

SBCA TREE CONSULTING

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Date: November 14, 2022

To: James Gwise AIA
837 A Stannage Ave
Albany CA, 94706

Project: 12400 Skyline Blvd.

Assignment Arborist was requested to survey nine additional trees and prepare Tree Preservation Specifications for 19 trees to be protected during construction.

Additional material: Arborist Report, 12400 Skyline Tree Survey, 11-5-21

Appendices:

1. *Tree Survey Data*
2. *Tree Location Map: Includes designated Root Protection Zones (RPZ)¹*

<https://www.dropbox.com/s/qkyqk7aswsocvvp/Appendix%201%2C%2012400%20Skyline%20Tree%20Location%20Map.pdf?dl=0>

County of San Mateo Ordinance

SECTION 12,012. "SIGNIFICANT TREE" shall mean any live woody plant rising above the ground with a single stem or trunk of a circumference of thirty-eight inches (38") or more measured at four and one half feet (4 1/2') vertically above the ground or immediately below the lowest branch, whichever is lower, and having the inherent capacity of naturally producing one main axis continuing to grow more vigorously than the lateral axes.

Survey Procedure

Data recorded – Total number of trees surveyed is 19. Arborist recorded data on nine additional trees since the first survey report was submitted, dated 11-5-21. Data collected includes scientific name,

¹ **Tree Root Protection Zone (RPZ)** – The tree protection zone designates an area surrounding a tree or grouping of trees that is under strict control of project arborist. The RPZ is commonly defined as one (1) foot radial distance for every one (1) inch in tree diameter (DBH). Example: A single stem tree measuring 30 inches in diameter (measured at 54 inches or 4.5 feet above grade) would have a critical root zone with a radius of 30 feet.



common name, DBH², spread, health and structural conditions. The RPZs were provided for preservation purposes and can be seen in *Appendix 2, Tree Location Map*.

Trees numbers –Each tree was assigned a number which correlates to the tree survey data in *Appendix 1* and Tree Location Map *Appendix 2*. Trees Tag Numbers: 31-33, 35, 36-52. Trees #s 34 and 36 have been removed.

Summary

The proposed design calls for the construction of a new building and fence. The driveway will also be expanded. All 19 trees qualify as Significant under County ordinance and will be protected in place. Construction is proposed within the designated Root Protection Zones (RPZ) of all 19 trees.

Careful hand excavation methods will be required for work conducted within the RPZs. The use of crushed rock placed around existing roots can be utilized for the driveway expansion to provide better cultural conditions for tree roots. Soil protections and trunk and scaffold protections will be required when fencing off the RPZ is not possible.

Since the original survey was conducted, two Monterey Pines (*Pinus radiata*) #s 34 and 36 were removed for safety reasons. According to the San Mateo County permit exemption notice, both trees met all four criteria to be considered “Hazardous”.³

TREE PROTECTION SPECIFICATIONS

These protection guidelines apply to ALL 19 trees that will be protected in place during the proposed construction project. The project will construct a building, fence, and expand the drive. The tree protection guidelines are expected to remain in place for the duration of the project. It is recommended that the following guidelines be printed on construction plans. Contractor will inform arborist of all work occurring within the RPZ at least 2 weeks prior.

Tree Protection Treatments – These include soil, trunk, and scaffold protections. Fencing is the easiest method for protecting trees. When fencing is not possible and construction activities will encroach into the RPZ, soil and trunk/scaffold protections will apply. Treatments shall be installed and reviewed by arborist prior to beginning of construction activities.

Encroachments

There are three different types of encroachments into the RPZs of trees to be preserved. Each encroachment has been assigned specific instructions:

Utility trenching – It appears trenching for utility equipment will occur in the RPZ of ten trees: #s 35, 37-42. All trenching is to be conducted using hand tools. The air-spade is considered a hand tool.

Tunnelling under roots to lay utilities is preferable to root severance. Once trenching is carefully

² **DBH** – Diameter measured at Breast Height or 4.5 feet above soil grade.

³ [Permit Exemption for Hazardous Trees – Extended to July 1, 2023 | County of San Mateo, CA \(smcgov.org\)](#)



executed, arborist will consult on necessary root pruning to accommodate utilities. All exposed roots are covered with two layers of burlap to be always kept moist until backfill.

