COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: April 25, 2018

TO: Planning Commission

FROM: Planning Staff

SUBJECT: EXECUTIVE SUMMARY: Consideration of a Coastal Development Permit (CDP) to: 1) allow the "after the-fact" placement and retention of 24 warning signs to keep the public away from hazardous bluff tops; 2) make repairs to an access ramp leading down from the bluff top; and 3) allow the "after-the-fact" removal of five Monterey cypress trees that were hazardous, at various locations within the Fitzgerald Marine Reserve and the Mirada Surf West County Park, in the unincorporated Moss Beach and El Granada areas of San Mateo County. This project is appealable to the California Coastal Commission.

County File Number: PLN 2016-00025; PLN 2017-00102; and PLN 2017-00170 (County Parks)

PROPOSAL

The project involves the following three PLN cases and included elements:

1. PLN 2016-00025: "After-the-Fact" CDP (previous Emergency CDP issued) for the placement and retention of 24 warning signs installed at Pillar Point Bluff and Mirada Surf to keep visitors away from bluff tops due to their risk of collapse. This permit also includes 3-ft. high split-rail fencing located in three areas in the Pillar Point Bluff area to further provide a safety buffer from the bluff edge.

2. PLN 2017-00102: A CDP to complete the following access ramp repair at the Fitzgerald Marine Reserve (037-103-110): a) rebuild three water bars to direct drainage at the bottom of the ramp away from the cliff, b) fill two openings at the bottom of the ramp with 4" cobblestone and base rock, c) add one large rock at end of ramp to fill in the gap, all to maintain and preserve the public's access down to the beach, and d) add three new interpretive signs.

3. PLN 2017-00170: "After-the-Fact" CDP (previous Emergency CDP issued) to remove five significant Monterey cypress trees at Fitzgerald Marine Park (037-113-080) due to their poor condition/form which had put them in imminent danger of failure, which could have created harm and damage to visitors at tables/seats beneath the trees, to a nearby park building, overhead utility lines,

and/or nearby houses. A “Tree Risk Assessment Report” was submitted and identified those trees at greatest risk. The trees were initially approved for removal under the issuance of an Emergency CDP on April 27, 2017. Due to the number of trees remaining on the site, replacement tree plantings are neither proposed by the Parks Department nor recommended by staff.

RECOMMENDATION

That the Planning Commission approve the Coastal Development Permit (County File Nos: PLN 2016-00025, PLN 2017-00102, and PLN 2017-00170, by making the required findings and adopting the conditions of approval.

SUMMARY

Setting: The three PLN cases cover County Park properties identified as Pillar Point Bluffs and Mirada Surf (along the coastal bluffs north of Miramar), the Fitzgerald Marine Reserve, and the Fitzgerald Marine Park in the Moss Beach area. All three areas are actively used public parks that include trails along the bluff tops and access down to the beach.

General Plan and Local Coastal Program (LCP) Compliance: The proposed project complies with all applicable General Plan and LCP policies, specifically the LCP’s “Recreation/Visitor Serving Facilities”, ”Sensitive Habitat”, and “Visual Resources” Components. All three PLN projects involve improvements or maintenance to ensure and promote public safety and beach access. None of them would have any proximity to or adverse impacts upon sensitive habitats, and none pose any adverse visual impacts. Therefore, the project will not have any substantial adverse impacts on coastal resources.

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COUNTY OF SAN MATEO
PLANNING AND BUILDING DEPARTMENT

DATE: April 25, 2018

TO: Planning Commission

FROM: Planning Staff

SUBJECT: Consideration of a Coastal Development Permit (CDP), pursuant to Section 6328.4 of the County Zoning Regulations, to: 1) allow the "after-the-fact" placement and retention of 24 warning signs to keep the public away from hazardous bluff tops; 2) make repairs to an access ramp leading down from the bluff top; and 3) allow the "after-the-fact" removal of five Monterey cypress trees that were hazardous, at various locations within the Fitzgerald Marine Reserve and the Mirada Surf West County Park, in the unincorporated Moss Beach and El Granada areas of San Mateo County. This project is appealable to the California Coastal Commission.

County File Numbers: PLN 2016-00025; PLN 2017-00102; and PLN 2017-00170 (County Parks)

PROPOSAL

The project involves the following three PLN cases and included elements:

1. PLN 2016-00025: "After-the-Fact" CDP for the placement and retention of (not to exceed) 24 warning signs installed at Pillar Point Bluff and Mirada Surf, stating: "Warning of Bluff-Top Hazard", to keep visitors away from bluff tops due to their risk of collapse, especially during the past winter/storm season, where collapses had already occurred. Six such signs were placed at Mirada Surf West (047-331-010) and 18 placed at Pillar Point Bluff (037-300-080 and 037-300-100). The signs are one-sided, 8"x12" in size, placed on 4"x4" wooden posts, about 3' above ground, and were placed within 10' of the bluff edge at existing edge access points. This permit also includes 3-ft. high split-rail fencing located in three areas in the Pillar Point Bluff area to further provide a safety buffer from the bluff edge.

   The signs were initially placed under the issuance of an Emergency Coastal Development Permit on January 22, 2016. While the Parks Department thought the signs might be removed this past spring, the bluff tops continue to show signs of accelerated erosion; thus, Parks is proposing to keep them in place for public safety purposes. At some point in the future, Parks is considering moving the signs further away from the bluff tops. Additionally, split-rail fencing was installed in three areas at Pillar Point Bluff under a CDX (PLN 2016-00152; issued

April 13, 2016; retro-active CDP not required) for similar safety reasons near unstable and hazardous bluff top areas.

2. PLN 2017-00102: A Coastal Development Permit (CDP) to complete the following access ramp repair at Fitzgerald Marine Reserve (037-103-110): a) rebuild three water bars to direct drainage at the bottom of the ramp away from the cliff, b) fill two openings at the bottom of the ramp with 4" cobblestone and base rock, c) add one large rock at end of ramp to fill in the gap, all to maintain and preserve the public's access down to the beach, and d) add three new interpretive signs (with dimensions of 24" x 36" x 1/2" thick, atop 3-ft. high metal posts), whereby Sign #1 will provide information about the "syncline" geological formation, Sign #2 will display biological information about San Vicente Creek, and Sign #3 will provide information about Fitzgerald's resident harbor seals.

3. PLN 2017-00170: "After-the-Fact" CDP to remove five significant Monterey cypress trees at Fitzgerald Marine Park (037-113-080) due to their poor condition/form which had put them in imminent danger of failure, which could have created harm and damage to visitors at tables/seats beneath the trees, to a nearby park building, overhead utility lines, and/or nearby houses. A "Tree Risk Assessment Report" (dated April 2017) was submitted and identified those trees at greatest risk (Attachment F). The trees were initially approved for removal under the issuance of an Emergency CDP on April 27, 2017. Due to the number of trees remaining on the site, replacement tree plantings are neither proposed by the Parks Department nor recommended by staff.

Due to the fact that the projects are proposed by County Parks on County-owned lands, these projects do not require RM-CZ Development Review or PAD permits; only Coastal Development Permits are required.

RECOMMENDATION

That the Planning Commission approve the Coastal Development Permit (County File Nos: PLN 2016-00025, PLN 2017-00102, and PLN 2017-00170, by making the required findings and adopting the conditions of approval identified in Attachment A.

