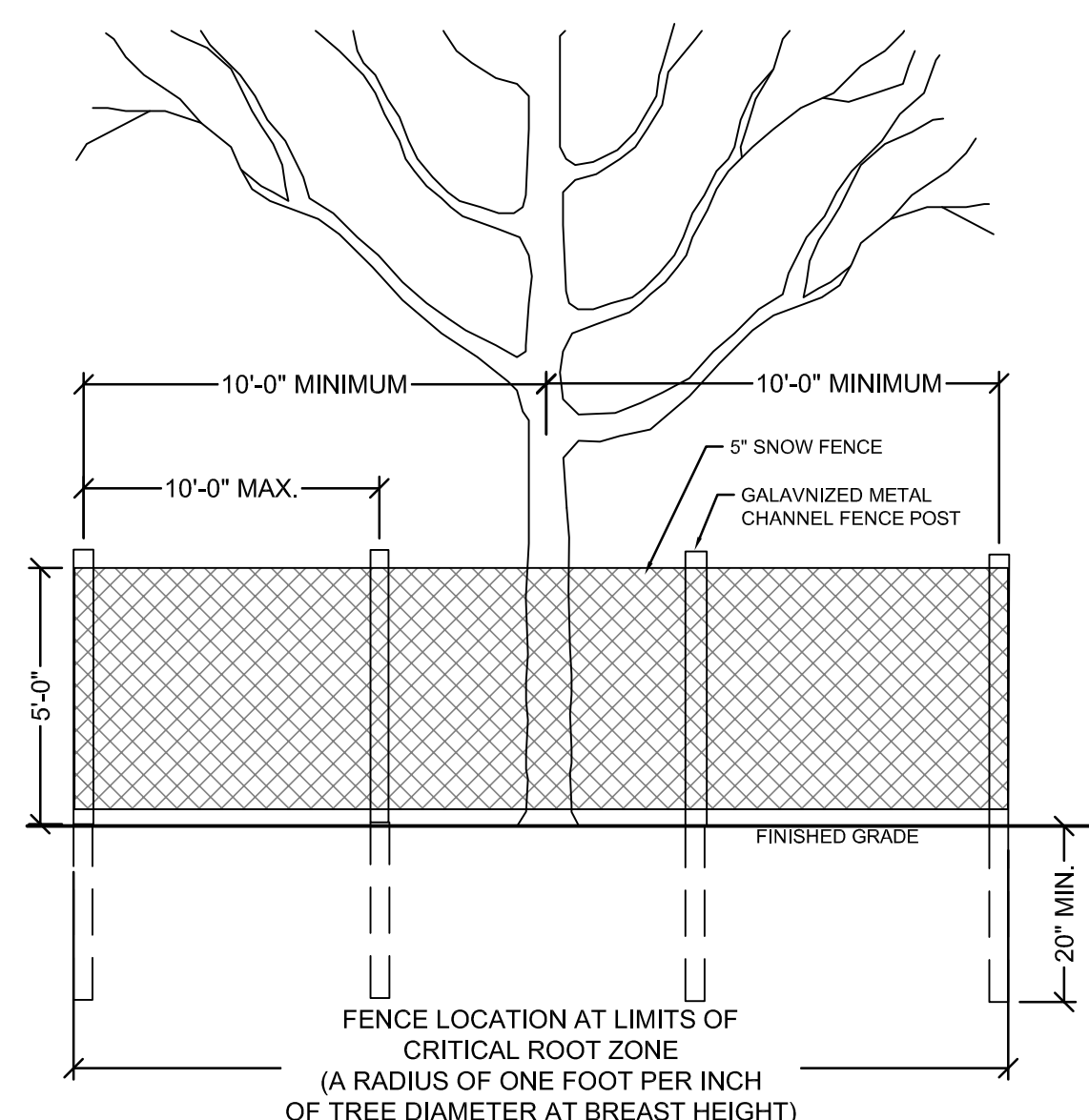


**LEGEND**

- X TREE REMOVAL
- TREE PROTECTION

- NOTES:
1. TREE REMOVAL/BRUSH REMOVAL TO CONSIST OF REMOVAL BY CHAINSAW AND GRINDING STUMP TO GRADE.
  2. ANY LOCATION WHERE RUTTING OCCURRED FROM HAULING OUT OF DEBRIS TO BE REPAIRED BY CONTRACTOR
  3. CONTRACTOR TO ESTABLISH TREE PROTECTION PRIOR TO REMOVAL OF ANY TREES ON SITE
  4. TREES TO BE REMOVED : 18-49, 57-59, 63, 64, 72



