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LIB150294

Fred Ballerini
Biological and Horticultural Services

August 10, 2014

To: Tina Hannas-De Freitas
Permit Coordinator
831.620.0622

RE: Robert Ching Property, Biological Resource Analysis for Well Site
APN 241-191-005
161-B Sprindrift Road, Carmel Highlands, CA

Dear Tina,

Per your request for biological consultation, on July 28 and August 6, 2014, I conducted a biological resource site analysis of the proposed well site for the Robert Ching parcel in the Carmel Highlands.

The analysis included a general survey of the well site including plant and wildlife surveys. The proposed well drilling access and well location were analyzed for impacts to existing resources on site.

Please contact me with any questions or comments. Thank you.

Sincerely,

Fred Ballerini

PLN140783

1. Objective

This biological resource assessment has been prepared to provide information regarding existing habitats, plant and wildlife species, and potential impacts to biological resources resulting from the proposed well drilling activities found on the subject property located at 161-B Spindrift Road in Carmel Highlands (APN 241-191-005).

2. Existing Conditions

The parcel supporting the well site location is located at 161-B Spindrift Road in Carmel Highlands. The proposed well location is situated within Monterey Cypress understory east of Spindrift Road. The lot had been recently mowed and trees pruned for fire clearance. Wood mulch chips from clearance activities were broadcast on site and plant species were beginning to re-sprout. Mixed native habitats surround the parcel including coastal scrub, Monterey cypress forest, and Monterey pine forest. The Ching site vegetation has been disturbed from past impacts and the plant community is predominately exotic species. The topography of the parcel is a flat terrace sloping westward toward the Pacific Ocean located approximately 300' west. The topography east and uphill of the lot indicates the subject parcel is a main drainage corridor from the upland watershed above Hwy 1. A road culvert capturing Spindrift Road runoff, draining directly to the Pacific Ocean, is located approximately 75-feet west of the proposed well site.

3. Plant and Wildlife Species

The existing vegetation within the impact area of the proposed well consists of mostly perennial exotic species including several listed by the California Invasive Plant Council as having adverse impacts to native ecosystems. The dominant species observed within the well impact location and throughout the parcel include golden wattle (*Acacia longifolia*), poison hemlock (*Conium maculatum*), cape ivy (*Delairea odorata*), and periwinkle (*Vinca major*).

Sparse native plants including poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), and coffeeberry (*Rhamnus californica*) are found within the access area and throughout the parcel. Monterey Cypress, a recognized rare tree species by the California Native Plant Society, of varying ages (seedlings to < 40 year old specimens) are found interspersed throughout the parcel with two of the larger specimens located near the proposed well site.

The wildlife species analysis included surveys for several special-status wildlife species occurring within the vicinity of the United States Geological Survey Monterey 7.5' quadrangle, none were observed and the lack of native plant communities provides low habitat potential for the majority of the listed species. Observations were made for potential nesting and bird species were documented near the site including stellar jay (*Cyanocitta stelleri*), dark-eyed junco (*Junco hyemalis*), chestnut-backed chickadee (*Parus ruflescens*), and pygmy nuthatch (*Sitta pygmaeapygmy*). Pocket gopher (*Thomomys bottae*) mounds are pervasive throughout the parcel.

4. Special-Status Species

There were no individual State or Federally Listed plants or wildlife identified on the site at the time of the survey. The California Natural Diversity Data Base (CNDDB) maintained by the State of California Depart of Fish and Game (DFG) reports several special-status native plant and wildlife species occurring within the vicinity of the property within the Monterey Quadrangle, however I found no evidence of any state or federally-listed native plant or wildlife species. No nesting behavior or occurrences were observed within a 100' radius of the proposed well site.

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5. Potential Impacts and Recommendations

The potential impacts to significant biological resources on and surrounding the well plot were evaluated based on the field investigations and conversations with project team members.

No adverse or incidental impacts from the proposed well installation should occur within any of the habitat zones, off-site areas, or to the wildlife if control measures are put in place and maintained during installation. The proposed well location lies well beyond the 100' setback from the edge of any coastal wetland, marine habitat, or natural vegetation designated as environmentally sensitive habitat.

A. In order to protect and retain off-site habitat values, with special regard to the coastal habitat within the Marine Bay National Marine Sanctuary, the well drilling process should be carried out with the following work schedule:

1. Install tree protection measures around trees near impact and staging zones.
2. Prune the flagged cypress limbs to accommodate access for the drilling rig.
3. Install erosion & sediment control devices.
4. Mobilize drilling and excavation equipment into project location.
5. Develop staged retention pit using earthen berm, filter fabric fencing (or silt fencing), sterile rice straw wattles and bales. Use of sterile rice straw and rice straw wattles will reduce the risk of importing invasive grass seed.
6. Drill well and deposit well spoils (approximately 7 to 8 cubic yards) into staged retention pit.
7. Spoils can be deposited onto the heavily impacted area within the future building envelope location or hauled off to a receiver site.
8. There is a road culvert 75-feet directly west and downslope of the proposed well location. This culvert flows unimpeded to the Pacific Ocean, 300-feet to the west into the Monterey Bay National Marine Sanctuary. ALL SPOILS AND FLUIDS ARE TO REMAIN ON SITE AND NOT ALLOWED TO DISCHARGE OFF THE PARCEL OR INTO THE STORM DRAIN ON SPINDRIFT ROAD.
9. Dismantle retention pit, remove straw wattles, drainrock, filter fabric (or silt fence), and tree protection measures. All exposed soils can be mulched with the sterile rice straw or wood mulching at a 2" minimum depth.

B. The following Best Management Practices (BMP's) should be incorporated and installed prior to and maintained during the well-drilling activities:

a. Tree protection measures should be installed prior to equipment mobilization. To prevent inadvertent damage by construction equipment, tree protection measures should include wrapping of trunks with protective materials. Soil compaction, parking of vehicles or heavy equipment, stockpiling of excavation materials, and/or dumping of tailings should not be allowed immediately adjacent to the trunks of protected Monterey cypress trees. All tree protection measures should remain in place until all well-drilling activities are complete.
b. Silt fencing should be installed down-slope of the retention pit and stockpile area to keep any well-tailings from migrating off site.
c. There is a slight possibility of root impact to the Monterey cypress nearest the access road point of entry. Root intrusion at the point of entry at the access location should be kept to a minimum with any small feeder roots <1" flush-cut immediately, roots >1" should be kept intact and covered with moist burlap during operations.
d. Of the seven tree limbs proposed for removal, most are lower-hanging and <6" diameter, with one 8" diameter limb slated for removal. This pruning should have insignificant impacts to the Monterey cypress and should not affect its long-term sustainability. Limb pruning should occur with sterile pruning devices and flush-cut near the trunk.

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Well Site Photographic Documentation **Aug 8, 2014**

Proposed well site, facing south direction.

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Proposed well site access point, facing East direction.

Flagged tree limbs proposed for pruning to accommodate drill rig.

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Spindrift Road culvert <75' west of proposed well location.

Exotic understory cape ivy species resprouting throughout the parcel.

END

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Fred Ballerini
Biological and Horticultural Services

May 4, 2015

To: Tina Hannas-De Freitas
Permit Coordinator
831.620.0622

RE: Robert Ching Property, Biological Resource Analysis
APN 241-191-005
161-B Sprindrift Road, Carmel Highlands, CA

Dear Tina,

Per your request for biological consultation, on April 20, 2015, I conducted a secondary biological resource site analysis of the Robert Ching parcel in the Carmel Highlands. This memo serves as an addendum to the Biological Letter dated August 10, outlining the existing habitats and species found on the subject parcel.

The analysis included a spring biotic survey of the parcel and analysis in relation to vegetation removal activities previously conducted on the parcel.

Please contact me with any questions or comments. Thank you.

Sincerely,

Fred Ballerini

1. Introduction

This biological resource addendum has been prepared to address vegetation removal activities conducted on the Ching parcel located at 161-B Spindrift Road in Carmel Highlands (APN 241-191-005). The Monterey County Planning Department requested a biologist determine if the vegetation removal affected any habitat that may have been present prior to the activities.

2. Existing Vegetation Conditions

As documented in the previous biological reporting (Ballerini, August 10, 2014), the lot had been recently mowed, including the pruning and removal of non-native *Acacia longifolia* (golden wattle) trees pruned for fire clearance. Wood mulch chips from clearance activities were broadcast on site. Since the initial fire clearance activities conducted in 2014, additional pruning of Monterey Cypress low-hanging limbs occurred in 2015 to accommodate well-drilling access for a proposed well. In addition, several golden wattle limbs were pruned as they had been blown over from seasonal high wind events.

Within the project vicinity on neighboring parcels, mixed native habitats are found, including coastal scrub, Monterey cypress forest, and Monterey pine forest.

The Ching parcel vegetation has been disturbed from past impacts prior to the fire clearance activities and the plant community is predominately exotic invasive species including several listed by the California Invasive Plant Council as having adverse impacts to native ecosystems. The dominant species observed throughout the parcel include golden wattle (*Acacia longifolia*), poison hemlock (*Conium maculatum*), cape ivy (*Delairea odorata*), and periwinkle (*Vinca major*), veldt grass (*Erharta erecta*), and field mustard (*Brassica rapa*). Other less dominant non-native, exotic species include Hottentot fig (*Carpobrotus edulis*), pampas grass (*Cortaderia jubata*), watsonia species (*Watsonia sp*), ripgut brome (*Bromus diandrus*), wild radish (*Raphanus sativus*), new seedling sprouts of golden wattle (*Acacia longifolia*) and others.

Sparse native plants including poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), and hedgenettle (*Stachys bullata*), with less dominant wild cucumber (*Marah fabaceus*), and coffeeberry (*Rhamnus californica*) are found within the access area and throughout the parcel, mostly located in higher densities along the southerly portion of the parcel growing in the shade of the Monterey cypress. Monterey cypress, a recognized rare tree species by the California Native Plant Society, of varying ages (seedlings to < 40 year old specimens) are found interspersed throughout the parcel with two of the larger specimens located near the proposed well site.

The wildlife species analysis included surveys for several special-status wildlife species occurring within the vicinity of the United States Geological Survey Monterey 7.5' quadrangle, none were observed and the lack of native plant communities provides low habitat potential for the majority of the listed species.

