

44. Approve agreement with Lewis Tree Service in the amount of \$300,000 for vegetation management efforts at Moran Lake County Park, and take related actions ()



## **County of Santa Cruz Board of Supervisors**

### **Agenda Item Submittal**

**From:** Parks, Open Spaces, and Cultural Services

**Subject:** Approve contract with Lewis Tree Service

**Meeting Date:** May 6, 2025

**Formal Title:** Approve agreement with Lewis Tree Service in the amount of \$300,000 for vegetation management efforts at Moran Lake County Park, and take related actions

### **Recommended Actions**

1. Adopt resolution accepting funds in the amount of \$300,000 from the Risk Management Fund for the vegetation management efforts in Moran Lake County Park;
2. Approve agreement with Davey Tree Expert Company DBA Lewis Tree Service in the amount of \$300,000 for miscellaneous tree service; and
3. Authorize the Director of Parks, Open Spaces and Cultural Services or designee to sign the agreement.

### **Executive Summary**

Board approval is requested to accept funds from the Risk Management Fund to pay for vegetation management efforts in the amount of \$300,000 in the monarch butterfly habitat of Moran Lake County Park. Board approval is requested for a contract with Davey Tree Expert Company DBA Lewis Tree Service to perform height reduction and selective removal of eucalyptus trees to reduce risk of failure.

### **Discussion**

Moran Lake County Park and the adjacent Santa Cruz County Sanitation District's D.A Porath facility on Lode Street support an important overwintering site for the western population of the monarch butterfly. Each fall, monarchs migrate from the western United States and Canada to overwinter in sheltered groves of trees along the Pacific Ocean where they are protected from freezing temperatures. In the spring, the monarchs leave the overwintering sites and return to summer breeding and feeding areas. The Moran Lake area typically ranks as the third most populated overwintering site in Santa Cruz County after Natural Bridges State Beach and Lighthouse Field. This trend has held for the last two decades, despite overall dramatic declines in the western population of the monarch butterfly. Moran Lake was listed as one of five critical habitats for monarchs in Santa Cruz County in the recent U.S. Fish and Wildlife Service (USFWS) proposal to list the monarch as threatened under the Endangered Species Act.

Monarch habitat at Moran consists of a core overwintering zone surrounding the northern portion of the Santa Cruz Sanitation District's D.A Porath facility on Lode Street, and a larger shelter zone encompassing the entirety of Moran Lake County Park. The monarchs form roosting clusters in the core overwintering zone to conserve body heat and survive cold temperatures. The monarch habitat in the core and shelter zones at Moran is comprised primarily of non-native Blue Gum Eucalyptus trees with a smaller number of other native and non-native tree and shrub species. The trees in the core

zone serve several critical functions, including the structure and support for monarch clusters, shelter and protection from cold night-time temperatures underneath the canopy of leaves, protection from strong winds, and winter-available nectar sources. The trees in the shelter zone serve primarily to buffer the core zone from strong winds during the overwintering season and also serve as a nectar source for overwintering monarchs.

Management of the monarch butterfly habitat at Moran Lake is split between the Santa Cruz County Sanitation District (District) who manage the Lode Street Facility and the property it, and the Parks, Open Space and Cultural Services Department (County Parks) who manage Moran Lake County Park. Management of the monarch habitat is governed by the current Moran Lake Monarch Butterfly Habitat Management Plan (HMP), which was approved by the Board on December 7, 2010, and covers both Sanitation and County Parks property. The HMP includes guidelines for tree management, including tree pruning and removals, and has a stated goal of preserving trees and minimizing change and disruption to the existing trees to minimize impacts to monarch habitat. Within that overall framework, the HMP provides allowances and recommendations for pruning and removals where necessary for safety and to reduce potential hazards.

County Parks has followed HMP guidelines in managing the trees within Moran Lake, including conducting safety pruning, height reduction, and removals when hazardous conditions are identified by Parks staff, consulting arborists, or the general public. Over the last 10 years, County Parks has spent roughly half of its entire system-wide expenditures on arborist reports and tree work at Moran Lake County Park alone to manage the trees and monarch habitat. Due to budgetary constraints and the restrictions outlined in the current HMP, County Parks has previously been unable to conduct more extensive proactive tree management and instead performs safety pruning, height reductions, and removals on a case-by-case basis to reduce potential hazards. Despite County Parks' efforts within a constrained budget, trees have failed in the past during winter storms, and in some cases have damaged private property and residences. On February 4, 2024, one of the strongest windstorms on record caused the failure of 28 trees on County Parks property.

In 2022, County Parks began the process of updating the HMP to incorporate the latest scientific findings and recommendations and to ensure habitat management procedures were following current best practices for monarch habitat. The consultant team was led by Dr. Stu Weiss, widely recognized as one of the leading experts on monarchs and their habitat, with experience creating management plans for several monarch overwintering sites in California. The project team conducted robust analyses of habitat conditions, interviewed local monarch experts to incorporate their data and observations, and worked closely with regulatory and environmental oversight organizations. This work led to the creation of a public draft of the updated HMP that was shared with the public in Summer 2024. County Parks held a community meeting to share the public draft and collect community input in July 2024. Due in part to the recent failures noted above, surrounding residents expressed a desire for additional tree management work to reduce the risk of future tree failures and claimed that the County was prioritizing monarch habitat over public safety.

As a result of that meeting, County Parks, in collaboration with the First District Supervisor and the Santa Cruz County Sanitation District hired a consultant team to prepare a wind study to analyze impacts of potential tree height reductions and removals on monarch habitat. The goal of the wind study was to determine how the existing vegetation could be managed without negatively impacting monarch habitat. A

draft of the wind study was completed in April (Attachment 1). The wind study showed that the trees south of the main overwintering grove can be removed or reduced in height without negatively impacting monarch habitat. This includes trees in the North and South Lakeside areas along the north and west banks of Moran Lake, and trees southeast of the lake within the 40 Moran Way parcel and the Southeast Grove (see Attachment 2). The final wind study is expected to be completed prior to beginning the tree work proposed under this agenda item and will include review and input from County Parks' consultant arborist, Environmental Planning, and other regulatory agencies.

The tree work scope in the proposed contract with Lewis Tree Service includes height reduction of all the trees in the North and South Lakeside areas (Areas B and C in Attachment 2) to lower their height by roughly one-third, as well as removal of the remaining trees on the 40 Moran Way parcel (Area A1 in Attachment 2). These areas were prioritized for tree management this year because they are closest to the February 2024 failures or were recommended for removal or height reduction by the County's consulting arborist. Trees within the Southeast Grove (Area A2 in Attachment 2) were not prioritized for this initial round of tree management because a substantial number of trees are on private property.

The wind study also demonstrated that the trees in the Critical Windbreak along Placer Street (area H in Attachment 2) can be reduced to a height of 80 feet without negatively impacting monarch habitat. The trees along Placer Street are not included in this year's tree management work due to budget limitations, but they are expected to be included in next year's budget. A large number of the Critical Windbreak trees were safety pruned by the Sanitation District last year and so have already received risk reduction treatments.

The proposed tree work at Moran is part of County Park's ongoing tree management that has occurred in the park for decades. Tree height reduction has proven to be an effective tree management strategy at Moran that minimizes impacts to monarch habitat and reduces risk of tree failure, and eucalyptus typically respond well to height reduction. However, once a eucalyptus tree's height is reduced, it will resprout at the location of the cut. This new growth is less securely attached to the trunk and requires continued monitoring and ongoing maintenance on a roughly 3 to 5-year recurrence interval to remove the new growth and prevent failure of the new growth. Reducing the height of the many trees included in this contract will require that the County commit resources to additional, ongoing maintenance needs to safely manage the trees.

The results of the final wind study and its implications for tree management in the monarch habitat will be shared with the community via a community meeting this summer and will be incorporated into the Updated HMP this fall. County Parks expects to bring the Updated HMP to the Board for approval in late 2025 or early 2026.

The County of Santa Cruz Department of Parks, Open Space and Cultural Services has many years of working with Davey Tree Expert Company DBA Lewis Tree Service. Lewis Tree has successfully worked with the Parks Department, specifically for work within the sensitive monarch habitat at Moran Lake County Park. They are especially skilled and knowledgeable in working with other experts around this sensitive habitat and therefore are uniquely qualified to perform the tree trimming work in this contract. The proposed contract with Lewis Tree Service is included in Attachment 3.

## **Financial Impact**

Acceptance of funds from the Risk Management Fund will increase appropriated revenues and expenditures by \$300,000 in the Parks Operating Budget (GL 492300). These funds are sufficient to cover the full cost of the contract with Davey Tree Expert Company under account 492300-61845/RP0034-RJ0 (PARKS OPERATIONS MAINT-MAINT-STRUCT/IMPS/GRDS-OTH-SRV).

**Strategic Initiatives**

Equity Framework - County Facilities & Infrastructure

Operational Plan - Sustainable Environment, Operational Excellence

**Submitted By:**

Jeff Gaffney, Director of Parks, Open Space and Cultural Services

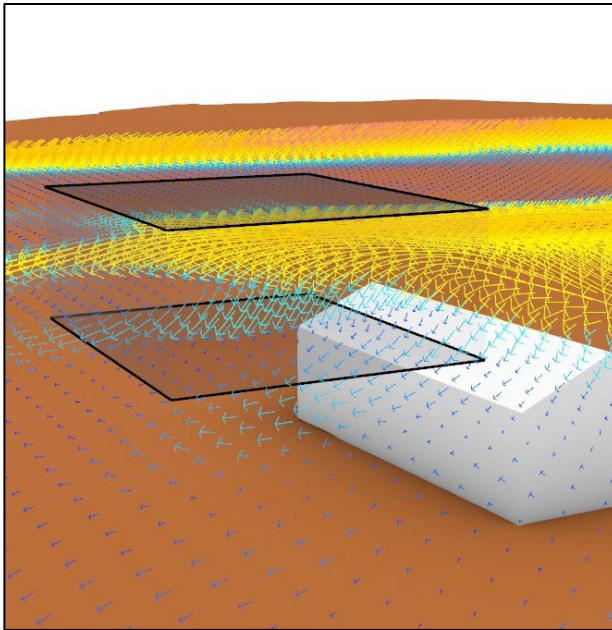
**Recommended By:**

Carlos J. Palacios, County Executive Officer

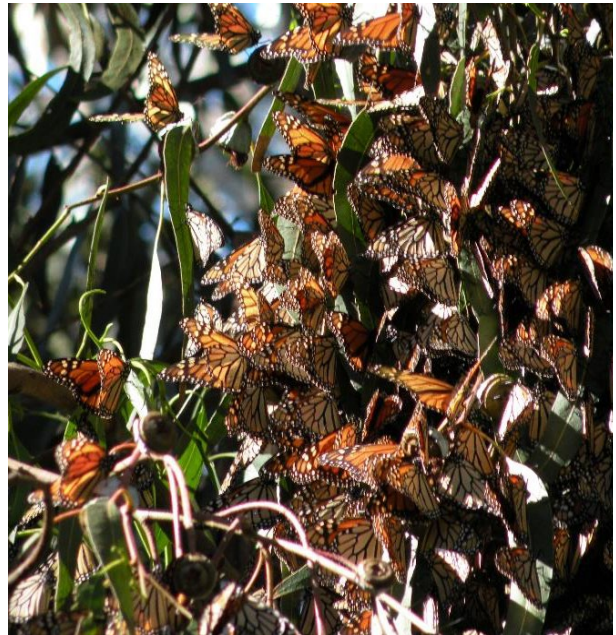
**Artificial Intelligence Acknowledgment:**

Artificial Intelligence (AI) did not significantly contribute to the development of this agenda item.

# Moran Lake Monarch Butterfly Habitat and Tree Management Assessment April 2025 DRAFT



Wind Model Output



Monarchs at Moran Lake

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April 2025

Prepared for Robert Tidmore  
Santa Cruz County Parks

## Table of Contents

Executive Summary.....	4
Objectives .....	5
Map 1. Groves Overview .....	6
Methods.....	7
Data Visualizations .....	8
Scenarios .....	9
Scenario 1: Placer Street Windbreak Baseline and Critical Height .....	9
Photo 1. Panorama.....	10
Photo 2. Hemiphotos .....	10
Figure 1. Oblique View of Placer Street Windbreak .....	11
Figure 2. Oblique View of Placer Street Windbreak, Canopy voxels hidden .....	11
Figure 3. Vertical slice profile .....	12
Figure 4. Bird’s eye view of yard .....	12
Figure 5A. Vertical slice for current conditions .....	13
Figure 5B. Vertical slice for complete removal.....	13
Figure 5C. Vertical slice for 80 ft Placer height.....	13
Figure 6. Comparison of current conditions (A) versus complete removal .....	15
Figure 7. Comparison of Current Versus 80 ft Placer .....	16
Wind Speed Percentiles with Placer Height.....	17
Figure 8. Percentiles of wind speed within the cluster zone .....	17
Scenario 2: Placer Street Windbreak at Strike Height.....	18
Figure 9A Vertical wind profile with Strike Height Scenario .....	18
Figure 9B Vertical wind profile current conditions.....	18
Figure 10. Strike Height Scenario Statistics .....	19
Scenario 3 & 4: Complete Removal of Southern Groves .....	20
Figure 11. Histograms of absolute wind speed in cluster zone for 200° 10m/s wind...	20
Scenario 5: 50–70-foot Canopy Height at Southern Groves .....	21
Scenario 6: North Edge Below Strike Height .....	22

Figure 12A. N-Edge Current Conditions .....	23
Figure 12B. N-Edge Strike Height .....	23
Figure 13. Strike Height on North Edge Histograms .....	24
Scenario 7: South Creekside at Critical Height .....	25
Figure 14 Histograms of Wind Speed for Creekside Topping .....	25
References.....	26



Moran Lake monarchs clustering Creekside area November 2022

# Executive Summary

To assess the effects of tree hazard management at the Moran Lake monarch overwintering site, we did intensive modeling of 10 m/s (22 mph) wind within the forest canopy under current conditions and under various management scenarios. We concentrated on the cluster zone in the grove NE of the sanitation yard.

Conclusions include:

- 1) Monarchs have opportunities to make small changes in distribution to track wind and sunlight within the cluster zone. The cluster zone grove itself provides significant, but not complete, wind shelter from SW winds.
- 2) The Placer Street trees provide a critical windbreak from SW winds but could be topped to 80 ft and still provide suitable wind shelter from SW winds for the cluster zone NE of the sanitation facility yard
- 3) An idealized scenario that tops trees to heights that eliminate houses as targets (strike height) also provides suitable SW wind shelter for the cluster zone. The practicality of this configuration needs arborist input.
- 4) The cluster zone is currently well-sheltered from SSW winds. Removal of the SE and S Lakeside groves has a minimal effect on SSW wind speeds in the cluster zone, which are below 2 m/s (5.2 mph). Removal of the N Lakeside grove in addition does increase SSW wind exposure so that 27% of the cluster zone experienced S-winds greater than 2 m/s.
- 5) Reducing the heights of these Lakeside groves to 50-70 ft provides better shelter than complete removal
- 6) Topping trees along the N-edge to strike height has minimal effect on N-wind exposure in the cluster zone. A previous recommendation for planting cypress trees in the “Boneyard” to block wind penetrating through an existing road/trail opening would secure this N-edge.
- 7) Several trees in the Creekside area are regularly occupied by monarchs, so no major modifications (beyond trimming immediate hazard branches) in this area are acceptable for monarchs.
- 8) These constraints and opportunities now require input from an arborist about the degree of tree removal/topping that is compatible with tree health and long-term commitments to grove management as trees regrow

## Objectives

Overwintering monarch butterflies are highly sensitive to wind, which along with sun exposure, is a fundamental driver of site occupancy and movements. Creating and maintaining suitable wind shelter is a critical aspect of overwintering site management, while addressing public safety concerns from hazard trees. A detailed assessment of Moran Lake habitat conditions is presented by Weiss (2022).

