Example Mt. Washington Arborist Report

Prepared for ...

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Class One Arboriculture

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Background

In August of 2017, I was contacted by He asked for a Protected Tree Report per the requirements of the City of Los Angeles planning department and Mt. Washington specific plan. He intended to construct a single family residence on a vacant lot in Mt. Washington. I met with at the subject property on to collect the data for my 2017 report.

..... contacted me again in June of 2019 asking for me to update the report to reflect the current conditions on the property. I visited the property again to collect data on June 25, 2019.

Project Description

A single family residence will be constructed on the vacant lot. The lot is about 12,510 square feet, and the footprint of the proposed new structure is approximately 992 square feet. Substantial grading will be necessary to construct the proposed residence, so 8 protected trees and 1 significant tree must be removed.

I recorded 37 trees on the subject property plus 2 on adjacent parcels that could potentially be impacted by construction activity. 26 of the trees in this report are protected California Black Walnut per Ordinance 177,404 covering native trees: Native Oaks (*Quercus sp.*), California Sycamore (*Platanus racemosa*), California Black Walnut (*Juglans californica*), and Bay Laurel (*Umbellularia californica*). The 2 trees on adjacent parcels near the boundary lines are California Black Walnuts.

One of the trees is a significant Mexican Elderberry tree, per Ordinance No. 168,707, the Mt. Washington Specific Plan.

Site Observations

The site is a vacant hillside lot in Mt. Washington. The topography of the subject property is sloped downward to the northwest.

The entire hillside is west-facing, so it receives significant afternoon solar exposure. The combination of slope and solar exposure makes this slope a harsh environment for plant life. Nearly all of the trees are stressed to varying degrees, and several are either already dead or nearly so. After the recent favorable winter rains, the condition of many of the trees has slightly improved.

Subject Trees

ANT - CANAR	Tree 1
	Juglans californica – California Black Walnut
	This tree is protected by ordinance. It is showing signs of minor stress in the foliage. It has nine trunks of varying sizes emerging from an old stump. This tree is intended for preservation on site. If the tree protection fencing is not crossed, this tree stands a good chance at survival following construction.
C MAR	Tree 2 Juglans californica – California Black Walnut
	This tree is protected by ordinance. It is showing signs of minor stress in the foliage. It is proposed for removal because it is growing too close to the proposed driveway – 30% of its critical root zone will be severed. If it were retained, most of its branches would have to be removed for clearance. In its already stressed condition, it would not likely survive.
cha.	Tree 3 <i>Heteromeles arbutifolia</i> – Toyon
	This tree is not protected by ordinance. It is proposed for removal.





Tree 7 *Juglans californica* – California Black Walnut

This tree is protected by ordinance because the cumulative diameter of the four trunks totals 4" in diameter measurements. This tree must be removed because it is within the footprint of the proposed construction.



This tree is protected by ordinance. This tree must be removed because it is growing within the footprint of the necessary access walkway along the side of the proposed house. Preserving this tree would preclude access to the proposed garage deck.

Tree 9 Juglans californica – California Black Walnut

This tree is protected by ordinance. This tree must be removed because it is within the footprint of the proposed garage deck.









Tree OP19 Juglans californica – California Black Walnut

This tree is protected by ordinance. It is growing on the property to the northeast. Half of the canopy is dead. This tree will not likely be impacted by the proposed construction activity.

Tree 20 Juglans californica – California Black Walnut

This tree is too small to be protected by ordinance. It is intended to be preserved in the landscape. It consists of stump sprouts from a former walnut tree.

Tree 21 Juglans californica – California Black Walnut

This tree is protected by ordinance. It consists of healthy stump sprouts from an older base. This tree will not likely be affected by the proposed construction if the tree protection fencing is not crossed.







Tree 31 Juglans californica – California Black Walnut This tree is protected by ordinance. It is half dead, but its condition is improving. If the tree protection fencing shown in this report is not crossed, it is unlikely this tree will be affected by construction activity. Tree 32 Juglans californica - California Black Walnut This tree is protected by ordinance. It is half dead, but its condition is improving. If the tree protection fencing shown in this report is not crossed, it is unlikely this tree will be affected by construction activity. Tree 33 Juglans californica – California Black Walnut This tree is protected by ordinance. It is drought stressed, but its condition is improving. If the tree protection fencing shown in this report is not crossed, it is unlikely this tree will be affected by construction activity.