3. Special-Status Species

There were no individual State or Federally Listed plants or wildlife, or ESHA habitat identified on the site at the time of the survey. The California Natural Diversity Data Base (CNDDB) maintained by the State of California Depart of Fish and Game (DFG) reports several special-status native plant and wildlife species occurring within the vicinity of the property within the Monterey Quadrangle, however I found no evidence of any state or federally-listed native plant or wildlife species. No nesting behavior or occurrences were observed within a 100' radius of the proposed well site.

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4. Conclusions

No adverse or significant incidental impacts to native vegetation or native habitat have occurred as a result of the vegetation clearance activities. The parcel is predominately vegetated with non-native, exotic, invasive plant species. Mowing regimes and exotic species control measures using hand removal methods should continue in an effort to suppress the exotics and prevent them from spreading to neighboring sites.

Lower limb (crown-raising) pruning on several Monterey cypress near the proposed well location are considered to have less than significant impacts to the overall health of the cypress trees. The pruning cuts are clean and occur immediately beyond the branch collar, with less than 1/3 (one third) of the lateral branching removed. This pruning will provide clearance for buildings, vehicles, pedestrians and vistas, in addition to adhering to fire-safe landscaping protocol.

Soils are stable as no grading has occurred and topsoils are covered with wood chip mulching from the fire clearance activities.

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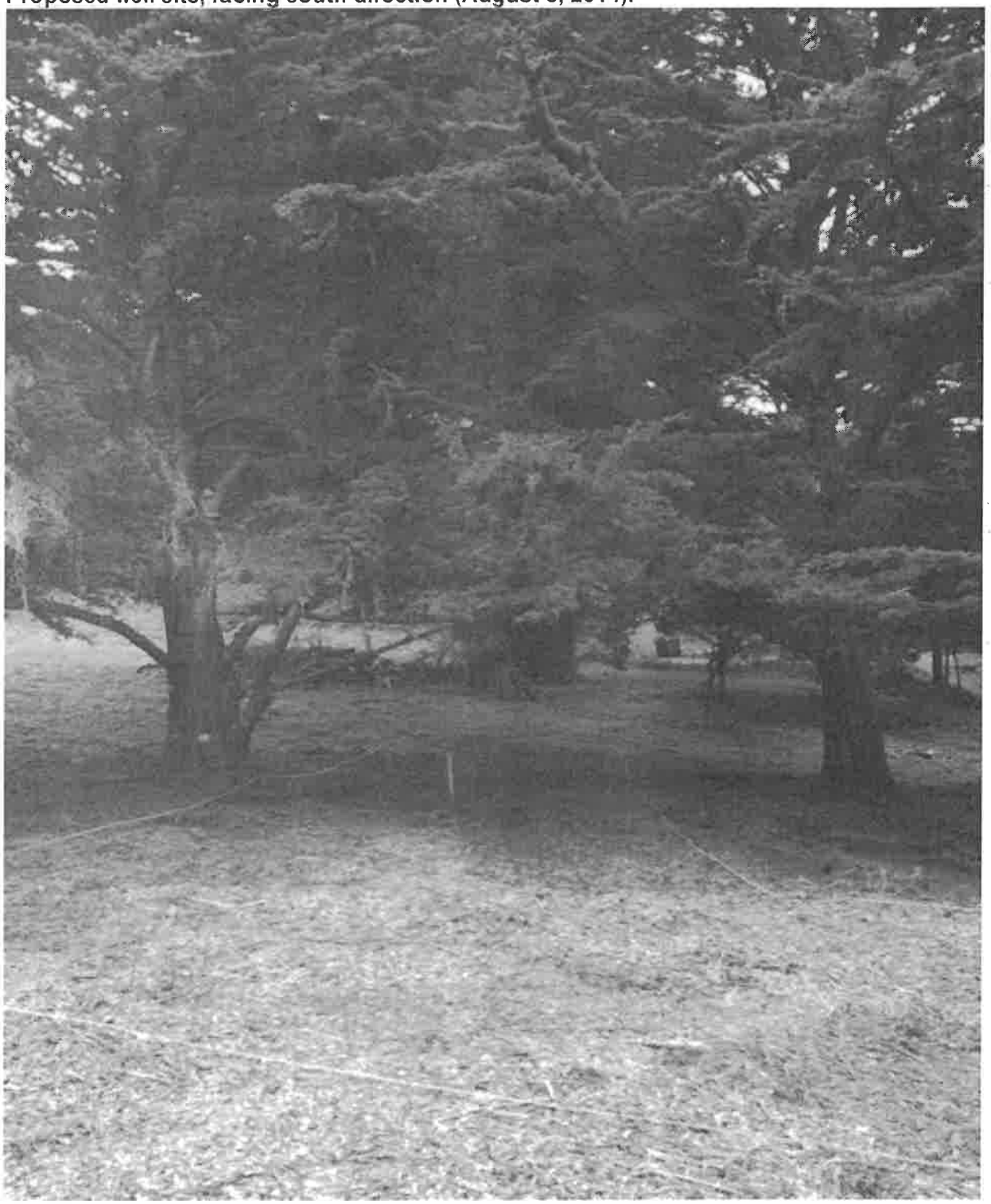
Well Site Photographic Documentation

Proposed well site, facing south direction (August 8, 2014).



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Proposed well site, facing south direction (April 20, 2015), showing Monterey Cypress limbs pruned at the proposed well site and understory vegetation resprouting.

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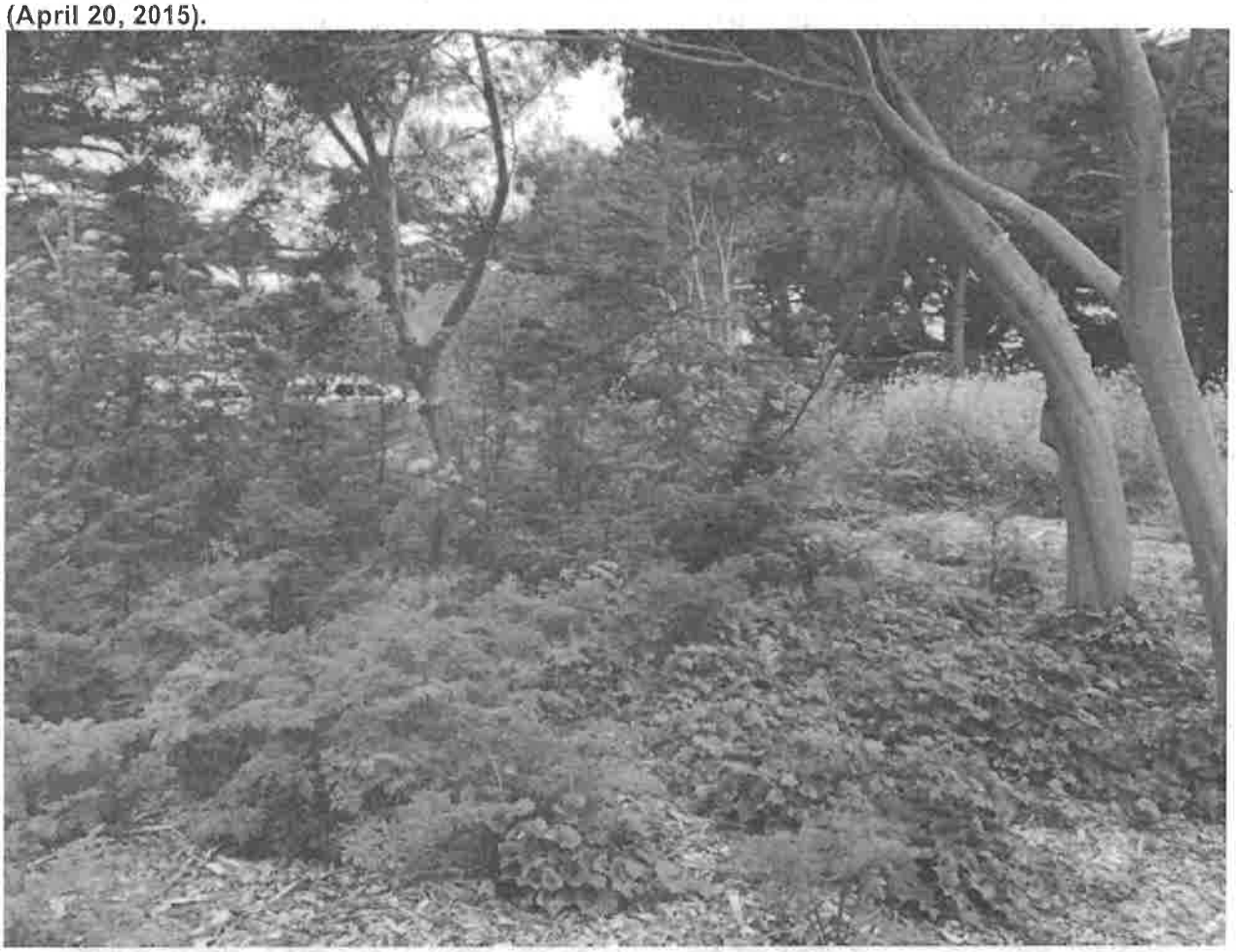
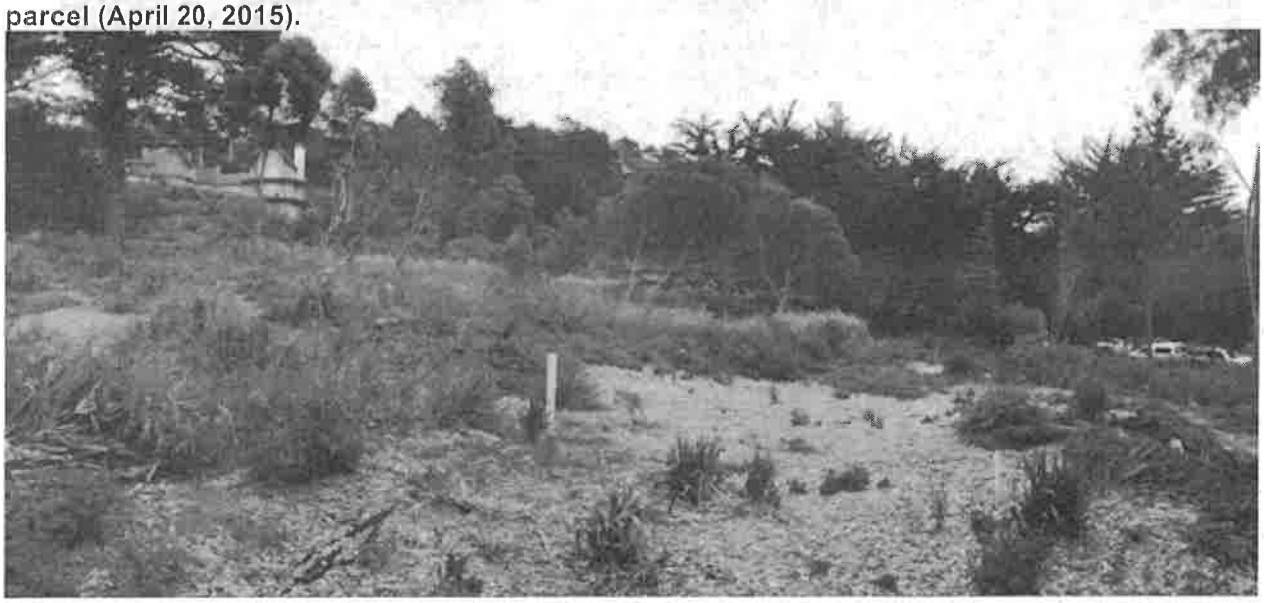
Exotic poison hemlock, cape ivy and field mustard along the northwest area of the parcel (April 20, 2015).



