INTRODUCTION

This memo provides updated results of the Humboldt Wind Energy Project (project) vegetation mapping and delineation of aquatic resources to include revised project areas since the publication of the Draft Environmental Impact Report (DEIR).

The results presented in this memo are consistent with previous data collected in the project area and consistent with conclusions of significance and associated mitigation measures provided within the Draft EIR for the project.

METHODS

The supplemental survey areas total approximately 78 acres and include updating survey coverage around the revised Gen-Tie line and road footprint (Figure 1). The methods followed in this memo are those previously used for the project and described in the Botanical Resources Report and Aquatic Resources Survey Report (Stantec 2018a and 2018b). Both the aquatic resources survey and vegetation mapping were conducted between August 14 and 16, 2019, by Stantec biologist Tim Hanson.

RESULTS

VEGETATION

All locations within the supplemental survey areas are in areas actively managed for timber harvest or livestock grazing and the vegetation is highly disturbed. Stantec mapped 17 vegetation communities or other habitat types in the areas to the alliance or association level (Table 1, Figure 1). All 17 vegetation communities or other habitat types were previously mapped in other portions of project area and are described in the 2018 Botanical Report. Five of the vegetation communities in the supplemental survey areas are categorized as sensitive natural communities, which account for approximately 58.7 acres of the supplemental survey areas (Table 1). As discussed in the Draft EIR for the project, mitigation is not required for tree removal in Douglas-fir forest or redwood forest conducted under a timber harvest plan.
### Table 1. Vegetation Communities in the Supplemental Survey

<table>
<thead>
<tr>
<th>Alliance</th>
<th>Association</th>
<th>Sensitive Natural Community</th>
<th>Map ID</th>
<th>Area (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Forests and Woodlands</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Douglas-fir forest</td>
<td><em>Pseudotsuga menziesii</em></td>
<td>No</td>
<td>74</td>
<td>10.0</td>
</tr>
<tr>
<td></td>
<td><em>Pseudotsuga menziesii–Quercus garryana var. garryana/grass</em></td>
<td>Yes²</td>
<td>74.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Douglas-fir–tanoak forest</td>
<td><em>Pseudotsuga menziesii–Notolithocarpus densiflorus/Vaccinium ovatum–</em>(Gaultheria shallon)</td>
<td>No</td>
<td>76.1</td>
<td>2.2</td>
</tr>
<tr>
<td></td>
<td><em>Pseudotsuga menziesii–Notolithocarpus densiflorus–</em>(Acer macrophyllum)/Polystichum munitum</td>
<td>No</td>
<td>76.2</td>
<td>0.5</td>
</tr>
<tr>
<td>Oregon white oak woodland</td>
<td><em>Quercus garryana var. garryana</em></td>
<td>Yes</td>
<td>82</td>
<td>0.2</td>
</tr>
<tr>
<td>redwood forest</td>
<td><em>Sequoia sempervirens</em></td>
<td>Yes²</td>
<td>93</td>
<td>15.8</td>
</tr>
<tr>
<td></td>
<td><em>Sequoia sempervirens–Polystichum munitum</em></td>
<td>Yes²</td>
<td>93.2</td>
<td>9.2</td>
</tr>
<tr>
<td></td>
<td><em>Sequoia sempervirens–Pseudotsuga menziesii/Gaultheria shallon</em></td>
<td>Yes²</td>
<td>93.4</td>
<td>33.2</td>
</tr>
<tr>
<td><strong>Shrublands</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>coyote brush scrub</td>
<td><em>Baccharis pilularis/Annual grass-herb</em></td>
<td>No</td>
<td>151.2</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>arroyo willow thickets</td>
<td><em>Salix lasiolepis</em></td>
<td>No</td>
<td>282</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Herbaceous</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>annual brome grasslands</td>
<td><em>Bromus (diandrus, hordeaceus) - Brachypodium distachyon</em></td>
<td>No</td>
<td>331</td>
<td>0.3</td>
</tr>
<tr>
<td>pampas grass patches</td>
<td><em>Cortaderia (jubata, selloana)</em></td>
<td>No</td>
<td>374</td>
<td>2.1</td>
</tr>
<tr>
<td>annual dogtail grasslands</td>
<td><em>Cynosurus echinatus</em></td>
<td>No</td>
<td>376</td>
<td>2.4</td>
</tr>
<tr>
<td>common velvet grass–sweet vernal grass meadows</td>
<td><em>Holcus lanatus–Anthoxanthum odoratum</em></td>
<td>No</td>
<td>400</td>
<td>1.2</td>
</tr>
<tr>
<td>Harding grass–reed canary grass swards</td>
<td><em>Phalaris aquatica</em></td>
<td>No</td>
<td>446</td>
<td>0.5</td>
</tr>
<tr>
<td>³purple awned wallaby grass prairie</td>
<td>³<em>Rytidosperma penicillatum</em></td>
<td>³No</td>
<td>901</td>
<td>&lt;0.1</td>
</tr>
<tr>
<td><strong>Other Habitat Types</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>³non-vegetated areas</td>
<td>No Association</td>
<td>³No</td>
<td>908</td>
<td>&lt;0.1</td>
</tr>
</tbody>
</table>