Tree 34 Juglans californica – California Black Walnut This tree is protected by ordinance. It is showing signs of drought stress. If the tree protection fencing shown in this report is not crossed, it is unlikely this tree will be affected by construction activity.
Sambucus mexicana – Mexican Elderberry This tree is not protected by ordinance. It will be retained in the landscape.
Tree 36 Sambucus mexicana – Mexican Elderberry This tree is not protected by ordinance. It will be retained in the landscape.



Matrix of Trees on Site

Tree #	Species	Common Name	DBH	Height	Spread	Condition	Treatment	Natural?	Rating	Protected?	Remove?
			5", 4", 4", 4", 3",			minor stress, resprout from	clearance				
1	Juglans californica	California Black Walnut	2", 2", 1", 1"	12'	18'	stump	pruning	Yes	C+	Yes	No
			2", 2", 3", 3",			minor stress, resprout from					
2	Juglans californica	California Black Walnut	3",3", 3"	12'	15'	stump	remove	Yes	C+	Yes	Yes
	Heteromeles arbutifolia	Toyon	1", 1"	8'		stump sprouts	remove	Yes	B+	No	Yes
-	· · · · · · · · · · · · · · · · · · ·		_ / _			old top failure, poison oak at			-		
А	Juqlans californica	California Black Walnut	13"	20'	20'	base	none	Yes	D	Yes	No
	Juqlans californica	California Black Walnut	2", 1"	10'		minor stress	none	Yes	B	No	No
,	sugians canjornica		3", 2", 2", 1", 1",	10	10		lione	105	5		
6	Juqlans californica	California Black Walnut	1"	10'	10'	minor stress	remove	Yes	В	Yes	Yes
	Juglans californica	California Black Walnut	2", 1", 1", 1", 1"	8'		minor stress	remove	Yes	B	Yes	Yes
	Juglans californica	California Black Walnut	3", 2", 2", 2"	10'		minor stress	remove	Yes	B	Yes	Yes
	Juglans californica	California Black Walnut	3 x 3", 5 x 2"	10'		minor stress	remove	Yes	B	Yes	Yes
	<u> </u>		15"	30'					в-		
	Sambucus mexicana	Mexican Elderberry		30 20'		drought stress	remove	Yes	о- Г	Significant	Yes
11	Juglans californica	California Black Walnut	5"	20	10.	dead	remove	Yes	r	Yes	Yes
	lucione estif		0	201	201	secondary growth from old		V	C .	M	N
	Juglans californica	California Black Walnut	9 x 3" trunks	20'		stump	remove	Yes	C+	Yes	Yes
	Sambucus mexicana	Mexican Elderberry	3"	8'		stressed	remove	Yes	В	No	Yes
	Sambucus mexicana	Mexican Elderberry	4", 4", 2"	20'		water stress	remove	Yes	В	No	yes
15	Sambucus mexicana	Mexican Elderberry	4" at base	8'	8'	stressed	remove	Yes	В	No	Yes
			4", 3", 3", 3", 2",								
			2", 2", 2", 1", 1",								
	Juglans californica	California Black Walnut	1"	20'		minor stress, decayed stump	none	Yes	С	Yes	No
17	Malosma laurina	Laurel Sumac	4 x 2", 3 x 1"	15'		minor drought stress	remove	Yes	В	No	Yes
18	Malosma laurina	Laurel Sumac	10 x 1"	20'		drought stress	none	Yes	В	No	No
OP19	Juglans californica	California Black Walnut	12"	15'	15'	half the tree is dead	none	Yes	D	Yes	No
										No, too	
20	Juglans californica	California Black Walnut	2"	6'	5'	healthy stump sprouts	none	Yes	В	small	No
21	Juglans californica	California Black Walnut	2", 1", 1"	6'	8'	healthy stump sprouts	none	Yes	В	Yes	No
22	Juglans californica	California Black Walnut	4 x 1"	8'	8'	healthy	none	Yes	А	Yes	No
23	Juglans californica	California Black Walnut	4 x 1"	8'	8'	healthy	none	Yes	A	Yes	No
24	Juglans californica	California Black Walnut	4", 5"	15'	10'	drought stress	none	Yes	С	Yes	No
25	Juglans californica	California Black Walnut	4" <i>,</i> 4"	10'	10'	drought stress	none	Yes	С	Yes	No
OP26	Juglans californica	California Black Walnut	7"	20'	30'	nearly dead	none	Yes	D	Yes	No
27	Juglans californica	California Black Walnut	6" at base	15'	15'	drought stress	none	Yes	В	Yes	No
28	Sambucus mexicana	Mexican Elderberry	13	30'		water stress	none	Yes	В	No	No
29	Juglans californica	California Black Walnut	5"	15'		dead	none	Yes	F	Yes	No
30	Juglans californica	California Black Walnut	5"	10'	15'	dead	none	Yes	F	Yes	No
31	Juglans californica	California Black Walnut	4", 3"	10'	10'	half dead, recovering	none	Yes	С	Yes	No
	Juglans californica	California Black Walnut	4", 4"	10'	15'	half dead, recovering	none	Yes	С	Yes	No
	Juglans californica	California Black Walnut	3", 2", 2", 4"	18'		drought stress	none	Yes	C+	Yes	No
	Juglans californica	California Black Walnut	6"	15'		drought stress	none	Yes	C+	Yes	No
	Sambucus mexicana	Mexican Elderberry	8" at base	20'		healthy	none	Yes	A	No	No
	Sambucus mexicana	Mexican Elderberry	8" at base	15'		drought stress	none	Yes	С	No	No
	Juqlans californica	California Black Walnut	1", 1", 1"	13		drought stress	none	Yes	C+	No	No
	Juglans californica	California Black Walnut	3"	10'		nearly dead	none	Yes	F	Yes	No
50			3	10	10	secondary growth from old	Horic	103		103	
20	Juglans california	California Black Malaut	1" 2" 2"	10	10		romovo	Voc	C	Voc	Voc
39	Juglans californica	California Black Walnut	1", 2", 2"	10'	10	stump	remove	Yes	С	Yes	Yes