- NOTES:
1. MAKE CLEAN SAWCUTS ON ROOTS EXPOSED BY GRADING AND BACKFILL IMMEDIATELY W/TOPSOIL AND WATER THOROUGHLY.
  2. MAINTAIN FENCE TO KEEP IT ANCHORED FIRMLY TO POSTS WITHOUT SAGGING.
  3. ANCHOR FENCE TO POSTS WITH WIRES OR PLASTIC TIES.
  4. REMOVE FENCING AND TIES FROM SITE AT SUBSTANTIAL COMPLETION OF PROJECT.

1  
TMP01 TREE PROTECTION FENCE

MISSOURI CERTIFICATE OF AUTHORITY NO. E-2017015086 EXPIRES: DECEMBER 31, 2019

NOTICE: SSE WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS, AND THE ENGINEERING INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEERS GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES, OR CONFLICTS WHICH ARE ALLEGED.

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FOR REVIEW ONLY  
NOT FOR CONSTRUCTION

Keenan K. Simon  
MO-PE 2016017682  
MY LICENSE RENEWAL DATE IS DECEMBER 31, 2020

3/18/2019

REVISIONS	
△	
△	
△	
△	
△	

**ENERGYLINK**

15001 E. OXFORD AVENUE

AURORA, COLORADO

ENGINEER  
KKS

CHECKED BY  
KKS

DRAWN BY  
TRA

SSE PROJECT #  
18099

**TREE MITIGATION PLAN**

DRAWING NO. **TMP01** SHEET NO. **00** OF **00**



# **EnergyLink Solar Project 15001 E. Oxford Avenue, Aurora, Colorado**



**Prepared for:  
Mr. Jeremy Nolen  
EnergyLink  
7449 Broadway, # 108  
Kansas City, MO 64114**

**Prepared by:  
Mr. Scott Grimes  
Colorado Tree Consultants  
1600 S. Carr Street  
Lakewood, CO 80232**

**December 19, 2018**

# Colorado Tree Consultants

1600 South Carr Street, Lakewood, Colorado 303-720-8170

December 19, 2018

Mr. Jeremy Nolen, Business Development Director  
EnergyLink  
7449 Broadway, # 108  
Kansas City, MO 64114

RE: Solar Array Project Tree Preservation Plan: 15001 E. Oxford Avenue

Dear Mr.Nolen:

Thank you for the opportunity to provide an assessment of the trees at 15001 E. Oxford Avenue on the solar array project in Aurora, Colorado. I appraised the trees using the trunk formula method developed by the Council of Tree and Landscape Appraisers [Guide for Plant Appraisal 9<sup>th</sup> Edition](#) and supplemented with regional information from the [Species Rating and Appraisal Factors Guide, 2011](#), published by the Rocky Mountain Chapter of the International Society of Arboriculture: the same method used by Aurora Forestry.

The trunk formula method is used to appraise the monetary value of trees considered too large to replace with nursery grown or field dug trees. The basic value of a tree is based on the installed cost of the largest commonly available transplantable tree plus the increase in value due to the larger size of the tree being appraised. This value is then adjusted based on the species, condition and location of the appraised trees.

I inventoried the size, species and estimated the location of seventy-nine trees across the entire site (excluding Russian olives): see **Table 1**. Within the construction zone bounded by the proposed fence, I inventoried and assessed twenty-nine trees. Adjacent to or near the proposed fence are nine additional trees likely impacted by construction that could be preserved if they are surveyed and determined to be outside the necessary Tree Protection Zones. Four trees are near the proposed trail alignment and could be preserved and protected during final design. Of the thirty-three trees likely impacted by construction activities only nine meet the size and 'good health condition' requirements as identified in the Aurora Landscape Manual (April 2016) tree preservation and mitigation guide. Only seven trees of 'good health condition' are within or adjacent to the fence and construction zone. Two trees of 'good health condition' are in the proposed trail alignment. These nine trees are listed as either 'Preserve and protect', or 'Mitigate' and the associated caliper inches, species rating, condition rating, location rating and assessed value are included in **Table 2**.