1A Manual of California Vegetation Alliances and Associations

No off-site tree planting or other mitigation is required for tree removal conducted under a timber harvest plan, per Section 1106 of the California Forest Practice Rules.

Not described in MCV and dominated by invasive/non-native species (or non-vegetated areas).

**AQUATIC RESOURCES**

Stantec mapped three wetlands and 24 drainages in the supplemental survey areas (Table 2, Figure 1). For the purposes of this assessment, all mapped wetlands and drainages in the supplemental survey areas are considered to be potential jurisdictional features under the U.S. Army Corps of Engineers, CDFW, and/or North Coast Regional Water Quality Control Board. The project will avoid permanent impacts on all aquatic resources in the supplemental survey areas.

**Table 2. Summary of Potentially Jurisdictional Features within the Supplemental Survey Areas**

<table>
<thead>
<tr>
<th>Feature Type</th>
<th>Area (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wetlands</strong></td>
<td></td>
</tr>
<tr>
<td>Palustrine Emergent</td>
<td>0.034</td>
</tr>
<tr>
<td>Subtotal</td>
<td>0.034</td>
</tr>
<tr>
<td><strong>Drainages</strong></td>
<td></td>
</tr>
<tr>
<td>Ephemeral</td>
<td>0.035</td>
</tr>
<tr>
<td>Intermittent</td>
<td>0.052</td>
</tr>
<tr>
<td>Perennial</td>
<td>0.109</td>
</tr>
<tr>
<td>Culvert</td>
<td>0.004</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>0.234</strong></td>
</tr>
</tbody>
</table>

**CONCLUSIONS**

Seventeen vegetation communities were mapped in the supplemental survey areas. Three wetlands and 24 drainages potentially under the jurisdiction of the U.S. Army Corps of Engineers, CDFW, and/or North Coast Regional Water Quality Control Board U.S. Army Corps of Engineers, CDFW, and/or North Coast Regional Water Quality Control Board were identified in the supplemental survey areas. The total acreage of impacts to sensitive natural communities is less than disclosed in the Draft EIR. While the total acreage of permanent impacts to potentially jurisdictional aquatic features is less than disclosed in the Draft EIR, the temporary impacts is approximately 2 acres larger (6.06 acres vs. 4.35 acres). As set forth in the Draft EIR, temporarily impacted areas will be restored to natural contours, and wetlands and drainages restored to pre-construction conditions and thus the project’s temporary impacts to potentially jurisdictional aquatic features will remain less than significant.

The results presented in this memo are consistent with previous data collected at the site and consistent with conclusions of significance and associated mitigation measures provided within the Draft EIR for the project.
Reference: Humboldt Wind Energy Project – Updated Vegetation and Aquatic Resources Survey of Supplemental Project Areas, Humboldt County, California

REFERENCES


Supplemental Vegetation and Aquatic Survey Results

Overview

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for all claims arising in any way from the content or provision of the data.