The primary objective of this study is to model baseline wind conditions within the Moran Lake Monarch Overwintering Site (Xerces Society Site Identification 2983). and assess the effects of potential canopy modifications (to reduce treefall hazards to property) on the distribution of wind within the monarch cluster zone. We considered 7 scenarios designed to test various management treatments to different groups of trees across the site. The scenarios include (Table 1, Map 1)

**Table 1. Scenarios considered:**

Scenario Number	Description
1	Placer Street Windbreak Critical Height and Baseline
2	Placer Street Windbreak Below Strike Height
3&4	Complete Removal of Southern Groves
5	50–70-foot Canopy Height at Southern Groves
6	North Edge Below Strike Height
7	South Creekside at Critical Height

Scenario 1 includes simulations of 10 ft incremental topping of the Placer Street trees to identify the critical height from 140 ft down to 30 ft. A complete removal was simulated as an “end member” to evaluate the isolated sheltering effect of the forest edge in the cluster zone.

Scenario 2 postulates a windbreak design that removes all canopy within striking distance (Strike Height) of the houses along Placer Street with a “stepped back” design.

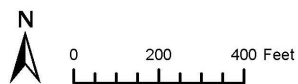
Scenarios 3 and 4 postulate complete removal of stands of trees around Moran Lake, south of the main monarch habitat around the sanitation yard.

Scenario 5 postulates reducing those southern groves to 50-70 ft.

Scenario 6 postulates the same Strike Height modifications, only on the northern edges of the monarch grove.

Scenario 7 considers topping of trees in the Creekside Zone, SE of the yard.

## Map 1. Groves Overview



Moran Lake Monarch Butterfly  
Habitat and Tree Assessment  
Map Center: 36.95846°N 121.97596°W  
Santa Cruz, California

Imagery Source: Google Imagery, 09/11/2022. Street Reference Source: ESRI



Map Updated:  
October 02, 2024 07:55 PM by CDM

# Methods

The basic workflow to simulate wind conditions was as follows:

First we acquired LiDAR data from NOAA's Data Access Viewer ([OCM Partners, 2025](#)). The LiDAR dataset had an estimated point spacing of 0.19 meters. The LiDAR data was part of a collection effort that spanned the timeframe of 2020-03-22 to 2020-04-15.

The LiDAR point cloud came in the .las file format. Our first step in processing the point cloud was to load it in CloudCompare, where we separated the point cloud into classifications of ground, and unclassified points. We then exported the point clouds to the .e57 file format.

Next, we loaded the .e57 point cloud of ground classified points in Rhino 7 using Grasshopper and Volvox, plugins for Rhino 7. In Rhino 7 we used a Delaunay triangulation method to connect the ground points into a mesh surface representing ground terrain. In order to resolve imperfections in this resulting geometry we had to perform three iterations of quad-remeshing to smooth the geometry and produce a valid "good" mesh representing the ground. Some of the imperfections eliminated by this process include self-intersecting faces, mesh surfaces with aspect ratios greater than 1:5, and angles less than 60°.

We created building geometries by manually extruding box geometries to the maximum height and extent of each building nearest to the Placer Street windbreak, and north edge groves. Buildings within the sanitation yard were modeled with greater precision than those buildings surrounding the groves. This includes matching roof slope for the building closest to the main monarch cluster location.

Canopy/tree geometries were created using a voxel technique in which a 1 cubic meter voxel would be generated within a standard grid across the site if there were unclassified points located within that volume.

The software used to simulate wind conditions given these input geometries was Eddy3D. Eddy3D uses the OpenFOAM computational fluid dynamics toolbox to simulate wind conditions.

For each scenario we set the wind direction to be in-line with the canopy volume of interest and the main cluster zone. We used a standard wind speed of 10 m/s (22 mph), which represents a moderately strong wind that is likely to occur in any given year. Incoming wind directions were as follows for the scenarios:

Scenario 1: 225° SW

Scenario 2: 225° SW

Scenario 3&4: 200° SSW

Scenario 5: 200° SSW

Scenario 6: 0° N

Scenario 7: 180° S

Voxels were inputted to the Eddy3D model domain as Eddy3D tree objects with a 'Type' set to 'dense'.

## Data Visualizations

We use a variety of data visualizations and statistical characterizations to compare scenarios. These include:

- 1) Oblique views with colorized wind vectors, and a birds-eye view for current conditions
- 2) A consistent vertical slice taken perpendicular to the Placer Street windbreak (SW to NE) at the thinnest portion of the windbreak. This is the primary visualization of wind vectors for the Placer Street modifications. A similar vertical slice was taken for the N-edge simulation.
- 3) Statistical characterization of wind speeds within the cluster zone, based on 4,825 points within an 80 ft (along the fence line) x 65 ft. (depth from the forest edge) x 30 ft. (30 ft to 60 ft height from ground) box that encompassed the cluster sites NE of the yard.
  - a. Depth profiles of absolute wind speed, with density quantiles
  - b. Height depth profiles of differences from current conditions (including a scenario with no Placer Street windbreak to characterize the local sheltering effect of the NE forest edge).
  - c. Histograms of differences
  - d. Percentiles of wind speeds with different Placer Street heights.
  - e. Histograms of absolute wind speed in Scenarios 3-7

# Scenarios

## Scenario 1: Placer Street Windbreak Baseline and Critical Height

Scenario 1 first establishes a baseline model of current conditions according to the state of the canopy at the time of LiDAR collection. All scenarios are compared with current conditions. We seek to identify the “critical height,” meaning the minimum height of the trees that would maintain acceptable wind conditions for the main cluster site of Monarch butterflies. We identified the critical height by successively reducing the canopy height from current conditions (~ 145 ft tall). And produced a scenario with complete removal of Placer trees to understand the intrinsic shelter provided by the cluster zone trees themselves.

Wind patterns as the result of different canopy geometry can vary in counter-intuitive ways at fine scales because turbulent wind shadows behind obstacles tumble and create eddies. Eddies and waves downwind of canopy obstructions can direct wind in any direction depending on the specifics of the canopy geometry and wind speed. Especially when combined with planar visualizations, which only shows one dimension of the wind conditions, these patterns can cause wind speeds to increase in specific areas even when additional windbreak geometry is added. The inverse is also true, and some areas may show lower windspeeds when windbreak geometry is reduced. The wavelengths of the eddies also depend on the absolute wind speed modeled.

With these caveats in mind, we are looking for robust results that do not depend on these noisy aspects of wind modeling and provide some margin of safety for monarchs and people/property.

**Photo 1. Panorama** of Placer Street windbreak looking NE showing large gap in center



The vertical slice chosen for visualization runs through the gap, as a worst-case position with the highest wind speed. However, all statistics are done on the entirety of the cluster zone volume so the effects of this gap and more dense parts of the windbreak are spread over a larger volume.

**Photo 2. Hemiphotos** from an interior cluster location (949) and the N corner of yard (957), The Placer trees extend 10-15° above the horizon from the cluster site. Note that E and W are reversed from map views because the photos are taken looking upward.

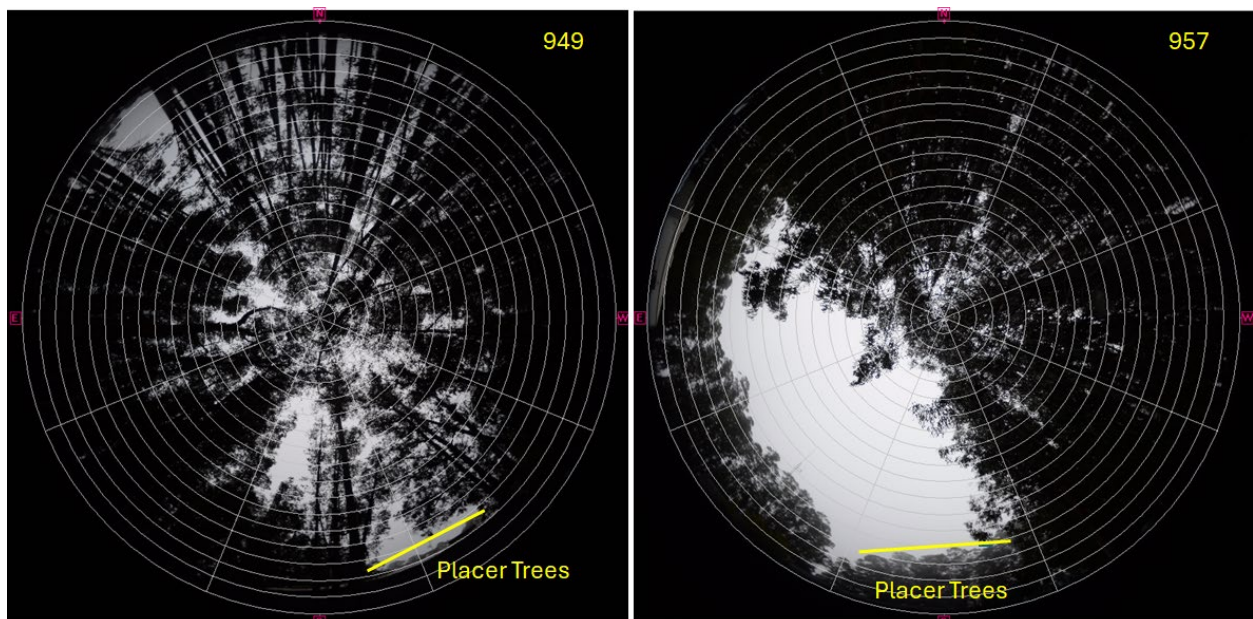


Photo 949 is a cluster site along the opening to the NE (old road access), 50 ft from the forest edge to the SE). The Placer trees occupy 10-15° above the horizon from the cluster site. Photo 957 is at the N corner of the yard; the Placer trees occupy ~20° above the horizon.

Figure 1. Oblique View of Placer Street Windbreak in the model, showing the same gaps as in the photo above. Vectors are wind conditions 30 feet above ground. Canopy voxels shown. The cluster zone is the white box visible at the end of the yard.

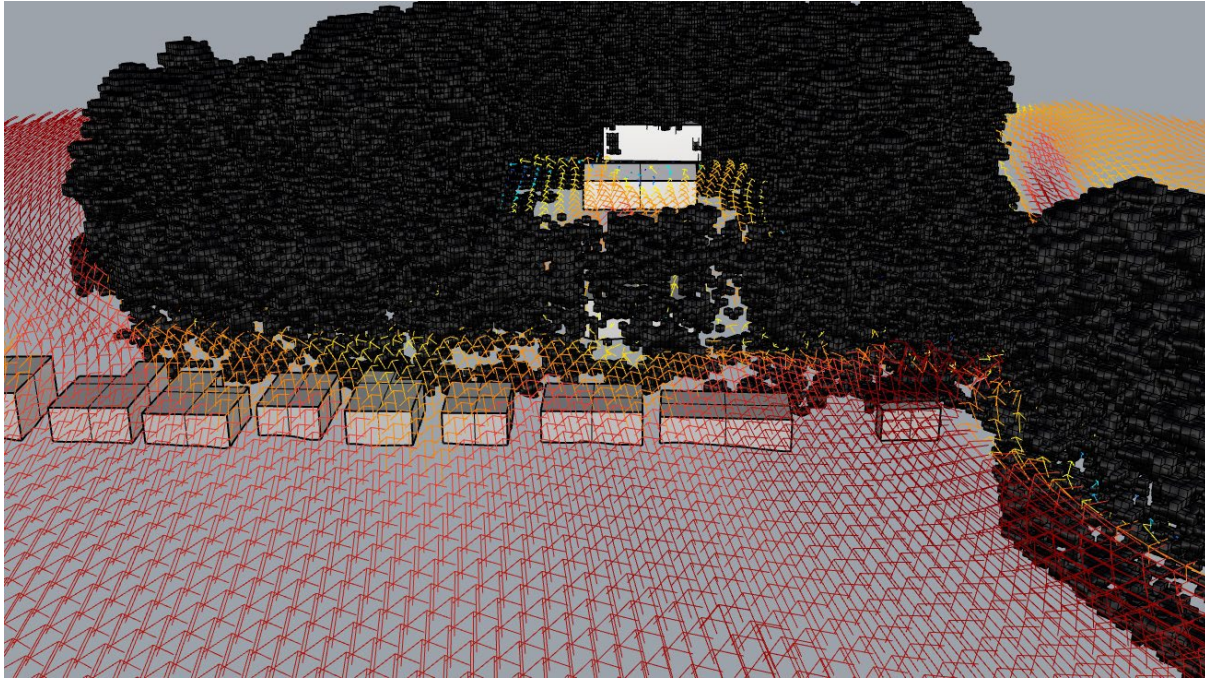
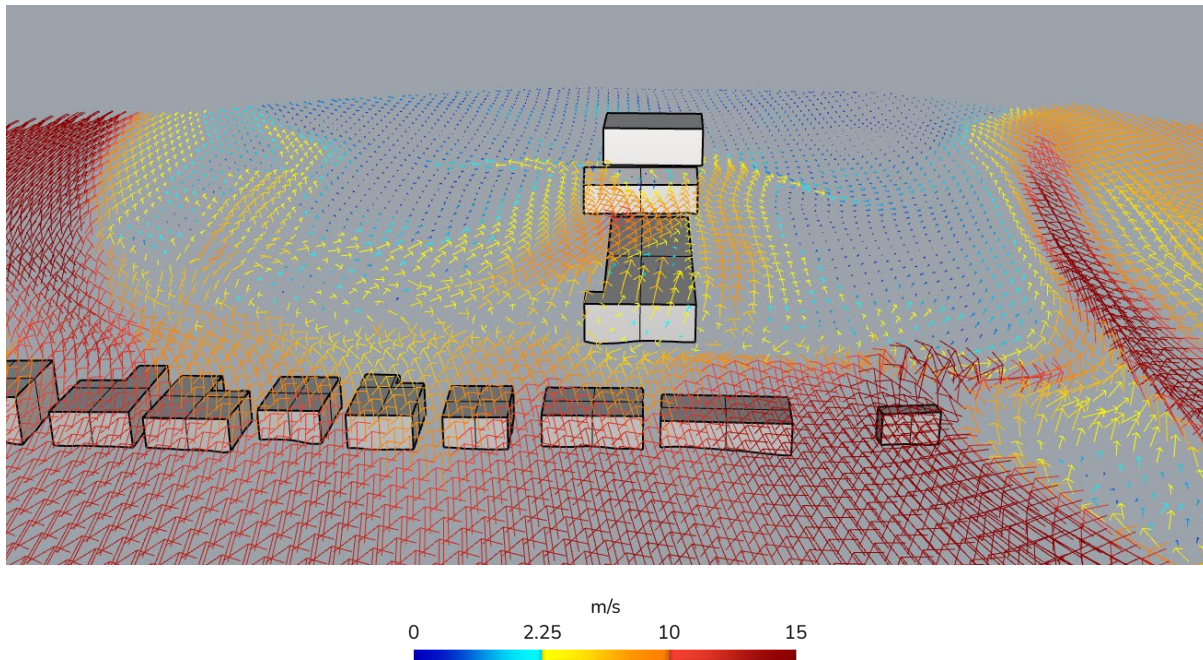
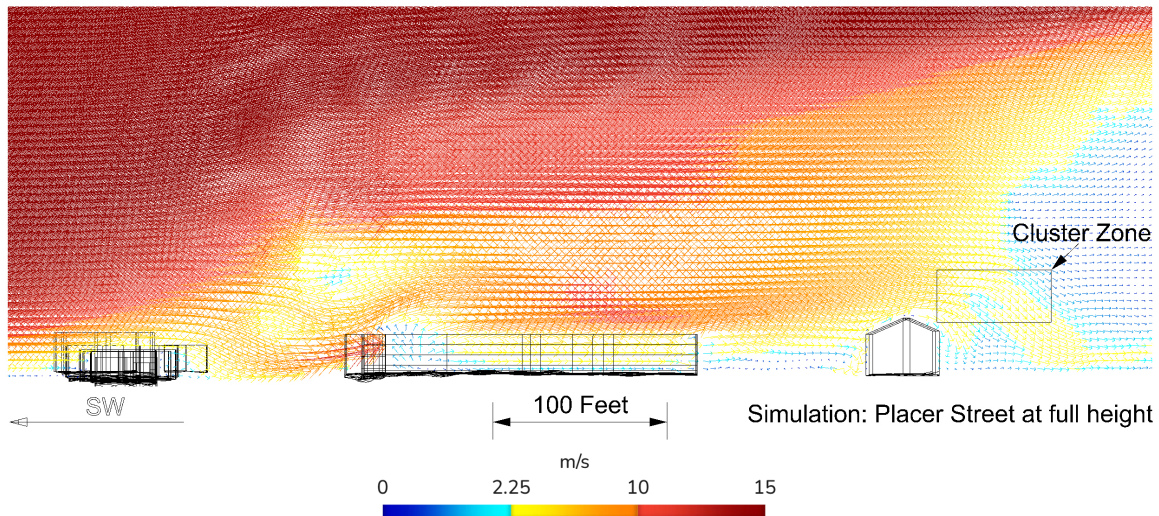


