



**Date: 05/14/2018**

**Subject: Tree Assessment Report; Skywest Golf Course, Hayward CA**

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**Prepared for: City of Hayward & Chris Pachan, PG&E Land Consultant**

**This report is based upon a site walk on 04/24/2018**

- **If work plans change, as they relate to the tree removal, then the site should be reassessed by an arborist to maintain the integrity of these recommendations.**
- **See associated tables & figures for further tree work and location information**
- **Tree removal work, in reference to the gas line right-of-way (ROW), is based on PG&E utility standard TD•4490S.**

**Description:**

PG&E gas transmission pipe (L-153) at mileage post 14.1, is a 0.42-mile span with mainly Blue Gum Eucalyptus trees either directly on top of or in very close proximity to the underground infrastructure. The vegetation surrounding the span was most recently assessed on 04/24/2018 to measure and determine the health of the trees, the site growing conditions and determine potential site restoration options. The trees were assessed on the risk potential they present to the utility based on the tree's size, height, canopy and distance to pipe.

Recommendation is for the removal of 150 trees within the area to maintain compliance with PG&E's utility standard TD-4490S. Removal will mitigate any risk to the pipeline associated with the trees and their roots. Failure of the trees poses a risk to the golfers, the adjacent railroad and to the integrity of the pipeline. Currently there are 6 uprooted trees directly on top of the high-pressure gas transmission pipeline which triggered a Leak Survey team to assess the integrity of the utility 2 separate times within a one year timeframe. The tree removals will provide PG&E the access needed to maintain, monitor and if needed, repair the pipeline in the golf course.

**Tree Assessment Table:** See attached spreadsheet for individual tree assessment.

**Onsite Photos:** See attached pdf for onsite photos corresponding to aerial overview below.

**Tree Risk Assessment Form:** See attached form for overview assessment of Skywest Golf Course trees.

## **Site Conditions**

The area where the eucalyptus trees are located is essentially a sink for all of the surrounding water to pool. To the west about 25 feet, the railroad tracks are approximately 5 feet higher in elevation. To the east, the fairways and greens are 2-5 feet higher in elevation as well. This sink scenario has created an environment where the eucalyptus trees are getting more water than is necessary and the roots are intermittently in anaerobic conditions. Under anaerobic conditions, the amount of oxygen used by soil biological organisms exceeds the amount of oxygen diffused into the soil profile. To make things worse, a combination of nearby saltwater from the bay and excessive nitrogen from the golf course has created an extremely high salinity content in the soil. The hydric soil and high salinity content have led to the rapid decline in most of the eucalyptus trees in this area. When these trees were younger, their biology would allow them to withstand the constant biotic and abiotic struggles that this environment presents. As these trees mature, they will find it more difficult to deal with the endless barrage of environmental pressures, especially the seasonal anaerobic conditions. Because this environment would exist even after these trees are removed, it is not suggested to replant trees along the fence where these current eucalyptus trees exist. Any tree planting that would take place in this area to supplant the eucalyptus removals, would need to be as far away from the fence as possible in order to benefit from appropriate water drainage and more suitable mineral content.

## **Restoration**

It is not advised to replant any trees near high pressure natural gas transmission pipelines. Because of the poor site and growing conditions outlined above, it is also not recommended to replant trees in the same proximity where the eucalyptus trees currently exist. It is suggested that all trees identified to be planted between the fairways and the railroad, be planted as close to the fairways as possible and at least 15 feet from the gas transmission pipeline. We suggest native trees that can deal with constant watering and benefit or not be vulnerable to soils with high salinity content. Being planted in a golf course means that sprinklers run almost daily, soils are over infused with nitrogen additives and lawnmowers are always nearby. The closer the planting to the low lying area, the more a native riparian tree such as California Sycamore or White Alder will need to be selected. If planting closer to the fairways or throughout the course, there are many different native trees that can be selected including oaks and pines.

Because the golf course has so much usable planting space, it is suggested that trees be planted around the course at viable locations that allow ease of play and optimal growing conditions for trees. Planting around the course will also help restore the canopy that will be lost and promote additional habitat throughout the course.