# Colorado Tree Consultants

1600 South Carr Street, Lakewood, Colorado 303-720-8170

Re: EnergyLink Solar Array Project

Page 2.

If all nine of the likely impacted trees require mitigation the total estimated value of mitigated trees is \$ 10,527 and includes 119.5 caliper inches. A site survey identifying actual tree locations and limits of construction will clarify trees near the fence and trail alignment which can be preserved and protected with tree protection zones per Aurora's guidelines. If six trees (# 21, 35, 36, 43, 68 and 74) are preserved and protected as recommended the value of mitigated trees is then reduced to \$ 4,653 and would include 55.5 caliper inches.

To assist in preserving trees outside the construction zone and along the trail alignment, I recommend erecting a temporary fence to physically separate the construction activity from the tree preservation area and mulching from the trunk to the outer edge of the canopy of trees to preserve. Tree protection fencing (six-foot chain link is recommended) should extend to the limits of the tree canopy around each tree you wish to protect and preserve. Apply wood chip mulch four inches (4") deep within the tree protection zone. Care is also required when removing dead or low quality trees near trees marked to preserve as damage to preserved trees requires the same caliper inch mitigation as removed trees of 'good health condition'.

If you have any questions or require further information please call me anytime. I can provide specifications for tree protection and can assist in soliciting qualified tree services to complete the tree removal and care. Thank you for selecting **Colorado Tree Consultants** to help with your project.

Sincerely,

*Scott Grimes*

ASCA Consulting Arborist

ISA Certified Arborist and Municipal Specialist

ISA Tree Risk Assessment Qualified

## **Assumptions and Limiting Conditions**

1. Any legal description provided to the consultant/appraiser is assumed correct. Any titles and ownerships to any property are assumed good and marketable.
2. Care was taken to obtain all information from reliable sources. All data was verified insofar as possible; however the consultant/appraiser can neither guarantee nor be responsible for the accuracy of information provided by others.
3. The consultant/appraiser shall not be required to give testimony or attend court by reason of this report unless subsequent contractual arrangements are made, including payment of an additional fee for such services as described and agreed to in a new fee schedule and contract of engagement.
4. Loss or alteration of any part of this report invalidates the entire report.
5. Possession of this report or a copy thereof does not imply right of publication or use for any purpose by any other person than the person to whom it is addressed, without the prior, written consent of the consultant/appraiser.
6. This report and values expressed herein represent the opinion of the consultant/appraiser, and the consultant's/appraiser's fee is in no way contingent upon the reporting of a specified value, a stipulated result, the occurrence of a subsequent event, nor upon any finding to be reported.
7. Sketches, diagrams, graphs, and photographs in this report, being intended as visual aids, are not necessarily to scale and should not be construed as engineering or architectural reports or surveys.
8. Unless otherwise expressed: 1) information contained in this report covers only those items that were examined and reflects the condition of those items at the time of inspection; and 2) the inspection is limited to visual inspection of accessible items without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees or property in question may not arise in the future.

## **Certification of Performance**

I, Scott Grimes, certify that:

- I personally inspected the trees and the property referred to in this report and have stated my findings accurately.
- I have no current or prospective interest in the vegetation or the property that is the subject of the report and have no personal interest or bias with respect to the parties involved.
- The analysis, opinions, and conclusions were developed and this report prepared according to commonly accepted arboricultural practices.
- No one provided significant professional assistance to me, except as indicated in the report.
- My compensation is not contingent upon the reporting of a predetermined conclusion that favors the cause of the client or any other party or upon the results of the assessment, the attainment of stipulated results, or the occurrence of any subsequent events.

I further certify I am a member in good standing of the American Society of Consulting Arborists and I am an International Society of Arboriculture Certified Arborist and Qualified Tree Risk Assessor. I have practiced arboriculture and the care and study of trees for over 35 years.