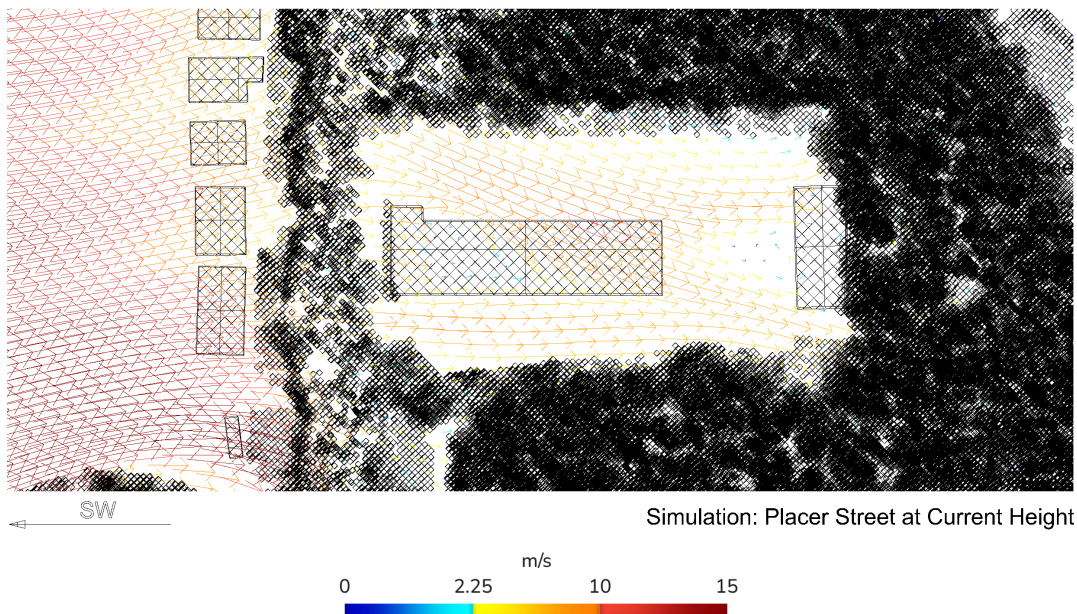
Figure 2. Oblique View of Placer Street Windbreak, Canopy Voxels Hidden. Current wind conditions 30 feet above ground.



**Figure 3. Vertical slice profile** of wind through center of yard. Note the vertical variations in direction. From now on the vertical slice profile will be standard graphic.



**Figure 4. Bird's-eye View of Yard** with incoming SW wind, tree voxels shown. Note the changes in wind direction within the yard.



Figures 3 and 4 show the current conditions from two views. Under current conditions, wind penetrates the Placer windbreak most in-line with the main building in the sanitation yard. The highest wind speeds over the yard are dispersed by the far building and canopy edge of the cluster zone (canopy voxels hidden in the representation). The slice of the cluster zone is all yellow and blue (wind speeds 1-3 m/s). The statistics of the entire cluster zone are shown below (Figure 6).

Figure 5A. Vertical Slice for Current Conditions, canopy voxels not shown

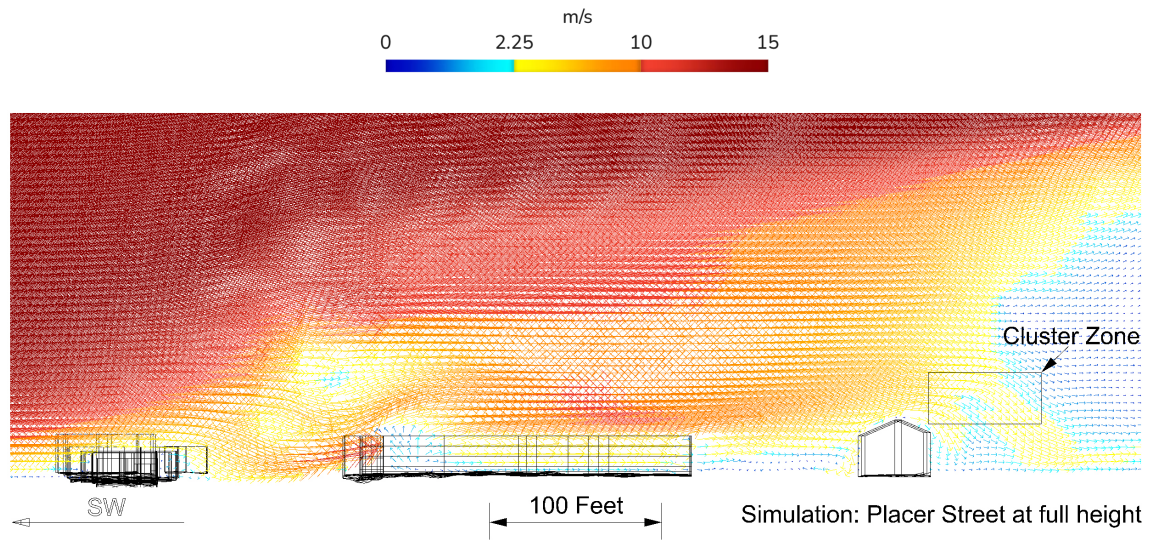


Figure 5B. Vertical Slice for Complete Removal.

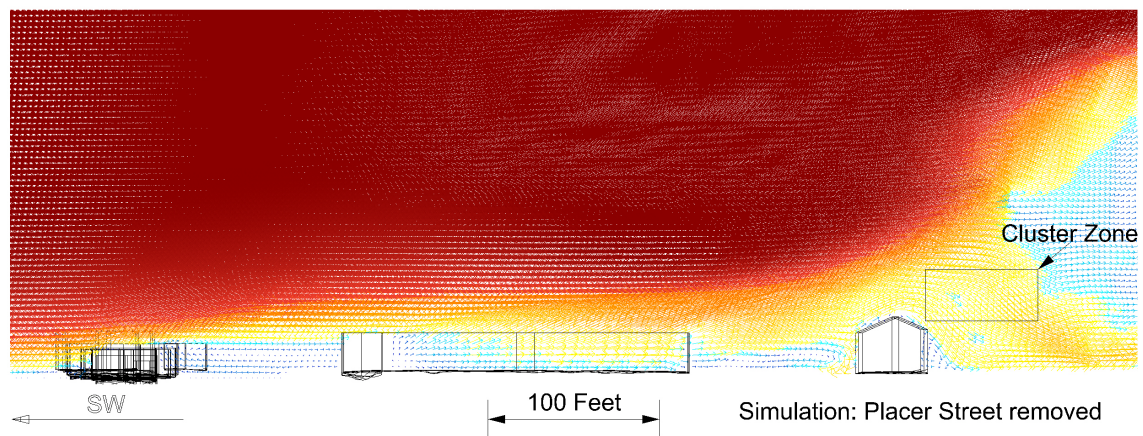
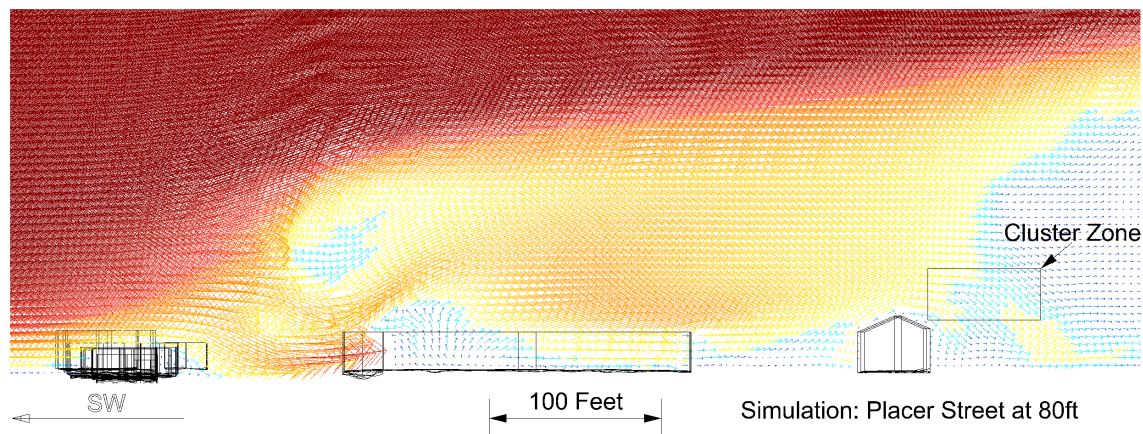


Figure 5C. Vertical Slice for 80 ft Placer Height

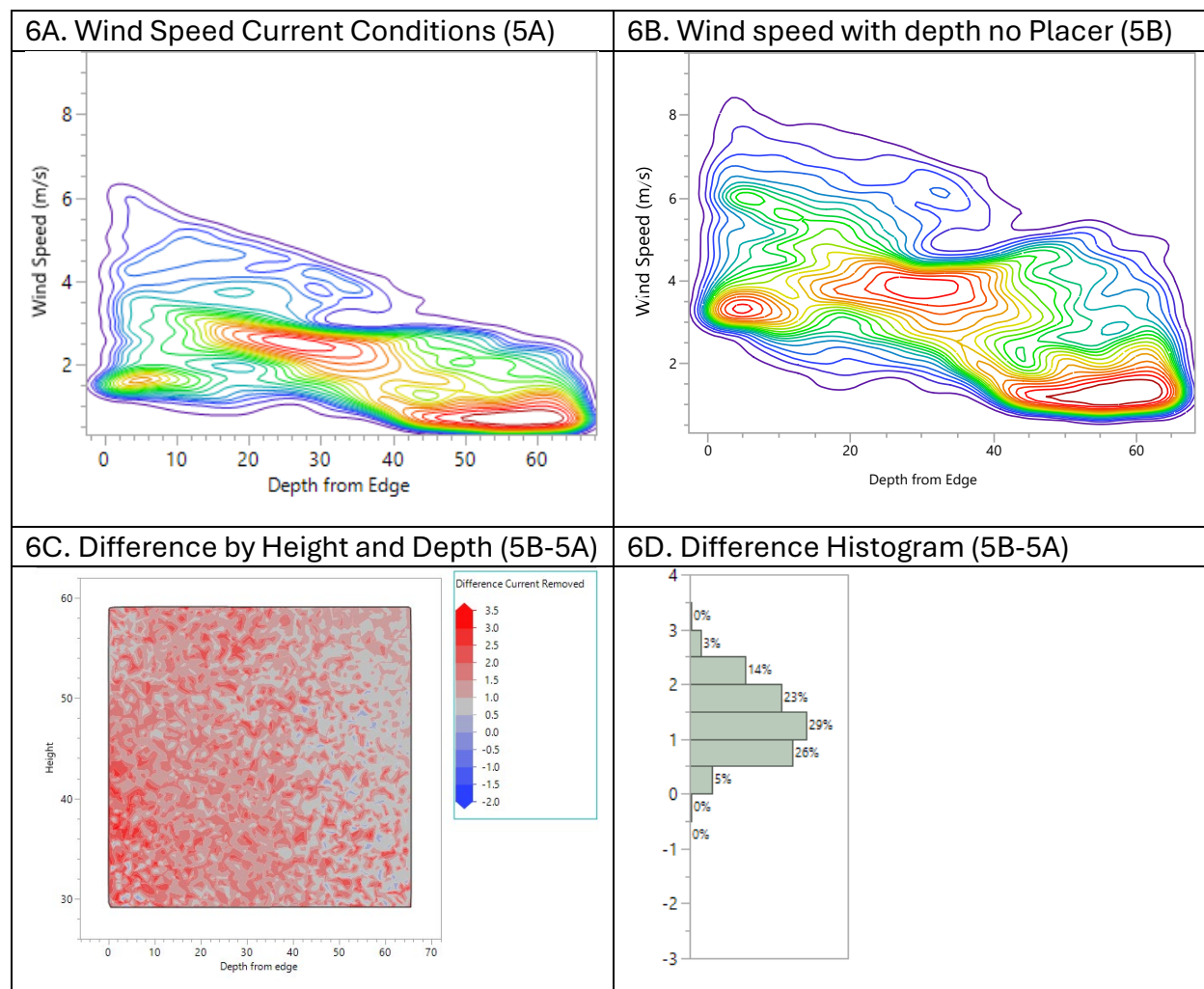


Some of the interesting details of Figure 5 and the variations include:

- 1) Under current conditions (5A), wind ascend over the Placer trees, and there is a calm spot in the middle of the trees.
- 2) The wind shadow of the Placer trees extends downwind over the entire reach shown.
- 3) Wind penetrates at low heights through the gap in Photo 1 and Figure 1. That wind ascends and an eddy forms over the main building.
- 4) The wind accelerates back to ~10 m/s again past that eddy just above the main building.
- 5) Wind slows to ~3-5 m/s (yellow) at the edge of the cluster zone above the far-right building.
- 6) The wind descends over the far-right building, and the cluster zone is primarily blue and yellow. The taller trees above the cluster zone attenuate the wind to less than 2 m/s. The open understory below the cluster zone allows wind to remain above 2 m/s near ground level.
- 7) Under complete removal (5B), the wind stays at 10 m/s across the yard, the friction effect of the main building slows the wind in the first 20 ft above.
- 8) The red zone of high wind ascends at the forest edge above the cluster zone, but the high interior of the grove is below 2 m/s.
- 9) The blue vectors in the cluster zone virtually disappear with full removal.
- 10) The 80 ft. Placer scenario (5C) is very similar to the current condition (5A).

The full distribution of wind speeds within the cluster zone are treated in Figure 6 below.