Protected Tree Matrix

Tree 🚬	Species	-	Common Name	DBH 🛛 💌	Heig 💌	Spre: 🔻	Condition	Treatme ≚	Natura 🝸	Rati 💌	Protected	Remov
				5", 4", 4", 4", 3",			minor stress, resprout from	clearance				
1	Juglans californica		California Black Walnut	2", 2", 1", 1"	12'	18'	stump	pruning	Yes	C+	Yes	No
				2", 2", 3", 3",			minor stress, resprout from					
2	Juglans californica		California Black Walnut	3",3", 3"	12'	15'	stump	remove	Yes	C+	Yes	Yes
							old top failure, poison oak at					
4	Juglans californica		California Black Walnut	13"	20'	20'	base	none	Yes	D	Yes	No
				3", 2", 2", 1", 1",								
6	Juglans californica		California Black Walnut	1"	10'	10'	minor stress	remove	Yes	В	Yes	Yes
7	Juglans californica		California Black Walnut	2", 1", 1", 1", 1"	8'	8'	minor stress	remove	Yes	В	Yes	Yes
8	Juglans californica		California Black Walnut	3", 2", 2", 2"	10'	10'	minor stress	remove	Yes	В	Yes	Yes
9	Juglans californica		California Black Walnut	3 x 3", 5 x 2"	10'	10'	minor stress	remove	Yes	В	Yes	Yes
11	Juglans californica		California Black Walnut	5"	20'	10'	dead	remove	Yes	F	Yes	Yes
							secondary growth from old					
12	Juglans californica		California Black Walnut	9 x 3" trunks	20'	20'	stump	remove	Yes	C+	Yes	Yes
				4", 3", 3", 3", 2",								
				2", 2", 2", 1", 1",								
16	Juglans californica		California Black Walnut	1"	20'	20'	minor stress, decayed stump	none	Yes	С	Yes	No
OP19	Juglans californica		California Black Walnut	12"	15'	15'	half the tree is dead	none	Yes	D	Yes	No
21	Juglans californica		California Black Walnut	2", 1", 1"	6'	8'	healthy stump sprouts	none	Yes	В	Yes	No
22	Juglans californica		California Black Walnut	4 x 1"	8'	8'	healthy	none	Yes	А	Yes	No
23	Juglans californica		California Black Walnut	4 x 1"	8'	8'	healthy	none	Yes	A	Yes	No
24	Juglans californica		California Black Walnut	4" <i>,</i> 5"	15'	10'	drought stress	none	Yes	С	Yes	No
25	Juglans californica		California Black Walnut	4", 4"	10'	10'	drought stress	none	Yes	С	Yes	No
OP26	Juglans californica		California Black Walnut	7"	20'	30'	nearly dead	none	Yes	D	Yes	No
27	Juglans californica		California Black Walnut	6" at base	15'	15'	drought stress	none	Yes	В	Yes	No
29	Juglans californica		California Black Walnut	5"	15'	15'	dead	none	Yes	F	Yes	No
30	Juglans californica		California Black Walnut	5"	10'	15'	dead	none	Yes	F	Yes	No
31	Juglans californica		California Black Walnut	4", 3"	10'	10'	half dead, recovering	none	Yes	С	Yes	No
32	Juglans californica		California Black Walnut	4", 4"	10'	15'	half dead, recovering	none	Yes	С	Yes	No
33	Juglans californica		California Black Walnut	3", 2", 2", 4"	18'	10'	drought stress	none	Yes	C+	Yes	No
34	Juglans californica		California Black Walnut	6"	15'	15'	drought stress	none	Yes	C+	Yes	No
38	Juglans californica		California Black Walnut	3"	10'	10'	nearly dead	none	Yes	F	Yes	No
							secondary growth from old					
39	Juglans californica		California Black Walnut	1", 2", 2"	10'	10'	stump	remove	Yes	с	Yes	Yes