Exotic, non-native vegetation along the parcel, facing south from the northern border of the parcel (April 20, 2015).



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Non-native field mustard located on the parcel (April 20, 2015).

Exotic pampas grass growing on the parcel (April 20, 2015).

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Non-native watsonia bulbs sprouting along the northwest section of the parcel (April 20, 2015).

Native coffeeberry spouting within the parcel (April 20, 2015).

END

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UB150297

THOMPSON
WILDLAND MANAGEMENT
Environmental Management & Conservation Services
International Society of Arboriculture Certified Arborist # WE-7468A
Department of Pesticide Regulation Qualified Applicator Lic. #QL50949 B
Arborist & Environmental Assessments, Protection, Restoration, Monitoring & Reporting
Wildland Fire Property Protection, Fuel Reduction & Vegetation Management
Invasive Weed Control, and Habitat Restoration & Management
Soil Erosion & Sedimentation Control
Resource Ecologist

May 19, 2015

Ching Property
Spindrift Road
Carmel Highlands, CA
APN: 241-191-005

Subject: Arborist assessment for Spindrift Road property

Dear Ms. Hannas,

Per your request, an arborist evaluation was recently conducted for five mature Monterey Cypress (*Cupressus macrocarpa*) trees and one aging Monterey Pine (*Pinus radiata*) located on the undeveloped Spindrift Road property in the Carmel Highlands (APN: 241-191-005). The purpose of the assessment was to evaluate the impacts of pruning operations that occurred last January involving the removal several lower to mid-stem limbs from the 5 cypress trees. It should be noted that pruning operations were performed during the proper time of year to minimize impacts related to pruning activities. A majority of the limbs were removed due to structural and/or health deficiencies, as well as damage sustained during severe storm events that occurred in December 2014; and to a lesser extent 2 of the cypress trees were trimmed to assist in providing safe access and adequate clearance for proposed well drilling operations.

The five (5) subject Monterey Cypress trees are identified by tag#s 818-822, and the subject Monterey Pine tree is identified by tag number 827. These trees are depicted in the photographs located at the end of the report (refer to *Figures 1-10*), as well as the site plans that have been prepared by *Central Coast Surveyors* (refer to *Exhibit A*).

The mature Monterey Cypress tree identified by tag#818 has a DBH (Diameter at Breast Height) of 43 inches and is approximately 35 feet in height (refer to *Figure 1*). This roadside tree is located towards the northwest end of the lot. In regards to limb removal and pruning impacts, a total of 4 sizable limbs (all over 8 inches diameter) were removed from the east side of the tree (facing away from the road) during January pruning

operations due to structural defects and storm damage. It should be noted that over the years this tree has been significantly impacted by improper pruning practices (e.g., topping/heading cuts) associated with PG&E utility powerline maintenance and clearing operations that has resulted in structural deficiencies, such as an overly dense canopy with poor symmetry and form (refer to *Figures 1&2*). Unfortunately improper pruning practices associated with utility powerline maintenance operations is not uncommon, and in this case has resulted in problematic structural characteristics that contributed to recent limb failure and removal operations that was necessary to mitigate storm related damage and to preserve tree health.

The mature cypress tree identified by tag#819 has a DBH of 50 inches and is approximately 50 feet in height (refer to *Figures 3&4*). This roadside tree is located towards the southwest end of the lot. Overall the tree is in good physiological and structural condition, and biotic disorders are presently absent in levels that are detrimental to the health of the tree. In regards to pruning impacts, 3 limbs were removed from the east side of the tree (facing away from the road) during January pruning operations. This included the removal of 1 large lower scaffold limb that was removed due to structurally unsound deficiencies (i.e., internal decay) that had been further compromised by a utility line cable embedded around the lower collar of the limb (refer to *Figure 5*). There is no reason to believe that pruning operations will have a negative impact on tree health. Conversely, removal of structurally and/or physiologically problematic limbs and canopy material is generally advised as a tree care and management practice that is important to sustaining and preserving tree health.

The mature cypress tree identified by tag#820 has a DBH of 33 inches and is approximately 60 feet in height (refer to *Figures 3&6*). Overall the tree is in good physiological and structural condition, and biotic disorders are presently absent in levels that are harmful to the health of the tree. In regards to pruning impacts, a total of 8 limbs were removed from the lower quarter section of the stem during January pruning operations. Pruning activities involved the removal of structurally deficient and storm damaged limbs, as well as to provide adequate clearance for proposed well drilling operations. There is no evidence or indication that pruning activities will compromise or have a negative impact on the health and well-being of this or other cypress trees that were pruned in January.

The mature cypress tree identified by tag#821 has a DBH of 42 inches and is approximately 60 feet in height (refer to *Figures 7&8*). Overall the tree is physiologically and structurally sound, and biotic disorders are presently absent in levels that are harmful to the health of the tree. In regards to pruning impacts, a total of 17 limbs were removed during the January pruning event. Most of these pruning cuts (i.e., approximately 10) occurred in the mid-stem section of the tree, however the limbs removed in this mid-section were generally smaller in diameter. Most of the larger limbs removed were in the lower quarter section of the stem, and were primarily removed to

address concerns related to structurally deficiencies and damage sustained during the storms of December 2014. At the time these lower limbs were removed during post-storm property clean up and maintenance operations, it was decided that some mid-section limbs would also be removed to provide safe access and clearance for proposed well drilling activities. In my professional opinion, these pruning operations are not substantial enough to have any adverse affect on tree health. Conversely, proper removal of some of the larger structurally defective and storm damaged limbs in the lower stem of the tree may assist in further protecting and preserving tree health by reducing the likelihood of substantial or catastrophic injury that would result from significant uncontrolled failure of large structurally deficient and unsound limbs.

The mature cypress tree identified by tag#822 has a DBH of 43 inches and is also approximately 60 feet in height (refer to *Figures 7&9*). Overall the tree is in good physiological and structural condition, and biotic disorders are presently absent in levels that are detrimental to the health of the tree. In regards to pruning impacts, 8 moderately sized limbs were removed during January pruning operations due to storm damage and structural deficiencies. As with the other trees, pruning impacts are likely inconsequential to the long-term health and well-being of the tree.

The large and aging Monterey Pine tree identified by tag#827 has a DBH of 44 inches and is approximately 70 feet in height (refer to *Figure 10*). This tree was not subjected to any pruning activities last January, however this senescing pine is in decline and would benefit from proper pruning to remove large dead limbs and to improve canopy symmetry and balance.

A few recommendations that may assist in preserving and maintaining the health of the subject trees are as follows: 1) Non-native invasive weeds are prolific on the property, including within the critical root zone (i.e., drip line) of the trees addressed in this report. These trees would benefit from invasive weed control measures to contain and reduce noxious weeds that compete for vital resources; and 2) Treat exposed pruning cuts that serve as entry points to biotic disorders (e.g., decay, disease and/or insect pests) with a biologically active wound dressing to assist in protecting trees from such disorders.

In conclusion, there is no evidence or indication that pruning operations that occurred last January are going to adversely affect or compromise the health of the 5 mature Monterey Cypress trees that are addressed in this report. Currently, the subject trees are physiologically and structurally sound, and limb removal operations appear to have had a minimal and inconsequential affect on the health of the trees. Conversely, removal of some of the larger unhealthy and structurally deficient limbs will benefit the long-term health and welfare of the trees by reducing the probability of structural failure of unsound limbs that would otherwise inflict significant damage and injury should uncontrolled structural failure occur. Additionally, the senescing Monterey Pine tree should be pruned to remove large deadwood material and to improve canopy balance and symmetry.

Thank you and please let me know if you have any questions or need additional information.

Best regards,

Rob Thompson
ISA Certified Arborist # WE-7468A
Resource Ecologist

Thompson Wildland Management (TWM)
57 Via Del Rey
Monterey, CA. 93940
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Date

Figure 1. Recent pruning cuts in Monterey Cypress with tag#818.

Figure 2. Tree#818 has structurally defective and damaged limbs that were recently removed, and utility lines passing through canopy are very problematic.

Figure 3. Cypress with tag#819 is right of center and cypress with tag#820 is left of center.