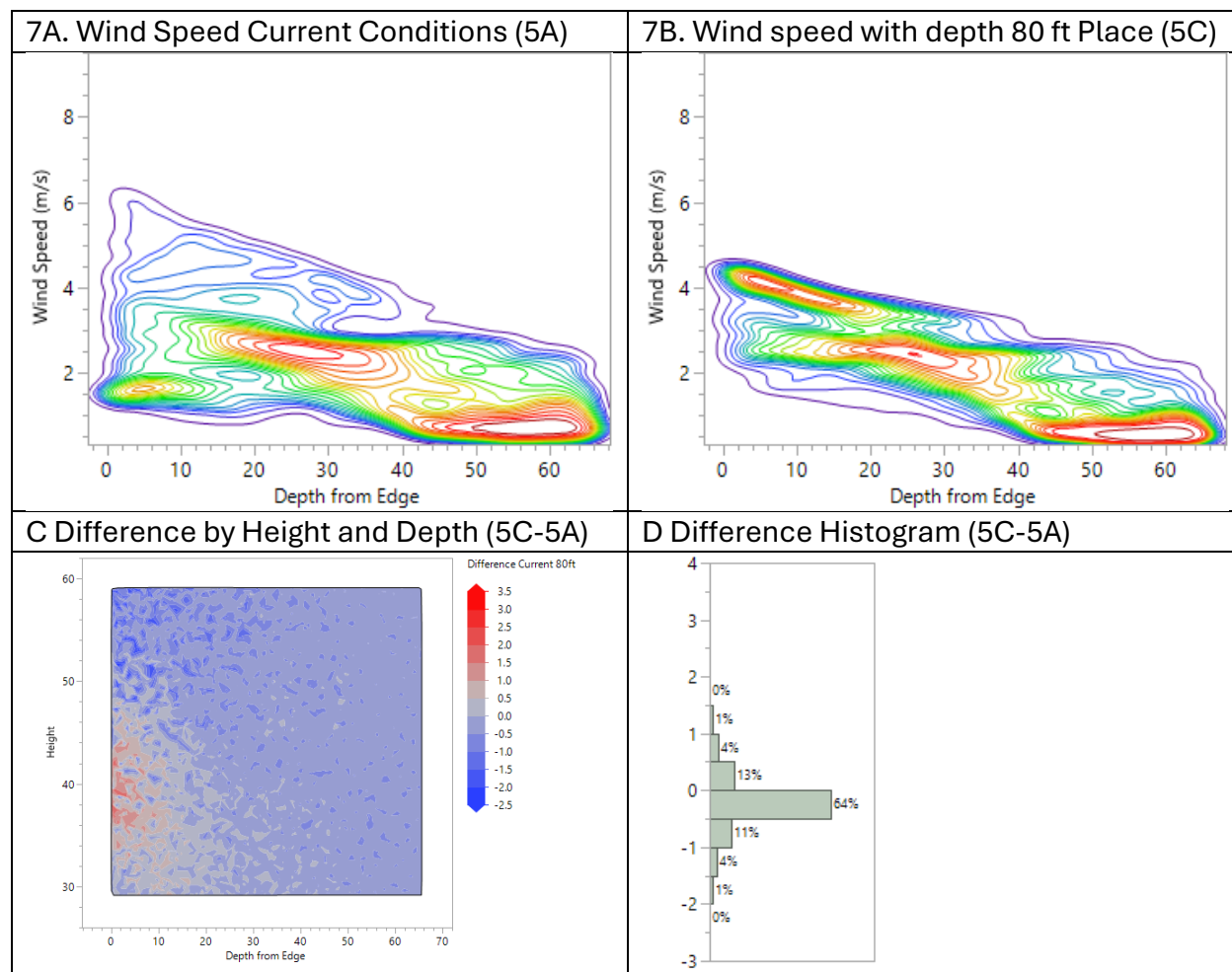
Figure 6. Comparison of current conditions (A) versus complete removal of Placer (B), with depth from edge. Orange and red quantile contours show the relative density of points. The difference by height and depth (C) and the difference histogram (D).



The complete removal scenario is an “end member” so that the wind attenuation of the cluster zone grove itself is isolated. With the current conditions (6A), there are many sites with wind less than 2 m/s at all depths, especially deeper into the cluster zone (40 ft and beyond). With complete removal (6B), the only sites below 2 m/s are greater than 40 ft from the edge. The contour plot of the differences (6C) shows increased wind speed throughout the height and depth of the cluster zone, up to 3 m/s near the edge. The histogram shows 69% of the sites increasing by 1 m/s or more, and 17% increasing by 2 m/s or more.

Remember that the cluster microsites are 40 – 60 ft from the edge.

Figure 7. Comparison of Current Versus 80 ft Placer with depth from edge. Layout is the same as previous figure.



With the 80 ft Placer, the zone close to the edge loses lower wind speeds, but the deeper zone remains less than 2 m/s (7B). When the difference is plotted with height and depth (7C), wind speeds increase (grey and red) primarily within ~20 ft of the edge. 64% of the cluster zone has no change (7D). The 40-60 ft depth zone where the monarchs cluster exhibits little change.

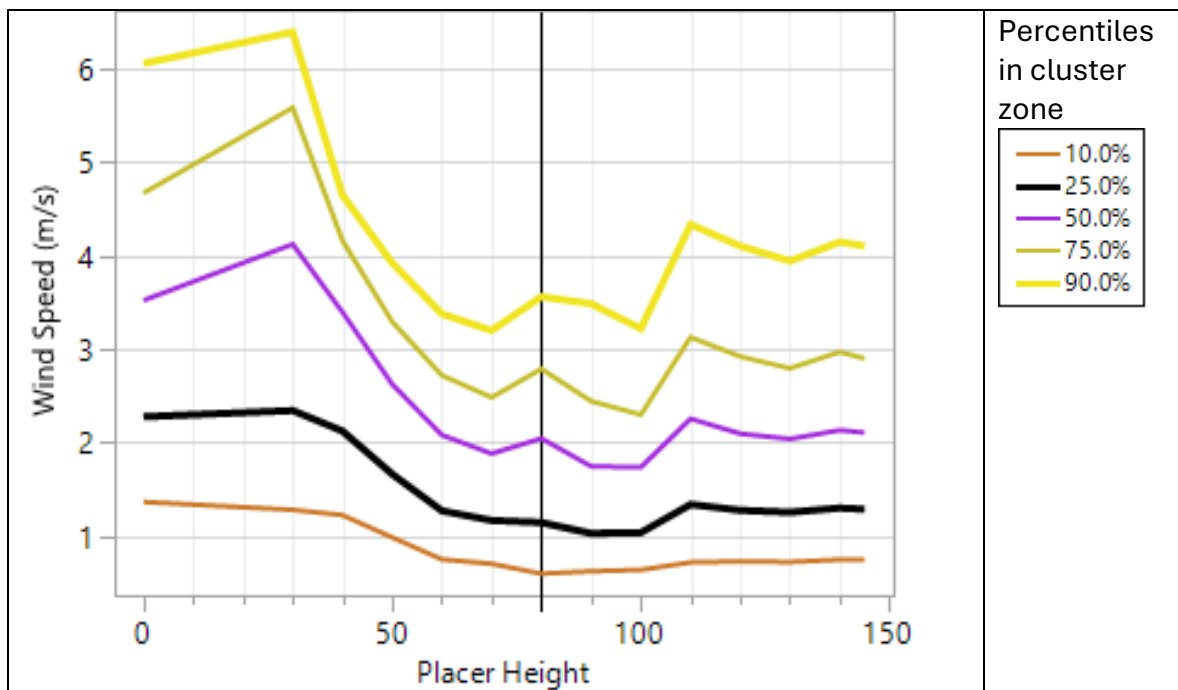
These graphics have been generated for all of the Placer heights considered, but these three scenarios provide sufficient examples of how the wind attenuation works that little will be gained by presenting them all. The synthesis of all the runs is below in Figure 8 with an analysis of wind speed percentiles within the cluster zone.

## Wind Speed Percentiles with Placer Height

The results of all the Placer height scenarios are summarized in Figure 8 below. The percentiles of wind speed within the cluster zone are plotted for each Placer height scenario and connected (145 is the current condition, 0 is complete removal as an end member). The black line is the 25<sup>th</sup> percentile (i.e. 25% of the points within the cluster zone are less than that wind speed). For the 80 ft. Placer scenario (vertical line), the 25<sup>th</sup> percentile (1.15 m/s) and the 50<sup>th</sup> percentile (2.04 m/s.) are virtually the same as in the current condition. Only when Placer is reduced to below 60 ft, do the 25<sup>th</sup> percentile and other percentiles start to rise. The irregularities in the curves (such as the bump at 110 ft) reflect some of the complex turbulent wavelengths generated by different Placer heights and may vary in shape for different wind speeds.

*This analysis provides strong support for the 80 ft height being a safe option, leaving another 10 to 20 ft buffer before wind speed percentiles rise rapidly.*

**Figure 8. Percentiles of Wind Speed Within the Cluster Zone** by the height of the Placer trees (X-axis)



## Scenario 2: Placer Street Windbreak at Strike Height

This scenario models wind if the Placer trees were cut in a gradient below heights capable of striking buildings along Placer Street. The canopy geometry modeled is based on a selection of vegetation volume that does not account for actual tree structure and is strictly based on a 45-degree angle from the base of occupied buildings on Placer Street.

This scenario (9A) produces subtle changes from current conditions (9B). Those differences within the cluster zone are best viewed in Figure 10 below.

Figure 9A Vertical Wind Profile with Strike Height Scenario

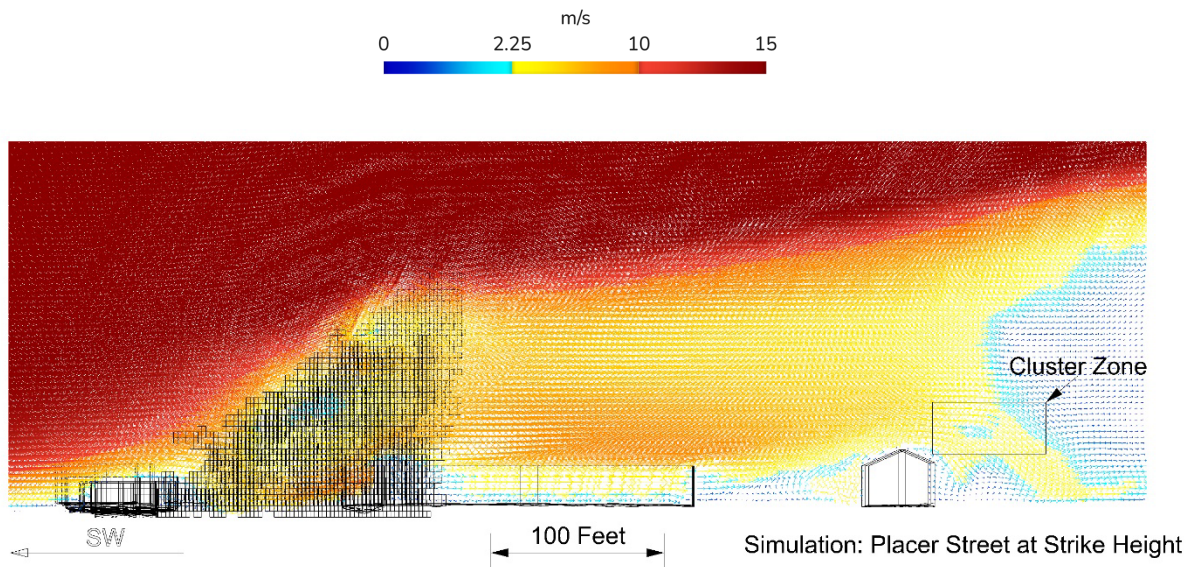


Figure 9B Vertical Wind Profile Current Conditions (same as Figure 5A)

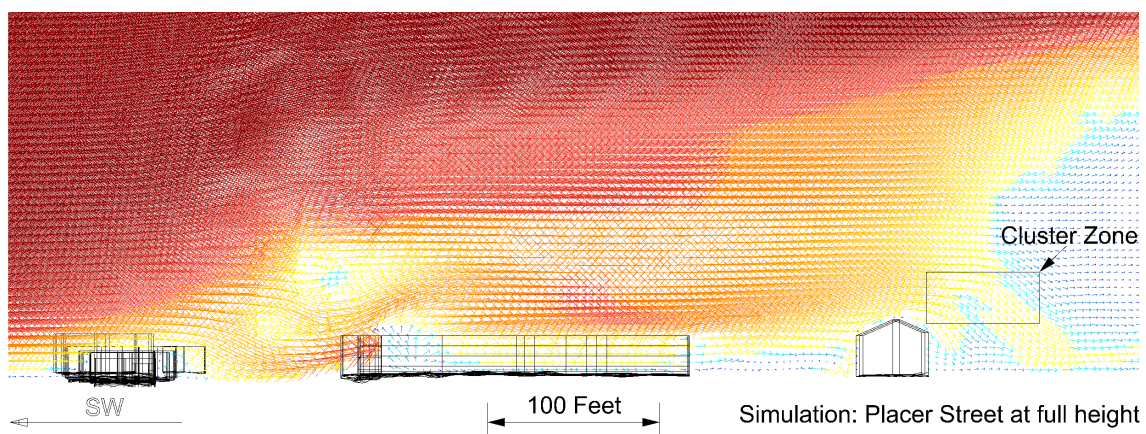
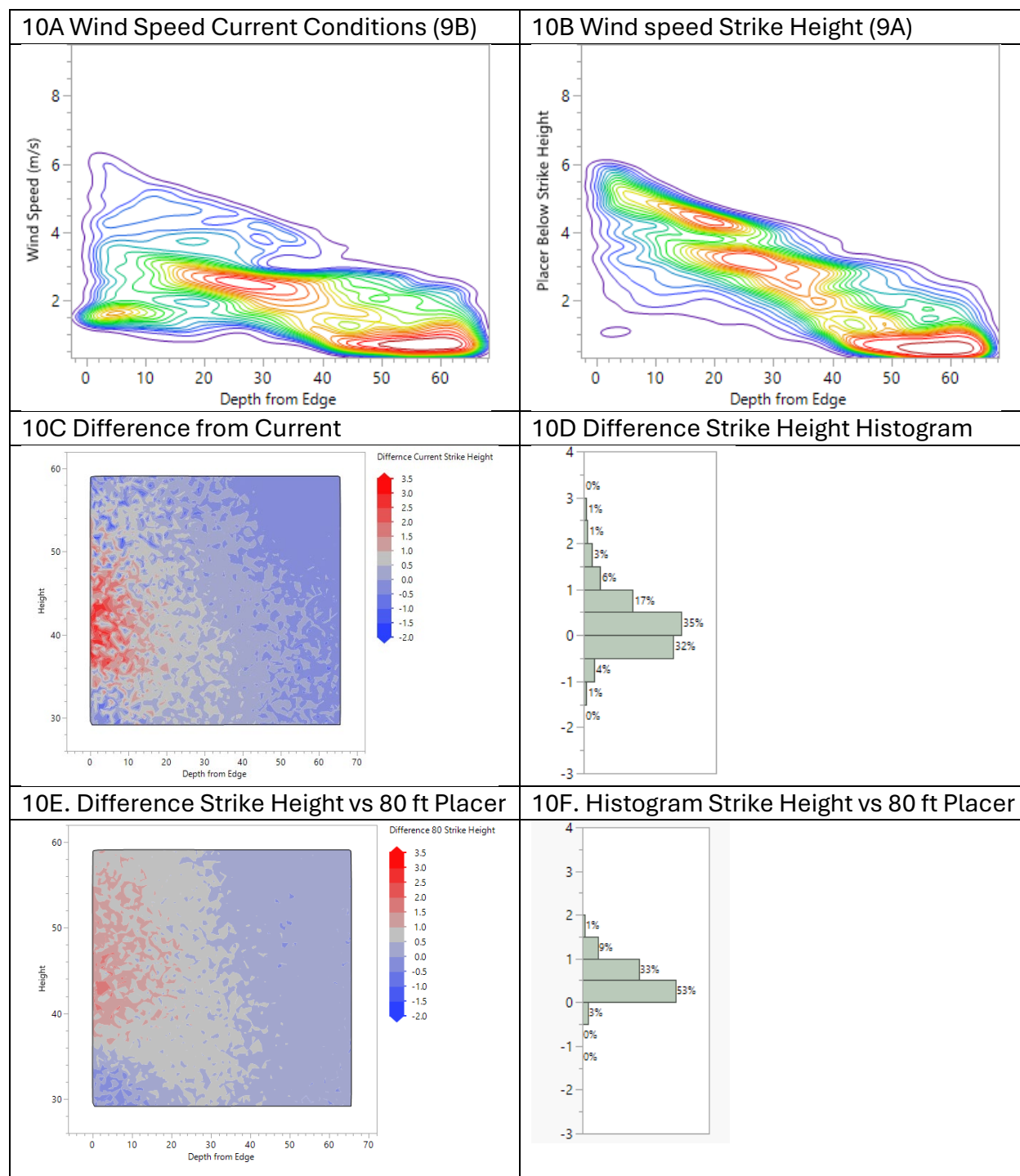


Figure 10. Strike Height Scenario Statistics



In the Strike Height scenario, the only areas with wind below 2 m/s are greater than 40 ft depth (10B). The main impacts are within 20 ft of the edge, between heights of 35 to 50 ft (10C). The sites beyond 40 ft from the edge are little affected Compared with the 80 ft Placer scenario, Strike Height mainly changes in that same zone by ~ 1.5 m/s (10E).