BACKGROUND

Report Prepared By: Dave Holbrook, Project Planner, Telephone 650/363-1837

Applicant: San Mateo County Parks Department

Owner: San Mateo County Parks and Joint Powers Authority

Locations:

PLN 2016-00025: Mirada Surf West, El Granada; Pillar Point Bluff, Moss Beach

PLN 2017-00102: Fitzgerald Marine Reserve, Nevada Avenue at North Lake Street, Moss Beach

PLN 2017-00170: Fitzgerald Marine Park, 200 Nevada Avenue, Moss Beach

APNs:

PLN 2016-00025: 047-331-010; 037-300-080; 037-300-100; and 037-101-250

PLN 2017-00102: 037-103-110

PLN 2017-00170: 037-113-080

Size:

PLN 2016-00025: 149.6 acres

PLN 2017-00102: 3.49 acres

PLN 2017-00170: 32,306 sq. ft.

Zoning:

PLN 2016-00025: Resource Management District-Coastal Zone (RM-CZ), Planned Agricultural District (PAD)

PLN 2017-00102: Resource Management-Coastal Zone (RM-CZ)

PLN 2017-00170: R-1/S-17/DR

General Plan Designation:

PLN 2016-00025: Open Space, Agriculture, Public Recreation

PLN 2017-00102: Public Recreation

PLN 2017-00170: Public Recreation

Parcel Legality: Legal parcels, encompassing County Parks

Existing Land Use (All Subject Parcels): County Parks

Water Supply: N/A

Sanitary Sewer Supply: N/A

Flood Zone: (All Subject Parcels) FEMA Flood Insurance Rate Map designation indicates parcel as Zone X, Area of Minimal Flooding, Community Map No. 06081C0138E, dated October 16, 2012.

Environmental Evaluation: (All Subject Parcels) Categorically exempt under provisions of Class 1 (Existing Facilities), Section 15301, of the California Environmental Quality Act Guidelines.

Setting:

PLN 2016-00025: This project is located within the Mirada Surf West County Park, west of Cabrillo Highway, stretching from the area along the bluffs, from just north of the Miramar residential area up to the Pillar Point Bluff area. This area is generally open, with the trail located close to the bluff top edges. The Moss Beach parcels comprise a portion of County Park lands within the Fitzgerald Marine Reserve. These lands include trails running alongside or close to the bluff tops.

PLN 2017-00102: This project is located off North Lake Street near Nevada Avenue, and is comprised of a visitor and service vehicle access ramp leading down to the Fitzgerald Marine Reserve, just north of San Vicente Creek's outfall to the ocean. The project site (relative to the proposed interpretive signage) extends southerly onto Reserve property where trails follow alongside the creek and bluff tops, in an area vegetated by Monterey cypress and other trees, ground shrubs, and grasses. This entire area is bordered by single-family development located across North Lake Street to the north.

PLN 2017-00170: This project is the Fitzgerald Marine Park located at the juncture of Nevada Avenue and North Lake Street. It is comprised of a parking lot, restrooms, a learning station, a ranger hut, and several benches and tables. The site hosts and is surrounded by many Monterey cypress trees. The site is surrounded to the west, north, and east by single-family development on California and Nevada Avenues.

DISCUSSION

A. KEY ISSUES

1. Conformance with the General Plan (GP)

General Plan (*Park and Recreation Resources*) Policies 6.1 and 6.2 seek to, respectively, a) "provide for a balanced and equitable system of park and recreation facilities", and b) "meet identified relative park and recreation needs in a manner which best enhances the physical, mental, and spiritual quality of life of San Mateo County residents". All three projects include elements of maintenance, safety, and interpretive improvements that further these policies. The permanent bluff warning signs, proposed under PLN 2016-00025, occur on lands, a portion of which has an "Open Space" General Plan designation. Due to their size and locations, they do not pose an adverse impact to scenic resources and retain the open space character of all the parcels. Also, even though "Agriculture" and "Public Recreation" designations occur on lands in this case and the other two PLN cases, none of the project elements as described would have any such adverse impacts.

2. Conformance with the Local Coastal Program (LCP)

The primary LCP Component applicable to the three described PLN cases of this report is “Recreation/Visitor-Serving Facilities”. Since this component includes applicable policies regarding sensitive habitats, discussion of such resources defers to the applicable policies under this component.

All of the County Parks’ project sites and inherent uses are considered public recreation facilities pursuant to LCP Policy 11.3 (*Definition of Public Recreation Facilities*). As such, “Recreation and Visitor-Serving Facilities” such as these are allowed in the Coastal Zone pursuant to Policy 11.4, because they are designed to enhance public opportunities for coastal recreation and do not substantially alter the natural environment. All three PLN project components represent improvements to the County Parks’ facilities to continue, improve, and enhance the public opportunities for coastal recreation.

Relative to the LCP’s “Sensitive Habitats” Component, only the “improved ramp” element of PLN 2017-00102 is in proximity to such habitat: the Fitzgerald Marine Reserve beach area that the ramp provides access to and the nearby San Vicente Creek. However, neither of the other two project components has any proximity or direct impact to a sensitive habitat.

Policy 11.2 (*Sensitive Habitats*) permits location of visitor-serving facilities (or in these cases improvements to such facilities) to locate on lands adjacent to sensitive habitats only when (1) there is adequate distance or separation by barriers such as fences, (2) the habitat is not threatened, (3) there would not be substantial impacts on habitat, topography, and water resources (pursuant to the application of adequate development standards and management practices to protect the resources, consistent with Policy 11.18 (*Sensitive Habitats*). Of most relevance to these projects, this Policy seeks to: (1) provide improvements and management adequate to protect sensitive habitats, which may include informative displays and signs to minimize public intrusion and impact (which is the purpose of the permanent bluff setback warning and environment information signs related to cases PLN 2016-00025 and PLN 2017-00102, respectively), and (2) provide setbacks from bluff edges to protect the public, based on local geology and erosion rates and consistent with the Hazards Component (which is the express purpose of the bluff setback warning signs of PLN 2016-00025). PLN 2017-00102 involves the installation of water bars to direct drainage away from the cliff and the filling of two openings at the bottom of the ramp (utilizing 4” cobblestone and base rock), which will occur within a specific and isolated area of activity and will not affect the Fitzgerald Marine Reserve environment nor that of the nearby San Vicente Creek. Finally, as cited in Policy 11.18, all three projects comply with the “Standards” and “Planning & Management Guidelines” for both Parks and Natural Preserves of Appendix 11.A. Appendix 11.A also acknowledges that resource management techniques such as tree cutting (PLN 2017-00170 is to legalize tree removal that was approved on an emergency basis)

may be used to preserve and maintain the desired environmental setting; this was the primary element and purpose for removing several large trees to reduce safety hazards to visitors and picnickers at Fitzgerald Marine Park.

With regard to the Visual Resources Component, none of the described elements of the three PLN cases will have any adverse impacts on visual resources, be they from within the County Parks or Preserve lands (e.g., from designated/posted trails) or from anywhere along Cabrillo Highway (looking toward the ocean).