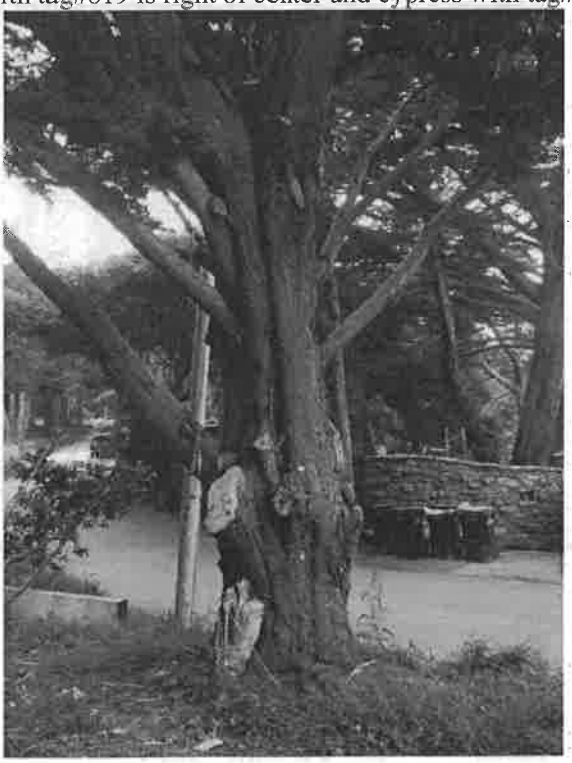

Figure 4. Tree#819 with pruning cuts resulting from the removal of structurally defective limbs.

Figure 5. Tree#819 with evidence of internal decay in large limb that was removed, as well as impacts associated with girdling and embedded utility line cable.

Figure 6. Cypress with tag#820 was also pruned last January.

Figure 7. Cypress with tag#821 is right of center and cypress with tag#822 is left of center.

Figure 8. Cypress with tag#821 has several pruning cuts resulting from the removal of structurally defective and storm damaged limbs. A few additional smaller mid-stem limbs were removed to provide adequate clearance for proposed well drilling operations.

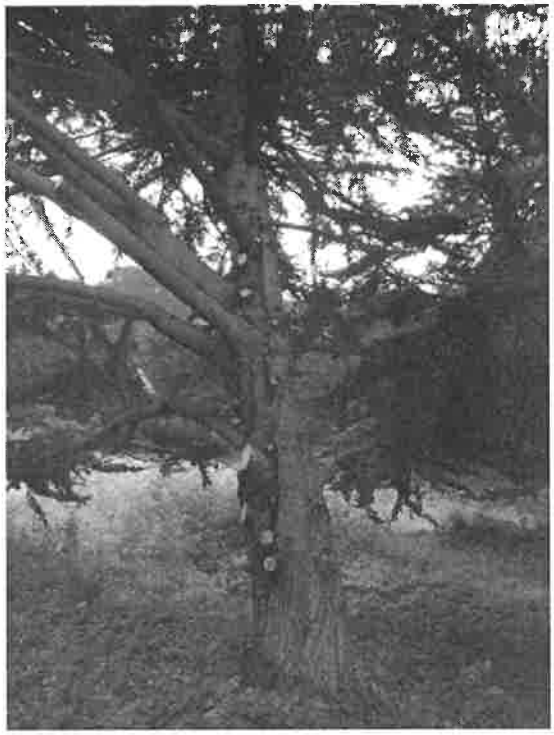

Figure 9. Cypress with tag#822 has several pruning cuts resulting from the removal of structurally defective and storm damaged limbs.

Figure 10. Monterey Pine with tag#827 is aging and in decline and should be pruned to remove large dead wood material and to improve canopy balance.

Thank you and please let me know if you have any questions or need additional information.

Best regards,

Rob Thompson

5-19-15

Date

Rob Thompson
ISA Certified Arborist # WE-7468A
Resource Ecologist

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LIB150292

Maureen Hamb-WCISA Certified Arborist WE2280
Professional Consulting Services

July 14, 2015

Highlands Covenant Group
c/o Pamela H. Silkwood
Horan Lloyd Attorneys At Law
26385 Carmel Rancho Blvd, Suite 200
Carmel, CA 93923

Project: 161-B Spindrift/Proposed Well Site

As requested, I completed an inspection of a proposed well installation project located at 161-B Spindrift Road, Carmel Highlands

I viewed the site from the public roadway (Spindrift Road), as the project location is private property. In addition to inspecting the staking for the proposed well site, I also reviewed an Arborist Assessment prepared by Rob Thompson of Thompson Wildland Management.

The portion of the site I inspected is forested with mature Monterey cypress (*Hesperocyparis macrocarpa*).

The trees appear to range from 30 to 50 inches in trunk diameter. The upper foliar canopies are thinning, and indication of a tree in fair health. Small to medium size dead branching were observed.

Large diameter lower to mid height branching has been recently removed from the trees as evidenced by pruning cuts along the main trunks.

Mr. Thompsons report states that the limbs were removed because they were dangerous and at risk of falling. His report does not document evidence that he inspected the trees prior to pruning to support his findings.

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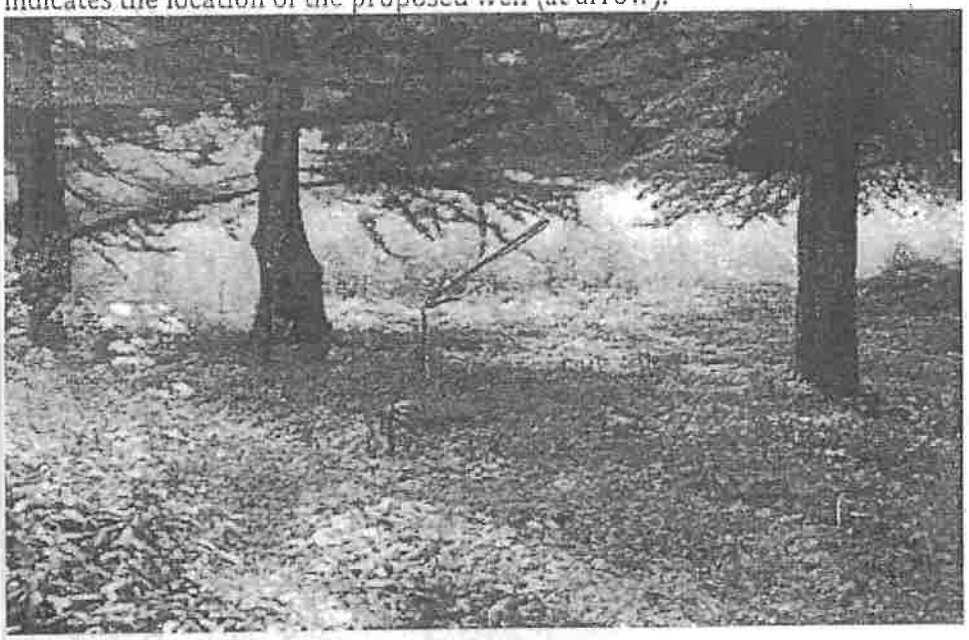
Additionally, there can be no risk rating assigned to trees that are standing on an undeveloped property. Risk analysis must include a "target" component to be consistent with the accepted professional standards for hazard evaluations.

The removal of multiple, large diameter branches should be avoided. Pruning wounds of the size present on these trees are susceptible to decay causing organisms that can eventually join and spread into the main stem.

Although it does not appear that more than 30% of the canopy was removed, I would define this type of pruning as excessive and without rationale. It can affect long-term tree health and structural integrity.

A single lath type stake was observed adjacent to the trees. It can be assumed that is indicates the location of the proposed well (at arrow).



From offsite, it appears to be approximately 10 feet from the base of one tree and 30 feet from the other.

Well construction requires a large drill rig, which produces an abundance of debris that consists of soil and/or rock that can be either saturated or dry. The material is concentrated around the work area, in this case under the tree canopies and over the root zone.

Sites where protected resources could be impacted by development or site changes typically require an analysis that defines the impact and provides recommendations for eliminating the impact. A critical omission in Mr. Thompsons report is the failure to address the potential impacts to the trees related to the installation of the proposed well. Arborists are responsible for reporting accurate, thorough and objective facts when inspecting trees and circumstances involving trees. The lack of discussion related to the well installation project is inconsistent with professional practices utilized throughout the industry.

When analyzing potential impacts to trees on development sites establishing the **Critical Root Zone** (CRZ) is essential. This is the area around a single tree or group of trees in which no excavation, grading or construction activity should occur. The zone should be large enough to retain sufficient root and crown area to maintain tree health and stability. The size of this zone depends on a number of factors (Matheny, Clark & Harris 1999)

Tree structure, the architecture of the branch system and trunk are taken into account when defining the CRZ. A tree that has a single trunk with a rounded symmetrical canopy may have a similarly shaped CRZ, trees with multiple stems or a leaning structure may have a zone that is less symmetrical and may need to encompass more of the trees canopy to protect lower branching that is essential for tree stability.

Defining the "optimum" CRZ is calculated using the British Standards Institute method developed in 1991. It is based on ranges in trunk diameter, tree age and vigor. This method can be modified to include the characteristics discussed above, including species tolerances, tree architecture and existing site constraints. Using this information the consultant can find the distance from the trunk that should be protected per unit of trunk diameter.

I would estimate that the optimum CRZ for the two trees adjacent to the proposed well site would be a radius of at least 35 feet. This radius is established using the accepted professional methods described above.