Protected Trees to be Removed

Tree 🔻	Species	-	Common Name	•	DBH 🗾	Heig 💌	Spre: 💌	Condition	Treatme	Natura 🔻	Rati 💌	Protected	Remov
					2", 2", 3", 3",			minor stress, resprout from					
2	Juglans californica		California Black Walnut	:	3",3", 3"	12'	15'	stump	remove	Yes	C+	Yes	Yes
					3", 2", 2", 1", 1",								
6	Juglans californica		California Black Walnut	:	1"	10'	10'	minor stress	remove	Yes	В	Yes	Yes
7	Juglans californica		California Black Walnut	:	2", 1", 1", 1", 1"	8'	8'	minor stress	remove	Yes	В	Yes	Yes
8	Juglans californica		California Black Walnut	:	3", 2", 2", 2"	10'	10'	minor stress	remove	Yes	В	Yes	Yes
9	Juglans californica		California Black Walnut	:	3 x 3", 5 x 2"	10'	10'	minor stress	remove	Yes	В	Yes	Yes
11	Juglans californica		California Black Walnut	:	5"	20'	10'	dead	remove	Yes	F	Yes	Yes
								secondary growth from old					
12	Juglans californica		California Black Walnut	:	9 x 3" trunks	20'	20'	stump	remove	Yes	C+	Yes	Yes
								secondary growth from old					
39	Juglans californica		California Black Walnut	:	1", 2", 2"	10'	10'	stump	remove	Yes	С	Yes	Yes