B. ENVIRONMENTAL REVIEW

The proposed projects are all categorically exempt from the California Environmental Quality Act (CEQA) under Guidelines Section 15301, Class 1 (*Existing Facilities*) that includes the minor alteration to existing public facilities where the project involves negligible expansion of an existing use. In these cases, the placement of warning signs to protect the public, the maintenance and repair to access down to the beach, and the removal of five hazardous trees to protect the public - taken together - represent no expansion of the cited County parks or intensification of their respective uses.

C. MIDCOAST COMMUNITY COUNCIL REVIEW

Upon referral of this project to MCC for review, they had no comments.

D. COUNTY AGENCY REVIEW

Department of Public Works (no comments)
Building Inspection Section (no comments)
County Counsel
Midcoast Community Council (no comments)

ATTACHMENTS

A. Recommended Findings and Conditions of Approval
B. Location and Vicinity Map Showing Three Project Areas
C. Site Plan for PLN 2016-00025
D. Site Plan for PLN 2017-00102 and Photograph of Access Ramp Area
E. Site Plan for PLN 2017-00170
F. Tree Risk Assessment Report for PLN 2017-00170 (April 2017)

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Attachment A

County of San Mateo
Planning and Building Department

RECOMMENDED FINDINGS AND CONDITIONS OF APPROVAL

Permit or Project File Number: Hearing Date: April 25, 2018

PLN 2016-00025
PLN 2017-00102
PLN 2017-00170

Prepared By: Dave Holbrook
Project Planner

For Adoption By: Planning Commission

RECOMMENDED FINDINGS

For the Environmental Review, Find:

1. That the projects are categorically exempt under CEQA Guidelines Section 15301, Class 1 (Existing Facilities) that includes the minor alteration to existing public facilities where the project involves negligible expansion of an existing use.

For the Coastal Development Permit, Find:

2. That the project, as described in the application and accompanying materials required by Section 6328.7 and as conditioned in accordance with Section 6328.14, conforms to the plans, policies, requirements, and standards of the San Mateo County Local Coastal Program.

3. That the project conforms to the specific findings required by policies of the San Mateo County Local Coastal Program. The projects will not adversely affect any sensitive habitats, visual resources, or public access to and along the coast.

4. That the project conforms to the applicable policies of the Local Coastal Program (LCP) as discussed.

RECOMMENDED CONDITIONS OF APPROVAL

Current Planning Section

1. This approval applies only to the proposal as described in those plans, supporting materials, and reports submitted on April 25, 2018 and as approved by the

Planning Commission. Minor revisions or modifications to the projects may be made subject to the review and approval of the Community Development Director, if they are consistent with the intent of and in substantial conformance with this approval.

2. This permit shall be valid for one (1) year. Any extension of this permit shall require submittal of an application for permit extension and payment of applicable permit extension fees sixty (60) days prior to expiration.

3. With regard to the work described under PLN 2016-00025 and PLN 2017-00102, prior to and throughout any land disturbance, if and where occurring, the applicant shall implement an erosion and sediment control plan, to be submitted for review and approval by the Community Development Director prior to project implementation.

4. With regard to the work described under PLN 2016-00025 and PLN 2017-00102, the applicant shall adhere to the San Mateo Countywide Stormwater Pollution Prevention Program "General Construction and Site Supervision Guidelines," including, but not limited to, the following:

    a. Delineation with field markers of clearing limits, easements, setbacks, sensitive or critical areas, buffer zones, trees, and drainage courses within the vicinity of areas to be disturbed by construction and/or grading.

    b. Protection of adjacent properties and undisturbed areas from construction impacts using vegetative buffer strips, sediment barriers or filters, dikes, mulching, or other measures as appropriate.

    c. Performing clearing and earth-moving activities only during dry weather.

    d. Stabilization of all denuded areas and maintenance of erosion control measures continuously between October 1 and April 30.

    e. Storage, handling, and disposal of construction materials and wastes properly, so as to prevent their contact with stormwater.

    f. Control and prevention of the discharge of all potential pollutants, including pavement cutting wastes, paints, concrete, petroleum products, chemicals, wash water or sediments, and non-stormwater discharges, to storm drains and watercourses.

    g. Use of sediment controls or filtration to remove sediment when dewatering site and obtain all necessary permits.

    h. Avoiding cleaning, fueling, or maintaining vehicles on-site, except in a designated area where wash water is contained and treated.

    i. Limiting and timing applications of pesticides and fertilizers to prevent polluted runoff.

j. Limiting construction access routes and stabilization of designated access points.

k. Avoiding tracking dirt or other materials off-site; cleaning off-site paved areas and sidewalks using dry sweeping methods.

l. Training and providing instruction to all employees and subcontractors regarding the Watershed Protection Maintenance Standards and construction Best Management Practices.

m. Additional Best Management Practices in addition to those shown on the plans may be required by the Building Inspector to maintain effective stormwater management during construction activities. Any water leaving the site shall be clear and running slowly at all times.

n. Failure to install or maintain these measures will result in stoppage of construction until the corrections have been made and fees paid for staff enforcement time.

5. With regards to the work described under PLN 2017-00102, the repair of the access ramp shall be overseen by County Parks staff, to ensure that all disturbance is limited to the area shown and described. Such work shall be limited to occur between May 1 and October 1. Photographs of the completed work shall be submitted to Planning staff for inclusion in this file.

6. With regards to the work described under PLN 2016-00025 and PLN 2017-00102, photographs of all installed signage (both bluff warning and interpretive) shall be submitted to Planning staff for inclusion in this file.