Driveway expansion – Expansion of the driveway will impact seven trees: #s 43-49. If rock can be added to the existing grade without excavation to achieve the necessary driveway width and compaction, this would be preferable. Otherwise, the soil can be excavated around roots and replaced with crushed rock.

- **Soil removal** – Soil is removed with hand tools or the air-spade down to the desired grade. Any roots encountered are left to remain.
- **Root pruning** – Project arborist will make decisions on root pruning. All root pruning or shaving to be conducted by arborist or under direct arborist supervision.
- **Water jet** – If desired, a water jet can be used to create holes in the soil to improve air and water movement. Arborist will provide additional instructions.
- **Crushed rock⁴** – It is recommended 6-12” of clean crushed rock be utilized for base material. Rock shall be quarry rock with no fines. Rock can be installed around existing roots.

Pier hole excavation – Fence construction will occur within the RPZ of two trees: #s 50 and 51. Holes are excavated with hand tools the first 2’ or below root depth. Best if the design can be modified to relocated fence posts 1’ in either direction to avoid large roots.

Definitions

Protected tree – Any tree that has been designated to be retained and is located within the scope of a construction project.

Project arborist – A certified arborist appointed to oversee tree protection. Project arborist shall have the authority to halt all construction activities if tree protection guidelines are not being adhered to.

DBH –Diameter at Breast Height: Tree diameter measured at 54 inches above average soil grade.

Root Protection Zone (RPZ) – A radial distance from the base of the tree designated by project arborist. Sometimes equal the crown spread but is generally a distance of one-foot from the base of the tree for every one-inch in tree (DBH). No heavy machinery is allowed within the RPZ.

Soil compaction – Soil compaction is excessive when planting soil is compacted (generally) over 80% ASTM from a standard Proctor compaction test. Soil compaction must be avoided and mitigated when identified within the designated RPZ.

Mechanical damage – Damage to tree trunk, branches, or roots that causes loss of bark and cambial damage.

⁴http://users.neo.registeredsite.com/0/9/2/13664290/assets/Comparison_of_Methods_to_Reduce_Sidewalk_Damage_from_Tree_Roots__S39983.pdf



Crown pruning – Shortening or removal of branches in accordance with guidelines presented in ANSI A300 PRUNING STANDARDS. All pruning must be approved of and conducted by qualified personnel.

Root pruning – Pruning of tree roots must be approved of and conducted by project arborist.

Water Jet/Air Spade – Soil aeration tools used to mitigate soil compaction using water and air, respectively.

Rootable Soil – Rootable soil is a soil medium that is compacted less than 80% ASTM, has oxygen levels between 6-16% and has sufficient available moisture and nutrients with no toxic substances.

Pre-construction activities

These activities should be undertaken prior to initiation of construction activity.

Mulching – Use of good quality organic mulch (fresh wood chips are best) on soil surface helps to reduce soil compaction and retain soil moisture. Recommended material is wood chips generated from tree trimming. Fresh palm generated mulch is not acceptable.

Crown pruning – Pruning must comply with ANSI A300 Pruning Standards. Pruning prior to construction should include: Necessary Clearance Pruning, Deadwood Removal and Safety Pruning.

Construction documents to show protected trees and tree protection requirements – Project plans to show tree protection fencing layout, areas of encroachment, and list procedures for working around protected trees.

Designation of tree Root Protection Zone (RPZ) – The tree Root Protection Zone designates an area surrounding a tree or grouping of trees that is to be fenced off from all access. The RPZ is commonly defined as a distance of one (1) foot radial distance from the base of the tree for every one (1) inch in tree diameter (DBH). A tree with a 10-inch diameter would have a RPZ equal to 10 feet out from the tree. Project arborist can modify the RPZ distance based upon physical evidence of root presence or absence.

Tree Root Protection Zone fencing – Fencing is to be chain-link type metal fencing or snow fencing. Signs shall be attached to tree protection fencing every 20' which read "TREE PROTECTION ZONE: DO NOT ENTER".

Procedures and treatments for work activities that must occur inside of the designated RPZ – All such activities and relocation of fencing must be overseen by project arborist. Special trunk, scaffold and soil protection measures are required. When encroachment is anticipated prior to the beginning of construction activities, the protections must be in place prior to beginning work activities.