We suggest a PG&E restoration person work closely with the Skywest Golf Course employees to determine the best planting sites, suitable planting stock and timing to ensure planting standards are supported by all parties. To eliminate risk of tree failure and to ensure preservation, planting away from the natural gas transmission pipe is essential and appropriate.

# Skywest Golf Course Aerial Overview



# Skywest Golf Course

**Photo 1 Looking Northwest**



**Photo 2 Looking Northwest**



# Skywest Golf Course

**Photo 3 Looking Northwest**

**Photo 4 Looking Northwest**



# Skywest Golf Course

**Photo 5 Looking Northwest**



**Photo 6 Looking Northwest**



PG&E CPSI - TREE HEALTH ASSESSMENT  
 SKYWEST GOLF COURSE 151 HIGH RISK TREES FOR REMOVAL  
 5/16/2018

Tree and Crown Condition	
Rating	Description
Good	Less than 25 percent of trees have damage
Fair	25-50 percent of trees have damage
Poor	Greater than 50 percent of trees have damage

TREE NUMBER	SPECIES	TREE DBH	TREE HEIGHT	Dead, Dying Diseased	Overall Tree Health	fair	good	declining/ poor	DEAD	
1	Eucalyptus, Blue Gum	40	30	Declining	Poor				1	
2	Eucalyptus, Blue Gum	15	20		Good			1		
3	Eucalyptus, Blue Gum	20	30	Declining	Fair to poor				1	
4	Eucalyptus, Blue Gum	60	25	DEAD					3	
5	Eucalyptus, Blue Gum	16	20	DEAD						
6	Eucalyptus, Blue Gum	30	30	DEAD						
7	Eucalyptus, Blue Gum	28	35		Good			4		
8	Eucalyptus, Blue Gum	40	30		Good					
9	Eucalyptus, Blue Gum	55	20		Good					
10	Eucalyptus, Blue Gum	28	30		Good					
11	Eucalyptus, Blue Gum	20	15	Declining	Fair to poor				4	
12	Eucalyptus, Blue Gum	23	40	Declining	Fair to poor					
13	Eucalyptus, Blue Gum	20	35	Declining	Fair to poor					
14	Eucalyptus, Blue Gum	30	15	Declining	Fair to poor					
15	Eucalyptus, Blue Gum	5	12		Good			1		
16	Eucalyptus, Blue Gum	14	40	DEAD					1	
17	Eucalyptus, Blue Gum	33	55	Mature	Good			2		
18	Eucalyptus, Blue Gum	40	45	Mature	Good					
19	Eucalyptus, Blue Gum	40	25	Declining	Fair to poor				3	
20	Eucalyptus, Blue Gum	19	30	Declining	Fair to poor					
21	Eucalyptus, Blue Gum	26	50	Declining	Fair to poor					
22	Eucalyptus, Blue Gum	14	20	DEAD					1	
23	Eucalyptus, Blue Gum	35	70	Mature	Good			1		
24	Eucalyptus, Blue Gum	18	30	Declining	Fair to poor				6	
25	Eucalyptus, Blue Gum	22	30	Declining	Fair to poor					
26	Eucalyptus, Blue Gum	13	15	Declining	Fair to poor					
27	Eucalyptus, Blue Gum	6	9	Declining	Fair to poor					
28	Eucalyptus, Blue Gum	17	35	Declining	Fair to poor					
29	Eucalyptus, Blue Gum	31	40	Declining	Poor					
30	Eucalyptus, Blue Gum	14	15	DEAD					1	
31	Eucalyptus, Blue Gum	17	52	Declining	Poor				3	
32	Eucalyptus, Blue Gum	24	55	Declining	Fair to poor					
33	Eucalyptus, Blue Gum	21	30	Declining	Poor					
34	Eucalyptus, Blue Gum	9	15	DEAD					1	