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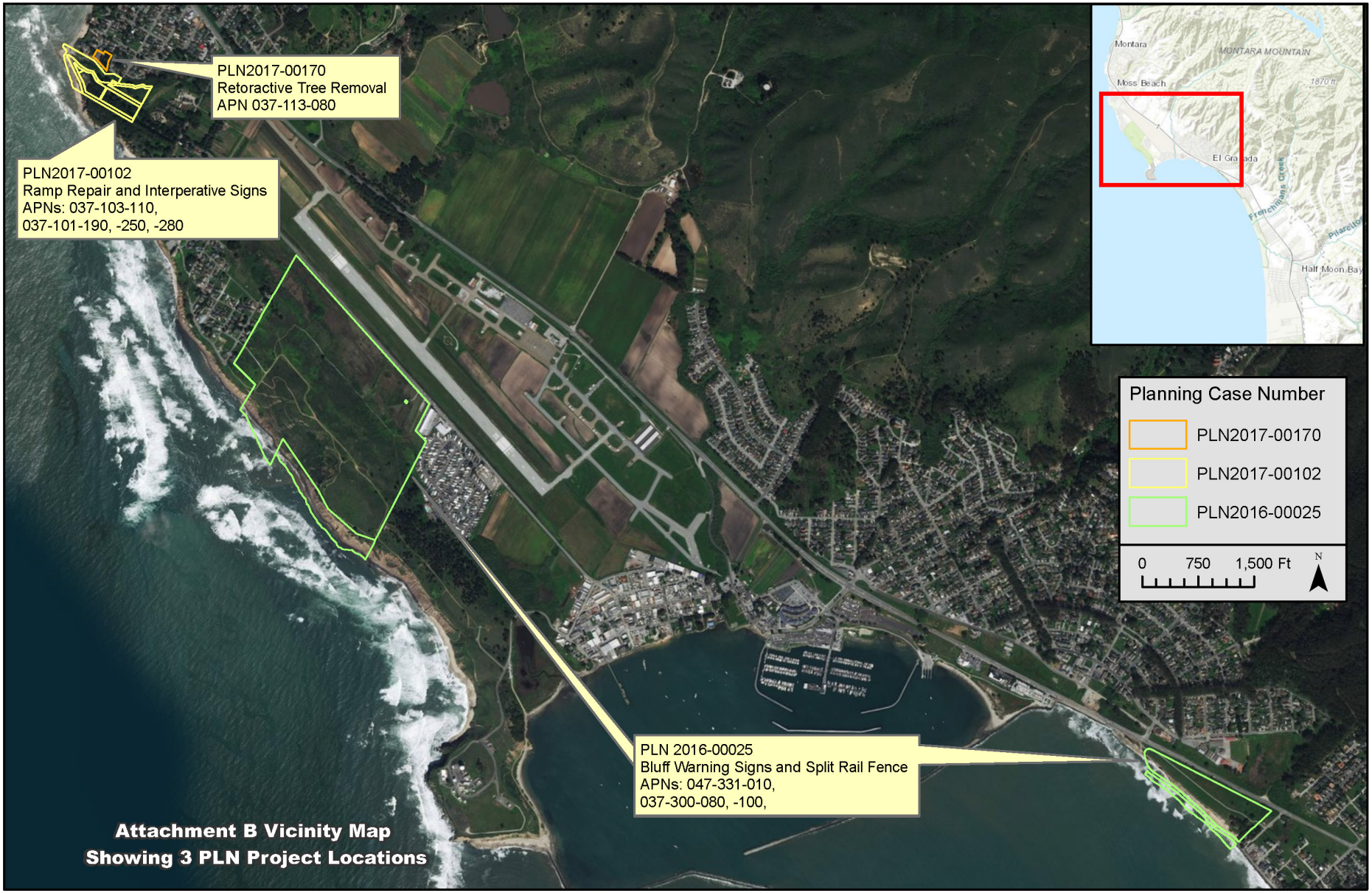


San Mateo County Planning Commission Meeting

Owner/Applicant: **County of San Mateo Parks Department** Attachment: **B**

File Numbers: **PLN2017-00170, PLN2017-00102, PLN2016-00025**

San Mateo County Planning Commission Meeting

Owner/Applicant: **County of San Mateo Parks Department** Attachment: **C.1**

File Numbers: **PLN2017-00170, PLN2017-00102, PLN2016-00025**

San Mateo County Planning Commission Meeting

Owner/Applicant: **County of San Mateo Parks Department** Attachment: **C.2**

File Numbers: **PLN2017-00170, PLN2017-00102, PLN2016-00025**

aimer: Information displayed here is for reference. For precise boundary data or information, consult official records. Printed: Fri Apr 8 2016 10:06:07 AM.

San Mateo County Planning Commission Meeting

Owner/Applicant: **County of San Mateo Parks Department** Attachment: **D.1**

File Numbers: **PLN2017-00170, PLN2017-00102, PLN2016-00025**

San Mateo County Planning Commission Meeting

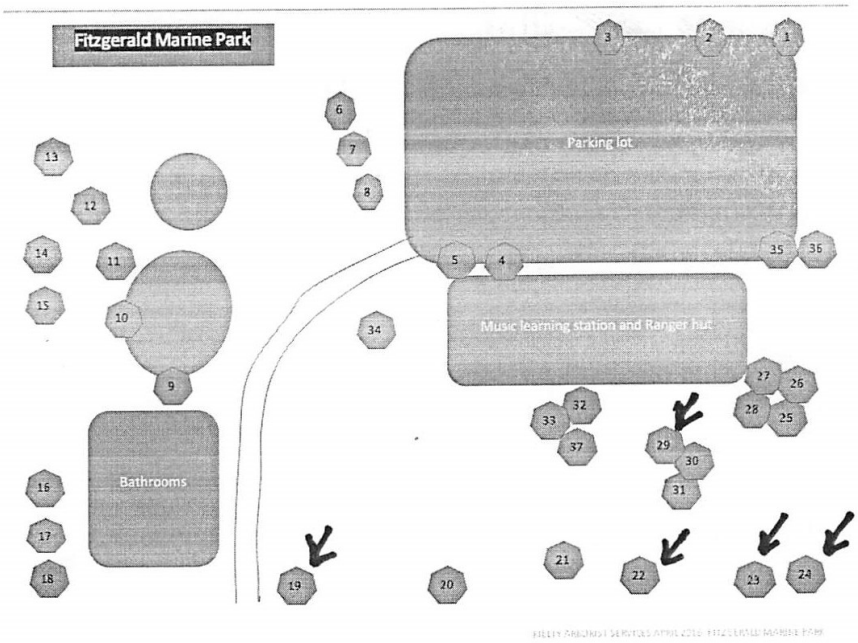
Owner/Applicant: **County of San Mateo Parks Department** Attachment: **D.2**

File Numbers: **PLN2017-00170, PLN2017-00102, PLN2016-00025**

Assessment Location

These trees are part of a landscaped publicly accessible park, with 4 of the trees (numbers 19, 22, 23, 24) adjacent to a roadway, high voltage lines, and across from houses. The remaining tree (number 29) is in the center of the park and is adjacent to a picnic area. A site plan was provided, and is shown below.

Although this site plan appears to be illustrative only, it is useful to understand the relative locations for the trees assessed, and where remaining trees are located. Trees 19, 22, 23 and 24 are along the edge of California Avenue, north of North Lake Street. Tree 19 is near the intersection, and all 4 have been heavily side pruned to maintain clearances from high voltage lines that run down California Avenue. The road, utility lines, and residences on the opposite side of the street are not shown on the site plan. Tree 29 is comprised of two co-dominant stems, and one extends over two picnic tables, also not shown on the site plan.



Attachment E - PLN 2017-00170
Tree Removal - Fitzgerald Marine Park

Attachment F
Tree Risk Assessment
Summary Report

TREE RISK ASSESSMENT SUMMARY REPORT

April 2017

Prepared For: **San Mateo County**

Fitzgerald Marine Reserve

200 Nevada Ave.

Moss Beach, CA 94038

Prepared By: **Davey Resource Group**

A Division of the Davey Tree Expert Co.

6005 Capistrano Unit A

Atascadero, CA, 93422

800-966-2021

Notice of Disclaimer

Assessment data provided by Davey Resource Group is based on visual recording at the time of inspection. Visual records do not include testing or analysis and do not include aerial or subterranean inspection unless indicated. Davey Resource Group is not responsible for discovery or identification of hidden or otherwise non-observable risks. Records may not remain accurate after inspection due to variable deterioration of surveyed material. Risk ratings are based on observable defects and mitigation recommendations do not reduce potential liability to the County. Davey Resource Group provides no warranty with respect to the fitness of the trees for any use or purpose whatsoever.

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Introduction

On March 8th, 2017, Davey Resource Group (DRG), a division of The Davey Tree Expert Company, was contracted by San Mateo County, to conduct a level three tree risk assessment of five (5) Monterey cypress trees at the Fitzgerald Marine Reserve in Moss Beach, CA. The assessment consisted of resistance drill testing and data analysis. The request was made in response to concerns of tree conditions noted during a level two risk assessment of the trees at this property.