Arborist review and approval of tree protection measures – Project arborist to review tree protection guidelines and modify as deemed necessary.

Tree protections installation and inspected – Project arborist must certify that all tree protection measures have been properly installed.



Pre-construction meeting – Prior to the beginning of construction activities. Project arborist shall meet with supervisor and work crew to review requirements of the tree protection. **All personnel working on site must be provided an orientation to the tree preservation requirements.**

Work activities that encroach into the designated RPZ

Arborist supervision – All activities occurring within the designated RPZ must be under direct supervision of project arborist. Encroachment is not permitted until all additional protections are in place and have been approved.

Required method of excavation within critical root zone – When trenching is required, carefully **hand** excavation or the use of the Air Spade are acceptable methods. Project arborist must approve and supervise all such activity. No heavy equipment is allowed.

Wherever possible, route utilities outside of the designated RPZ. Tunneling is the preferred method for utilities passing through the RPZ.

Soil protection – The effects of foot traffic can be mitigated using six (6) inches of wood chip mulch and ¾ inch plywood placed on top.

Soil protections for equipment operating within the designated RPZ requires 12 inches of mulch with either metal trenching plates or 1 1/8-inch plywood placed on top.

Trunk and scaffold protection – Whenever construction activity must occur inside the tree protection zone, the base of the tree and the **first eight-feet and exposed scaffold limbs** must be armored. Protection is generally provided by armoring the trunk and exposed scaffold branches with 2x4 boards wrapped together with orange plastic fencing material. Straw wattles are not to be used for such purposes due to their moisture holding capacity.

Root protection – All exposed roots must be covered with 2 layers of damp burlap secured with jute staples. Burlap shall always remain damp and can remain in place when backfilled.

Necessary root pruning – Late fall season is the best time for root pruning and spring can be the most harmful. All necessary root pruning and shaving is conducted by project arborist after the roots have been exposed without damage.

Post construction mitigation

Arborist Designation of Health Mitigation Activities – Project arborist will designate tree health mitigation activities based upon the level of root loss and adverse impacts that have occurred.

Monitoring Tree Health – Trees that have been adversely impacted by construction activities are noted for regular visual inspection. Project arborist will direct further mitigation. Insects and fungal pathogens are a sign of poor tree health (low energy reserves) and indicate the need for health mitigation.



Monitoring of Soil Moisture –Moisture should be monitored using a soil probe. Project arborist will designate supplemental irrigation. When root loss occurs, supplemental irrigation may be required for several years.

Mitigation of Soil Compaction – The level and depth of soil compaction must be assessed and mitigated, as necessary. Tools that are most suitable for mitigation of compacted soil are the water jet or air spade.

Landscaping – All landscaping planning must take precautions when planting within the designated RPZ. All plant materials should be selected for compatibility with the favored moisture regime (hydrazone) of the tree species and soil texture.

Continued Mulching – Mulch is extremely beneficial in creating a healthy root environment. A regular program of mulch application is recommended to help retain soil moisture, provide a source of nutrients, help with control weed control and reduce soil compaction.

Fertilization –Trees should be fertilized only when the nutritional limitations have been identified through laboratory analysis of soil or plant tissue. Excessive nitrogen fertilization is known to draw sucking insects (aphid, scale, etc.) to the plants and provide nutrition to fungal pathogens in the soil.

Pest Management Program – Healthy trees do not generally have serious pest problems. Stressed trees are attractive hosts to pathogens, which can contribute to further decline. Pest management is prescribed when monitoring indicates a need.