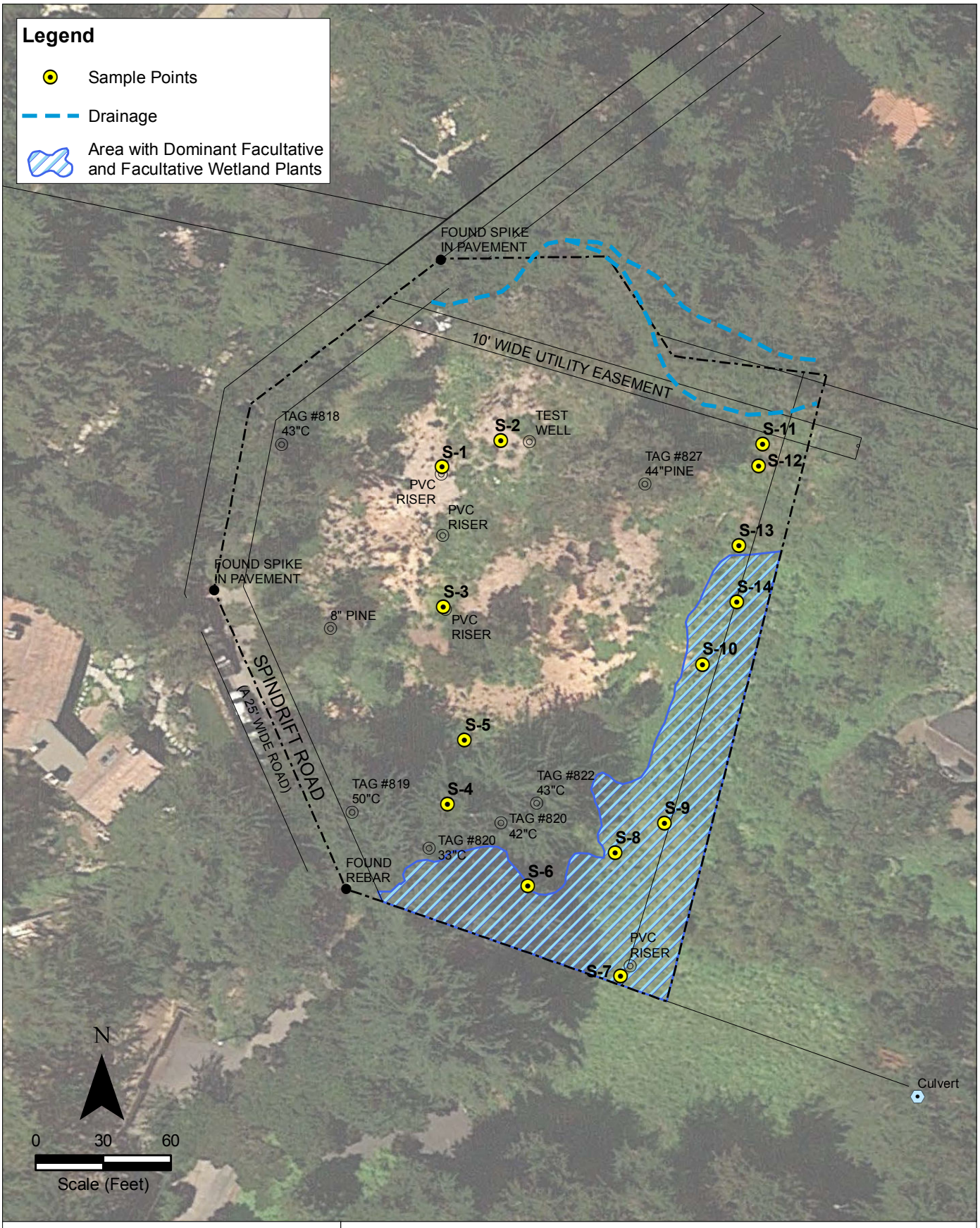
The potential impacts based on the location of the stake include:

- Damage or removal of structural roots that could destabilize the trees
- Removal of absorbing roots needed to provide moisture and nutrients to the tree
- Suffocation of absorbing roots by the by soil and rock by-products that would cover the root zones.
- Modifications to natural soil moisture or oxygen absorption.
- Damage to remaining tree canopy by large equipment

Ideally, the well site proposed for this property should be relocated outside the Critical Root Zone of all protected trees.

Please call my office with any questions. Respectfully submitted,

Maureen Hamb-Certified Arborist WE2280



Zander Associates
Environmental Consultants
1563 Solano Ave. #255
Berkeley, CA 94707

Preliminary Wetlands Assessment
Ching Property -161B Spindrift Rd
Carmel Highlands, CA

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-1

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Lower on slope near perc test station #1

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1. Acacia longifolia	15	Yes	NL
2. Toxicodendron diversilobum	10	Yes	FACU
3. Cortaderia selloana	5	No	NL
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Conium maculatum	10	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 65 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Ground covered with wood chips/mulch about 6 inches thick.

SOIL

Sampling Point: S-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
16"	10 YR 3/2						sandy	mulch layer 4" thick

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Encountered decomposed granite at 16". Data from nearby perc test indicate good permeability.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sandy soils on slope with no water source other than direct rainfall.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-2

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Lower on slope near old test well site and in area cleared of Acacia in recent past.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1. Toxicodendron diversilobum	30	Yes	FACU
2.			
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Vinca major	30	Yes	NL
2. Conium maculatum	20	Yes	FACW
3. Helminthotheca echioides	5	No	FACU
4.			
5.			
6.			
7.			
8.			
	55 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Ground somewhat disturbed from excavation of old test well

SOIL

Sampling Point: S-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Very dry

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sandy soils on slope with no water source other than direct rainfall.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-3

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Lower on slope near perc test station #3. In area cleared of Acacia

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1. Toxicodendron diversilobum	15	Yes	FACU
2. Acacia longifolia (seedlings)	5	No	NL
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Hirschfeldia incana	50	Yes	NL
2. Conium maculatum	25	Yes	FACW
3. Vinca major	5	No	NL
4. Delairea odorata	5	No	NL
5.			
6.			
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Thick mulch from chipping of cleared Acacia trees.

SOIL

Sampling Point: S-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Very dry. Nearby perc test results indicate less permeable soils but no field indicators seen in top 12"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sandy soils on slope with no water source other than direct rainfall.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-4

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Under canopy of Monterey cypress.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1. Hesperocyperis macrocarpa	30	Yes	NL
2.			
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1.			
2.			
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Vinca major	50	Yes	NL
2. Delairea odorata	30	Yes	NL
3.			
4.			
5.			
6.			
7.			
8.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 10 ft dia)			
1. Rubus ursinus	60	Yes	FAC
2.			
	20 = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 25% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Low-growing understory of Monterey cypress

SOIL

Sampling Point: S-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Soils same as all previous samples

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sandy soils on slope with no water source other than direct rainfall.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-5

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Edge of cypress canopy in disturbed understory

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1. Hesperocyperis macrocarpa	5	Yes	NL
2.			
3.			
4.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
Herb Stratum (Plot size: 10 ft dia)			
1. Conium maculatum	20	Yes	FACW
2. Hirschfeldia incana	10	Yes	NL
3. Carduus pycnocephalus	10	Yes	NL
4.			
5.			
6.			
7.			
8.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: 10 ft dia)			
1. Rubus ursinus	60	Yes	FAC
2.			
	60	= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Ruderal vegetation dominant

SOIL

Sampling Point: S-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Soils same as all previous samples

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Sandy soils on slope with no water source other than direct rainfall.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-6

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Edge of cypress canopy in disturbed understory

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1. Hesperocyperis macrocarpa	60	Yes	NL
2.			
3.			
4.			
	60	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1. Rubus ursinus	60	Yes	FAC
2.			
3.			
4.			
5.			
	60	= Total Cover	
Herb Stratum (Plot size: 10 ft dia)			
1. Delairea odorata	40	Yes	NL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	40	= Total Cover	
Woody Vine Stratum (Plot size: 10 ft dia)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Ground cover of blackberry

SOIL

Sampling Point: S-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Could be within path of runoff from culvert under Highway 1 upslope. No field indicators of hydrology observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-7

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

Near Perc test PVC pipe #7, in dense blackberry

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1. Rubus ursinus	90	Yes	FAC
2.			
3.			
4.			
5.			
	90 = Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Hirschfeldia incana	15	Yes	NL
2. Conium maculatum	15	Yes	FACW
3. Carduus pycnocephalus	5	No	NL
4. Rumex crispus	1	No	FAC
5.			
6.			
7.			
8.			
	36 = Total Cover		
Woody Vine Stratum (Plot size: 10 ft dia)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Blackberry bramble with Conium patches

SOIL

Sampling Point: S-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

No mulch layer. Decomposed granite at 12". Data from nearby perc test indicate slow permability in this area. No field indicators of hydric soils observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Could be within path of runoff from culvert under Highway 1 upslope. No field indicators of hydrology observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-8

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Conium maculatum	75	Yes	FACW
2. Delaria odorata	20	No	NL
3.			
4.			
5.			
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 10 ft dia)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Conium patch

SOIL

Sampling Point: S-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No mulch layer. Decomposed granite at 12"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Could be within path of runoff from culvert under Highway 1 upslope. No field indicators of hydrology observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-9

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1. Toxicodendron diversilobum	10	Yes	FACU
2. Rubus ursinus	10	Yes	FAC
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Conium maculatum	70	Yes	FACW
2. Hirchfeldia incana	25	No	NL
3. Solanum americanum	5	No	FACU
4.			
5.			
6.			
7.			
8.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 10 ft dia)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Conium patch

SOIL

Sampling Point: S-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12"	10 YR 3/1						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✓

Remarks:

No mulch layer. Soils more moist in this location - darker but no redox features. Data from perc test in this area indicate slow permeability.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Could receive runoff from culvert under Highway 1 upslope. No field indicators of hydrology observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-10

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1. Toxicodendron diversilobum	15	Yes	FACU
2. Rubus ursinus	10	Yes	FAC
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Conium maculatum	80	Yes	FACW
2. Solanum americanum	10	No	FACU
3.			
4.			
5.			
6.			
7.			
8.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 10 ft dia)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

Conium dominant

SOIL

Sampling Point: S-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
18"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Mulch layer about 6". No rock or d.g. found in sample. Data from perc test in this area indicate higher perc rate

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrologic field indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-11

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1. Cortaderia selloana	15	Yes	NL
2. Acacia longifolia	10	Yes	NL
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Delaria odorata	5	Yes	NL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	5 = Total Cover		
Woody Vine Stratum (Plot size: 10 ft dia)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 70 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

Pretty open area. Cleared of Acacia recently?

