			TOTAL =	2,380	0.5	1,190	4,080

VEGETATED AREA E CALCULATION TABLE

DMA NAME	DMA AREA	SURFACE TYPE	DMA RUNOFF FACTOR	DMA AREA X RUNOFF FACTOR	SIZING FACTOR	MINIMUM AREA	VEGETATED AREA
DVA-E1	2,170	HARDSCAPE	1	2,170	0.5	1085	
DVA-E2	300	HARDSCAPE	1	300	0.5	150	
DVA-E3	620	HARDSCAPE	1	620	0.5	310	
			TOTAL =	3,090	0.5	1,545	9,200

VEGETATED AREA F CALCULATION TABLE

DMA NAME	DMA AREA	SURFACE TYPE	DMA RUNOFF FACTOR	DMA AREA X RUNOFF FACTOR	SIZING FACTOR	MINIMUM AREA	VEGETATED AREA
DVA-F	13,725	HARDSCAPE	1	13,725	0.5	6863	
			TOTAL =	13,725	0.5	6863	16,427

The above tables demonstrate that sufficient vegetated areas are available onsite to treat runoff from impervious areas per the BASMA requirements.

III.H. **Source Control Table**

POTENTIAL SOURCE OF RUNOFF PULLUTANT	PERMANENT SOURCE CONTROL	OPERATIONAL SOURCE CONTROL BMP
Onsite storm drain inlets (unauthorized non-stormwater discharges and accidental spills or leaks)	• All inlets marked with the words "No Dumping! Flows to Bay" or similar.	☐ Maintain and periodically repaint or replace inlet markings ☐ Provide stormwater pollution prevention information to new site owners, lessees or operators ☐ See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.casqa.org/resources/bump-handbooks ☐ Include the following in lease agreements: "Tenants shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
Need for future indoor & structural pest control	• Note building design features that discourage entry of pests.	☐ Provide Integrated Pest Management information to owners, lessees and operators.

Landscape/Outdoor pesticide use/building & grounds maintenance	Final landscape plans will accomplish all of the following. • Preserve existing native trees, shrubs and ground cover to maximum extent possible. • Landscaping has been designed to minimize irrigation and runoff, to promote surface infiltration where appropriate and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. • Landscaped areas are used to retain or detain stormwater. Plants within these areas will be tolerant of saturated soil conditions. • The use of pest-resistant plants has been considered, especially adjacent to hardscape. • To insure successful establishment, plants will be selected that are appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency and plant interactions.	☐ Maintain landscaping using minimum or no pesticides. ☐ See applicable operational BMPs in Fact Sheets SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at: www.casqa.org/resources/bmp-handbooks ☐ Provide IPM information to new owners, lessees and operators.
Pools, spas, ponds, decorative fountains & other water features	• Pools, spas, and water feature connections will be made according to local requirements.	☐ See applicable operational BMPs in Fact Sheet SC-72, "Fountain and Pool Maintenance," in the CASQA Stormwater Quality Handbooks at www.casqa.org/resources/bmp-handbooks The sanitary sewer operator must be notified and a clean out identified when pools are to be drained to the sanitary sewer.
Food Service	• See plans for location of indoor restaurant area.	☐ See maintenance schedule for grease interceptor

Refuse areas	• See plans for the location and features. • State how site refuse will be handled and provide supporting detail to what is shown on plans. • Signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	☐ State how the following will be implemented; Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquids or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available onsite. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.casqa.org/resources/bmp-handbooks
Fire sprinkler test water	• Fire sprinkler water will be disposed of in vineyard.	☐ See note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.casqa.org/resources/bmp-handbooks
Miscellaneous Drain or Wash Water or Other Sources	• See plans for proposed drain lines and drainage sumps.	☐If architectural copper is used, implement the following BMPs for management of rinsewater during installation: ☐If possible, purchase copper materials that have been pre-patetinated at the factory. ☐If patination is done on-site, prevent rinse water from entering storm drains by discharging to landscaping or by collecting in a tank and hauling off-site. ☐Consider coating the copper materials with an impervious coating that prevents further corrosion and runoff. ☐Implement the following BMPs during routine maintenance: ☐Prevent rinse water from entering storm drains by discharging to landscaping or by collecting in a tank and hauling off-site.
Plazas, sidewalks & parking lots		☐ Sweep plazas, sidewalks and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect wash water containing any cleaning agent of degreaser and discharge to the sanitary sewer not to a storm drain

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III.I. **Features, Materials, and Methods of Construction of Source Control BMPs**
Several features were incorporated into the design of the project to minimize the potential for stormwater pollution and are listed below Stormwater Facility Maintenance

III.J. **Stormwater Facility Maintenance**
An operations and matienance agreement will be established for the drainagement management treatment devices post project approval and prior to the building permit phase.

III.K. **Ownership and Responsibility for Maintenance in Perpetuity**
This Stormwater Control Plan is submitted for entitlement purposes as part of a very minor modification. Following project approval, a final plan will be developed as part of the building permit process.

The Owner agrees to implement the stormwater control strategy as outlined in this document and as shown in the plans prepared by Sherwood Design Engineers. The Owner accepts responsibility for the installation, operation and maintenance of the stormwater treatment and flow-control facilities noted in this Stormwater Control Plan. The Owner agrees to undertake this responsibility until such time as the responsibility is formally transferred to a subsequent owner. This Stormwater Control Plan is submitted for entitlement purposes as part of a very minor modification. Following project approval, a final plan will be developed as part of the building permit process.

III.L. **Summary of Maintenance Requirements for Each Stormwater Facility**

The following activities shall be completed at least annually. The frequency should be adjusted in response to the needs of each particular facility.

Clean up. Remove any soil or debris blocking planter inlets or overflows. Remove trash that typically collects near inlets or gets caught in vegetation.
Prune or cut back plants for health and to ensure flow into inlets and across the surface of the facility. Remove and replant, as necessary. When replanting, maintain the design surface elevation and minimize the introduction of soil.
Control weeds by manual methods and soil amendment. In response to problem areas or threatening invasions, corn gluten, white vinegar, vinegar-based products or non-selective natural herbicides such as Burnout or Safer's Sharpshooter may be used.
Add mulch. Aged mulch, also called compost mulch, reduces the ability of weeds to establish, keeps soil moist and replenishes soil nutrients. Mulch is added from time to time as necessary to maintain a mulch layer thickness (some agencies require 3 inches). However, ensure the underlying soil surface beneath the mulch layer is a minimum 6 inches below the overflow elevation, consistently throughout the surface area of the facility. In particular, ensure that the top of the mulch layer is below the facility overflow, so that as the facility fills during a major storm, the entire surface becomes wetted before the overflow elevation is reached.

Check signage. Remove graffiti and replace if necessary.
Check irrigation, if any, to confirm it is adequate but not excessive.
Landscaping maintenance personnel should be aware of the following:
Sidewalks will be swept clean of debris regularly.

III.L.1. Construction Checklist

SCP PAGE NO.	SOURCE CONTROL AND TREATMENT MEASURE	SEE PLAN SHEET NO.
1	On-site storm drain inlets are marked with "No Dumping" message	SEE PLAN SET
1	Existing vegetation is preserved to the maximum extent possible.	SEE PLAN SET

III.M. **Certifications**

The preliminary design of stormwater treatment facilities and other stormwater pollution control measures in this plan are in accordance with the current edition of the BASMAA *Post-Construction Manual*