*Scott Grimes*

December 19, 2018

**Table 1. all site trees with condition and appraised value**

= Trees that require mitigation

Trees to be removed on site = 18-49, 57-59, 63, 64, 72

Tree #	Species	Species Code	Size dbh "	Basic Tree Cost \$	Species %	Condition Rating	Condition %	Location %	Appraised Value \$	Comments	
1	Blue Spruce	BS	19	17058	80%	G	65%	47%	\$ 4,169	broken branches, trunk scar	Preserve and protect
2	Blue Spruce	BS	8	3471	80%	G-	55%	47%	\$ 718	2-stem w/# 3	Preserve and protect
3	Blue Spruce	BS	8	3471	80%	F+	50%	47%	\$ 653	2-stem w/#2	Preserve and protect
4	Blue Spruce	BS	7	2785	80%	F+	50%	47%	\$ 524	Interior thinning	Preserve and protect
5	Blue Spruce	BS	8	3471	80%	G-	55%	47%	\$ 718	Interior thinning, low dead	Preserve and protect
6	Blue Spruce	BS	9	4249	80%	D	0%	47%	\$ -	Dead	Preserve and protect
7	Blue Spruce	BS	11	6079	80%	F+	50%	47%	\$ 1,143	Interior thinning, low dead	Preserve and protect
8	Blue Spruce	BS	13	8273	80%	F	45%	47%	\$ 1,400	Interior thinning	Preserve and protect
9	Blue Spruce	BS	12	7131	80%	F-	40%	47%	\$ 1,073	Interior thinning, low dead	Preserve and protect
10	Blue Spruce	BS	12	7131	80%	G-	55%	47%	\$ 1,475	Interior thinning	Preserve and protect
11	Blue Spruce	BS	13	8273	80%	G-	55%	47%	\$ 1,711	Interior thinning	Preserve and protect
12	Blue Spruce	BS	15	10837	80%	F+	50%	47%	\$ 2,037	Interior thinning, low dead	Preserve and protect
13	Blue Spruce	BS	16	12255	80%	F+	50%	47%	\$ 2,304	Interior thinning, low dead	Preserve and protect
14	Blue Spruce	BS	13	8273	80%	D	0%	47%	\$ -	Dead	Preserve and protect
15	Blue Spruce	BS	13	8273	80%	F-	40%	47%	\$ 1,244	Dead top. Thinning	Preserve and protect
16	Green ash	GA	17	13593	45%	F	45%	47%	\$ 1,294		Preserve and protect
17	Cottonwood sp.	CW	29	31477	70%	F	45%	47%	\$ 4,660	broken branches, decay	Preserve and protect
18	Cottonwood sp.	CW	25	23469	70%	G	65%	47%	\$ 5,019	2 stems of 3 removed	Mitigate
19	Cottonwood sp.	CW	15	8641	70%	F	45%	43%	\$ 1,170	Dead top. Decay	No Mitigation Req'd
20	Cottonwood sp.	CW	9.5	3645	70%	F+	50%	42%	\$ 532	2 tops	Mitigate
21	Cottonwood sp.	CW	25	23469	70%	F+	50%	42%	\$ 3,423	Low dead, broken branches	Mitigate
22	Cottonwood sp.	CW	8	2672	70%	P	30%	42%	\$ 234	suppressed, bent	No Mitigation Req'd
23	Cottonwood sp.	CW	14	7565	70%	F-	40%	42%	\$ 883	2 stem, dead top	No Mitigation Req'd
24	Cottonwood sp.	CW	11	4785	70%	F	45%	42%	\$ 628	suppressed, deadwood	No Mitigation Req'd
25	Cottonwood sp.	CW	12	5638	70%	F-	40%	42%	\$ 658	dieback, decay	No Mitigation Req'd
26	Siberian elm	SE	7	1714	45%	P	30%	42%	\$ 96	>50% dead	No Mitigation Req'd
27	Siberian elm	SE	12	4562	45%	P-	20%	42%	\$ 171	>50% dead	No Mitigation Req'd
28	Willow sp.	W	9	2460	45%	P	30%	42%	\$ 138	dieback, broken	No Mitigation Req'd
29	Cottonwood sp.	CW	20	15128	70%	F	45%	42%	\$ 1,986	dieback, leaning	No Mitigation Req'd
30	Willow sp.	W	12	4200	45%	P-	20%	42%	\$ 158	failed at ground	No Mitigation Req'd
31	Cottonwood sp.	CW	15	8640	70%	F	45%	42%	\$ 1,134	dieback	No Mitigation Req'd
32	Cottonwood sp.	CW	9	3302	70%	F-	40%	42%	\$ 385	2 stem, leans	No Mitigation Req'd
33	Cottonwood sp.	CW	19	13682	70%	F+	50%	42%	\$ 1,995	dieback , 15%	Mitigate
34	Cottonwood sp.	CW	11	4785	70%	F+	50%	42%	\$ 698		Mitigate
35	Cottonwood sp.	CW	12	5638	70%	F+	50%	42%	\$ 822	leaning	Mitigate
36	Cottonwood sp.	CW	13	6564	70%	F+	50%	42%	\$ 957	trunk wound	Mitigate
37	Cottonwood sp.	CW	13	6564	70%	F	45%	42%	\$ 862	Split top	No Mitigation Req'd
38	Cottonwood sp.	CW	18	12311	70%	P	30%	42%	\$ 1,077	dead top	No Mitigation Req'd
39	Siberian elm	SE	7	1714	45%	P	30%	42%	\$ 96	> 40% dead	No Mitigation Req'd
40	Cottonwood sp.	CW	7	1714	70%	F-	40%	42%	\$ 200	suppressed, leaning	No Mitigation Req'd