An International Society of Arboriculture (ISA) Certified Arborist and Qualified Tree Risk Assessor (WE-7844AM) from Davey Resource Group supervised the assessment of the trees on March 23, 2017. The data was then used to determine potential internal defects and provide maintenance recommendations. The current edition of the *Tree Risk Assessment in Urban Areas and the Urban/Rural Interface* (version 1.5) was also used to guide the risk rating of the trees as well as the potential strategies for care and risk abatement. There are many factors that can limit specific and accurate data when performing evaluations of trees, their conditions, and values. The determinations and recommendations presented here are based on current data and conditions that existed at the time of the evaluation and cannot be a predictor of the ultimate outcomes for the tree.

The purpose of this report is to provide the details of the risk assessment of the trees, including an assessment of current condition and health, and recommendations for maintenance. The findings in this report can be used to make decisions on whether the trees may need to be removed, can be retained with regular monitoring, or need other mitigation.

Risk Assessment Methodology

A DRG International Society of Arboriculture Certified and Risk Assessment Qualified Arborist supervised the Level 3 inspection of five (5) County identified trees on the property to provide resistance drilling and data analysis. The data collection included:

- Evaluation of the lower trunks of 5 Monterey cypress (Hesperocyparis macrocarpa) up to a maximum of 6 feet above surrounding grades. No investigative work was done below grade or above 6 feet.
- Resistance drilling done in suspect areas based on visual indicators, sounding with a mallet and/or probing.
- Up to 5 resistance drilling sites were performed per tree, with 6 sites total that were drilled.
- Documentation of findings (Appendix B):
    - o Diagrams indicating the locations of defects and testing
    - o Scans and interpretations of resistance drill readings
    - o Arborist Report conveying resistance drill findings with maintenance recommendations

Resistance drilling analysis was requested for each of the 5 trees. This testing method uses a 1.5 millimeter Teflon coated drilling needle to measure wood resistance to drilling. The Resistograph F300 model used for this analysis will drill to a maximum depth of 11.2 inches. This test is useful to determine the thickness of remaining wood after decay has advanced into the middle of a tree, and can detect cracks. The testing results are limited to the pathway of the drilling needle. **Resistance drilling is invasive and injurious to a tree, and is not used when visual or other noninvasive techniques are conclusive**. When an indication of decay or a crack is present, resistance drilling is one technique that may reveal the extent of decay or a crack, or may indicate sufficient solid wood. Resistance drilling analysis is typically not conclusive, but provides additional information to aid in coming to a conclusion. Scans of the resistance drilling traces and 18 photographs are attached to this report (Appendices B & C).

In addition to the resistance drilling, tree risk assessment methods developed by the International Society of Arboriculture were applied. This format consists of an inspection from the ground of the visible tree parts including surface roots, trunk, scaffold limbs, and canopy. The hazard and risk assessment results in a risk rating for the tree to help quantify the level of risk accepted by the tree's owner. To summarize the information about the trees that received a hazard evaluation, an overall hazard rating is obtained by assessing and assigning a value to the failure potential, identifying the size of the tree part most likely to fail (e.g., branch, one stem, or whole tree) and determining site use around the affected tree. Each of these characteristics, along with the consequences of failure, are assessed as follows:

Condition of Concern – Describes the part most likely to fail. The larger the tree part, the greater the potential for damage; therefore, the size of the failure part affects the overall hazard potential, and is described according to:

- Part Size - Typically the diameter of the limb or tree part
- Fall Distance - The distance of the part from the ground
- Target - The presence of any target(s) that could be impacted by failure

Likelihood of Failure – Identifies the most likely point of failure and rates the likelihood that the observed defect(s) will result in part failure. Failure potential is rated as:

- Improbable (defects are minor and unlikely to result in failure)
- Possible (defects are present and of concern)
- Probable (compounding and/or significant defects present)
- Imminent (defects are serious and imminent failure is likely)

Likelihood of Impact – Identifies the most likely point of failure and rates the likelihood that the structural defect(s) will impact the potential targets. Likelihood of impact is rated as:

- Very Low (Occasional use, as in a forest landscape)
- Low (e.g., tree lawn, sidewalk, park path)
- Medium (buildings or people within striking range more than 50% of the time)
- High (Constant and frequent use of the area within striking distance)

Consequences of Failure – Rates the level of potential damage caused by the defective part in the event of failure. The consequences of failure are rated as:

- Negligible (typically small branches <1" diameter, unlikely to cause damage)
- Minor (branches 1-2" diameter, may cause damage)
- Significant (damage would occur)
- Severe (failure would result in major damage)

Overall Risk Rating - The values assigned to condition, likelihood and consequences are summarized into an overall risk rating from Low to Extreme for each tree:

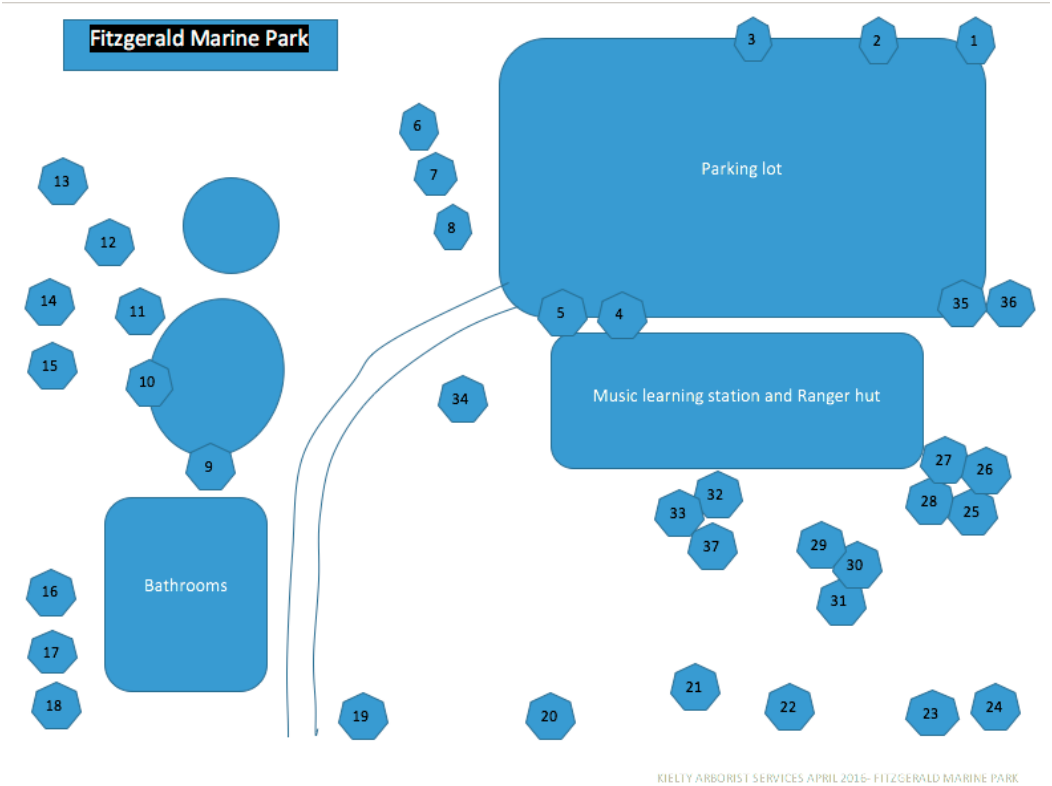
- Low (risk is present, mitigation measures may not be required)
- Moderate (mitigation advised within normal maintenance cycle)
- High (mitigation advised within the year)
- Extreme (mitigation necessary as soon as practical)

In addition to a risk rating, the trees were also prescribed maintenance recommendations based on general tree health, visual observations, and resistance drilling results. A high risk rating alone does not necessarily result in a removal recommendation. Conversely, trees with a lower rating may be prescribed for removal based on other factors such as location and species compatibility and/or the severity of specific defects. Whenever recommended tree maintenance would mitigate risk, the residual risk was also noted.