Submitted by:



Molly Batchelder, Consulting Arborist
WC ISA Certified Arborist #9613A
Tree Risk Assessment Qualified (TRAQ)



COLUMN HEADING DESCRIPTIONS

Tag# - Indicates the number tag attached to tree

Species - Scientific name

Common Name - Vernacular name

DBH - Diameter measured in inches at 4.5 feet above soil grade, unless otherwise indicated

Spread - In feet

Health -Tree Health: E is Excellent, G is Good, F is Fair, P is Poor, D is Dead or Dying

Structure- Tree Structural Safety: E is Excellent, G is Good, F is Fair, P is Poor, H is Hazardous

Suitability for Retention - Based on Tree Condition: G is Good, F is Fair, P is Poor: 1 is yes

Protected - Trees that qualify as "Significant" under Country of San Mateo tree ordinance

RPZ- Root Protection Zone: The radial distance in feet from base of tree that is to be fenced off from all construction access until designated by a certified arborist

Notes - See below

ABBREVIATIONS AND DEFINITIONS

Notes

Included Bark (EB) AKA Embedded Bark, This is a structural defect where bark is included between the branch attachment so that the wood cannot join. Such defects have a higher propensity for failure.

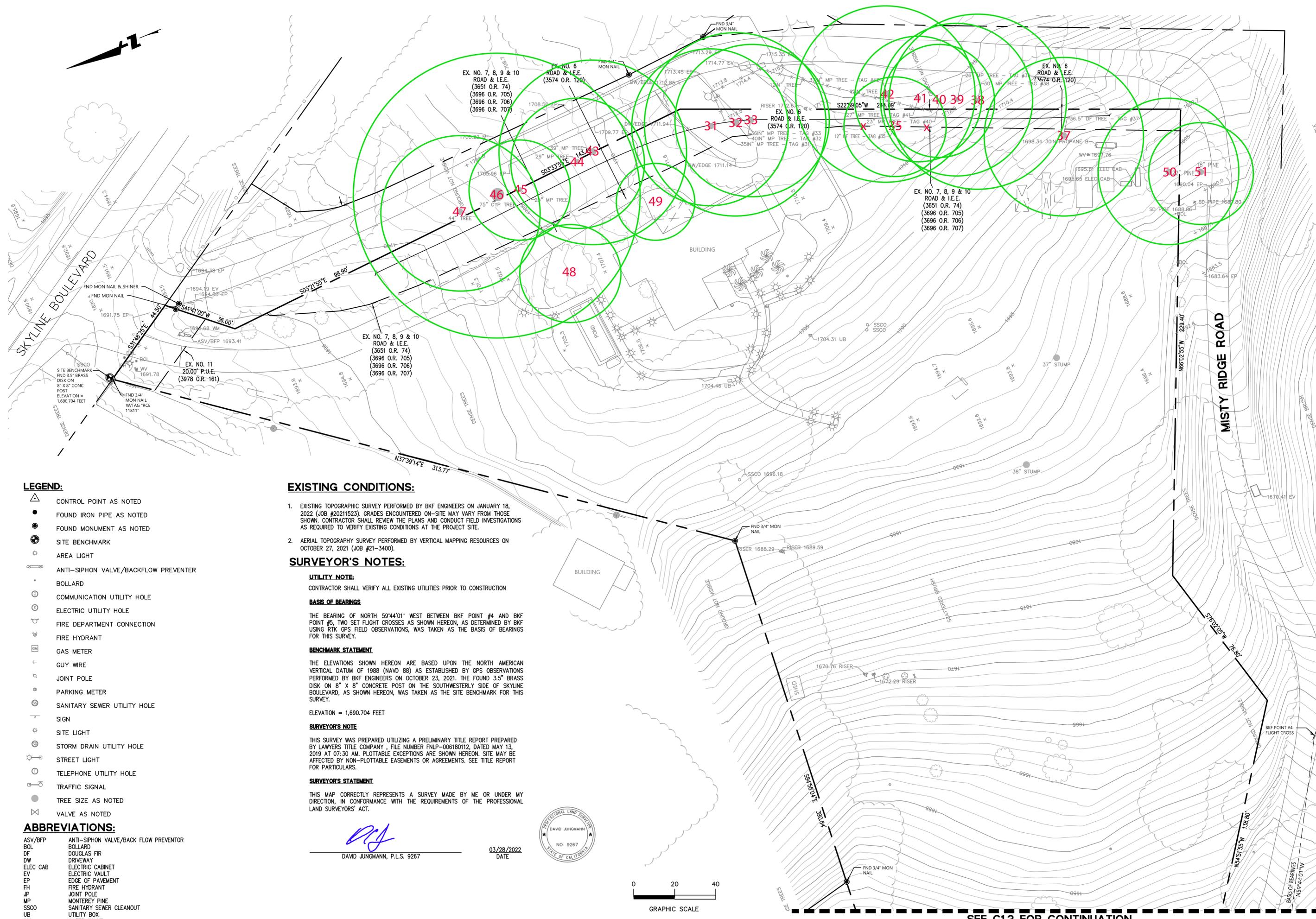
Codominant (CD) - A situation where a tree has two or more stems which are of equal diameter and relative amounts of leaf area. Trees with codominant primary scaffolding stems are inherently weaker than stems, which are of unequal diameter and size.