Tree #	Species	Species Code	Size dbh "	Basic Tree Cost \$	Species %	Condition Rating	Condition %	Location %	Appraised Value \$	Comments	
41	Cottonwood sp.	CW	12	5638	70%	P	30%	42%	\$ 493	dead top	No Mitigation Req'd
42	Cottonwood sp.	CW	12	5638	70%	D	0%	42%	\$ -	Dead	No Mitigation Req'd
43	Cottonwood sp.	CW	16	9790	70%	F+	50%	42%	\$ 1,428	20% dead	Mitigate
44	Cottonwood sp.	CW	13	6564	70%	P	30%	42%	\$ 574	suppressed	No Mitigation Req'd
45	Cottonwood sp.	CW	30	33664	79%	P	30%	42%	\$ 3,325	3 leads w/ 50% dead tops	No Mitigation Req'd
46	Siberian elm	SE	14	6120	45%	F	45%	42%	\$ 516		No Mitigation Req'd
47	Malus sp.	MA	14	11459	65%	F	45%	42%	\$ 1,397	weak trunk, fireblight	No Mitigation Req'd
48	Siberian elm	SE	6	1324	45%	F-	40%	42%	\$ 99	trunk wound	No Mitigation Req'd
49	Siberian elm	SE	5	995	45%	F	45%	42%	\$ 84	weak branches	No Mitigation Req'd
50	Cottonwood sp.	CW	19	13682	70%	F	45%	42%	\$ 1,796	suppressed, lean, dieback	Preserve and protect
51	Cottonwood sp.	CW	26	25360	70%	F	45%	42%	\$ 3,329	broken branches, decay	Preserve and protect
52	Cottonwood sp.	CW	12	5638	70%	P	30%	42%	\$ 493	> 40% dead, lean	Preserve and protect
53	Cottonwood sp.	CW	27	27325	70%	F	45%	42%	\$ 3,587	30% dead, broken branches	Preserve and protect
54	Cottonwood sp.	CW	15	8640	70%	F+	50%	42%	\$ 1,260	15% dead, lean	Preserve and protect
55	Cottonwood sp.	CW	24	21653	70%	G-	55%	42%	\$ 3,474	10% dead, weak trunk	Preserve and protect
56	Siberian elm	SE	20	12235	45%	P+	35%	42%	\$ 803	40% dead, broken branches	Preserve and protect
57	Siberian elm	SE	6	1324	45%	F-	45%	42%	\$ 112	broken top, decay	No Mitigation Req'd
58	Siberian elm	SE	12	4562	45%	D	0%	42%	\$ -	Dead	No Mitigation Req'd
59	Cottonwood sp.	CW	5	1226	70%	F	45%	42%	\$ 161	broken top, decay	No Mitigation Req'd
60	Siberian elm	SE	10	3243	45%	F-	40%	42%	\$ 243	dieback, weak trunk	Preserve and protect
61	Siberian elm	SE	10	3243	45%	F-	40%	42%	\$ 243	dieback, weak trunk	Preserve and protect
62	Siberian elm	SE	12	4562	45%	F-	40%	42%	\$ 342	dieback, weak trunk	Preserve and protect
63	Siberian elm	SE	28	23744	45%	D	0%	42%	\$ -	Dead	No Mitigation Req'd
64	Siberian elm	SE	24	17510	45%	D	0%	42%	\$ -	Dead	No Mitigation Req'd
65	Cottonwood sp.	CW	20	15128	70%	F+	50%	42%	\$ 2,206	low branching	Preserve and protect
