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MEMORANDUM

Date: October 23, 2015

To: Joel Bush – Maryland State Highway Administration

From: Greg O'Hare, L.P.F., MD LTE #511, ISA Certified Arborist #MA-3158A, ISA TRAQ

CC: Joe Vervier – SHA
Ken Schmidt – Mahan-Rykiel
Rick Maddox – RK&K

Re: MD 28 Champion Tree Health Assessment Memorandum
Contract 2007-17F Task 21 (FMIS # – PCA – 23843)

SUMMARY

The Maryland State Highway Administration (SHA) requested a tree health assessment for two champion trees within SHA Right-of-Way (ROW) adjacent to Darnestown Rd (MD 28) in Darnestown, MD. Tree 1 (T1) is a 59" diameter at breast height (DBH) Kentucky Coffeetree (*Gymnocladus dioicus*) in poor overall condition with high overall and residual tree risk ratings. Tree 2 (T2) is a 79" DBH Northern Catalpa (*Catalpa speciosa*) in very poor overall condition with high overall and residual tree risk ratings. Both trees are recommended for removal.

INTRODUCTION

Greg O'Hare conducted a tree condition and risk assessment on two champion trees located along MD 28, at the request of the SHA Landscape Operations Division. The trees are located in front of 14001 Darnestown Rd. within the SHA right-of-way and adjacent to the Darnestown Heritage Park. SHA installed a split rail fence around the area to protect the trees from foot and vehicle traffic. SHA requested this tree assessment in response to concerns raised by local citizens regarding the potentially hazardous condition of the trees. The 59" Kentucky Coffeetree (T1) is a specimen tree that may be eligible for champion status, and the 79" Northern Catalpa (T2) is a former county and state champion tree (2011). The locations of the trees and potential targets are shown on the attached Field Survey Map.

METHODS

The health and condition of the two champion trees were assessed by an ISA Certified Arborist using current arboriculture industry standards and International Society of Arboriculture (ISA) best management practices. Our arborist is also ISA Tree Risk Assessment Qualified (TRAQ) and he conducted a tree risk assessment following those criteria. The following data were recorded for each tree:

- ✓ Location
- ✓ Photographs
- ✓ Species (common and scientific names)
- ✓ DBH – diameter at breast height
- ✓ Tree height & canopy spread

- ✓ Detailed health assessment of crown/branches, trunk, roots and root collar
- ✓ ISA basic tree risk assessment form

The tree locations for each tree were surveyed using a GPS equipped iPad, and are shown on the Field Survey Map. The diameter of each tree was measured using a DBH tape, and photos were taken to document tree condition. See attached photo log.

FINDINGS & RECOMMENDATIONS

TREE 1 (T1)

Tree 1 (T1) is a 59" DBH Kentucky Coffeetree (*Gymnocladus dioicus*) that is located just west of the driveway at 14001 Darnestown Road. T1 is approximately 95 feet tall, with a crown spread of 96 feet. Lightning protection was observed on the north side of the tree, as shown in the attached photo log. This tree is in poor overall condition and exhibiting crown decline due to age and significant decay in the trunk and co-dominant leaders. **A significant vertical crack (approximately 6' long and 1"-12" wide) has developed in the trunk just below the union of several co-dominant leaders, and the entire eastern portion (right side looking from MD 28) of the tree has split and is shifting toward the driveway and MD 28.** Response growth around the crack is minor. A large column of decay was confirmed in the trunk through visual assessment, probing with a 4' section of rebar, and sounding with a rubber mallet. **It is estimated that approximately 2/3 of the stem diameter is decayed and the decay likely extends into the trunk/root collar union.** Cavities and decay were also observed just above the co-dominant leader unions with the trunk, and on a large lead (16" diameter) hanging over MD 28. **There is significant loading on these defects due to the weight of the mature canopy.**

Targets are people, property, or activities that could be injured, damaged, or disrupted by a tree failure. Targets within close proximity of T1 include the traveling public on MD 28, residents/visitors in yards or driveway at 14001 and 13909 (including a school bus stop at the end of the driveway near 13909 Darnestown Rd.), powerlines on the southern side of MD 28, residence at 13920 Darnestown Rd., and the residence at 13909 Darnestown Rd. T1 was assigned a high overall tree risk rating due to significant defects with probable failure that would have severe consequences to human life and property. **The highest risk is associated with failure of the eastern portion of the tree that is within striking distance of MD 28 and the driveway at 14001 and 13909 that also functions as a school bus stop.** There is also moderate risk associated with failure of the western portion of the tree (left side looking from MD 28) and the decaying co-dominant lead over MD 28.