SOIL

Sampling Point: S-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
18"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Mulch layer about 7". Decomposed granite at 12"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrologic field indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-12

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1. Hesperocyperis macrocarpum	20	Yes	NL
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1. Cortaderia selloana	15	Yes	NL
2. Acacia longifolia	10	Yes	NL
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Delaria odorata	80	Yes	NL
2. Vinca major	10	No	NL
3. Conium maculatum	5	No	FACW
4.			
5.			
6.			
7.			
8.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 10 ft dia)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: S-12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Mulch layer about 3". Granite cobble within 10"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrologic field indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-13

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1. Acacia longifolia (seedlings)	5	Yes	FACU
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Solanum americanum	50	Yes	NL
2. Delaria odorata	10	No	NL
3. Conium maculatum	5	No	FACW
4.			
5.			
6.			
7.			
8.			
	65 = Total Cover		
Woody Vine Stratum (Plot size: 10 ft dia)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: S-13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Mulch layer about 5". Granite cobble at 12"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrologic field indicators observed.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 161B Spindrift Road City/County: Carmel Highlands/Monterey Sampling Date: 10/1/15

Applicant/Owner: Robert Ching State: CA Sampling Point: S-14

Investigator(s): L. Zander, M. Zander Section, Township, Range:

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): C-Mediterranean California Lat: 36º 29' 43.07" N Long: 121º 56' 18.31" W Datum: UTM Z 10N

Soil Map Unit Name: Santa Ynez fine sandy loam 9 to 15 percent slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10 ft dia)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 10 ft. dia)			
1. Toxicodendrom diversilobum	10	Yes	FACU
2. Rubus ursinus	10	Yes	FAC
3.			
4.			
5.			
	20 = Total Cover		
Herb Stratum (Plot size: 10 ft dia)			
1. Conium maculatum	60	Yes	FACW
2. Solanum americanum	15	No	FACU
3. Delaria odorata	10	No	NI
4.			
5.			
6.			
7.			
8.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 10 ft dia)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

✓ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: S-14

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
12"	10 YR 3/2						sandy	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

Mulch layer about 5". Granite cobble at 12"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrologic field indicators observed.

LIB150296

THOMPSON
WILDLAND MANAGEMENT
Environmental Management & Conservation Services
International Society of Arboriculture Certified Arborist # WE-7468A
Department of Pesticide Regulation Qualified Applicator Lic. #QL50949 B
Arborist & Environmental Assessments, Protection, Restoration, Monitoring & Reporting
Wildland Fire Property Protection, Fuel Reduction & Vegetation Management
Invasive Weed Control, and Habitat Restoration & Management
Soil Erosion & Sedimentation Control
Resource Ecologist

August 11, 2015

Ching Property
Spindrift Road
Carmel Highlands, CA
APN: 241-191-005

Subject: Tree protection recommendations for Ching property well drilling operations

Dear Ms. Hannas,

Based on the small footprint and location of the proposed well boring hole, impacts to the two nearby mature Monterey Cypress trees (identified by tag #s 820 & 821) should be inconsequential. The following tree protection and preservation measures should be implemented prior to and during well drilling operations. It should be noted that any other trees adjacent or within the project area that have the potential of being impacted by project operations will be clearly delineated and protected by the installation of high visibility exclusionary fencing:

1) The proposed boring hole is located equidistant between the two subject cypress trees toward the outer portion of the their canopy dripline (i.e., the critical root zone area). Install high visibility exclusionary fencing to protect as much of the critical root zone area as possible from disturbance associated with well drilling operations, or at a minimum install 2"x4" construction lumber (8-10 feet height) secured to the two nearby cypress trees with high visibility exclusionary fencing.

2) The drill rig pad will consist of fabric mesh between the base rock and native soil. Light grading performed in preparation for the mesh and base rock application shall be shallow and performed with care to avoid damaging primary lateral roots near the surface. Native top soil shall be stockpiled separately and placed back over the disturbed drill site upon removal of the base rock and fabric mesh. In preparation for the wet season disturbed soils shall be protected with 3-5 inches of woodchip mulch to stabilize exposed soils and to prevent erosion problems.

PLN140483 / 161B SPINDRIFT / APN: 241-191-005

Fred Ballerini
Biological and Horticultural Services

September 1, 2016

To: Tina Hannas-De Freitas
Permit Coordinator
831.620.0622

RE: Robert Ching Property, Biological Resource Analysis for Well Site
APN 241-191-005
161-B Sprindrift Road, Carmel Highlands, CA

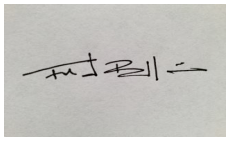
Dear Tina,

Per your request for biological consultation, I conducted a biological resource site analysis of the proposed well site for the Robert Ching parcel in the Carmel Highlands. I have also reviewed the Wetlands Assessment report (Zander Associates, June 2016) and the Erosion Control and Grading Restoration Plan (C3 Engineering, May 2016).

The analysis included a general survey of the well site including plant and wildlife surveys. The proposed well drilling access and well location were analyzed for impacts to existing resources on site.

Please contact me with any questions or comments. Thank you.

Sincerely,



Fred Ballerini

1. Objective

This biological resource assessment has been prepared to provide information regarding existing habitats, plant and wildlife species, and potential impacts to biological resources resulting from the proposed well drilling activities found on the subject property located at 161-B Spindrift Road in Carmel Highlands (APN 241-191-005). Multiple site visits were conducted over the course of several years starting in July 2014 including Spring (2015) observations to observe for any potential spring-sensitive species.

2. Existing Conditions

The parcel supporting the well site location is located at 161-B Spindrift Road in Carmel Highlands at the southern delineation of the Monterey Quadrangle. The proposed well location is situated within a biologically degraded area within a northwestern section of the parcel east of Spindrift Road. Recent historical management of the vacant lot has included periodic fire management clearance, documented as occurring in the years 2002, 2008, and 2012. Wood mulch chips from clearance activities were broadcast on site and plant species dominated by exotic, invasive species have reestablished. Mixed native habitats surround the parcel including coastal scrub, Monterey cypress forest, and Monterey pine forest. The Ching site vegetation has been disturbed from past impacts and the plant community is predominately exotic, invasive species with several native perennial and forb species present. The topography of the parcel is a flat terrace sloping westward toward the Pacific Ocean located approximately 300' west. The topography east and uphill of the lot indicates the subject parcel is a main drainage corridor from the upland watershed above Hwy 1. A road culvert capturing Spindrift Road runoff, draining directly to the Pacific Ocean, is located approximately 180-feet south of the proposed well site and a second culvert is located approximately 80-feet northwest of the proposed well site that captures upland drainage from off the parcel and likely from a Hwy 1 drainage culvert located to the east. A wetlands assessment was conducted in October 2015 by Zander Associates Environmental Consultants with findings documented in a June 15, 2016 Wetlands Assessment report. Findings of the wetlands assessment indicate a dominant non-native, invasive hydrophytic species (*Conium maculatum*) occurring in the southeastern portion of the parcel, though these areas lack hydric soils and wetland hydrology as also documented in the findings.

3. Plant and Wildlife Species

The existing vegetation within the impact area of the proposed well site and throughout the parcel consists of mostly perennial exotic species including several listed by the California Invasive Plant Council as having adverse impacts to native ecosystems. The dominant species observed within the well impact location and throughout the parcel include golden wattle (*Acacia longifolia*), poison hemlock (*Conium maculatum*), cape ivy (*Delairea odorata*), pampas grass (*Cortaderia selloana*), veldt grass (*Erharta erecta*) and periwinkle (*Vinca major*). Co-dominant invasive species are spread throughout the site including field mustard (*Brassica rapa*), Hottentot fig (*Carpobrotus edulis*), watsonia (*Watsonia sp.*), ripgut brome (*Bromus diandrus*), wild radish (*Raphanus sativus*), Italian thistle (*Carduus pycnocephalus*), Bristly ox-tongue (*Helminthotheca echioides*), French broom (*Genista monspessulana*) and others.

Sparse native plants including poison oak (*Toxicodendron diversilobum*), California blackberry (*Rubus ursinus*), and California hedge nettle (*Stachys bullata*) are found scattered in mixed groupings throughout the parcel. Several other native scrub plants are found isolated in various

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locations, mostly along the western and southern areas including coffeeberry (*Rhamnus californica*) and wild cucumber (*Marah fabaceus*). Monterey Cypress (*Hesperocyparis macrocarpa*), a recognized rare tree species by the California Native Plant Society, of varying ages (seedlings to < 40 year old specimens) are found interspersed throughout the parcel with a grouping of the larger specimens located 100-feet (+) west of proposed well site. A large Monterey pine (*Pinus radiata*) is located approximately 80-feet upland (east) from the proposed well site.

The wildlife species analysis included surveys for several special-status wildlife species occurring within the vicinity of the United States Geological Survey Monterey 7.5' quadrangle, none were observed and the lack of native plant communities provides low habitat potential for the majority of the listed species. Observations were made for potential nesting or sensitive species. Bird species documented near the site included stellar jay (*Cyanocitta stelleri*), dark-eyed junco (*Junco hyemalis*), chestnut-backed chickadee (*Parus ruflescens*), and pygmy nuthatch (*Sitta pygmaeapygmy*). Pocket gopher (*Thomomys bottae*) mounds are pervasive throughout the parcel.

4. Special-Status Species

There were no individual State or Federally Listed plants or wildlife identified on the site at the time of the survey. The California Natural Diversity Data Base (CNDDB) maintained by the State of California Depart of Fish and Game (DFG) reports several special-status native plant and wildlife species occurring within the vicinity of the property within the Monterey Quadrangle, however I found no evidence of any state or federally-listed native plant or wildlife species, likely in cause due to the degraded nature habitat as the site is overrun with exotic species. No nesting behavior or occurrences were observed within a 100' radius of the proposed well site.

Monterey pine (***Pinus radiata*),** Monterey cypress (***Hesperocyparis macrocarpa***) and Monterey Cypress Forest are endemic to Monterey County and are listed as sensitive elements for the Monterey quadrangle. Several established Monterey cypress trees and one Monterey pine are aligned outside of the proposed impact areas. Monterey cypress are List 1B.2 (Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere) of the California Native Plant Society Inventory of Rare, Threatened, and Endangered Plants of California, 8th Edition, 2010. List 1B.2 plants are rare throughout their range with the majority endemic to California.

Apart from the above listed sensitive elements, no Federal or State listed Rare or Endangered species were observed on the property. Observations for spring-flowering taxa were conducted during a Spring Survey during an April 20, 2015 site visit.

5. Potential Impacts and Recommendations

The potential impacts to significant biological resources on and surrounding the well plot were evaluated based on the field investigations and conversations with project team members.

No adverse or incidental impacts from the proposed well installation should occur within any of the habitat zones, off-site areas, or to the wildlife if control measures are put in place and maintained during installation. The proposed well location lies beyond the 100' setback from the edge of any coastal wetland, marine habitat, or natural vegetation designated as environmentally sensitive habitat. The proposed well installation and associated access/staging requirements on a portion of APN 241-191-005 will have a less than significant impact on the

parcel. The proposed construction improvements should not result in direct impacts to existing sensitive individual Monterey cypress or Monterey Pine or waterways located within and directly adjacent to the subject parcel if control measures are installed and maintained as specified in the C3 Engineering 'Erosion Control and Grading Restoration Plan, May, 29, 2016. The proposed well-installation impact areas are located in areas that are overwhelmed by invasive species.