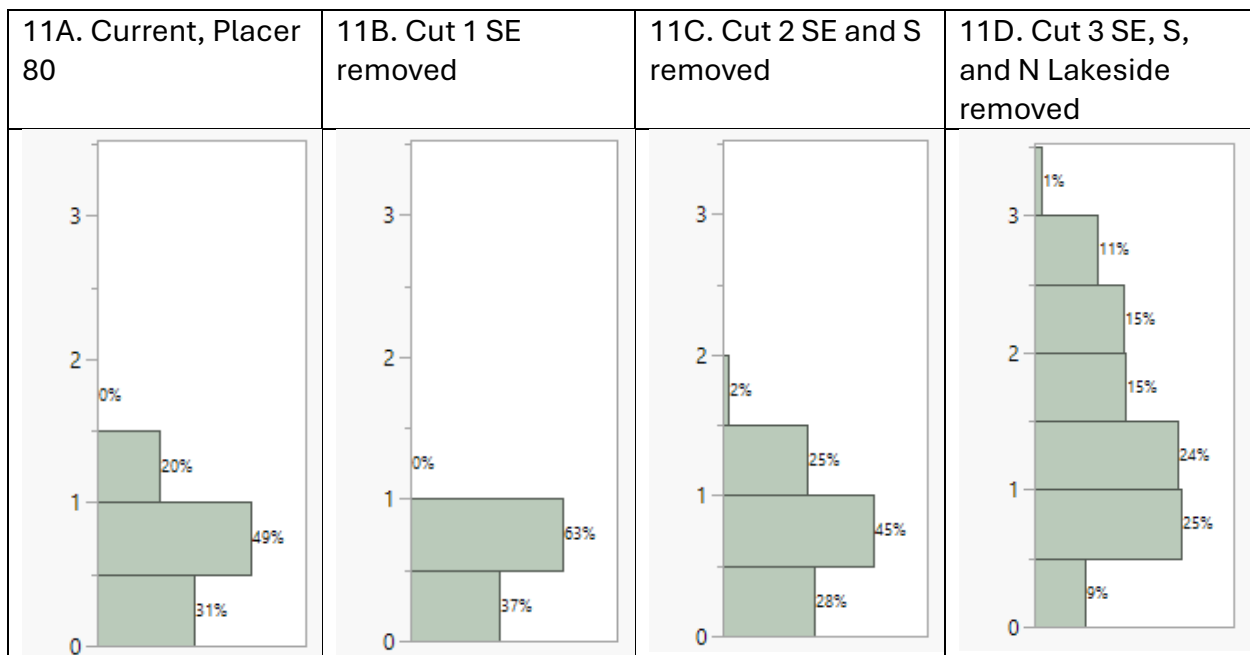
## Scenario 3 & 4: Complete Removal of Southern Groves

The set of scenarios referred to as 3&4 includes the complete removal of groves south of the trees immediately surrounding the sanitation yard. This includes the Southeast Groves, South Lakeside, and North Lakeside. In the simulations we iterated through removing the groves in the order mentioned above.

The effect of these changes was tested using an incoming 10 m/s wind direction of 200°. This wind direction puts the southern groves directly in line with the main cluster site. This allows us to establish the maximum amount of protection provided by the southern groves. We set the Placer trees at the critical 80 ft height.

The current conditions of the S, SE, and N groves provide excellent 200° (SSW) wind protection for the cluster zone, with only 20% of the volume greater than 1 m/s and none greater than 2 m/s. Removal of the SE and S groves does not create areas of higher winds. The only scenario that creates wind speeds greater than 2 m/s is complete removal of the three groves in question, an extreme scenario; 27% of the cluster zone volume has wind speeds greater than 2 m/s.

**Figure 11. Histograms of Absolute Wind Speed in Cluster Zone for 200° 10m/s Wind.**



## Scenario 5: 50–70-foot Canopy Height at Southern Groves

This scenario is designed to test the effects of cutting the southern groves (same groves as discussed in scenarios 3&4) to a height of approximately 50-70 feet. Given that the results of scenarios 3&4 suggest that the conditions felt at the main cluster site with complete removal of the southern groves are still well within comfortable parameters, it was deemed unnecessary to test the 50–70-foot condition of the southern groves. Wind conditions can be assumed to be suitable given this treatment.

## Scenario 6: North Edge Below Strike Height

This scenario uses the same approach as scenario 2, except for with buildings nearest to the North Edge grove. The buildings on this northern side of the groves are farther from the North Edge grove than those buildings along Placer Street, with the “Boneyard” occupying most of the space between buildings and North Edge trees. The modifications result in minor changes to the canopy of the North Edge. Cutting would be limited to the highest sections of the trees.

Figure 12 shows a vertical slice for current and strike height. The wind is N ( $0^\circ$ ) at 10 m/s. In the current configuration, there is a “wind tunnel” along the road opening (the jet of yellow/red near the ground). This opening can be seen in Photo 2, 949 as the near-horizon gap to the NE. This wind vulnerability, which drives the monarchs away from the NE cluster zone during strong northerly winds, was confirmed with actual wind measurements in the habitat assessment (Weiss 2022). Sealing this gap with new cypress trees in the Boneyard across from the opening was a key recommendation in that report.

The strike height modification results in minimal changes to wind conditions in the cluster zone - in fact they are almost indistinguishable both visually (Figure 12) and in the histograms (Figures 13 A, B). The slight differences are captured in a difference histogram (Figure 13C). The distribution of wind with height along the NW-SE canopy edge (Figures 13 D, E) shows the wind tunnel along the road opening clearly in the lower left corner between 0 and 20 ft. and below 40 ft height.

The actual trimming would be well up in the canopy, above the cluster zone and there would still be several rows of trees to provide wind shelter. Combined with sealing up the wind tunnel with Boneyard cypress plantings, the north edge of the grove will be more secure for both monarchs and building safety.

Figure 12A. N-Edge Current Conditions

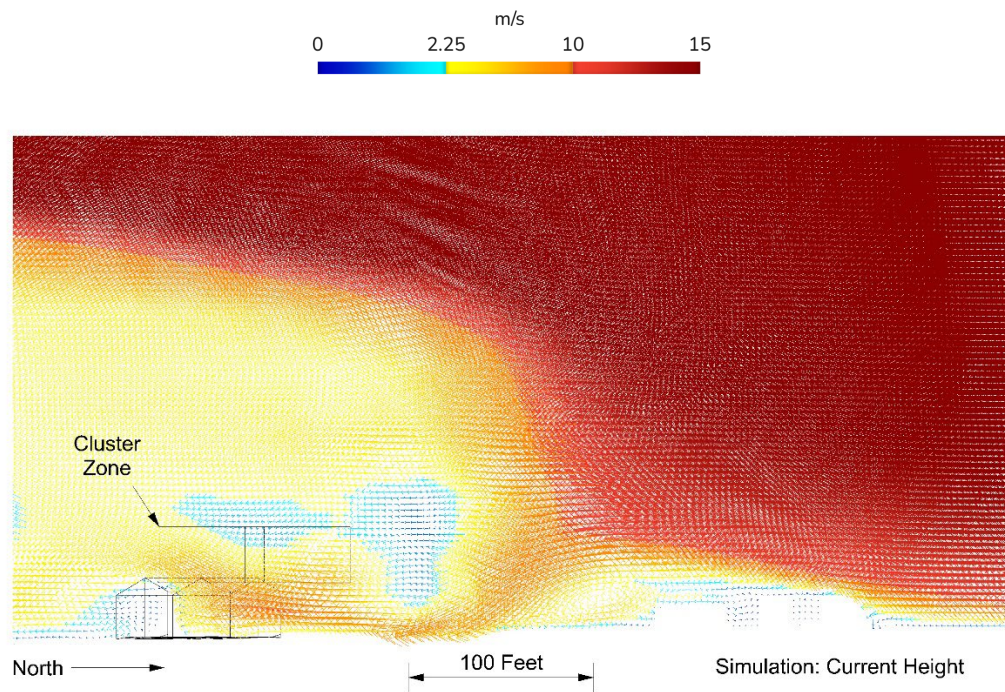


Figure 12B. N-Edge Strike Height

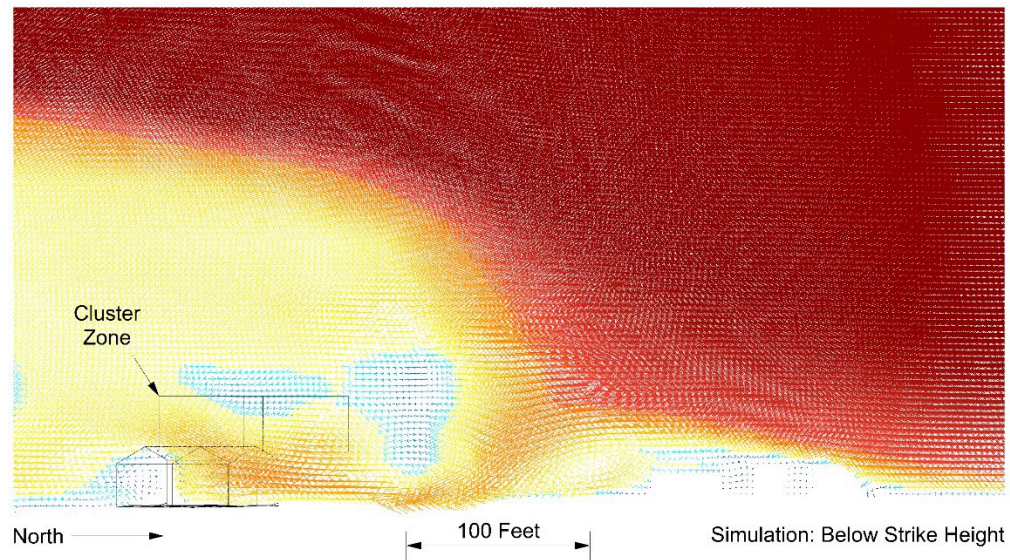
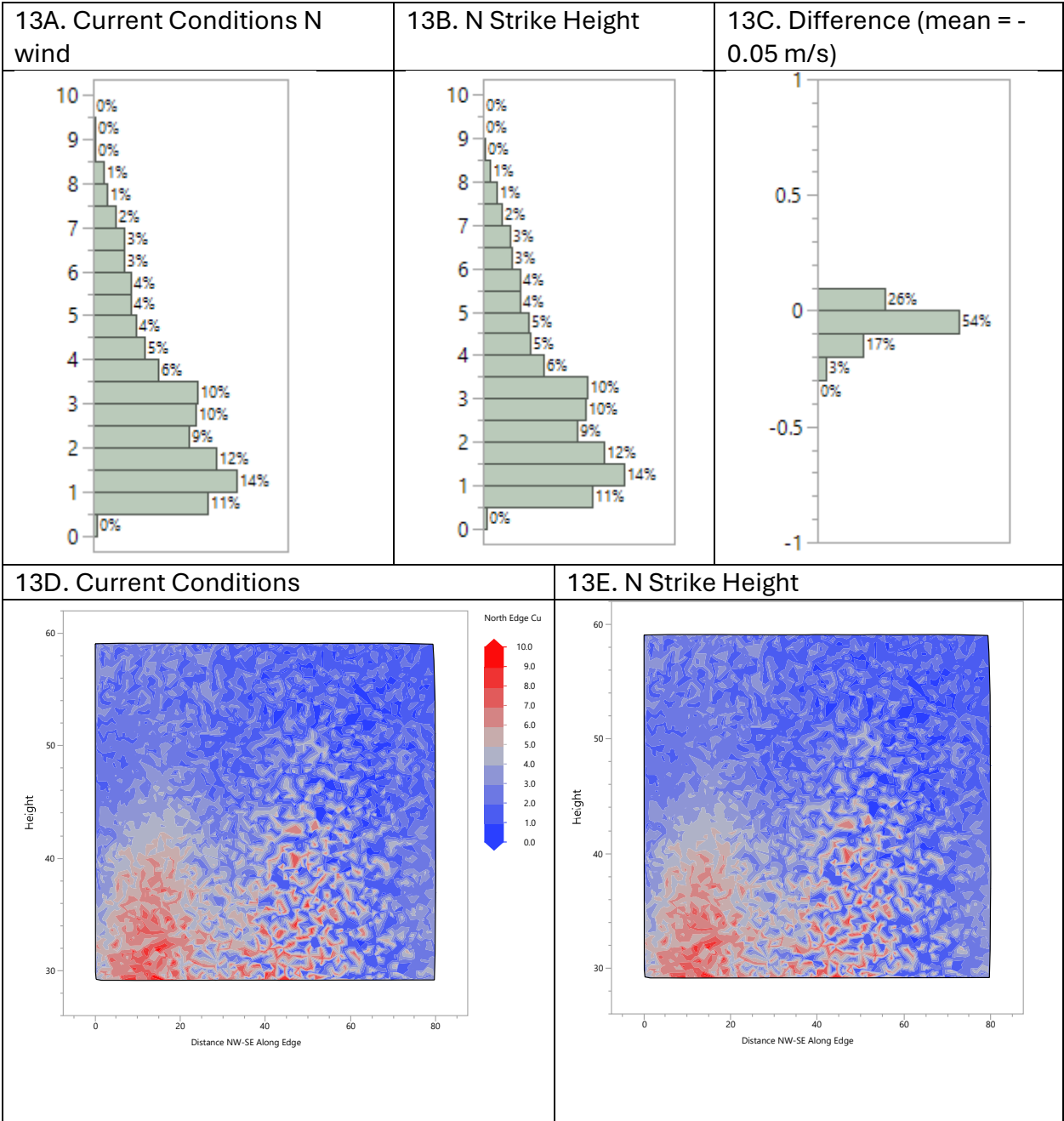
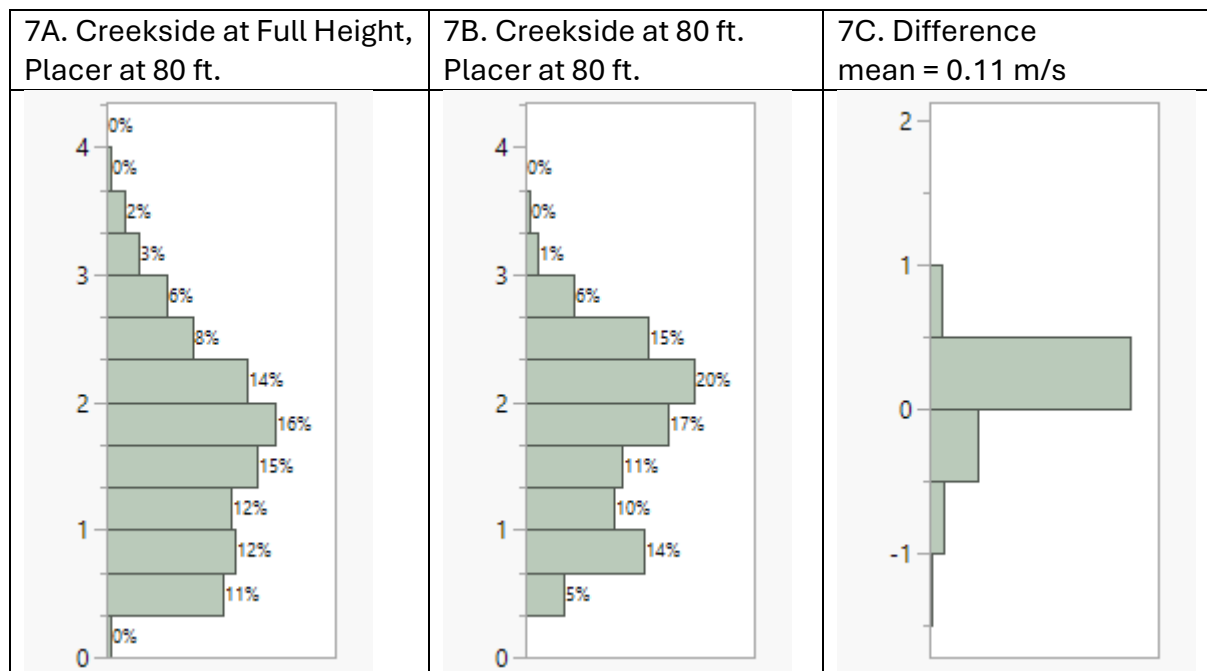


Figure 13. Strike Height on North Edge Histograms



## Scenario 7: South Creekside at Critical Height

Figure 14 Histograms of Wind Speed for Creekside Topping



Topping the Creekside trees to 80 ft has a small effect on the cluster zone, a mean increase of 0.11 m/s. It actually decreases the very maximum wind speeds (> 3 m/s) slightly.