Tree 1 is recommended for removal due to high overall tree and residual risk to the traveling public and adjacent residents and their properties. Bracing of the trunk, cabling of the co-dominant leads, crown reduction to reduce loading, and fertilization are possible ($6,000-$10,000, with additional costs for monitoring and maintenance), but not recommended for T1 due to extensive trunk decay and declining overall health. Bracing and cabling can negatively affect the load dynamics of large mature trees, resulting in increased loading on the lower trunk and roots. In addition, overall tree health is not likely to improve dramatically with the application of bio-stimulants and/or fertilizer, in conjunction with crown reduction.

TREE 2 (T2)

Tree 2 (T2) is a 79" DBH Northern Catalpa (*Catalpa speciosa*) that is located west of T1, directly in front of 14001 Darnestown Rd, and adjacent to Darnestown Heritage Park. T2 is approximately 70 feet tall, with a crown spread of 84 feet. Lightning protection was observed on the east side of the tree, as shown in the attached photo log. **This tree is in very poor condition and is exhibiting major crown decline due to age and significant decay in the trunk and root collar.** Response growth is low, which is another indicator of overall decline in vigor. A major column of decay was confirmed in the trunk through visual assessment, probing with a 4' section of rebar, and sounding with a rubber mallet. **It is estimated that approximately 3/4 of the trunk diameter is decayed and the decay extends into the root collar.** Missing bark, decay, and dieback were also observed in the canopy. Four cables were installed in the canopy by others to provide structural support, but the function of this

hardware may be compromised due to decay and dieback. **There is significant loading on the defects described above due to the weight of the mature canopy.**

Targets within close proximity of T2 include the traveling public on MD 28, residents/visitors in the yard at 14001 Darnestown Rd., powerlines on the southern side of MD 28, and Darnestown Heritage Park users. T2 was assigned a high overall tree risk rating due to significant defects with probable failure that would have severe consequences to human life and property. **The highest risks are associated with failure of the entire tree or failure of the front half of the tree (closest to MD 28) that are within striking distance of MD 28 and the powerlines on the southern side of MD 28.** There is also moderate risk associated with failure of the co-dominant lead over MD 28 that has internal decay.

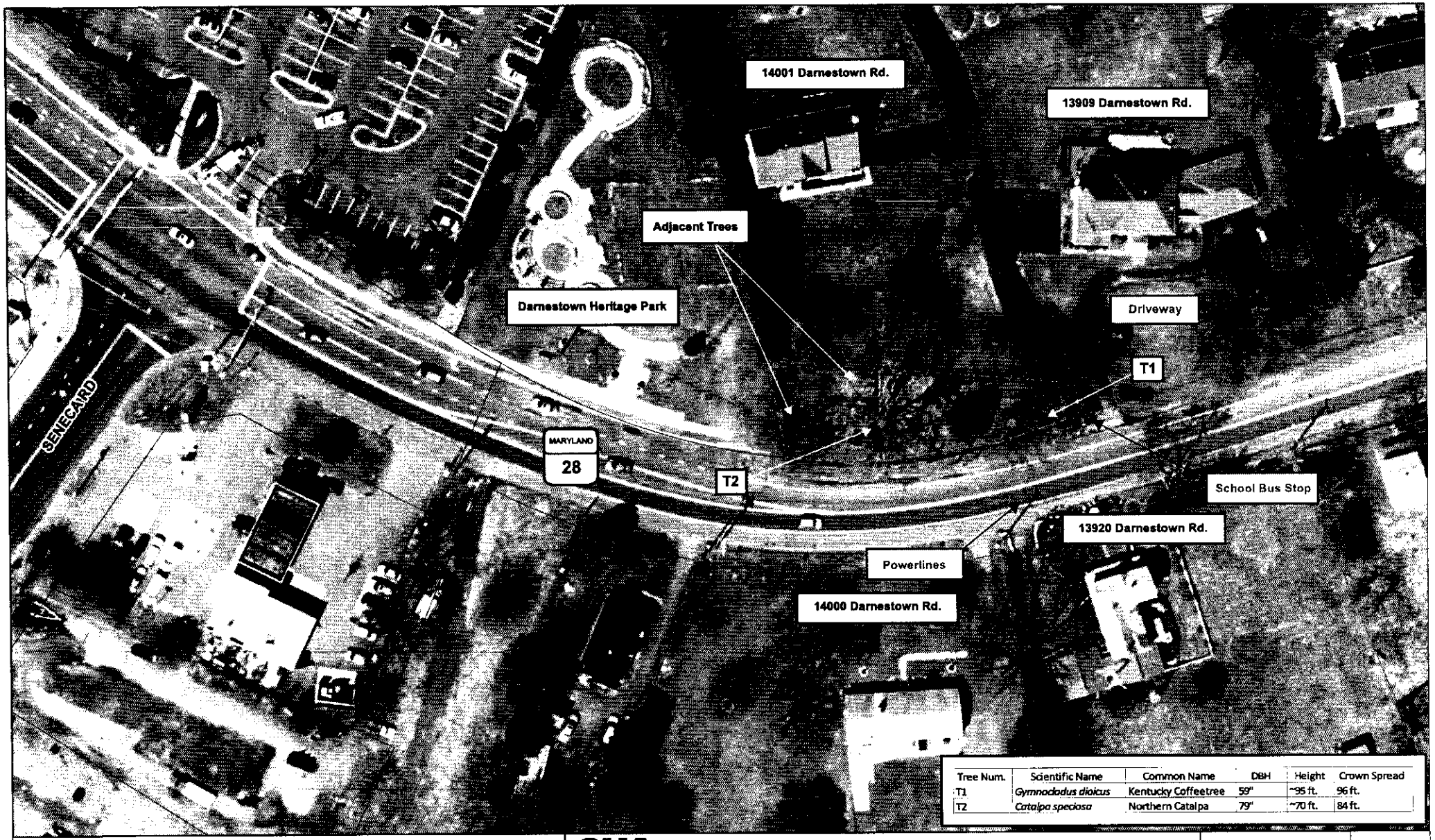
Tree 2 is recommended for removal due to high overall tree and residual risk to the traveling public and adjacent residents and their properties. Remedial activities for whole tree failure are not recommended for Tree 2 due to extensive trunk decay and declining overall health.