Codominant w/ Embedded Bark (CDEB) - When bark is embedded between codominant stems, failure potential is very high and pruning to mitigate the defect is recommended.

Tag #	Species	Common name	DBH	Spread	Health	Structure	Suitability	Protected	RPZ	Notes
31	<i>Pinus radiata</i>	Monterey pine	36.5	45	G	F-G	F	1	37	Corrected lean, circling roots
32	<i>Pinus radiata</i>	Monterey pine	43	51	G	?	?	1	43	Circling roots, lean increasing? towards road, install monitoring system
33	<i>Pinus radiata</i>	Monterey pine	36	30	G	P	F-P	1	36	Included bark
35	<i>Pseudotsuga menziesii</i>	Douglas Fir	12	20	G	G	G	1	12	Growing under canopy of pines
37	<i>Pseudotsuga menziesii</i>	Douglas Fir	36.5	50	G	G	G	1	37	Corrected lean, pruning wounds

Tag #	Species	Common name	DBH	Spread	Health	Structure	Suitability	Protected	RPZ	Notes
38	<i>Pinus radiata</i>	Monterey pine	41.5	40	G	G	F G	1	42	Nice tree, wind buffer to 39-41
39	<i>Pinus radiata</i>	Monterey pine	29	30	G	G	F	1	30	Stand dynamic considerations
40	<i>Pinus radiata</i>	Monterey pine	25.5	35	G	F	F	1	26	Fair taper, Stand dynamic considerations, lower live crown ratio
41	<i>Pinus radiata</i>	Monterey pine	30	40	G	F	F	1	30	Stand dynamic considerations low live crown ratio
42	<i>Pinus radiata</i>	Monterey pine	41	55	G	F	F	1	42	Low live crown ratio w/ codominant top
43	<i>Pinus radiata</i>	Monterey pine	44	45	G	F	G	1	44	Large pruning wounds, poor vertical branch distribution, oh interior deadwood
44	<i>Pinus radiata</i>	Monterey pine	30.5	40	G	F	G	1	31	
45	<i>Pinus radiata</i>	Monterey pine	23.5	25	G	F	G	1	24	Interior Dieback due to shading slight bend in trunk, slow taper
46	<i>Hesperocyparis macrocarpa</i>	Monterey Cypress	33, 58	45	G	P	G	1	67	Pruning wounds , three main stems, included bark, interior Dieback
47	<i>Pinus radiata</i>	Monterey pine	36.5	45	F	P	F	1	37	Pruning wounds, Sparse foliage, Unbalanced branches, heavy cone production indicating health decline, Lean away from residence, possibly lost a root a while ago due to flat location near base, Included bark in upper canopy

Tag #	Species	Common name	DBH	Spread	Health	Structure	Suitability	Protected	RPZ	Notes
48	<i>Cedrus deodara</i>	Deodar Cedar	22.5	25	F	G	G	1	23	Sparse foliage due to shading
49	<i>Betula pendula</i>	White Bark Birch	18.5	25	G	G	G	1	19	Codominant, nice tree
50	<i>Pinus radiata</i>	Monterey pine	33	45	F-G	G	G	1	33	Some interior browning foliage
51	<i>Pinus radiata</i>	Monterey pine	24	20	G	G	G	1	24	Nice green color
								19		