This treatment is not a realistic option for monarchs, because of the presence of consistent cluster trees in this area. Those cluster sites would likely be disrupted by topping.

## References

OCM Partners, 2025. 2020 San Mateo RCD Lidar: Santa Cruz County, CA, <https://www.fisheries.noaa.gov/inport/item/63258>.

Weiss, S.B. 2022. Assessment of Moran Lake Monarch Overwintering Habitat. Report by Creekside Science for Santa Cruz County Parks.

**Figure 5 Monarch Butterfly Roost and Windbreak Areas**



**Contract No. 25C5097**

**INDEPENDENT CONTRACTOR AGREEMENT**  
**(PREVAILING WAGE NO-BID)**

This Contract, which is effective on the date it is fully executed, is between the COUNTY OF SANTA CRUZ, hereinafter called COUNTY, and THE DAVEY TREE EXPERT COMPANY DBA LEWIS TREE SERVICE A DAVEY COMPANY hereinafter called CONTRACTOR. The parties agree as follows:

**1. DUTIES.** CONTRACTOR agrees to exercise special skill to accomplish the following results: Miscellaneous tree service to include tree removal, tree pruning, and chip and haul brush and wood in in Moran Lake County Park for the County of Santa Cruz Parks, Open Space and Cultural Services Department (hereinafter "the project"). These duties are described in further detail in Attachment A, "Scope of Services", which is attached hereto and incorporated herein by reference.

**2. COMPENSATION.** In consideration for CONTRACTOR accomplishing said result, COUNTY agrees to pay CONTRACTOR as follows: Payment not to exceed \$300,000, based on the attached Service Rates Sheet, Attachment B, processed for payment after receipt and project manager approval of monthly invoices based upon the amount of actual progress achieved during the preceding month.

If this Contract is for the creation, construction, alteration, repair or improvement of any public structure, building, road or other improvement of any kind and the total compensation payable under this Contract will exceed \$5000, five percent (5%) retention shall be withheld from progress payments and released as provided by Public Contract Code sections 9203 and 7107.

**3. TERM.** The term of this Contract shall be: May 6, 2025 through Project Completion. If this Contract is placed on the County's Continuing Agreement List before the Contract term expires, the parties agree to extend the terms and conditions of the Contract as set forth herein, and as reflected in any executed amendment hereto, until the Contract is thereafter terminated.

**4. EARLY TERMINATION.** COUNTY may terminate this Contract at any time by giving thirty (30) days' written notice to the CONTRACTOR. CONTRACTOR may terminate this Contract for cause, after providing COUNTY thirty (30) days' written notice and opportunity to cure, specifying in detail the cause for termination.

**5. INDEMNIFICATION FOR DAMAGES, TAXES AND CONTRIBUTIONS.**  
To the fullest extent permitted by applicable law, CONTRACTOR shall exonerate, indemnify, defend, and hold harmless COUNTY (which for the purpose of paragraphs 5 and 6 shall include, without limitation, its officers, agents, employees and volunteers) from and against:

A. Any and all claims, demands, losses, damages, defense costs, or liability of any kind or nature which COUNTY may sustain or incur or which may be imposed upon it as a result of, arising out of, or in any manner connected with the CONTRACTOR'S performance under the terms of this Contract, excepting any liability arising out of the sole negligence of the COUNTY. Such indemnification includes any damage to the person(s), or property(ies) of CONTRACTOR and third persons.

B. Any and all Federal, State, and Local taxes, charges, fees, or contributions required to be paid with respect to CONTRACTOR and CONTRACTOR'S officers, employees and agents engaged in the performance of this Contract (including, without limitation, unemployment insurance, social security and payroll tax withholding).

COUNTY shall provide timely notice to CONTRACTOR of third party claims relating to this Contract, as required by applicable law.

**6. INSURANCE.** CONTRACTOR, at its sole cost and expense, for the full term of this Contract (and any extensions thereof), shall obtain and maintain, at minimum, compliance with all of the following insurance coverage(s) and requirements. Such insurance coverage shall be primary coverage as respects COUNTY and any insurance or self-insurance maintained by COUNTY shall be considered in excess of CONTRACTOR'S insurance coverage and shall not contribute to it. If CONTRACTOR normally carries insurance in an amount greater than the minimum amount required by the COUNTY for this Contract, that greater amount shall become the minimum required amount of insurance for purposes of this Contract. Therefore, CONTRACTOR hereby acknowledges and agrees that any and all insurances carried by it shall be deemed liability coverage for any and all actions it performs in connection with this Contract. Insurance is to be obtained from insurers reasonably acceptable to the COUNTY.

If CONTRACTOR utilizes one or more subcontractors in the performance of this Contract, CONTRACTOR shall obtain and maintain Contractor's Protective Liability Insurance as to each subcontractor or otherwise provide evidence of insurance coverage from each subcontractor equivalent to that required of CONTRACTOR in this Contract, unless CONTRACTOR and COUNTY both initial here: \_\_\_\_ / \_\_\_\_.

**A. Types of Insurance and Minimum Limits**

(1) Workers' Compensation Insurance in the minimum statutorily required coverage amounts. This insurance coverage shall be required unless the CONTRACTOR has no employees and certifies to this fact by initialing here: \_\_\_\_\_.

(2) Automobile Liability Insurance for each of CONTRACTOR'S vehicles used in the performance of this Contract, including owned, non-owned (e.g. owned by CONTRACTOR'S employees), leased or hired vehicles, in the minimum amount of \$500,000 combined single limit per occurrence for bodily injury and property damage. This insurance coverage is required unless the CONTRACTOR does not drive a vehicle in conjunction with any part of the performance of this Contract and CONTRACTOR and COUNTY both certify to this fact by initialing here \_\_\_\_ / \_\_\_\_.

(3) Comprehensive or Commercial General Liability Insurance coverage at least as broad as the most recent ISO form CG 00 01, with a minimum limit of \$2,000,000 per occurrence and \$2,000,000 aggregate, including coverage for: (a) products and completed operations; (b) bodily and personal injury, (c) broad form property damage, (d) contractual liability, and (e) cross-liability.

(4) Professional Liability Insurance in the minimum amount of \$ \_\_\_\_\_ combined single limit, if, and only if, this Subparagraph is initialed by CONTRACTOR and COUNTY \_\_\_\_ / \_\_\_\_.

**B. Other Insurance Provisions**

(1) If any insurance coverage required in this Contract is provided on a "Claims Made" rather than "Occurrence" form, CONTRACTOR agrees that the retroactive date thereof shall be no later than the date first written above (in the first paragraph on page 1), and that it shall maintain the

required coverage for a period of three (3) years after the expiration of this Contract (hereinafter “post Contract coverage”) and any extensions thereof. CONTRACTOR may maintain the required post Contract coverage by renewal or purchase of prior acts or tail coverage. This provision is contingent upon post Contract coverage being both available and reasonably affordable in relation to the coverage provided during the term of this Contract. For purposes of interpreting this requirement, a cost not exceeding 100% of the last annual policy premium during the term of this Contract in order to purchase prior acts or tail coverage for post Contract coverage shall be deemed to be reasonable.

(2) All policies of Comprehensive or Commercial General Liability Insurance shall be endorsed to cover the County of Santa Cruz, its officials, employees, agents and volunteers as additional insureds with respect to liability arising out of the work or operations and activities performed by or on behalf of CONTRACTOR, including materials, parts or equipment furnished in connection with such work or operations. Endorsements shall be at least as broad as ISO Form CG 20 10 11 85, or both CG 20 10 10 01 and CG 20 37 10 01, covering both ongoing operations and products and completed operations.

(3) All required insurance policies shall be endorsed to contain the following clause: “This insurance shall not be canceled until after thirty (30) days’ prior written notice (10 days for nonpayment of premium) has been given to:

**Santa Cruz County  
Parks, Open Space and Cultural Services  
Attn: Parks Fiscal  
979 17<sup>th</sup> Ave  
Santa Cruz, CA 95062**

Should CONTRACTOR fail to obtain such an endorsement to any policy required hereunder, CONTRACTOR shall be responsible to provide at least thirty (30) days’ notice (10 days for nonpayment of premium) of cancellation of such policy to the COUNTY as a material term of this Contract.

(4) CONTRACTOR agrees to provide its insurance broker(s) with a full copy of these insurance provisions and provide COUNTY on or before the effective date of this Contract with Certificates of Insurance and endorsements for all required coverages. However, failure to obtain the required documents prior to the work beginning shall not waive the CONTRACTOR’s obligation to provide them. All Certificates of Insurance and endorsements shall be delivered or sent to:

**Santa Cruz County  
Parks, Open Space and Cultural Services  
Attn: Parks Fiscal  
979 17<sup>th</sup> Ave  
Santa Cruz, CA 95062**

(5) CONTRACTOR hereby grants to COUNTY a waiver of any right of subrogation which any insurer of said CONTRACTOR may acquire against the COUNTY by virtue of the payment of any loss under such insurance. CONTRACTOR agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation, but this provision applies regardless of whether or not the COUNTY has received a waiver of subrogation endorsement from the insurer.

**7. EQUAL EMPLOYMENT OPPORTUNITY.** During and in relation to the performance of this Contract, CONTRACTOR agrees as follows:

A. The CONTRACTOR shall not discriminate against any employee or applicant for employment because of race, color, creed, religion, national origin, ancestry, physical or mental disability, medical condition (including cancer-related and genetic characteristics), marital status, sexual orientation, age (over 18), veteran status, gender, pregnancy, or any other non-merit factor unrelated to job duties. Such action shall include, but not be limited to, the following: recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, selection for training (including apprenticeship), employment, upgrading, demotion, or transfer. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notice setting forth the provisions of this non-discrimination clause.

B. If this Contract provides compensation in excess of \$50,000 to CONTRACTOR and if CONTRACTOR employs fifteen (15) or more employees, the following requirements shall apply:

(1) The CONTRACTOR shall, in all solicitations or advertisements for employees placed by or on behalf of the CONTRACTOR, state that all qualified applicants will receive consideration for employment without regard to race, color, creed, religion, national origin, ancestry, physical or mental disability, medical condition (including cancer-related and genetic characteristics), marital status, sexual orientation, age (over 18), veteran status, gender, pregnancy, or any other non-merit factor unrelated to job duties. Such action shall include, but not be limited to, the following: recruitment; advertising, layoff or termination, rates of pay or other forms of compensation, selection for training (including apprenticeship), employment, upgrading, demotion, or transfer. In addition, the CONTRACTOR shall make a good faith effort to consider Minority/Women/Disabled Owned Business Enterprises in CONTRACTOR'S solicitation of goods and services. Definitions for Minority/Women/Disabled Owned Business Enterprises are available from the COUNTY General Services Purchasing Division.

(2) In the event of the CONTRACTOR'S non-compliance with the non-discrimination clauses of this Contract or with any of the said rules, regulations, or orders said CONTRACTOR may be declared ineligible for further contracts with the COUNTY.

(3) The CONTRACTOR shall cause the foregoing provisions of subparagraphs 7B(1) and 7B(2) to be inserted in all subcontracts for any work covered under this Contract by a subcontractor compensated more than \$50,000 and employing more than fifteen (15) employees, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

**8. INDEPENDENT CONTRACTOR STATUS.** CONTRACTOR and COUNTY have reviewed and considered the principal test and secondary factors below and agree that CONTRACTOR is an independent contractor and not an employee of COUNTY. CONTRACTOR is responsible for all insurance (workers' compensation, unemployment, etc.) and all payroll related taxes. CONTRACTOR is not entitled to any employee benefits. COUNTY agrees that CONTRACTOR shall have the right to control the manner and means of accomplishing the result contracted for herein.

**PRINCIPAL TEST:** The CONTRACTOR rather than COUNTY has the right to control the manner and means of accomplishing the result contracted for.

**SECONDARY FACTORS:** (a) The extent of control which, by agreement, COUNTY may exercise over the details of the work is slight rather than substantial; (b) CONTRACTOR is engaged in a distinct occupation or business; (c) In the locality, the work to be done by CONTRACTOR is usually done by a specialist without supervision, rather than under the direction of an employer; (d) The skill required in the particular occupation is substantial rather than slight; (e) The CONTRACTOR rather than the COUNTY supplies the instrumentalities, tools and work place; (f) The length of time for which CONTRACTOR is engaged is of limited duration rather than indefinite; (g) The method of payment of CONTRACTOR is by the job rather than by the time; (h) The work is part of a special or permissive activity, program, or project, rather than part of the regular business of COUNTY; (i) CONTRACTOR

and COUNTY believe they are creating an independent contractor relationship rather than an employer-employee relationship; and (j) The COUNTY conducts public business.

It is recognized that it is not necessary that all secondary factors support creation of an independent contractor relationship, but rather that overall there are significant secondary factors that indicate that CONTRACTOR is an independent contractor.

By their signatures on this Contract, each of the undersigned certifies that it is his or her considered judgment that the CONTRACTOR engaged under this Contract is in fact an independent contractor.

**9. NONASSIGNMENT.** CONTRACTOR shall not assign the Contract without the prior written consent of the COUNTY.

**10. ACKNOWLEDGMENT.** CONTRACTOR shall acknowledge in all reports and literature that the Santa Cruz County Board of Supervisors has provided funding to the CONTRACTOR.

**11. RETENTION AND AUDIT OF RECORDS.** CONTRACTOR shall retain records pertinent to this Contract for a period of not less than five (5) years after final payment under this Contract or until a final audit report is accepted by COUNTY, whichever occurs first. CONTRACTOR hereby agrees to be subject to the examination and audit by the Santa Cruz County Auditor-Controller-Treasurer-Tax Collector, the Auditor General of the State of California, or the designee of either for a period of five (5) years after final payment under this Contract.

**12. PRESENTATION OF CLAIMS.** Presentation and processing of any or all claims arising out of or related to this Contract shall be made in accordance with the provisions contained in Chapter 1.05 of the Santa Cruz County Code, which by this reference is incorporated herein.

**13. ATTACHMENTS.** Should a conflict arise between language in the body of this Contract and any attachment to this Contract, the language in the body of this Contract controls. This Contract includes the following attachments:

Attachment A: Scope of Services  
Attachment B: Services Rates Sheet  
Attachment C: Moran Diagram

**14. PREVAILING WAGE.** This agreement is covered under Prevailing Wage provisions if this section is initialed by COUNTY \_\_\_\_\_.

This agreement is subject to the Prevailing Wage provisions and provisions relating to certified payroll records and apprenticeship of the Labor Code of California and Department of Industrial Relations regulations. There shall be paid to each worker of the CONTRACTOR, or any of his subcontractors engaged in work on the project, not less than the prevailing wage rate regardless of any contractual relationship that may be alleged to exist between the Contractor or subcontractor of such worker. Holiday and overtime work, when permitted by law, shall be paid at a rate of at least one and one-half (1 ½) times the above specified rate of per diem wages, unless otherwise specified. Non-compliance during the term of the contract will be considered a material breach and may result in termination of the Agreement or pursuit of other legal or administrative remedies. To the fullest extent permitted by law, CONTRACTOR shall indemnify and hold COUNTY harmless against any claims, or demands, or liability arising from failure to comply with all applicable requirements under the Prevailing Wage and related requirements.