A. In order to protect and retain off-site habitat values, with special regard to the coastal habitat within the Marine Bay National Marine Sanctuary, the well drilling process should be carried out with the following work schedule:

1. Install tree protection measures around trees near impact and staging zones and install protection fencing at western edge of wetland zone.
2. Clear invasive acacia, pampas grass and other exotic vegetaion to accommodate access for the drilling rig and baker spoil receptor tanks.
3. Install erosion & sediment control devices.
4. Mobilize drilling and excavation equipment into project location.
5. Drill well and deposit well spoils (approximately 7 to 8 cubic yards) into staged baker tanks.
6. Spoils to be pumped from baker tanks and hauled off site as tanks become filled.
7. There is a road culvert 180-feet directly southwest and downslope of the proposed well location. This culvert flows unimpeded to the Pacific Ocean, 300-feet to the west into the Monterey Bay National Marine Sanctuary. ALL SPOILS AND FLUIDS ARE TO REMAIN ON SITE AND NOT ALLOWED TO DISCHARGE OFF THE PARCEL OR INTO THE STORM DRAIN ON SPINDRIFT ROAD.
8. Remove baker tanks, fiber rolls, and tree protection measures. All exposed soils can be mulched with the sterile rice straw or wood mulching at a 2" minimum depth.

B. The following Best Management Practices (BMP's) should be incorporated and installed prior to and maintained during the well-drilling activities:

a. Tree and wetland protection measures should be installed prior to equipment mobilization. To prevent inadvertent damage by construction equipment, tree protection measures should include wrapping of trunks with protective materials. Soil compaction, parking of vehicles or heavy equipment, stockpiling of excavation materials, and/or dumping of tailings should not be allowed immediately adjacent to the trunks or within the critical root zones of protected Monterey cypress or Monterey pine trees. All tree and wetland protection measures should remain in place until all well-drilling activities are complete.
b. Fiber rolls should be installed per the Erosion and Grading Restoration Plan to prohibit any well-tailings from migrating off site.
c. The parcel should be mowed annually until any future development occurs that would eliminate the continued unabated expanse of exotic species. Left unchecked, the invasive species that dominate the site can invade neighboring parcels and eventually migrate to native ecosystems beyond the borders of the parcel.

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6. Photo Documentation

Proposed well site access point, (facing east). Monterey cypress trees adjacent to the access point shall be protected with prescribed Tree Protection Measures. 9/1/2016

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Proposed well site location, facing east from access point, showing the large Monterey pine in background and mixed invasive species in the foreground. 9/1/2016

Spindrift Road culvert approximately 180' southwest of proposed well location. 8/6/2014

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Exotic pampas grass within the well site impact area. 9/1/2016

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General biological condition of the parcel in the well site location showing an overwhelming inundation of invasive species including reprouting acacia trees in the background, exotic watsonia in the foreground and periwinkle groundcover with native poison oak in the center of the cleared area.

END

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THOMPSON
WILDLAND MANAGEMENT
Environmental Management & Conservation Services
International Society of Arboriculture Certified Arborist # WE-7468A
Department of Pesticide Regulation Qualified Applicator Lic. #QL50949 B
Arborist & Environmental Assessments, Protection, Restoration, Monitoring & Reporting
Wildland Fire Property Protection, Fuel Reduction & Vegetation Management
Invasive Weed Control, and Habitat Restoration & Management
Soil Erosion & Sedimentation Control
Resource Ecologist

September 20, 2016

Ching Property
Spindrift Road
Carmel Highlands, CA
APN: 241-191-005

Subject: Tree protection for Ching property well boring operations

Dear Ms. Hannas,

Per the revised project site plans, the new location of the well boring hole will not disturb or adversely affect the critical root zones of native and protected Monterey Pine and Monterey Cypress trees located on the Ching property. High visibility exclusionary fencing will be installed to clearly delineate and define the project area, which will assist in preventing unnecessary encroachment and disturbance to sensitive root zone areas and areas outside of the project footprint. More specifically, exclusionary fencing and resource protection measures (e.g., silt fence sedimentation control measure) will avert impacts to adjacent wetland designated sites (refer to biotic report prepared by Fred Ballerini) and prevent encroachment into the critical root zone of nearby protected tree species.

Additionally, in preparation for the proposed well boring project non-native invasive plant species occurring on the property (e.g., dense stands of exotic Acacia and Jubata Grass) will be mowed and cleared from the property. Post-mowing control and management of noxious weed populations will be performed on an as needed basis to prevent re-establishment of non-native invasive weed populations that degrade habitat and increase hazardous wildland fire fuel loads.

Thank you and please let me know if you have any questions or need additional information.

Best regards,

_____ _____

Rob Thompson
ISA Certified Arborist # WE-7468A
Resource Ecologist

Thompson Wildland Management (TWM)
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Date

ZANDER ASSOCIATES

Environmental Consultants

May 18, 2017

Tina Hannas-De Freitas
Permit Coordinator
37748 Palo Colorado, Rd
Carmel, CA 93923

Preliminary Wetland Assessment
Ching Property, Carmel Highlands

Dear Tina:

In October 2015, Zander Associates conducted a preliminary wetlands assessment of the 1.3-acre Ching property at 161B Spindrift Road in Carmel Highlands. The purpose of our visit was to evaluate the nature and extent of any areas on the site that could be considered wetlands (a subset of waters of the United States) as defined by the U.S. Army Corps of Engineers under Section 404 of the Clean Water Act or the California Coastal Commission under the California Coastal Act.

The Corps defines the term "wetlands" as follows:

> *Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas*. (33 CFR 328.3).

The Corps has provided standard methods, procedures and data reporting forms for wetland delineation in its *U.S. Army Corps of Engineers Wetlands Delineation Manual* ("Corps Manual"; Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* ("Arid West Supplement"; Corps 2008). Three parameters are typically used by the Corps to determine the presence of wetlands. They are: (1) hydrophytic vegetation, (2) wetland hydrology, and (3) hydric soils. According to the Corps Manual:

> *...evidence of a minimum of one positive wetland indicator from each parameter (hydrology, soil, and vegetation) must be found in order to make a positive wetland delineation.*

The Coastal Act defines wetlands as follows:

> *Wetland means lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens.*

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Furthermore, the California Coastal Commission Administrative Regulations (Section 13577 [b]) provide the following definition:

> *Wetlands are lands where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent or drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salt or other substance in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deepwater habitats.*

There are no manuals published by the Coastal Commission on the procedures used to determine wetland boundaries using this definition. However, the Corps Manual referenced above contains guidance on the use of the U.S. Fish and Wildlife Service national wetland plant lists, the use of hydric soil maps and hydric soil indicators, and descriptions of hydrologic methods to determine wetland hydrology. While the Corps Manual states that jurisdictional wetlands occur where all three criteria (hydrophytic vegetation, wetland hydrology, and hydric soils) are met, the Coastal Commission administrative definition cited above expresses that wetlands occur where hydrology is sufficient to support either hydrophytic vegetation or hydric soils, or both. In the absence of specific objective evidence regarding hydrologic conditions (e.g. shallow monitoring wells), the prevalence of hydrophytic vegetation or presence of hydric soils ("one parameter approach") is often used to define Coastal Act wetlands.

As another component of waters of the United States, streams (and, in many cases, associated wetlands and riparian areas) are also considered in wetland delineations. According to California Coastal Commission statewide interpretive guidelines (CCC 1981),

> *A stream or river is a natural watercourse as designated by a solid line or dash and three dots symbol shown on the United States Geological Survey map most recently published, or any well-defined channel with distinguishable bed and bank that shows evidence of having contained flowing water as indicated by scour or deposit of rock, sand, gravel, soil, or debris.*

The cross-sectional limits of a stream (exclusive of adjacent wetlands or riparian habitat) typically extend to the ordinary high water mark (OHW), which has been defined as follows:

> *The term "ordinary high water mark" means that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*
>
> (Federal Register Vol. 51, No. 219, Part 328.3 (d). November 13, 1986).

Against this background, and drawing on our breadth of experience conducting wetland assessments within the coastal areas of Monterey County, we visited the Ching property on October 1, 2015, to evaluate the nature and extent of hydrologic, soils and vegetation characteristics that could be indicators of waters of the United States or wetlands. We walked over the entire 1.3-acre site to check for hydrophytes (moisture tolerant plants), obvious signs of flow lines, scour, ponding or saturation, and other surficial wetland indicators.[1] We dug 14 soil pits to depths of 12 inches or more at scattered locations over the site to look for signs of anaerobic conditions (e.g. indications of oxygen reduction [redoximorphic] conditions, gleyed or depleted matrix conditions, a hydrogen sulfide [rotten egg] odor, or high organic matter content).[2] And we recorded our observations of soils, hydrology and vegetation at each of those 14 sites on standardized wetland determination data sheets (Arid West Region).

We identified a drainage along the northerly boundary of the property that appeared to carry seasonal runoff onto the site from a culvert under Highway 1 to the east. However, the drainage was completely dry at the time of our site visit and did not support any wetland or riparian habitat. We observed a predominant patch of poison hemlock (*Conium maculatum*) concentrated along the eastern and southerly boundaries of the site, but did not find other wetland indicators elsewhere on the site.[3] We located a second culvert under Hwy 1, buried in native California blackberry (*Rubus ursinus*) southeast of the site, but did not observe any flow or indications that a flowline had been established between that culvert and the site (e.g. channel scour, vegetation patterns).

The Ching property had been heavily disturbed at the time of our visit as a result of brush clearing, deposition of chipping waste and other disturbance over time. Under a sparse to moderate canopy of Monterey cypress (*Hesperocyparis macrocarpa*), most of the understory vegetative cover on the site consisted of ruderal, non-native species like golden wattle (*Acacia longifolia*), periwinkle (*Vinca major*), pampas grass (*Cortaderia selloana*) and the aforementioned poison hemlock. Scattered natives like California blackberry, poison oak (*Toxicodendron diversilobum*) and California coffeeberry (*Frangula californica*) were also represented. Nowhere on the site, including in the seasonal drainage course along the northern boundary, did we find any obligate wetland (or even typical riparian) plant species that would indicate saturated conditions, seepage, ponding or other wetland characteristics.