- LEGEND:**
- CONTROL POINT AS NOTED
 - FOUND IRON PIPE AS NOTED
 - FOUND MONUMENT AS NOTED
 - SITE BENCHMARK
 - AREA LIGHT
 - ANTI-SIPHON VALVE/BACKFLOW PREVENTER
 - BOLLARD
 - COMMUNICATION UTILITY HOLE
 - ELECTRIC UTILITY HOLE
 - FIRE DEPARTMENT CONNECTION
 - FIRE HYDRANT
 - GAS METER
 - GUY WIRE
 - JOINT POLE
 - PARKING METER
 - SANITARY SEWER UTILITY HOLE
 - SIGN
 - SITE LIGHT
 - STORM DRAIN UTILITY HOLE
 - STREET LIGHT
 - TELEPHONE UTILITY HOLE
 - TRAFFIC SIGNAL
 - TREE SIZE AS NOTED
 - VALVE AS NOTED

EXISTING CONDITIONS:

1. EXISTING TOPOGRAPHIC SURVEY PERFORMED BY BKF ENGINEERS ON JANUARY 18, 2022 (JOB #20211523). GRADES ENCOUNTERED ON-SITE MAY VARY FROM THOSE SHOWN. CONTRACTOR SHALL REVIEW THE PLANS AND CONDUCT FIELD INVESTIGATIONS AS REQUIRED TO VERIFY EXISTING CONDITIONS AT THE PROJECT SITE.
2. AERIAL TOPOGRAPHY SURVEY PERFORMED BY VERTICAL MAPPING RESOURCES ON OCTOBER 27, 2021 (JOB #21-3400).

SURVEYOR'S NOTES:

UTILITY NOTE:
CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION

BASIS OF BEARINGS:
THE BEARING OF NORTH 59°44'01" WEST BETWEEN BKF POINT #4 AND BKF POINT #5, TWO SET FLIGHT CROSSES AS SHOWN HEREON, AS DETERMINED BY BKF USING RTK GPS FIELD OBSERVATIONS, WAS TAKEN AS THE BASIS OF BEARINGS FOR THIS SURVEY.

BENCHMARK STATEMENT:
THE ELEVATIONS SHOWN HEREON ARE BASED UPON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) AS ESTABLISHED BY GPS OBSERVATIONS PERFORMED BY BKF ENGINEERS ON OCTOBER 23, 2021. THE FOUND 3.5" BRASS DISK ON 8" X 8" CONCRETE POST ON THE SOUTHWESTERLY SIDE OF SKYLINE BOULEVARD, AS SHOWN HEREON, WAS TAKEN AS THE SITE BENCHMARK FOR THIS SURVEY.

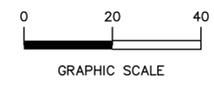
ELEVATION = 1,690.704 FEET

SURVEYOR'S NOTE:
THIS SURVEY WAS PREPARED UTILIZING A PRELIMINARY TITLE REPORT PREPARED BY LAWYERS TITLE COMPANY, FILE NUMBER FNLP-006180112, DATED MAY 13, 2019 AT 07:30 AM. PLOTTABLE EXCEPTIONS ARE SHOWN HEREON. SITE MAY BE AFFECTED BY NON-PLOTTABLE EASEMENTS OR AGREEMENTS. SEE TITLE REPORT FOR PARTICULARS.

SURVEYOR'S STATEMENT:
THIS MAP CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECTION, IN CONFORMANCE WITH THE REQUIREMENTS OF THE PROFESSIONAL LAND SURVEYORS' ACT.

- ABBREVIATIONS:**
- | | |
|----------|---------------------------------------|
| ASV/BFP | ANTI-SIPHON VALVE/BACK FLOW PREVENTOR |
| BOL | BOLLARD |
| DF | DOUGLAS FIR |
| DW | DRIVEWAY |
| ELEC CAB | ELECTRIC CABINET |
| EV | ELECTRIC VAULT |
| EP | EDGE OF PAVEMENT |
| FH | FIRE HYDRANT |
| JP | JOINT POLE |
| MP | MONTEREY PINE |
| SSCO | SANITARY SEWER CLEANOUT |
| UB | UTILITY BOX |
| WV | WATER VALVE |
| WM | WATER METER |

DAVID JUNGSMANN, P.L.S. 9267 03/28/2022
DATE



SEE C1.2 FOR CONTINUATION

DRAWING NAME: K:\2021\211523_12400_Skyline\Bldg\ENG\sk sheets.dwg
PLOT DATE: 11-01-22
PLOTTED BY: hemo