Project Location

Client/Project

Figure No.

Title

Humboldt Wind, LLC
Humboldt Wind Energy Project
Humboldt County, California
185703758
Prepared by PG on 2019-09-06
Technical Review by YA on 2019-09-06

Notes

2. Base map: ESRI World Imagery Map web mapping service

Revised Project Disturbance Limits
Supplemental Survey Areas

1 inch = 8,333 feet

0 1 2 Miles

185703758_TerraGenHumboldt\gis_cad\mxd\fig_1_SupplementalVegAndAquaticSurveyResults_overview.mxd      Revised: 2019-09-06 By: pglendening
**Vegetation Communities**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>Pseudotsuga menziesii: Douglas-fir forest</td>
</tr>
<tr>
<td>74.3</td>
<td>Pseudotsuga menziesii-Quercus garryana var. garryana/grass: Douglas-fir forest</td>
</tr>
<tr>
<td>76.1</td>
<td>Pseudotsuga menziesii - Notholithocarpus densiflorus/Vaccinium ovatum (Gaultheria shallon): Douglas-fir/tanoak forest</td>
</tr>
<tr>
<td>76.2</td>
<td>Pseudotsuga menziesii - Notholithocarpus densiflorus (Acer macrophyllum)/Polystichum munitum: Douglas-fir/tanoak forest</td>
</tr>
<tr>
<td>82</td>
<td>Sequoia sempervirens: coast redwood</td>
</tr>
<tr>
<td>90</td>
<td>Sequoia sempervirens - Pseudotsuga menziesii/Gaultheria shallon: coast redwood</td>
</tr>
<tr>
<td>233</td>
<td>B. dactyloides, f. horrida - Bechtelopodium xanthocephalum: grassland</td>
</tr>
<tr>
<td>214</td>
<td>C. jubata, selloana: pampas grass patches</td>
</tr>
<tr>
<td>276</td>
<td>C. echinatus: annual dogtail grasslands</td>
</tr>
<tr>
<td>282</td>
<td>S. lasiolepis: Arroyo willow thickets</td>
</tr>
<tr>
<td>331</td>
<td>Bromus (diandrus, hordeaceus) - Brachypodium distachyon: annual brome grasslands</td>
</tr>
<tr>
<td>374</td>
<td>C. jubata, selloana: pampas grass patches</td>
</tr>
<tr>
<td>400</td>
<td>H. lanatus - Anthoxanthum odoratum: common velvet grass -- sweet vernal grass meadows</td>
</tr>
<tr>
<td>446</td>
<td>P. aquatica: Harding grass -- reed canary grass swards</td>
</tr>
<tr>
<td>901</td>
<td>R. penicillatum: purple awned wallaby grass prairie</td>
</tr>
<tr>
<td>908</td>
<td>Non-vegetated areas</td>
</tr>
<tr>
<td>951</td>
<td>R. penicillatum: purple awned wallaby grass prairie</td>
</tr>
<tr>
<td>956</td>
<td>Ph. aquatica: Harding grass -- reed canary grass swards</td>
</tr>
<tr>
<td>961</td>
<td>R. penicillatum: purple awned wallaby grass prairie</td>
</tr>
<tr>
<td>986</td>
<td>Non-vegetated areas</td>
</tr>
</tbody>
</table>

**Aquatic Resources**

- **Wetland (Cowardin):**
  - Perennial
  - Intermittent
  - Ephemeral

**Project Location**

Humboldt County, California

**Client/Project**

Humboldt Wind Energy Project

**Figure No.**

1

**Title**

Supplemental Vegetation and Aquatic Survey Results

**Notes**

2. Base map: ESRI World Imagery Map web mapping service
Vegetation Communities

- Pseudotsuga menziesii - Douglas fir forest

Aquatic Resources

Perennial
- Pseudotsuga menziesii - Quercus garryana var. garryana/grass: Douglas-fir forest
- Pseudotsuga menziesii - Notholithocarpus densiflorus/Vaccinium ovatum - (Gaultheria shallon): Douglas-fir tanoak forest
- Pseudotsuga menziesii - Notholithocarpus densiflorus/(Acer macrophyllum)/Polystichum munitum: Douglas-fir tanoak forest