35	Eucalyptus, Blue Gum	35	35	Declining	Fair to poor				3	
36	Eucalyptus, Blue Gum	17	35	Declining	Fair to poor					
37	Eucalyptus, Blue Gum	15	35	Declining	Fair to poor					
38	Eucalyptus, Blue Gum	10	20		Good			1		
39	Eucalyptus, Blue Gum	22	25	Declining	Poor				5	
40	Eucalyptus, Blue Gum	12	25	Declining	Poor					
41	Eucalyptus, Blue Gum	20	35	Declining	Poor					
42	Eucalyptus, Blue Gum	10	25	Declining	Fair to poor					
43	Eucalyptus, Blue Gum	18	15	Declining	Poor					
44	Eucalyptus, Blue Gum	25	40		Fair			1		
45	Eucalyptus, Blue Gum	20	45		Good			1		
46	Eucalyptus, Blue Gum	20	25	Declining	Poor				1	
47	Eucalyptus, Blue Gum	40	58	Mature	Good			1		
48	Eucalyptus, Blue Gum	24	65	Mature	Fair			1		
49	Eucalyptus, Blue Gum	33	25		Good			3		
50	Eucalyptus, Blue Gum	47	50		Good					
51	Eucalyptus, Blue Gum	23	40		Good					
52	Eucalyptus, Blue Gum	25	35	DEAD					1	
53	Eucalyptus, Blue Gum	15	20		Good			1		
54	Eucalyptus, Blue Gum	17	30	Declining	Fair to poor				3	
55	Eucalyptus, Blue Gum	20	25	Declining	Fair to poor					
56	Eucalyptus, Blue Gum	18	30	Declining/Considerable Lean	Fair to poor					
57	Eucalyptus, Blue Gum	18	25	Considerable Lean	Good			1		
58	Eucalyptus, Blue Gum	14	30	DEAD					1	
59	Eucalyptus, Blue Gum	31	65	Mature	Good			3		
60	Eucalyptus, Blue Gum	12	58		Good					
61	Eucalyptus, Blue Gum	13	50		Good					
62	Eucalyptus, Blue Gum	20	20	DEAD					1	
63	Eucalyptus, Blue Gum	25	35	Declining	Fair to poor				1	
64	Eucalyptus, Blue Gum	41	75	Mature	Good			1		
65	Eucalyptus, Blue Gum	16	25	Declining	Poor				1	
66	Eucalyptus, Blue Gum	23	20	DEAD					1	
67	Eucalyptus, Blue Gum	30	20	Declining	Fair to poor				2	
68	Eucalyptus, Blue Gum	48	45	Declining	Fair to poor					
69	Eucalyptus, Blue Gum	25	30	DEAD					2	
70	Eucalyptus, Blue Gum	11	35	DEAD						
71	Eucalyptus, Blue Gum	22	40	Mature	Good			6		
72	Eucalyptus, Blue Gum	41	40	Mature	Good					
73	Eucalyptus, Blue Gum	39	50	Mature	Good					
74	Eucalyptus, Blue Gum	30	58	Mature	Good					
75	Eucalyptus, Blue Gum	18	25	young	Good					
76	Eucalyptus, Blue Gum	34	85	Mature	Good					
77	Eucalyptus, Blue Gum	28	65	Declining	Fair to poor				1	
78	Eucalyptus, Blue Gum	29	80	Mature/some dead wood	Fair			2		
79	Eucalyptus, Blue Gum	30	50	Slight Decline	Fair					
80	Eucalyptus, Blue Gum	13	20	DEAD					1	
81	Eucalyptus, Blue Gum	6	8	Declining	Fair to poor				2	
82	Eucalyptus, Blue Gum	17	25	Declining	Poor					
83	Eucalyptus, Blue Gum	36	55	Mature	Fair			1		
84	Eucalyptus, Blue Gum	16	20	DEAD					1	
85	Eucalyptus, Blue Gum	40	35	Mature	Fair			1		
86	Eucalyptus, Blue Gum	16	25	DEAD					1	
87	Eucalyptus, Blue Gum	27	45		Good			2		
88	Eucalyptus, Blue Gum	19	45		Good					
89	Eucalyptus, Blue Gum	22	40	Declining	Fair to poor				1	
90	Eucalyptus, Blue Gum	35	35	DEAD					2	