Protected Trees to Remain on Site

Tree 🔻	Species	Ŧ	Common Name	*	DBH	Heig	Spre:	Condition	т_ Т	reatme 🝸	Natura 🔻	Rati 💌	Protected	Remov
					5", 4", 4", 4", 3"	,		minor stress, resprout from	cl	learance				
1	Juglans californica		California Black Walnu	ıt	2", 2", 1", 1'	12	.' 18	stump	р	runing	Yes	C+	Yes	No
								old top failure, poison oak at						
4	Juglans californica		California Black Walnu	ıt	13'	20)' 20	base	n	one	Yes	D	Yes	No
					4", 3", 3", 3", 2"	,								
					2", 2", 2", 1", 1"	,								
16	Juglans californica		California Black Walnu	ıt	1'	20)' 20	minor stress, decayed stump	n	one	Yes	С	Yes	No
OP19	Juglans californica		California Black Walnu	ıt	12'	15	5 15	half the tree is dead	n	one	Yes	D	Yes	No
21	Juglans californica		California Black Walnu	ıt	2", 1", 1'	ί θ	5' 8	healthy stump sprouts	n	one	Yes	В	Yes	No
22	Juglans californica		California Black Walnu	ıt	4 x 1'	' 8	8' 8	healthy	n	one	Yes	А	Yes	No
23	Juglans californica		California Black Walnu	ıt	4 x 1'	1 8	8' 8	healthy	n	one	Yes	А	Yes	No
24	Juglans californica		California Black Walnu	ıt	4" <i>,</i> 5'	15	5 10	drought stress	n	one	Yes	С	Yes	No
25	Juglans californica		California Black Walnu	ıt	4" <i>,</i> 4'	10)' 10	drought stress	n	one	Yes	С	Yes	No
OP26	Juglans californica		California Black Walnu	ıt	7'	20)' 30	nearly dead	n	one	Yes	D	Yes	No
27	Juglans californica		California Black Walnu	ıt	6" at base	15	5 15	drought stress	n	one	Yes	В	Yes	No
29	Juglans californica		California Black Walnu	ıt	5'	15	5' 15	dead	n	one	Yes	F	Yes	No
30	Juglans californica		California Black Walnu	ıt	5'	10)' 15	dead	n	one	Yes	F	Yes	No
31	Juglans californica		California Black Walnu	ıt	4" <i>,</i> 3'	10	0' 10	half dead, recovering	n	one	Yes	С	Yes	No
32	Juglans californica		California Black Walnu	ıt	4" <i>,</i> 4'	10)' 15	half dead, recovering	n	one	Yes	С	Yes	No
33	Juglans californica		California Black Walnu	ıt	3", 2", 2", 4'	18	8 10	drought stress	n	one	Yes	C+	Yes	No
34	Juglans californica		California Black Walnu	ıt	6'	15	15	drought stress	n	one	Yes	C+	Yes	No
38	Juglans californica		California Black Walnu	ıt	3'	10	0' 10	nearly dead	n	one	Yes	F	Yes	No

Recommendations and Construction Impact Guidelines

Pre-Construction

Pre-construction treatment is intended to set the protected trees into a "holding pattern" to last through the stresses from construction activity. These recommendations should be implemented prior to the start of construction.

- Erect tree protection zone fencing as shown in this report. No construction activity, heavy equipment access, or materials storage should take place within the tree protection zones during construction without the direct supervision and approval of a certified arborist.
- Prune Trees, 1, 4, and 16 for clearance with the work area. Hire a crew directly supervised by a certified arborist on site to ensure the pruning cuts are made to branch unions and do not remove an excessive amount of foliage. As the project progresses, only prune when deemed necessary by the project arborist; as much live foliage as possible should be preserved through the construction process to give the trees the best opportunity to thrive after construction is complete.
- Apply a bimonthly irrigation to Trees 1, 4, 5, and 16. Irrigation should be adjusted so the application rate is slow enough to avoid runoff and the duration is long enough to allow water to infiltrate to a depth of 6-12 inches in the soil. If water hookups are unavailable, consider an irrigation bladder bag for each tree. Fill the bags with water bimonthly and allow them to slowly drain into the soil.
- After obtaining permits to do so, remove the trees approved for removal by the urban planner.

During Construction

This is the stage where mechanical injury is the most likely to occur. By following these recommendations, the likelihood of accidental damage will be reduced:

- Inform all construction personnel of the intention to preserve the trees. Many times damage occurs because workers are not aware of the importance of preserving the trees on site. This includes contractors and their respective subcontractors as well.
- If any changes are made to the plans resulting in any excavation or equipment access within the dripline of any protected tree, the project arborist should be informed. Additional protection measures may need to be discussed.
- Throughout the construction period, a certified arborist should make periodic site visits to ensure the tree protection plan is being followed.
- No construction activity should take place within the tree protection zones. This includes construction worker access, materials storage, and equipment access.
- If any injury should occur to a protected tree during construction, the project arborist should be informed within 24 hours so it may be evaluated and treated as soon as possible.
- Retain the tree protection zone fencing until construction activity has been completed or until the landscape installation phase begins. Even when landscapers are permitted near the trees, make sure they are aware of the intention to preserve the tree and the roots if any digging is performed for irrigation lines or plant installation.

Post-Construction Care

The most stressful time of year for the subject trees will be the summer immediately following construction. The following management practices are recommended:

- Retain the leaf drop around the root zone of the subject trees where practical. The best ground cover for a tree is its own leaf mulch. Leaf mulch will continue to reduce soil evaporation and mitigate soil temperature changes. If leaf drop is not practical for use, apply a layer of coarse mulch 2-4 inches thick around the base of the protected trees intended for preservation.
- The subject trees may be monitored by a certified arborist for development of disease, decay, or other symptoms of stress due to construction activity. Deadwood may be removed as it appears, and as much live wood as possible should be retained on the trees, provided that it doesn't come into conflict with the infrastructure.