Intermittent
- Pseudotsuga menziesii - California buckbrush/oak

Ephemeral
- Baccharis pilularis: coyote brush scrub

C. Late
- Quercus garryana var. garryana: Oregon white oak woodland
- Sequoia sempervirens: coast redwood
- Sequoia sempervirens - Polystichum munitum: coast redwood
- Sequoia sempervirens - Pseudotsuga menziesii/Gaultheria shallon: coast redwood

Notes

2. Base map: ESRI World Imagery Map web mapping service

Supplemental Vegetation and Aquatic Survey Results

Revised Project Disturbance Limits

Supplemental Survey Areas

Aquatic

- Revised Project Disturbance Limits
- Supplemental Survey Areas

Humboldt Wind, LLC
Humboldt Wind Energy Project
Humboldt County, California
Prepared by PG on 2019-09-06
Technical Review by YA on 2019-09-06

1 inch = 1,000 feet

Supplemental Vegetation and Aquatic Survey Results

Page 3 of 8
Vegetation Communities

74. -- Pseudotsuga menziesii - Douglas fir forest
74.3 -- Pseudotsuga menziesii/Quercus gemmata var. gemmata-grass. Douglas fir forest
74.5 -- Pseudotsuga menziesii - Nootka/Cryptomeria japonica (Gauhar's thicket) - Douglas fir forest
75.2 -- Pseudotsuga menziesii - Notholithocarpus densiflorus - (Acer macrophyllum)/Polystichum munitum: Douglas-fir tanoak forest
50.1 -- Quercus gambelii: Oregon white oak woodland
50.2 -- Sequoia sempervirens - coast redwood
50.3 -- Sequoia sempervirens - Polypodium munitum: coast redwood
82 -- Quercus gambelii var. gambelii: Oregon white oak woodland
90 -- Sequoia sempervirens - coast redwood
93 -- Sequoia sempervirens - Polypodium munitum: coast redwood
93.2 -- Sequoia sempervirens - Pseudotsuga menziesii/Gaultheria shallon: coast redwood
93.4 -- Sequoia sempervirens - Pseudostuga menziesii/Gaultheria shallon: coast redwood
151.2 -- Baccharis pilularis / Annual grass-herb: coyote brush scrub
282 -- Salix lasiolepis: Arroyo willow thickets
331 -- Bromus (diandrus, hordeaceus) - Brachypodium distachyon: annual brome grasslands
374 -- Cortaderia jubata, selloana: pampas grass patches
378 -- Cynodon dactylon: annual dogtail grasslands
400 -- Holcus lanatus - Anthoxanthum odoratum: common velvet grass - sweet vernal grass meadows
446 -- Phalaris aquatica: Harding grass -- reed canary grass swards
901 -- Rytidosperma penicillatum: purple awned wallaby grass prairie
908 -- Non-vegetated areas
95 -- Juncus effusus - bulbiferum: purple-stemmed rush
95.1 -- Juncus effusus - bulbiferum: purple-stemmed rush
151.4 -- Chamaesyces: alkali saltbush
56 -- Pseudotsuga menziesii: tanoak forest
362 -- Salix lasiolepis: Arroyo willow thickets
374 -- Cortaderia jubata, selloana: pampas grass patches
378 -- Cynodon dactylon: annual dogtail grasslands
400 -- Holcus lanatus - Anthoxanthum odoratum: common velvet grass - sweet vernal grass meadows
446 -- Phalaris aquatica: Harding grass -- reed canary grass swards
901 -- Rytidosperma penicillatum: purple awned wallaby grass prairie
908 -- Non-vegetated areas

Notes:
2. Base map: ESRI World Imagery Map web mapping service

Supplemental Vegetation and Aquatic Survey Results

Figure No.
1
Title
Supplemental Vegetation and Aquatic Survey Results
Supplemental Vegetation and Aquatic Survey Results