**15. LICENSE, REGISTRATION, AND CSLB NOTICE.** CONTRACTOR shall maintain all required licenses throughout the term of this Contract. CONTRACTOR shall be registered with the

Department of Industrial Relations pursuant to Labor Code section 1725.5. **NOTICE:** Contractors are required by law to be licensed and regulated by the Contractors' State License Board which has jurisdiction to investigate complaints against contractors if a complaint regarding a patent act or omission is filed within four years of the date of the alleged violation. A complaint regarding a latent act or omission pertaining to structural defects must be filed within 10 years of the date of the alleged violation. Any questions concerning a contractor may be referred to the Registrar, Contractors' State License Board, P.O. Box 26000, Sacramento, California 95826.

**16. NON-BINDING UNTIL APPROVED.** Regardless of whether this Contract has been signed by all parties, if the total compensation identified in Paragraph 2 of this Contract is greater than \$15,000, this Contract is not binding on any party until the Contract has been approved by the Santa Cruz County Board of Supervisors.

**17. MISCELLANEOUS.** This written Contract, along with any attachments, is the full and complete integration of the parties' agreement forming the basis for this Contract. The parties agree that this written Contract supersedes any previous written or oral agreements between the parties, and any modifications to this Contract must be made in a written document signed by all parties. The unenforceability, invalidity or illegality of any provision(s) of this Contract shall not render the other provisions unenforceable, invalid or illegal. Waiver by any part of any portion of this Contract shall not constitute a waiver of any other portion thereof. Any arbitration, mediation, or litigation arising out of this Contract shall occur only in the County of Santa Cruz, notwithstanding the fact that one of the contracting parties may reside outside of the County of Santa Cruz. This Contract shall be governed by, and interpreted in accordance with, California law.

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SIGNATURE PAGE

**Contract No. 25C5097**

**INDEPENDENT CONTRACTOR AGREEMENT**  
**(PREVAILING WAGE NO-BID)**

IN WITNESS WHEREOF, the parties hereto have set their hands the day and year first above written.

2. **THE DAVEY TREE EXPERT COMPANY** 4. **COUNTY OF SANTA CRUZ**  
**DBA LEWIS TREE SERVICE A DAVEY**  
**COMPANY**

Signed by:  
By: Mike Hernandez 4/30/2025  
SIGNED

Mike Hernandez

PRINTED

By: \_\_\_\_\_  
SIGNED

PRINTED

Address: 1500 Brommer Street

Santa Cruz, CA 95062

Telephone: (831) 476-1200

Fax: (831) 476-1207

Email: LEWISTREE@CRUZIO.COM

3. **APPROVED AS TO INSURANCE:**

Signed by:  
Gina Occhipinti Borasi 4/29/2025  
SIGNED  
Risk Management

1. **APPROVED AS TO FORM:**

Signed by:  
Ann Jackson 4/29/2025  
SIGNED  
Office of the County Counsel

**DISTRIBUTION:**

- Parks, Open Space and Cultural Services
- Auditor-Controller-Treasurer-Tax Collector
- Risk Management
- Contractor

THE DAVEY TREE EXPERT COMPANY  
DBA LEWIS TREE SERVICE  
A DAVEY COMPANY  
ATTACHMENT A: SCOPE OF WORK

1. The County is seeking to contract with Lewis Tree Service a Davey Company to enhance the beauty of the Moran Lake area by eliminating overgrown trees.
2. The Contractor will provide professional tree services which will include tree pruning of all identified eucalyptus trees in the North and South Lakeside Areas in Moran Lake County Park (Areas B & C in Attachment C: Moran Diagram) to reduce height and end weight by approximately 25%. Furthermore, the Contractor will provide professional tree services which will include tree removal of all remaining eucalyptus trees on the 40 Moran Way parcel (Area A1 in Attachment C: Moran Diagram).
3. The Contractor will chip and haul all brush and wood off site.
4. The County will identify and convey to Contractor which trees are to be pruned or removed.
5. The County will review monthly invoices and verify work completed prior to payment.

THE DAVEY TREE EXPERT COMPANY  
DBA LEWIS TREE SERVICE  
A DAVEY COMPANY  
ATTACHMENT B: SERVICES RATES SHEET

Labor Rates (per hour)				
	Regular Tree MX (DIR prevailing wage)	Overtime/Emergency	Double Time	Public Works (DIR prevailing wage)
Qualified Tree Worker	\$85.00	\$130.00	\$170.00	\$155.00
Operator	\$90.00	\$135.00	\$180.00	\$200.00
Crane Operator (30 Ton)	\$100.00	\$150.00	\$200.00	\$200.00
Crane Operator (55 Ton)	\$200.00	\$300.00	\$400.00	\$200.00
Machine Fed Chipper Operator	\$120.00	\$180.00	\$240.00	\$200.00
Driver (roll-off truck)	\$95.00	\$140.00	\$190.00	\$140.00
Arborist	\$140.00			

Equipment Rates (per hour)		
Climbing Truck	\$70.00	
Bucket Truck (70')	\$105.00	
Pick-up truck	\$45.00	
Roll-off truck	\$85.00	
Hand Fed Chipper	\$65.00	
Machine Fed Chipper	\$150.00	
30 ton crane	\$175.00	
55 ton crane	\$250.00	
Large Tractor	\$110.00	
Large Mower	\$110.00	
Large Excavator	\$110.00	
Small Excavator	\$90.00	
Stump Grinder	\$110.00	
Airspade	\$65.00	
Traffic Control: 8 signs, 40 cones	\$50.00	
Light Tower	\$25.00	
String Weed Trimmer	\$25.00	
Cabling Material	\$195.00	

THE DAVEY TREE EXPERT COMPANY  
DBA LEWIS TREE SERVICE  
A DAVEY COMPANY  
ATTACHMENT C: MORAN DIAGRAM

Figure 5 Monarch Butterfly Roost and Windbreak Areas



21-11388 Moran Lake Restoration Plan  
Fig 4 Management Zones

## Certificate Of Completion

Envelope Id: C61FD6EE-1F8B-40B7-AB5F-9804C1439C20

Status: Sent

Subject: Complete with Docusign: 25C5097 Lewis Tree ICA (eSign).pdf

Source Envelope:

Document Pages: 10

Signatures: 3

Envelope Originator:

Certificate Pages: 5

Initials: 0

Juan Perez Alvarez

AutoNav: Enabled

701 Ocean Street

Envelopeld Stamping: Enabled

Santa Cruz, CA 95060

Time Zone: (UTC-08:00) Pacific Time (US & Canada)

Juan.PerezAlvarez@santacruzcountyca.gov

IP Address: 10.103.81.137

## Record Tracking

Status: Original

Holder: Juan Perez Alvarez

Location: DocuSign

4/29/2025 2:26:45 PM

Juan.PerezAlvarez@santacruzcountyca.gov

Security Appliance Status: Connected

Pool: FedRamp

Storage Appliance Status: Connected

Pool: County of Santa Cruz

Location: Docusign

## Signer Events

### Signature

### Timestamp

Ann Jackson

ann.jackson@santacruzcountyca.gov

Assistant County Counsel

Security Level: Email, Account Authentication  
(None)

Signed by:

*Ann Jackson*  
52A16A3EBDCE4CC...

Sent: 4/29/2025 2:38:12 PM

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Signed: 4/29/2025 2:40:35 PM

Signature Adoption: Pre-selected Style

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## Electronic Record and Signature Disclosure:

Accepted: 10/16/2024 4:07:03 PM

ID: 91dacd55-7b18-4ac8-8a46-5b525df71978

Gina Occhipinti Borasi

Gina.Borasi@santacruzcountyca.gov

Risk Manager

County of Santa Cruz

Security Level: Email, Account Authentication  
(None)

Signed by:

*Gina Occhipinti Borasi*  
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## Electronic Record and Signature Disclosure:

Accepted: 12/18/2023 9:38:58 AM

ID: 5f1392e5-7eb7-47e8-b6a6-baa8d5c3b8c6

Mike Hernandez

mike@lewistreeserviceinc.com

district manager

Security Level: Email, Account Authentication  
(None)

Signed by:

*Mike Hernandez*  
9F972CF896C04DC...

Sent: 4/29/2025 5:05:43 PM

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Accepted: 4/30/2025 6:49:45 AM

ID: f5838ad2-5b30-4f95-a6c4-b1590a549e6f

Jeff Gaffney

Jeff.Gaffney@santacruzcountyca.gov

Security Level: Email, Account Authentication  
(None)

## Electronic Record and Signature Disclosure:

Accepted: 3/2/2022 10:52:37 AM

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Signer Events	Signature	Timestamp
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Agent Delivery Events	Status	Timestamp
Intermediary Delivery Events	Status	Timestamp
Certified Delivery Events	Status	Timestamp
Juan Perez Alvarez juan.perezalvarez@santacruzcountyca.gov Security Level: Email, Account Authentication (None) <b>Electronic Record and Signature Disclosure:</b> Accepted: 4/18/2024 10:44:04 AM ID: 68942dad-6eec-43fb-af6d-1593dcefefe8		Sent: 4/30/2025 5:00:31 PM
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Witness Events	Signature	Timestamp
Notary Events	Signature	Timestamp
Envelope Summary Events	Status	Timestamps
Envelope Sent	Hashed/Encrypted	4/29/2025 2:38:12 PM
Payment Events	Status	Timestamps
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- ii. send us an email to [nada.algharib@santacruzcounty.us](mailto:nada.algharib@santacruzcounty.us) and in the body of such request you must state your email, full name, mailing address, and telephone number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

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- You can print on paper this Electronic Record and Signature Disclosure, or save or send this Electronic Record and Disclosure to a location where you can print it, for future reference and access; and
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**BEFORE THE BOARD OF SUPERVISORS  
OF THE COUNTY OF SANTA CRUZ, STATE OF CALIFORNIA**

**Resolution No.**

On the motion of Supervisor

Duly seconded by Supervisor

The following resolution is adopted:

**RESOLUTION ACCEPTING UNANTICIPATED REVENUE**

WHEREAS, the County of Santa Cruz is the recipient of funds, in the amount of \$ 300,000,  
from Risk Management Fund,  
for the vegetation management efforts in Moran Lake County Park program; and

WHEREAS, the above-referenced funds are either in excess of those anticipated or are not specifically set forth in the current fiscal year budget for the County; and

WHEREAS, pursuant to Government Code section 29130(b), such funds may be made available for specific appropriation by four-fifths vote of the Board of Supervisors;

NOW, THEREFORE, BE IT RESOLVED AND ORDERED that the Santa Cruz County Auditor-Controller-Treasurer-Tax Collector accept the amount of \$ 300,000 for the  
vegetation management efforts in Moran Lake County Parks program.

GL Key	GL Object	JL Key	JL Object	Amount	Account Description
492300	42367	RP0034	RJ0	300,000	CONTRIBUTIONS FROM OTHER FUNDS

**and that such funds be and are hereby appointed as follows:**

GL Key	GL Object	JL Key	JL Object	Amount	Account Description
492300	61845	RP0034	RJ0	300,000	MAINT-STRUCT/IMPS/GRDS-OTH-SRV

PASSED AND ADOPTED BY THE Board of Supervisors of the County of Santa Cruz, State of California,  
 this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ by the following vote  
 (requires four-fifths vote for approval):

AYES:

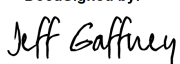
NOES:

ABSENT:

\_\_\_\_\_  
 Chair of the Board


ATTEST: \_\_\_\_\_  
 Clerk of the Board

DEPARTMENT HEAD I hereby certify that the fiscal provisions have been researched and that the  
 Revenue(s) (has been)(will be) received within the current fiscal year.

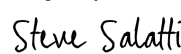
BY: DocuSigned by:  
  
C2176072ABC44BC... Date: 4/23/2025  
 Department Head

COUNTY ADMINISTRATIVE OFFICER / \_\_\_\_ / Recommended to Board  
 / \_\_\_\_ / Not Recommended to Board

APPROVED AS TO FORM:

Signed by:  
  
52A16A3EBDD9E48C... 4/23/2025  
 Office of the County Counsel

APPROVED AS TO ACCOUNTING DETAIL:

Signed by:  
  
90FD3DD1F612471... 4/23/2025  
 Auditor-Controller-Treasurer-Tax Collector

Distribution:

Auditor-Controller-Treasurer-Tax Collector  
 County Counsel  
 County Administrative Officer  
 Originating Department

## Certificate Of Completion

Envelope Id: BE8BF96E-5A00-48E8-8B28-928F818D6FD9

Status: Sent

Subject: Complete with Docusign: AUD60 Resolution.pdf

Source Envelope:

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Envelope Originator:

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Juan Perez Alvarez

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701 Ocean Street

Envelopeld Stamping: Enabled

Santa Cruz, CA 95060

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Juan.PerezAlvarez@santacruzcountyca.gov

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Jeff Gaffney

Jeff.Gaffney@santacruzcountyca.gov

Director

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Ann Jackson

ann.jackson@santacruzcountyca.gov

Assistant County Counsel

Security Level: Email, Account Authentication  
(None)

Signed by:

*Ann Jackson*  
52A16A3EBDCE4CC...

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Viewed: 4/23/2025 9:22:20 AM

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## Electronic Record and Signature Disclosure:

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Steve Salatti

Steve.Salatti@santacruzcountyca.gov

Security Level: Email, Account Authentication  
(None)

Signed by:

*Steve Salatti*  
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Viewed: 4/23/2025 10:20:44 AM

Signed: 4/23/2025 10:22:31 AM

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Accepted: 8/8/2023 12:05:33 PM

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Peter Detlefs

Peter.Detlefs@santacruzcountyca.gov

Security Level: Email, Account Authentication  
(None)

Sent: 4/23/2025 10:22:32 AM

Viewed: 4/23/2025 10:54:22 AM

## Electronic Record and Signature Disclosure:

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Intermediary Delivery Events	Status	Timestamp
Certified Delivery Events	Status	Timestamp
Juan Perez Alvarez juan.perezalvarez@santacruzcountyca.gov Security Level: Email, Account Authentication (None) <b>Electronic Record and Signature Disclosure:</b> Accepted: 4/18/2024 10:44:04 AM ID: 68942dad-6eec-43fb-af6d-1593dcefefe8		
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Witness Events	Signature	Timestamp
Notary Events	Signature	Timestamp
Envelope Summary Events	Status	Timestamps
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Envelope Updated	Security Checked	4/23/2025 9:26:54 AM
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#44  
5/6/2025

Attachment 1 to Michael Guth comments of Moran Lake Existing Condition Report, dated September 2022, and the Moran Lake Monarch Butterfly Habitat Plan Update, draft dated March 2023

Extensive tree canopy still in place - 1990





*Approximate areas of tree planting on December 7, 2024.*

Example of one of the inexcusably delayed, required, mitigation replantings:

STATE OF CALIFORNIA - THE RESOURCES AGENCY

GRAY DAVIS, Governor

**CALIFORNIA COASTAL COMMISSION**

CENTRAL COAST DISTRICT OFFICE  
725 FRONT STREET, SUITE 300  
SANTA CRUZ, CA 95060  
(531) 427-4863

**Th10b**



RECORD PACKET COPY

Filed: 4/3/2001  
Hearing opened: 5/7/2001  
49th day: 5/22/2001  
Staff: D. Carl  
Staff report prepared: 6/28/2001  
Hearing date: 7/12/2001  
Hearing item number: Th10b

**APPEAL STAFF REPORT  
SUBSTANTIAL ISSUE DETERMINATION**

Appeal number ..... A-3-SCO-01-034, Rogers Subdivision and SFDs  
Applicants ..... Peter and James Rogers  
Appellant ..... Charles Paulden  
Local government ..... Santa Cruz County  
Local decision ..... Approved with conditions (March 14, 2001)  
Project location ..... Inland side of East Cliff Drive (between East Cliff Drive and Moran Way adjacent to Moran Lake) in the Pleasure Point region of the unincorporated Live Oak area of Santa Cruz County (APN 028-302-02).