66	Siberian elm	SE	6	1324	45%	G	65%	42%	\$ 161	weak structure	Preserve and protect
67	Siberian elm	SE	12	4562	45%	F	45%	42%	\$ 385	weak trunk	Preserve and protect
68	Cottonwood sp.	CW	8	2672	70%	G-	55%	42%	\$ 432	2stem, weak trunk	Preserve and protect
69	Cottonwood sp.	CW	8	2672	70%	G-	55%	42%	\$ 432	multi-stem, weak	Preserve and protect
70	Siberian elm	SE	12	4562	45%	D	0%	42%	\$ -	shrub form, > 50% dead	Preserve and protect
71	Siberian elm	SE	7	1714	45%	D	0%	42%	\$ -	> 50% dead	Preserve and protect
72	Siberian elm	SE	12	4562	45%	D	40%	42%	\$ 345	> 50% dead	No Mitigation Req'd
73	Cottonwood sp.	CW	7	2116	70%	F+	50%	42%	\$ 311	2 stem, weak, trunk scar	Preserve and protect
74	Cottonwood sp.	CW	6	1634	70%	F+	50%	42%	\$ 240	2 stem, weak, trunk scar	Preserve and protect
75	Cottonwood sp.	CW	5	1226	70%	F	45%	42%	\$ 162	lean, 30% dieback	Preserve and protect
76	Cottonwood sp.	CW	6	1634	70%	P	30%	42%	\$ 144	dead top, trunk wound	Preserve and protect
77	Cottonwood sp.	CW	8	2672	70%	F+	50%	42%	\$ 393	2 stem, weak trunk	Preserve and protect
78	Cottonwood sp.	CW	7	2116	70%	F	45%	42%	\$ 280	tall, skinny crown, weak	Preserve and protect
79	Cottonwood sp.	CW	12	5638	70%	F-	40%	42%	\$ 663	dead top, weak trunk	Preserve and protect
1A	Northern red oak	NRO	19	\$ 22,477	80%	G+	75%	50%	\$ 6,743	Limited root space, short,round	Preserve and protect
2A	Silver maple	SVM	15	\$ 12,310	65%	F+	50%	50%	\$ 2,000	utilities, trunk scars, weak	Preserve and protect
3A	Flowering crabapple	FC	7	\$ 3,756	75%	F-	40%	47%	\$ 530	fireblight, lim. roots, poor pruning	Preserve and protect
4A	Flowering crabapple	FC	7	\$ 3,756	75%	F	45%	47%	\$ 596	fireblight, lim. roots, poor pruning	Preserve and protect
5A	Flowering crabapple	FC	8	\$ 4,781	75%	F	45%	47%	\$ 758	fireblight, lim. roots, poor pruning	Preserve and protect
6A	Flowering crabapple	FC	5	\$ 2,116	75%	F-	40%	47%	\$ 298	fireblight, lim. roots, poor pruning	Preserve and protect
7A	Flowering crabapple	FC	8	\$ 4,781	75%	F	45%	47%	\$ 758	fireblight, lim. roots, poor pruning	Preserve and protect
8A	Flowering crabapple	FC	15	\$ 15,781	75%	F+	50%	47%	\$ 2,781	Limited roots, low branched, no blight	Preserve and protect
Cumulative caliper inches									\$ -		
1035									\$ 92,823	Total Appraised Value	
Mitigation caliper inches									\$ 14,874	Mitigation appraised value	