Vegetation Communities
- Pseudotsuga menziesii: Douglas-fir forest
- Pseudotsuga menziesii-Quercus garryana: Douglas-fir forest
- Pseudotsuga menziesii - Notholithocarpus densiflorus-Vaccinium ovatum: Douglas-fir forest
- Pseudotsuga menziesii - Notholithocarpus densiflorus (Acer macrophyllum)/Polystichum munitum: Douglas-fir forest

Aquatic Resources
- Wetland (Cowardin: PEM)
  - Perennial
  - Intermittent
  - Ephemeral

Culvert

Notes
2. Base map: ESRI World Imagery Map web mapping service

Revised Project Disturbance Limits
Supplemental Survey Areas

Aquatic Resources
- Wetland (Cowardin: PEM)
  - Perennial
  - Intermittent
  - Ephemeral

Vegetation Communities
- 82 – Quercus garryana var. garryana: Oregon white oak woodland
- 90 – Sequoia sempervirens: coast redwood
- 92 – Sequoia sempervirens - Polystichum munitum: coast redwood
- 151.2 – Baccharis pilularis / Annual grass-herb: coyote brush scrub
- 282 – Salix lasiolepis: Arroyo willow thickets
- 331 – Bromus (diandrus, hordeaceus) - Brachypodium distachyon: annual brome grasslands
- 374 – Cortaderia jubata, selloana: pampas grass patches
- 376 – Cynosurus echinatus: annual dogtail grasslands
- 400 – Holcus lanatus - Anthoxanthum odoratum: common velvet grass -- sweet vernal grass meadows
- 446 – Phalaris aquatica: Harding grass -- reed canary grass swards
- 901 – Rytidosperma penicillatum: purple awned wallaby grass prairie
- 908 – Non-vegetated areas
Supplemental Vegetation and Aquatic Survey Results

Vegetation Communities
94. Pseudotsuga menziesii - Douglas-fir forest
94.1 - Pseudotsuga menziesii/Quercus gambelii - Gambel oak
94.2 - Pseudotsuga menziesii - Douglas-fir forest
96.1 - Pseudotsuga menziesii - Notholithocarpus densiflorus
96.2 - Pseudotsuga menziesii - Notholithocarpus densiflorus/Acer macrophyllum/Polystichum munitum
98.3 - Quercus gambelii var. gambelii - Gambel oak woodland
98.4 - Quercus gambelii - Gambel oak woodland
99.1 - Pseudotsuga menziesii/Gaultheria shallon - Douglas-firhekto forest
99.2 - Baccharis pilularis - Annual grass-herb
101 - Salix lasiolepis - Arroyo willow thickets
331 - Bromus (diandrus, hordeaceus) - Brachypodium distachyon - annual brome grasslands
374 - Cortaderia jubata, selloana - pampas grass patches
446 - Phalaris aquatica - Harding grass - reed canary grass swards
901 - Rytidosperma penicillatum - purple awned wallaby grass prairie
908 - Non-vegetated areas

Aquatic Resources
Wetland (Cowardin: PEM)
Perennial
Intermittent
Ephemeral
C. Life

Humboldt Wind, LLC Humboldt Wind Energy Project
Prepared by PG on 2019-09-06
Technical Review by YA on 2019-09-06

Disclaimer: Stantec assumes no responsibility for data supplied in electronic format. The recipient accepts full responsibility for the integrity of the data and the accuracy of the analysis. This data is the property of Humboldt Wind, LLC and is provided without warranty or liability. Any further use, reproduction, or distribution of this data is prohibited without written permission.
Vegetation Communities