Assessment Location

These trees are part of a landscaped publicly accessible park, with 4 of the trees (numbers 19, 22, 23, 24) adjacent to a roadway, high voltage lines, and across from houses. The remaining tree (number 29) is in the center of the park and is adjacent to a picnic area. A site plan was provided, and is shown below.

Although this site plan appears to be illustrative only, it is useful to understand the relative locations for the trees assessed, and where remaining trees are located. Trees 19, 22, 23 and 24 are along the edge of California Avenue, north of North Lake Street. Tree 19 is near the intersection, and all 4 have been heavily side pruned to maintain clearances from high voltage lines that run down California Avenue. The road, utility lines, and residences on the opposite side of the street are not shown on the site plan. Tree 29 is comprised of two co-dominant stems, and one extends over two picnic tables, also not shown on the site plan.



Individual Tree Risk Assessment Results

The five County identified trees at this location are mature Monterey cypress (*Hesperocyparis macrocarpa*). All 5 trees are part of a larger grove of trees, and some adjacent trees have already been removed, thereby increasing loads on certain remaining trees. The removal of any one of the 5 assessed trees will result in increased loads on remaining trees that have not been assessed.

Tree #19

Species: Monterey cypress (*Hesperocyparis macrocarpa*)
dbh:40”
Height: 84'
Condition: Poor

Tree Defect Observations

This tree has fungal fruiting bodies within a large cavity. The cavity was probed with a steel tile probe, and the trunk was sounded with a mallet to identify the thinnest areas. Testing sites 1 and 2 for tree 19 are these areas, and site 3 was taken as a calibration point to establish what normal results should look like for this species at this location. Tree 19 Site 1 did not appear to have any decay to the full 11.2-inch depth. Tree 19 Site 2 had solid wood to a depth of 8.5 inches. The root flare and buttresses did not sound hollow when assessed with the mallet, and probing with a tile probe did not detect excessive decay. This tree appeared to be upright, but with a highly asymmetric crown. Because the tree has a thick shell wall without appearance of any propagating cracks, this tree appears to be stable at this time. Given storm conditions, with wind loads acting against the highly asymmetric crown, tree failure is possible.

Risk Categorization

Level 2 Overall Risk Rating: Moderate

Level 3 Overall Risk Rating: Moderate

Mitigation Options

Removal of this tree is recommended

Overall residual risk: None

Tree #22

Species: Monterey cypress (*Hesperocyparis macrocarpa*)

dbh: 57”

Height: 94'

Condition: Poor

Tree Defect Observations

This tree has a large open cavity associated with a scaffold limb removal on the street side of the tree. The trunk has a pronounced lean toward the street, high voltage lines, and houses across the street. No evidence of recent uprooting was found. The lower 8 to 9 feet of the trunk was sounded with a mallet, and no pronounced thin areas were detected. Two resistance drilling sites were chosen at either side of the cavity, and Tree 22 Site 1 had solid wood to beyond 8 inches, and Tree 22 Site 2 had solid wood to the full 11.2-inch depth.

Because of the pronounced lean, this tree will strike the road, high voltage lines, and possibly the house or houses across the road should it fall. Based on the size of the cavity, it is possible that a trunk failure occurs at that point, and it is also possible that the tree would uproot. Given storm conditions, with wind loads acting against the upper part of the tree, uprooting failure is most likely of these two failure scenarios. Because of the size of the part to fail and the constant presence of targets, this tree is given a ‘High’ hazard rating.

Risk Categorization

Level 2 Overall Risk Rating: High

Level 3 Overall Risk Rating: High

Mitigation Options

Removal of this tree is recommended.

Overall residual risk: None

Tree #23

Species: Monterey cypress (*Hesperocyparis macrocarpa*)

dbh: 37”

Height: 69'

Condition: Poor

Tree Defect Observations

This tree has a large open cavity where a scaffold limb was removed along the street side of the tree. The trunk has a pronounced lean toward the street, high voltage lines, and the houses across the street. Mushrooms were found in the grass on the side opposite the lean, and within about 4 feet of the base of the tree. Sounding with a mallet detected an area that could have been somewhat hollow, but resistance drill testing at that site did not find any evidence of decay. Given the lean of the tree, and the presence of mushrooms near the base of the tree, it is possible that this tree would fall during storm conditions, or possibly without warning on even a calm day. Because of the size of the part to fail, and the constant presence of targets, this tree is given a ‘High’ hazard rating.

Risk Categorization

Level 2 Overall Risk Rating: Moderate

Level 3 Overall Risk Rating: High

Mitigation Options

Removal of this tree is recommended.

Overall residual risk: None

Tree #24

Species: Monterey cypress (*Hesperocyparis macrocarpa*)

dbh: 37”

Height: 40'

Condition: Poor

Tree Defect Observations

Two very large co-dominant stems were removed on the street side (south through east) of this tree. Sounding with a mallet did not detect decay associated with these areas, except for a slight hollowness on the north side. The tree is generally shorter than others along California Avenue, but is still a big tree and has a lean toward and over the street, high voltage wires, and neighboring houses across the street. Resistance drilling was used to test the location on the north side, and solid wood was found to a depth of 10 inches. More than half of the trunk is likely dead in a joined area that includes where the two very large co-dominant stems were removed. The wood is not currently extensively decayed, but the tree is likely to have several large, dead roots below this area. As the roots decay, the likelihood of uprooting failure will increase over time. It is probable that this tree will uproot in the near future.

Risk Categorization

Level 2 Overall Risk Rating: Moderate

Level 3 Overall Risk Rating: High

Mitigation Options

Removal of this tree is recommended.

Overall residual risk: None

Tree #29

Species: Monterey cypress (*Hesperocyparis macrocarpa*)

dbh: 2 stems: 21”, 34””

Height: 72'

Condition: Poor

Tree Defect Observations

This tree has a slightly dominant more vertical trunk, and a very low branching somewhat codominant trunk with a lean toward the southeast. The juncture is narrow with a large bark inclusion. The more vertical trunk has a low live crown ratio of about 30 percent, and the leaning co-dominant trunk has a very low live crown ratio of less than 10 percent. An adjacent tree was recently removed and this leaning trunk is now exposed to wind. The Level 2 assessment of this tree noted ‘possible decay’ at the stem juncture. Sounding with a mallet did not detect any hollow area, and as each new wound will have the potential to create new decay, invasive methods are not used when visual or other noninvasive techniques are conclusive. For this reason, no resistance drilling was used on this tree.

Because of the very low live crown ratio, large bark inclusion and recent removal of an adjacent tree, this leaning trunk is in danger of failing at any time and would strike the picnic tables.