Because the Coastal Act definition of wetlands allows for the "one parameter approach" as noted above, and because poison hemlock is considered a facultative wetland plant, we decided to map the area where it was the predominant vegetative cover on the site. Although we did not consider that this area met the technical definition of a wetland (all 14 of our data sheets, including those in the hemlock area, concluded that there were not wetlands present), we took a very conservative approach in our mapping for well siting purposes. We labelled the mapped

[1] We also looked off site to find culverts to the east of the site that directed storm flow under Hwy 1.
[2] According to the U.S. Department of Agriculture Natural Resources Conservation Service (NRCS), *"A hydric soil is a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part."*
[3] Poison hemlock is an invasive non-native plant that colonizes disturbed sites. Nonetheless, it is considered a facultative wetland species (usually found in wetlands 67-99%).

area as "Area with Dominant Facultative and Facultative Wetland Plants" but did not identify it as a wetland, consistent with the determinations in our attached data sheets.

We submitted the map and data sheets to you in November 2015, to assist you with siting and drilling a well on the property. We believed that the mapping and data we provided established the most conservative assessment for that purpose. While we did not identify wetlands on the site *per se*, we mapped the prevalence of hydrophytic vegetation (by definition) to address the Coastal Act one parameter approach.

October 2015 was near the end of several years of low rainfall. In wetter years (such as the 2016-17 winter just passed), the culverts under Hwy 1 to the east of the Ching property could exhibit more pronounced flow characteristics. The seasonal drainage on the northerly boundary of the site could flow longer into the spring and early summer season. Seasonal flows from the culvert to the southeast could find their way along the southerly property boundary to Spindrift Road (where there is a roadside ditch and culverts draining to the west). However, we do not expect such changes in seasonal hydrology to significantly affect our determination; wetland indicators are typically developed over long periods of time and we would expect to have observed at least some remnants of them, even in a drought.

While the history of disturbance on the site has obscured its "normal" vegetative signature, hydrophytic vegetation can be very persistent when soils and hydrologic conditions are right. At least some hardy remnant wetland plants (e.g. willows, rushes, sedges) would be expected to recover or at least present a few scattered representatives in the face of surface disturbance (assuming grading and fill material were not involved). As noted above, the only prevalent "hydrophyte" we observed was poison hemlock, an aggressive colonizer of disturbed sites whether they are wet or not. The native vegetation attempting to recolonize the disturbed areas of the site consists of upland species like coffeeberry and poison oak.

In October 2015, we observed and documented a seasonal drainage course and an area dominated by a facultative wetland plant on the Ching property. We did not observe any functional wetland habitat on the site in October 2015, and do not believe our determination would substantially change with another assessment now.

Please contact me by email (mzander@zanderassociates.com) or telephone (415 897-8781) if you have any questions.

Sincerely,

Michael Zander
Principal

Fred Ballerini
Biological and Horticultural Services

May 9, 2017

To: Tina Hannas-De Freitas
Permit Coordinator
831.620.0622

RE: Robert Ching Property, Biological Resource Response Letter
APN 241-191-005
161-B Sprindrift Road, Carmel Highlands, CA

Dear Tina,

Per your request, I have reviewed the April 27, 2017 Notice of Appeal documentation submitted by the Highlands Covenants Group (represented by Pam Silkwood, Esq.).

In response to several biological resource issues that are listed in the appeal, I would like to respond to several of the items as they pertain to my analysis.

Item B. Incomplete and Flawed Wetland Delineation
I will defer to Zander Associates to fully respond to this issue as their company completed the Wetland Delineation field study. My biological field study did not observe any saturated soils or native wetland obligate or indicator species in the area that is being disputed as a delineated wetland. The presence of exotic, invasive poison hemlock (*Conium maculatum*) alone does not warrant wetland delineation. This species was observed on the parcel and likely resulting from disturbed soils originating from the adjacent parcel uphill to the east of the subject property. This exotic biennial species, though listed as an indicator facultative wetland (FACW) plant, likely occurs on the subject site due to the invasive quality from its seed on disturbed soils[1] that originally emerged from the neighboring parcel. Poison hemlock is a highly invasive species that is pervasive along the coast in sites that have experienced vegetation clearance or

[1] Bossard, Randall, Hoschovsky, editors. 2000. Invasive Plants of California's Wildlands. P.p. 121 "Poison hemlock can spread quickly after the rainy season in areas that have been cleared or disturbed".

disturbed soils. Germination of this species can occur in most months throughout the year[2]. Lastly, as noted in the Appeals biological assessment submittal authored by Jeffrey Froke (April 2017, p.p 12), "The presence alone of Poison Hemlock (FACW) does not confirm wetland."

Item C. Failed to Meet Setback from Riparian Habitat/Woodland

The Appeal document and Froke biological assessment classify the northern waterway corridor as a stream and the vegetation in the subject area as Riparian Woodland. This waterway corridor exhibits no evidence that it functions as a perennial stream and there are no native plant constituents to support this vegetation classification. It appears this drainage corridor is entirely artificial and is sourced from road runoff emanating from a Highway 1 drainage culvert east of the parcel. The drainage corridor lies mostly under a canopy of established Monterey cypress with an understory dominated by exotic, invasive periwinkle (*Vinca major*) and Cape ivy (*Delairea odorata*). It is important to note the northern drainage corridor is not a perennial waterway as there is currently no overland flow within the incised corridor (especially noteworthy after experiencing a record rainfall year). The corridor is more clearly classified as an intermittent drainage, therefore not subject to 150-foot setback buffer zone as defined by Carmel Use Plan Specific Policy 2.3.4.1 (under the heading *Riparian Corridors and Other Terrestrial Wildlife Habitats*) stating:

*Riparian plant communities shall be protected by establishing setbacks consisting of a 150-foot open space buffer zone on each side of the bank of perennial streams and **50 feet on each side of the bank of intermittent streams** or the extent of riparian vegetation, whichever is greater.*

Intermittent flows through the northern corridor likely occur during rain events where the culvert is utilized from Hwy 1 road runoff. During a brief site visit on May 8, 2017 while walking the drainage corridor, it was noted that with the exception of two small pools (roughly 2'x2') at the head of the Sprindrift Road culvert of the subject drainage corridor, the corridor channel is dry. There were no channel flows, standing pools, or saturated soils within in the incised channel along the northern boundary of the property. The two noted pools at the head of the north Spindrift culvert are likely the aquatic habitat referred to in the Jeffrey Froke biological report developed for Pam Silkwood, Esq.(April 2017, p.p. 11). This area was dry during spring site observations conducted in 2015 and 2016.

The observed drainage corridor along the north property occurs within approximately 60' of the proposed well-drilling location and recommendations have been incorporated into the project to protect resources outside the proposed impact areas for the well and septic development which occur in previously disturbed and impacted areas that contain predominately exotic, invasive species.

With the implementation of the recommendations previously outlined in the Biological Analysis (Ballerini, 9/1/2016), the project would have a less than significant foreseeable impact on sensitive elements or special natural communities, plants, and animals protected by local, state, or federal regulations. By implementing protection measures and restoration practices, the project should enhance the remnant habitats found on the parcel through long-term management and exotic species control.

[2] Roberts, H.A. 1979. Periodicity of seedling emergence and seed survival in some Umbelliferae. J. of Applied Ecology. 16:195-201. "The combination of long seed dispersal period, seed dormancy, and non-specific germination requirements enable poison hemlock seedlings to emerge in almost every month of the year".

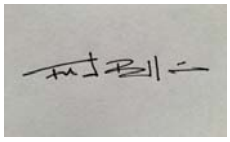
Item D. Species of Special Concern Identified on the Property

The biological assessment report generated by Jeffrey Froke notes on April 11, 2017 the observation of at least two breeding pairs of Yellow Warbler (*Setophaga petechia*), a species of special concern. It would be highly unlikely to find *nesting* occurrences of this species on the subject parcel and observations of this species were likely from the species taking a brief, temporary refuge on site while en route to a major riparian corridor during it's annual spring migration. As noted by Don Roberson, local ornithologist and author of *Atlas of the Breeding Birds of Monterey County California*, observations of Yellow Warbler in the month of April are suspect as during the spring migration, birds can be singing but it is difficult to determine from those that will remain to nest or continue migration. The yellow warbler is a broadleaf riparian-obligate species requiring riparian forests dominated by cottonwood and sycamore as well as dense willow thicket and generally major riparian corridors[3], all of which do not occur on site. This species seems to require hot summer days and is absent from the oft-damp fog-shrouded willow stands along the coast, further reasserting that the observations made by Froke were likely of the species moving through the site and not nesting. No observations of this species were noted from previous spring surveys conducted in 2015 and 2016 and it would be extremely unlikely that any nesting occurrences are taking place on site this year for the reasons described above as their nesting habitat does not occur on the subject parcel. The potential exists for other sensitive migratory or raptor species to nest on site and any proposed well-drilling work or other construction implementation is recommended to take place during non-nesting season (August – March). If work is proposed during nesting season then nesting surveys would be required at the appropriate nesting times to determine the presence or absence of such species with follow up protocols to protect nesting activities.

The biological assessment report generated by Jeffrey Froke also notes the presence of the Coast Range Newt (*Taricha torosa*) along the northern waterway corridor adjacent to the property. My field observations in the spring of 2015 and 2016 did not include off-property inspections and no newts were noted on the north drainage corridor that crosses into the property, though conditions were extremely dry the past several years and not favorable for this coastal newt species. The northern drainage corridor lies outside of the proposed work area and with adequate habitat protection measures and sediment/erosion control measures that are currently integrated into the project implementation guidelines, in addition to the proposed baker tanks to contain the well spoils, there should be no adverse impacts to the corridor area or its habitat constituents.

Thank you for the opportunity to respond to several of the Appeal issues.

Sincerely,



Fred Ballerini

[3] Roberson, D., and Tenney, C., editors. 1993. Atlas of the Breeding Birds of Monterey County California. P.p. 318.

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