74 -- Pseudotsuga menziesii: Douglas-fir forest
74.1 -- Pseudotsuga menziesii-Quercus garryana var. garryana: Douglas-fir forest
76.1 -- Pseudotsuga menziesii - Notholithocarpus densiflorus/Vaccinium ovatum- (Gaultheria shallon): Douglas-fir tanoak forest
76.2 -- Pseudotsuga menziesii - Notholithocarpus densiflorus-(Acer macrophyllum)/Polystichum munitum: Douglas-fir tanoak forest
76.3 -- Pseudotsuga menziesii: Douglas-fir forest
76.4 -- Pseudotsuga menziesii - Notholithocarpus densiflorus/Polystichum munitum: Douglas-fir tanoak forest
78 -- Quercus garryana var. garryana: Oregon white oak woodland
82 -- Quercus garryana var. garryana: Oregon white oak woodland
85 -- Sequoia sempervirens: coastal redwood
85.2 -- Sequoia sempervirens - Polystichum munitum: coastal redwood
93 -- Sequoia sempervirens: coastal redwood
93.2 -- Sequoia sempervirens - Polystichum munitum: coastal redwood
93.3 -- Sequoia sempervirens - Pseudotsuga menziesii/Gaultheria shallon: coastal redwood
151.2 -- Baccharis pilularis / Annual grass-herb: coyote brush scrub
282 -- Salix lasiolepis: Arroyo willow thickets
331 -- Bromus (diandrus, hordeaceus) - Brachypodium distachyon: annual brome grasslands
374 -- Cortaderia jubata, selloana: pampas grass patches
376 -- Cynosurus echinatus: annual dogtail grasslands
446 -- Phalaris aquatica: reed canary grass
451 -- Phalaris aquatica: Harding grass
901 -- Rytidosperma penicillatum: purple awned wallaby grass
908 -- Non-vegetated areas
56 -- Phragmipedium aquatica: Heathling grass
850 -- Rytyosperma pectinatum: purple awned wallaby grass
56 -- Non-vegetated areas

Aquatic Resources

Wetland (Cowardin: PEM)
Perennial
Intermittent
Ephemeral
C. Litter

Revised Project Disturbance Limits
Supplemental Survey Areas

Notes
2. Base map: ESRI World Imagery Map web mapping service
3. Map projection: State Plane California I FIPS 0401 Feet
4. Layer symbology: Stantec proprietary symbols
5. Base imagery: ESRI World Imagery Map web mapping service
6. Map units: Feet
7. All data herein is approximate and has been used for planning purposes only and no claim is made as to the accuracy of any coordinates or distances shown herein.
### Vegetation Communities

- **74** -- *Pseudotsuga menziesii*: Douglas-fir forest
- **74.3** -- *Pseudotsuga menziesii*-*Quercus garryana* var. *garryana*: Douglas-fir forest
- **76.1** -- *Pseudotsuga menziesii*-*Notholithocarpus densiflorus*-*Vaccinium ovatum*-*Gaultheria shallon*: Douglas-fir tanoak forest
- **76.2** -- *Pseudotsuga menziesii*-*Notholithocarpus densiflorus*-*Acer macrophyllum*-*Polystichum munitum*: Douglas-fir tanoak forest
- **82** -- *Quercus garryana* var. *garryana*: Oregon white oak woodland
- **83** -- *Sequoia sempervirens*: coast redwood
- **83.2** -- *Sequoia sempervirens*-*Polystichum munitum*: coast redwood
- **83.4** -- *Sequoia sempervirens*-*Pseudotsuga menziesii*-*Gaultheria shallon*: coast redwood
- **131.2** -- *Baccharis pilularis*/*Annual grass-herb*: coyote brush scrub
- **151.2** -- *Baccharis pilularis*/*Annual grass-herb*: coyote brush scrub
- **282** -- *Salix lasiolepis*: Arroyo willow thickets
- **331** -- *Bromus (diandrus, hordeaceus) - Brachypodium distachyon*: annual brome grasslands
- **374** -- *Cortaderia jubata*/*selloana*: pampas grass patches
- **376** -- *Phalaris aquatica*: Harding grass -- reed canary grass swards
- **901** -- *Rytidosperma penicillatum*: purple awned wallaby grass prairie
- **93** -- *Sequoia sempervirens*: coast redwood
- **93.2** -- *Sequoia sempervirens*-*Polystichum munitum*: coast redwood
- **93.4** -- *Sequoia sempervirens*-*Pseudotsuga menziesii*-*Gaultheria shallon*: coast redwood
- **164** -- *Non-vegetated areas*