Risk Categorization

Level 2 Overall Risk Rating: Moderate

Level 3 Overall Risk Rating: High

Mitigation Options

Due to the age and condition of this tree, cabling will most likely be ineffective. Removing the leaning stem will make the other stem more prone to failure. Moving the picnic tables will reduce the likelihood of a stem failure striking the picnic tables, however total exclusion of pedestrians is not feasible. Full removal is recommended for this tree.

Overall residual risk: None

Concluding Remarks

Resistance drill testing was performed on five (5) trees as assigned by the County of San Mateo. All trees are growing in a stand with various targets of high voltage wires, cars, pedestrians, and picnic tables, which pose a risk should one or more of the trees fail. All 5 of these trees pose an elevated risk for large failures. In the case of trees 19, 22, 23, and 24 are at an increased likelihood of failure due to uprooting. There is no practical means to prune these trees and reduce or manage this likelihood of failure, and it is therefore my recommendation that all 4 trees be removed. In the case of tree 29, the leaning trunk has a significantly elevated likelihood of failure. Because the entire tree has a very low live crown ratio, the whole tree also has an elevated likelihood of failure, and removal of the entire tree should be considered. Tree defects and proximity to the targets were all factors in removal recommendations.

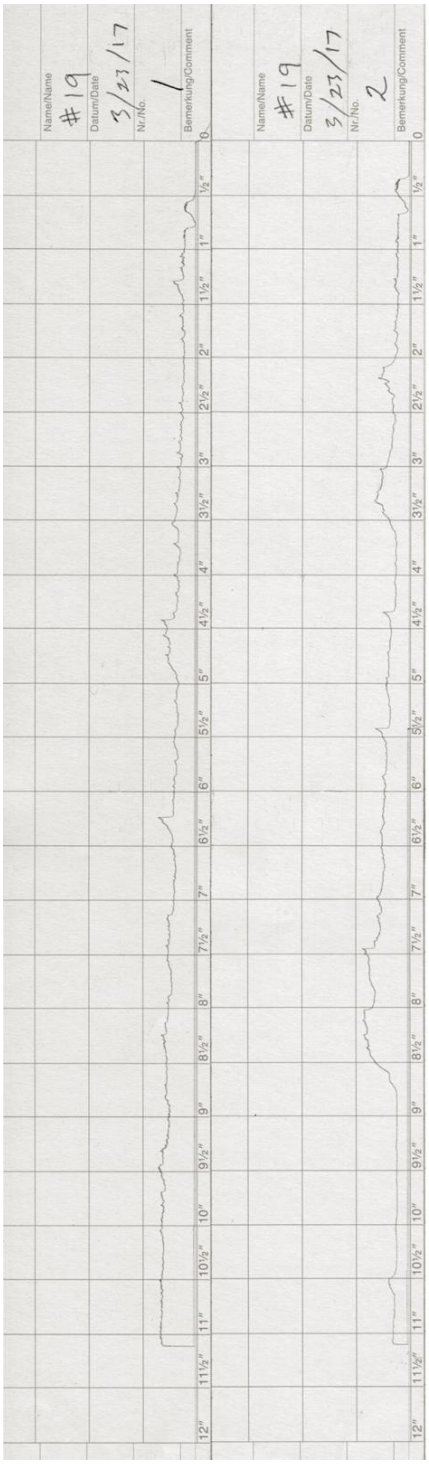
The five County identified trees at this location are mature Monterey cypress (*Hesperocyparis macrocarpa*). All 5 trees are part of a larger over-mature grove of trees, and some other trees have already been removed, thereby increasing loads on many remaining trees. Trees that grow in close proximity to each other develop a certain amount of support and stability properties that are different from open grown trees. The individual crowns and roots overlap to form a cohesive whole, and removal of one or a few in this stand will likely cause the individual crowns of remaining trees to sway much more in the wind. Removal and weakening of root systems, in combination with greater swaying motions, may predispose remaining trees to wind throw. It is because of this stand factor that the removal of the 5 assessed trees will result in increased loads on remaining trees that have not been assessed. It is recommended that adjacent trees should be assessed for risk within six months or before the next storm season.

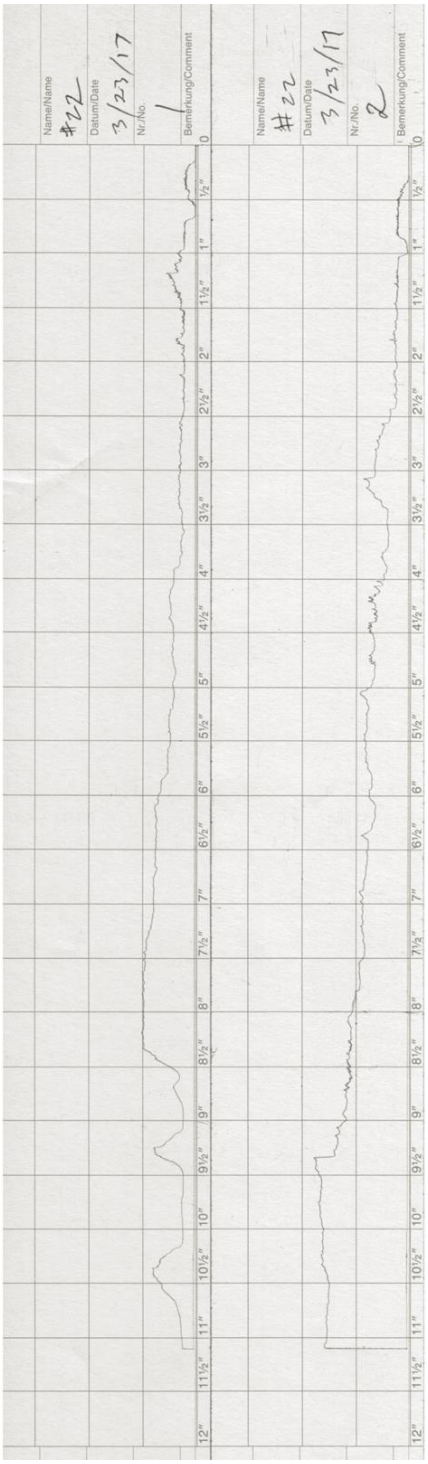
Restoration of the grove by planting a new generation of trees will eventually help restore the natural ecosystem of this grove. This would include new fringe trees being planted to replace the over-mature fringe trees that are recommended for removal.