40 trees:

The site is located near an important Monarch butterfly habitat (the habitat is located roughly ¼ mile inland from the site), but the trees on the subject site are not part of this habitat; rather, the trees here act as a secondary windbreak for the primary windbreak for the inland habitat area (i.e., twice removed from the actual habitat area). Although the Applicant would remove 5 trees on site to allow for the development, the 5 trees are the farthest away from the habitat area, the remainder of on-site trees would be placed under permanent conservation easement, and the County has required that 40 trees be planted inland nearer to the habitat to enhance the actual habitat area (an 8:1 mitigation ratio). The Commission's senior biologist has visited the site and concurs with the County biologist and the Applicant's consulting biologist that the tree removal proposed would not degrade the inland habitat area, and that the replacement trees required will enhance habitat values from what currently exists. The partial coastal view of the tree canopy of the site from the beach and ocean will not be significantly altered and the continued use of the public recreational trail adjacent will not be compromised. Water quality BMPs (pervious pavers, retention of existing understory, drop inlet filters, etc.) should ensure that runoff from the site does not adversely impact recreational and habitat resources of the Sanctuary and Moran Lake.

Clarification:

<sup>7</sup> Note that on this point the County's conditions were unclear in that the condition text required conformance with the consulting biologist's mitigation plan, but the condition text described replanting with 20 trees while the mitigation plan describes 40 (County Condition 4.C, see pages D-16 through D-31 of exhibit D for the County conditions. See exhibit I for the subject monarch butterfly reports). Commission staff has since discussed this issue with both the Applicant and the County to clarify the intent of the conditions and how they would be implemented. Both the County and the Applicant indicate that 40 mitigation trees was their understanding of the requirement. As such, the requirement for consistency with the mitigation plan (describing the 40 tree mitigation) shall govern in this case (personal communications between Coastal Planner Dan Carl and the Applicant, and between Dan Carl and County Planner Melissa Allen on June 26, 2001).

Michael A. Guth

Document history for East Cliff Drive parcel acquisition, for windbreak for Monarch Habitat:

Jan Beautz  
Santa Cruz County Board of Supervisors

Mike Guth  
2-2905 East Cliff Drive  
Santa Cruz, CA 95062

12/28/00

**Re: Parks / Open Space Designation for Parcel APN 028-302-04**

Dear Ms. Beautz,

This letter is to formally request that you support beginning the process of designating the above mentioned parcel as appropriate for conservation as open space. I understand that this process can not begin unless the Board of Supervisors allows it to proceed forward. With this designation, I plan to seek out private funds for the parcel's acquisition for the county. I urge you to seek this approval from the Board, and believe that this is justified based on the following considerations.

Moran Lake and Corcoran Lagoon characterize the local area in their combination of open water and trees. Just as West Cliff has its Lighthouse Field, these two areas define the local area as unique in its combination of reasonable development and preservation of undeveloped area. The large eucalyptus that surround Moran Lake provide a community landmark that can be seen easily from Main Beach or from boats on the ocean. In a sense they define Pleasure Point in this way. They also act as a gateway to the neighborhood for drivers along East Cliff. The local micro-climate is very favorably affected by these trees, as they act as windbreak to protect the neighborhoods from the strong ocean breezes. Moran Lake is also habitat to a large over-wintering population of Monarch butterflies, which benefit from the windbreak provided by these trees along the ocean.

Michael A. Guth

For protection of the Monarch butterfly habitat:



## County of Santa Cruz

### PLANNING DEPARTMENT

701 OCEAN STREET, 4<sup>TH</sup> FLOOR, SANTA CRUZ, CA 95060  
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123

ALVIN D. JAMES, DIRECTOR

March 13, 2001

AGENDA: March 28, 2001

Planning Commission  
County of Santa Cruz  
701 Ocean Street  
Santa Cruz, California 95060

**SUBJECT: PUBLIC HEARING TO CONSIDER AMENDMENTS TO THE GENERAL PLAN/LOCAL COASTAL PROGRAM LAND USE AND IMPLEMENTATION PLAN TO DESIGNATE APN 28-302-04 AS A FUTURE LOCAL PARK SITE**

#### Commissioners

On February 6, 2001, the Board of Supervisors considered a report by the Planning Department regarding the process and timeline for designating the property referenced above as a future park site. This report was prompted by Supervisor Beautz in response to neighborhood concerns related to the need to protect the remaining Monarch butterfly wintering habitat in the Moran Lake area of Live Oak (Exhibit G). The Board, following review of the report, directed Planning staff to process the amendment so that it could be included in the first round of LCP amendments for 2001 (Exhibit F).

#### Site Description

The site, located on the west side of East Cliff Drive, at the corner of Lake Avenue/Moran Way, is a level piece of land with numerous Eucalyptus trees scattered throughout the 33,018 square feet of the parcel (Exhibit E). The property was listed as a park site in the 1978 Live Oak General Plan, the 1980 General Plan and in the 1983 Local Coastal Program. It was deleted from the

Michael A. Guth

Funding:

## Implementation Plan

for the

### Live Oak/Soquel Project Area

2005-2009

#### Redevelopment Agency of the County of Santa Cruz

Adopted: December 14, 2004

Resolution No. 404-2004

Amendment Adopted: January 10, 2006

Resolution No. 12- 2006

Amendment Adopted: November 20, 2007

Resolution No. 334-2007

SANTA CRUZ COUNTY REDEVELOPMENT AGENCY

IMPLEMENTATION PLAN

facilities address the long-standing shortage of public recreation and cultural facilities in the Project Area, and meet the growing needs of the area's expanding population and community groups. This ongoing program provides for acquisition and development of a variety of new and expanded public recreational and cultural facility opportunities. Specific projects in the next five years may include, but are not limited to, Chanticleer Avenue Park (development), Felt Street Park (development), Soquel Community Center and Tee Street Park, also known as the Farm (development), Floral Park (renovation), Moran Way (acquisition), 7<sup>th</sup> Avenue and Brommer Street (acquisition), Rodriguez Park site (acquisition), Maciel park site (acquisition), the "Road House" at 2-3905 East Cliff Drive (possible acquisition), Moran Lake Park improvements and habitat enhancement, the East Cliff Drive pedestrian and bicycle path in Pleasure Point, beach access, lateral access and parking improvements at Twin Lakes Beach, and parking lot expansion and hillside slide replacement at Anna Jean Cummings Park, and renovations at the Simpkins Family Swim Center.

3/26/2011 Emergency tree removal of a tree at East Cliff Drive parcel after adjacent tree had fallen – unusual wind event with over 2 hours of 50mph sustained winds; all of these large trees are now gone

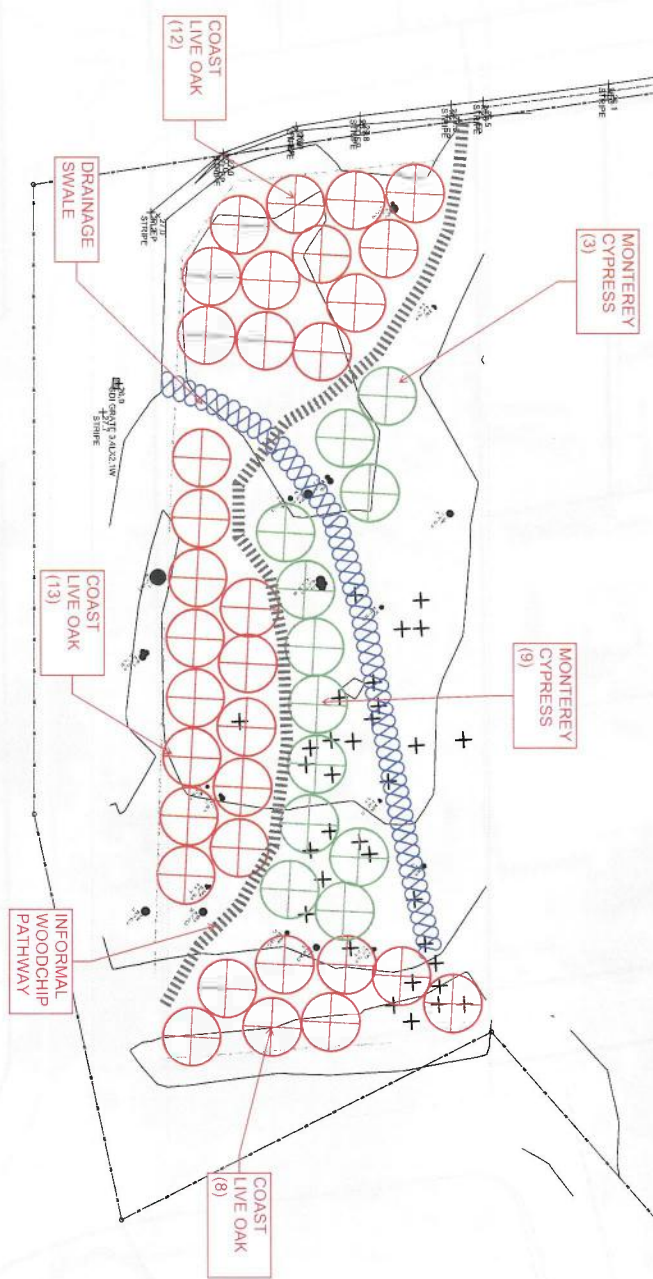


Subsequently, 7 trees were removed. Parks held onsite meeting with Director Betsey Lindbergh, Supervisor John Leopold, Parks tree person Gretchen Isliff (sp ?); **with posted notice stating that 3:1 replacement onsite for these trees were to be planted; never planted.**

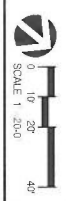
Parks has since at least twice more removed trees here; and as they are in the mapped habitat such actions are required to have biotic assessment, referral to Environmental Coordinator for approval and mitigation, posted notice of determination, which is subject to appeal. This required process was not followed.

16.32 Sensitive Habitat Protection; 16.32.040, tree removal is a "development activity" under that code as it is "the disturbance of any rare, endangered, or locally unique plant or animal or its habitat." It is in a mapped habitat. Biotic assessment is required under County Code 16.32.070. A submittal is required, prepared per the requirements of 16.32.080. Then, if approved, conditions of approval shall be determined by the Environmental Coordinator (under 16.32.090(A)), and "All development shall mitigate significant environmental impacts", (under 16.32.090(B)). Which should be onsite 3:1 replacement planting - it would be hard to justify deviation from standard mitigation practice.

DRAFT



DRAFT LAYOUT - PLAN WILL BE UPDATED BASED UPON FIELD CONDITIONS, AND VERIFYING FINAL ALIGNMENT AND LOCATION OF DRAINAGE SWALE  
NOT FOR CONSTRUCTION



SHEET NUMBER: 1 OF 1 SHEETS		SHEET TITLE: 40 MORAN WAY		DATE 4-25-2025 SCALE: 1"=10'-0"		DRAWN MP CHECKED RT		MORAN LAKE COUNTY PARK TREE DATA 22775 E CLIFF DR, SANTA CRUZ SANTA CRUZ COUNTY, CALIFORNIA APN: 02848101, 02828132, 02829149, 28445101		COUNTY OF SANTA CRUZ PARKS, OPEN SPACE & CULTURAL SERVICES 979 SEVENTEENTH AVENUE SANTA CRUZ, CALIFORNIA 95062 TEL. 831-454-7901 FAX 831-454-7940 JEFF GAFFNEY DIRECTOR		REVISIONS:		COUNTY SEAL	
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**SANTA CRUZ COUNTY GROUP**

**of the Ventana Chapter**

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Supervisor Manu Koenig  
Santa Cruz County Board of Supervisors  
701 Ocean Street  
Santa Cruz, CA 95060

October 22, 2024

RE: Parcel at 40 Moran Way

Dear Supervisor Koenig,

As you may be aware, Sierra Club sent a comment letter to Santa Cruz County Parks Department on August 11, 2024 regarding the updated Moran Lake Butterfly Habitat Management Plan Update. We were generally supportive of the Plan, and appreciate your efforts to encourage County Parks to re-open the original Draft Update last fall. We would like to follow up with you concerning the adjacent county-owned parcel (APN 028-302-04, acquired in 2008 and rezoned to PR-PP in 2011) at 40 Moran Way, bordering East Cliff Drive. After a recent visit, it's clear that there has been substantial unplanned loss of trees. We urge you to work with County Parks to retain the remaining trees on the 40 Moran Way lot. We do understand that the parcel's drainage, particularly in the center where water ponds and the soil has been heavily compacted by machinery, is inadequate.

The Sierra Club's view is that the remaining eucalyptus trees on the 40 Moran Way parcel have significant value as Monarch butterfly habitat, as a neighborhood greenspace, and as a windbreak, and we strongly urge the County to retain the remaining trees. We also strongly urge that the County replant the parcel with trees to further expand its utility as a Monarch habitat and for wind protection. The updated Management Plan, per communication from John Dayton, notes that the Southeast Grove is currently "too open to wind and sun to support roosting monarchs in the fall". Our perspective is that the county should invest in the future stability of its Monarch butterfly populations by replanting trees in these areas rather than diminishing the amount of tree cover. 2023 saw a remarkable return in Monarchs, rising to a count of 13,000 across the county after a historic low of 2,000 in 2020. This is a positive development, worth safeguarding with careful habitat restoration and preservation. The Sierra Club would like to discuss solutions for the restoration of Moran Lake with you, and with the County Parks Department.

Of particular note at 40 Moran Way are the three largest trees bordering the perimeter, looking east along East Cliff Drive, marked #3013, #3014 and #3054, which are sited at a higher elevation, are less impacted by drainage concerns, and have been observed to host some of the overwintering Monarch population. These trees have been designated as healthy in the Initial Conditions Report appendix to the Management Plan update. This parcel was acquired by the county to provide wind protection, as noted in the 2024 Moran Lake Monarch Butterfly Habitat Management Plan Update (4.4.3). The eucalyptus on 40 Moran Way have been topped after recent tree falls; this significantly reduces the risk of future falls, while allowing preservation of the

remaining trees. Again, we strongly urge that these remaining trees be retained as other work proceeds on this lot.

Moran Lake County Park and the surrounding neighborhood hosts a significant portion (approximately 3%) of the West Coast's overwintering Monarch population; and although the area's eucalyptus trees are not native, they provide valuable wind shelters, roosts, and nectar for the butterflies. Removing them without successive replacement plantings of trees, native or otherwise, reduces the capacity of the Moran Lake area to provide habitat for this overwintering population. Nectar garden shrubs or annuals alone are not sufficient, even if they provide food, as the butterflies need height for both safety and sheltering. In the fall of 2023 I had a brief discussion with Rob Tidmore from Parks, Mike Guth, and John Dayton at the upper roost area regarding the timing and species of replacement plantings such as Monterey Cypress, with work beginning in fall of 2024.

The current drainage problems at 40 Moran Way appear to have been caused by the removal of downed trees, water ponding and soil disturbance, and the related past storage of heavy equipment on site causing compaction, creating low spots. Our three site visits in September did not show any drainage onto the 40 Moran Way property from adjacent roads, and we did not observe any plants such as curly dock or rushes which may indicate long standing drainage issues. Lateral drainage may have been affected by roadway changes undertaken by Public Works. It is worthy of note that County Parks originally, 16 years ago, blamed their delay in planting the first 21 mitigation trees on this corner on the lot being too dry to sustain new plantings!

The county acquired the parcel at 40 Moran Way 16 years ago in order to provide a windbreak for the neighborhood and offer further shelter for Monarch overwintering, but management of the site has not been appropriate for these goals, particularly in regard to the arborist's report of seven years ago advising that the trees be bound and topped, which was not done. We believe that in light of the value of the remaining trees to the habitat, and to the region as a visual resource, and in light of the trees lining the first road along the coast, that these trees should not be removed reflexively. We would like to hear directly from the County or the County's consultant regarding any proposed removal of the remaining trees, and strongly suggest a site examination by an independent arborist. Again, the tree map of this parcel designates the afore-mentioned trees as healthy.

We look forward to continuing this discussion with you, and with the County Parks Department.

Sincerely,

Kristen Sandel  
Sierra Club Santa Cruz Group

cc:  
Robert Tidmore, Santa Cruz County Parks