91	Eucalyptus, Blue Gum	17	25	DEAD						
92	Eucalyptus, Blue Gum	48	50	Mature	Fair			1		
93	Eucalyptus, Blue Gum	18	15	DEAD					1	
94	Eucalyptus, Blue Gum	36	75	Mature	Fair			1		
95	Eucalyptus, Blue Gum	21	35		Good			1		
96	Eucalyptus, Blue Gum	21	30	DEAD					1	
97	Eucalyptus, Blue Gum	23	35	Declining	Poor				1	
98	Eucalyptus, Blue Gum	28	45	DEAD					1	
99	Eucalyptus, Blue Gum	35	35		Good			3		
100	Eucalyptus, Blue Gum	40	30		Good					
101	Eucalyptus, Blue Gum	23	55		Good					
102	Eucalyptus, Blue Gum	1	6	DEAD					1	
103	Eucalyptus, Blue Gum	60	40		Good			1		
104	Eucalyptus, Blue Gum	10	15	DEAD					1	
105	Eucalyptus, Blue Gum	35	35		Good			2		
106	Eucalyptus, Blue Gum	22	30		Good					
107	Eucalyptus, Blue Gum	42	35	Declining	Fair to poor				1	
108	Eucalyptus, Blue Gum	18	15	DEAD					1	
109	Eucalyptus, Blue Gum	20	12	Declining	Poor				1	
110	Eucalyptus, Blue Gum	20	25	DEAD					1	
111	Eucalyptus, Blue Gum	24	30		Fair			3		
112	Eucalyptus, Blue Gum	16	25		Fair					
113	Eucalyptus, Blue Gum	18	25		Fair					
114	Eucalyptus, Blue Gum	20	20		Good			1		
115	Eucalyptus, Blue Gum	16	10	DEAD					1	
116	Eucalyptus, Blue Gum	40	40	Declining	Fair to poor				3	
117	Eucalyptus, Blue Gum	15	15	Declining	Fair to poor					
118	Eucalyptus, Blue Gum	22	25	Declining/Considerable Lean	Fair to poor					
119	Eucalyptus, Blue Gum	45	45		Good			3		
120	Eucalyptus, Blue Gum	21	40		Good					
121	Eucalyptus, Blue Gum	14	40		Good					
122	Eucalyptus, Blue Gum	32	20	DEAD					1	
123	Eucalyptus, Blue Gum	28	35		Good			1		
124	Eucalyptus, Blue Gum	14	20	DEAD					2	
125	Eucalyptus, Blue Gum	11	25	DEAD						
126	Eucalyptus, Blue Gum	18	30		Good			3		
127	Eucalyptus, Blue Gum	35	55	Mature	Good					
128	Eucalyptus, Blue Gum	18	50	Considerable Lean	Good					
129	Eucalyptus, Blue Gum	30	15	Declining	Fair to poor				1	
130	Eucalyptus, Blue Gum	26	60	Mature	Good			6		
131	Eucalyptus, Blue Gum	38	30		Good					
132	Eucalyptus, Blue Gum	9	18		Good					
133	Eucalyptus, Blue Gum	10	25		Good					
134	Eucalyptus, Blue Gum	22	50		Good					
135	Eucalyptus, Blue Gum	15	25		Good					
136	Eucalyptus, Blue Gum	12	22		Fair			1		
137	Eucalyptus, Blue Gum	16	40	DEAD					1	
138	Eucalyptus, Blue Gum	27	55		Good			4		
139	Eucalyptus, Blue Gum	18	40		Good					
140	Eucalyptus, Blue Gum	14	10		Good					
141	Eucalyptus, Blue Gum	15	20		Good					
142	Eucalyptus, Blue Gum	17	25	DEAD					1	
143	Eucalyptus, Blue Gum	8	20	Declining	Poor				2	
144	Eucalyptus, Blue Gum	7	12	Declining	Poor					
145	Eucalyptus, Blue Gum	21	55		Good			1		
146	Eucalyptus, Blue Gum	18	30		Fair			2		
147	Eucalyptus, Blue Gum	26	25		Fair					
148	Eucalyptus, Blue Gum	32	45		Good			2		
149	Eucalyptus, Blue Gum	28	45		Good					
150	Eucalyptus, Blue Gum	24	35	Leaning due to other tree	Fair			1		
TOTAL							15	57	48	31