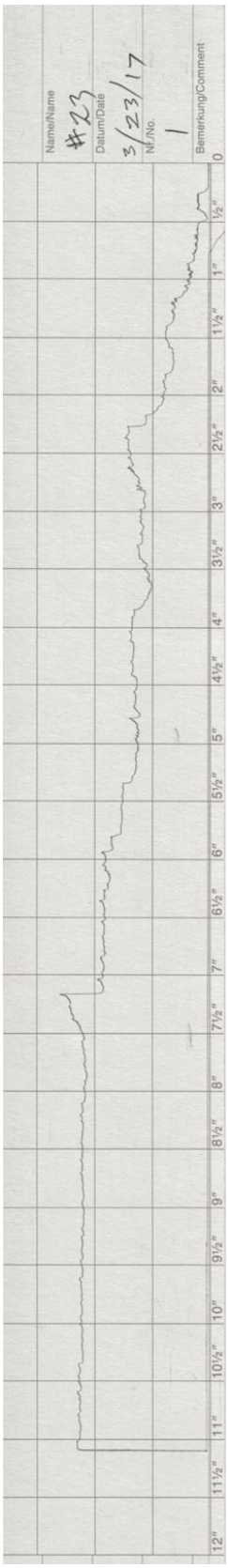
Appendix A - Summary Tree Risk Assessment Results

TREE #	Species	Conditions of Concern	Overall Risk Rating	Recommendations
19	Monterey cypress	Trunk cavity & decay with fungal fruiting bodies	Moderate	Removal is recommended
22	Monterey cypress	Pronounced lean; trunk cavity	High	Removal is recommended
23	Monterey cypress	Pronounced lean; trunk cavity; mushrooms near base	High	Removal is recommended
24	Monterey cypress	Leaning; dead trunk and root tissue	High	Removal is recommended
29	Monterey cypress	Co-dominant stems with bark inclusion; newly exposed to wind	High	Full removal is recommended. Moving picnic tables to lower likelihood of impact lowers to Moderate.

Appendix B – Resistance Drill Scans



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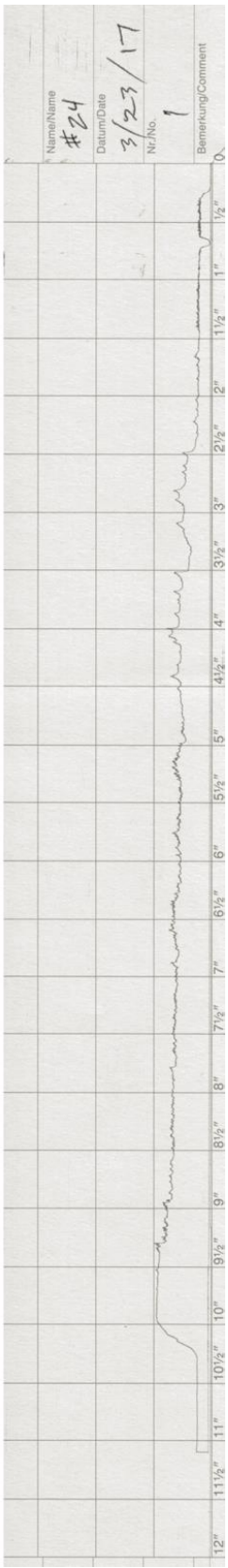
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12"

Appendix C - Photographs

Photo 1. Tree #19 on SE corner

Photo 2. Tree #19 in close proximity to high voltage wires

Photo 3. Resistance drill sites marked with red flags

Photo 4. Trunk cavity & decay in tree #19

Photo 5. Tree #22 leaning over street

Photo 6. Resistance drill site in tree #22

Photo 7. Second drill site in tree #22

Photo 8. Trunk decay & drill sites in tree #22

Photo 9. Crowded location of tree #23

Photo 10. Utility pruned canopy of tree #23

Photo 11. Drill site in tree #23

Photo 12. Mushrooms near tree #23

Photo 13. Tree #24 on NE corner of lot

Photo 14. Drill site marked with red flag on tree #24

Photo 15. Dead trunk tissue of tree #24

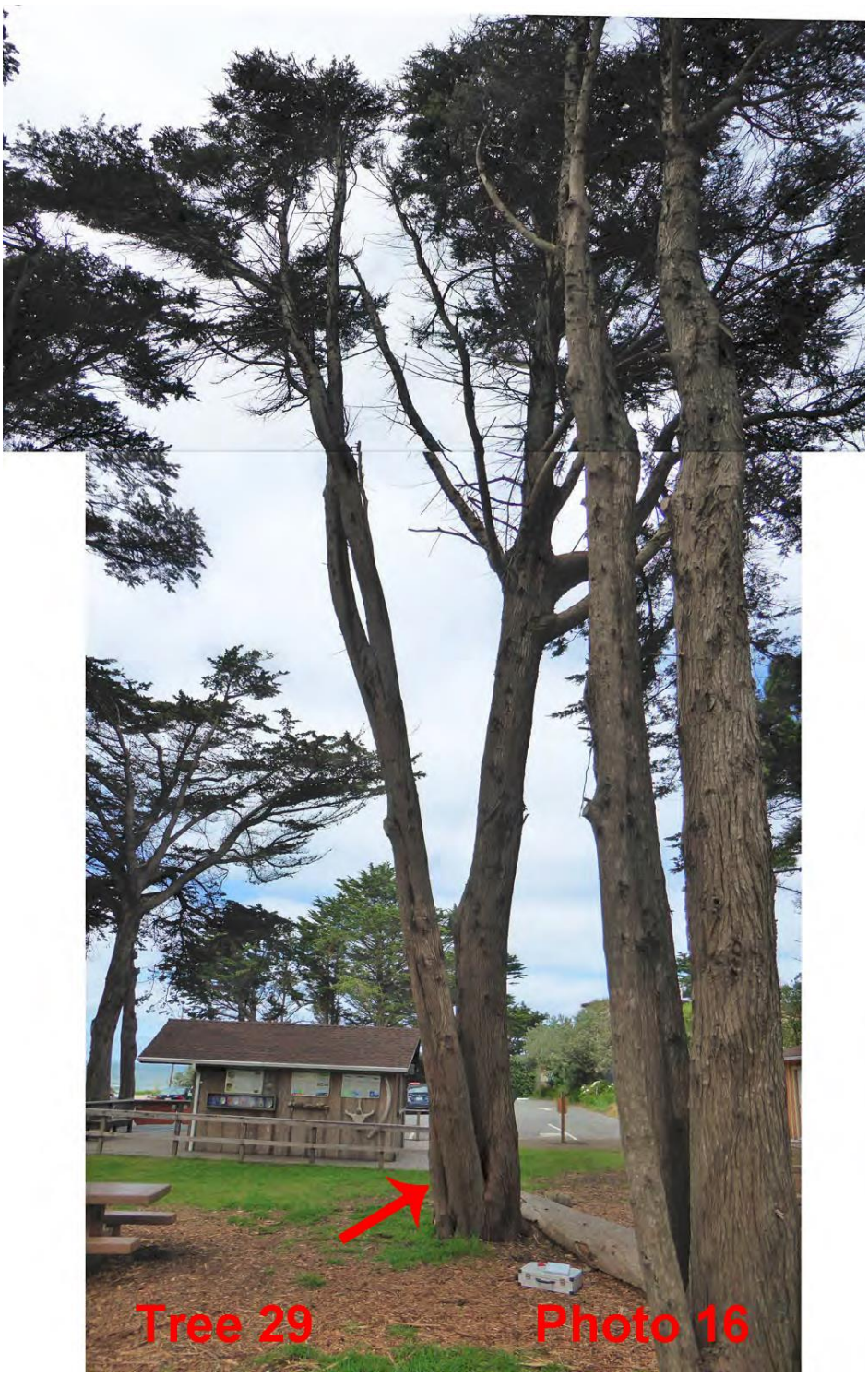

Photo 16. Poor trunk structure of tree #29 next to picnic table

Photo 17. Narrow stem attachment with bark inclusion of tree #29

Photo 18. Stems with low live crown ratio of tree #29