Mitigation Trees

Mitigation trees will be necessary to compensate for the removal of the protected trees on the property. City of Los Angeles requires mitigation trees to be planted on a 4:1 basis for the removed native trees and the Mt. Washington specific plan requires mitigation trees to be planted on a 3:1 basis for the significant trees. 32 trees would need to be planted to compensate for the loss of the 8 native trees and another 3 trees would need to be planted to compensate for the loss of the significant tree. The total number of trees to be planted is 35. Due to the limited space and steep grade on site, it is advisable to consider offsite mitigation planting for some or all of the mitigation trees.

City of Los Angeles permits the grouping of clusters of four California Black Walnut trees per site. A mitigation map is included as a suggestion of planting sites for some of the mitigation trees. This map may be modified in consultation with the city, the landscape designer, and the project arborist.

If the city determines that no mitigation trees are needed to compensate for the removal of Tree 11 (a dead tree), then the total number of mitigation trees will be 31.

Limitations

My observations are based on a strictly visual inspection of the property, and some hidden or buried symptoms and signs may not have been observed. I did not conduct excavation, coring, or climbing inspection to make observations. My analysis is only based on the observations I gathered at the time of inspection. I do not guarantee the safety of the subject trees. There is no warranty or guarantee, expressed or implied, that problems or deficiencies may not arise in the future.

Arborists are tree specialists who use their knowledge, education, training, and experience to examine trees, recommend measures to enhance the beauty and health of trees, and attempt to reduce the risk of living trees. Clients may choose to accept or disregard the recommendations of the arborist, or to seek additional advice.

Arborists cannot detect every condition that could possibly lead to structural failure of a tree. Trees are living organisms that fail in ways not fully understood. Conditions are often hidden within trees and below ground. Arborists cannot guarantee that a tree will be healthy or safe under all circumstances, or for a specified period of time. Likewise, remedial treatments, like any medicine, cannot be guaranteed.

Treatment, pruning, and removal of trees may involve considerations beyond the scope of the arborist's services such as property boundaries, property ownership, site lines, disputes between neighbors, and other issues. Arborists cannot take such considerations into account unless complete and accurate information is disclosed to the arborist. An arborist should then be expected to reasonably rely upon the completeness and accuracy of the information provided.

Trees can be managed, but they cannot be controlled. To live near trees is to accept some degree of risk. The only way to eliminate all risk associated with trees is to eliminate all trees.





Figure 1: Site map of the subject trees. Walnut trees are shown in orange. Significant trees are shown in purple. Trees that are not protected species are shown in grey. The trees proposed for removal are circled in red. The proposed tree protection fencing is shown in green.

Mitigation Map



Figure 2: Mitigation tree map showing suggested locations for replacement trees. 8 clusters of 4 replacement walnut trees each are labeled A-H. Two oaks and a sycamore labeled I-K will replace the one significant tree removed.

Site Photos



Figure 3: Tree 1

James Komen, Class One Arboriculture Inc. Example Mt. Washington Arborist Report September 18, 2019



Figure 4: Tree 2



Figure 5: Tree 3



Figure 6: Tree 4



Figure 7: Tree 5



Figure 8: Tree 6



Figure 9: Tree 7



Figure 10: Tree 8



Figure 11: Tree 9



Figure 12: Tree 10



Figure 13: Tree 11


Figure 14: Tree 12



Figure 15: Tree 13



Figure 16: Tree 14



Figure 17: Tree 15



Figure 18: Tree 16



Figure 19: Tree 17



Figure 20: Tree 18



Figure 21: Tree 19



Figure 22: Tree 20



Figure 23: Tree 21



Figure 24: Tree 22



Figure 25: Tree 23



Figure 26: Tree 24



Figure 27: Tree 25



Figure 28: Tree 26



Figure 29: Tree 27



Figure 30: Tree 28



Figure 31: Tree 29



Figure 32: Tree 30



Figure 33: Tree 31



Figure 34: Tree 32



Figure 35: Tree 33



Figure 36: Tree 34



Figure 37: Tree 35



Figure 38: Tree 36



Figure 39: Tree 37



Figure 40: Tree 38



Figure 41: Tree 39