Attachments: Field Survey Map

Photo Log

ISA Basic Tree Risk Assessment Forms

Arborist Credentials



Tree Num.	Scientific Name	Common Name	DBH	Height	Crown Spread
T1	*Gymnocladus dioicus*	Kentucky Coffeetree	59"	~95 ft.	96 ft.
T2	*Catalpa speciosa*	Northern Catalpa	79"	~70 ft.	84 ft.

Champion Tree SHA Fence

SHA State Highway Administration

MD 28 CHAMPION TREE ASSESSMENT FIELD SURVEY - DARNESTOWN, MD OCTOBER 14th, 2015

RK K Responsive People | Creative Solutions

Scale
0 25 50
1" = 50'

N

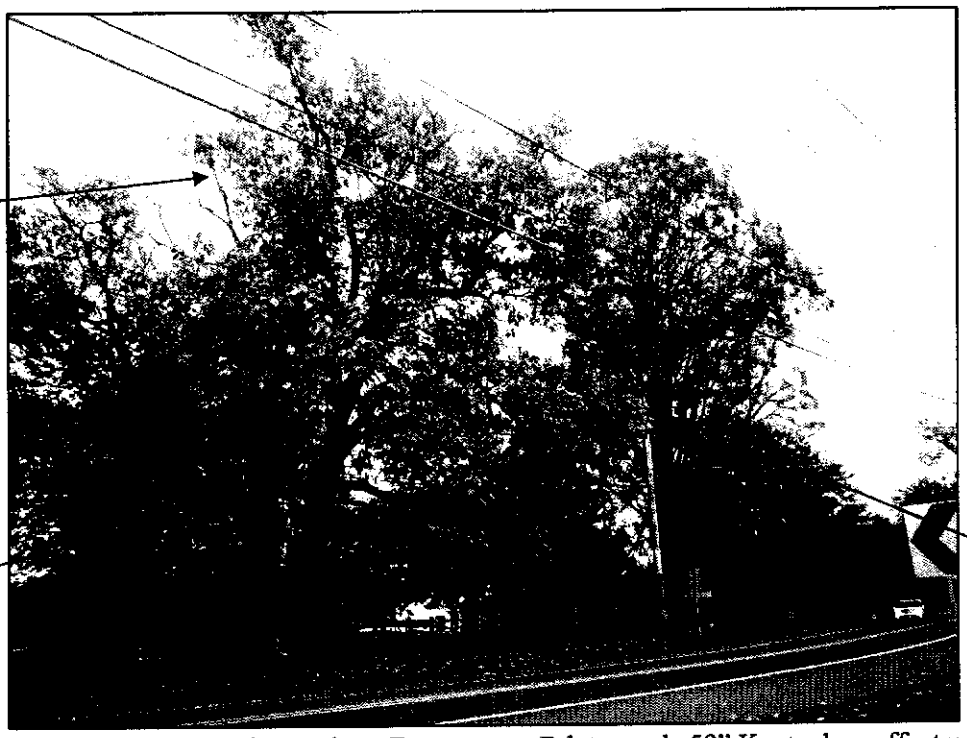


Photo 1. Facing northeast along Darnestown Rd. towards 59" Kentucky coffeetree (T1) and 79" northern catalpa tree (T2).

Photo 2. Facing north towards (T1) and residence at 13909 Darnestown Rd.

Photo 3. Facing west along Darnestown Rd. towards T1.

Photo 4. Facing south towards residence at 13920 Darnestown Rd. and school bus stop for neighborhood children

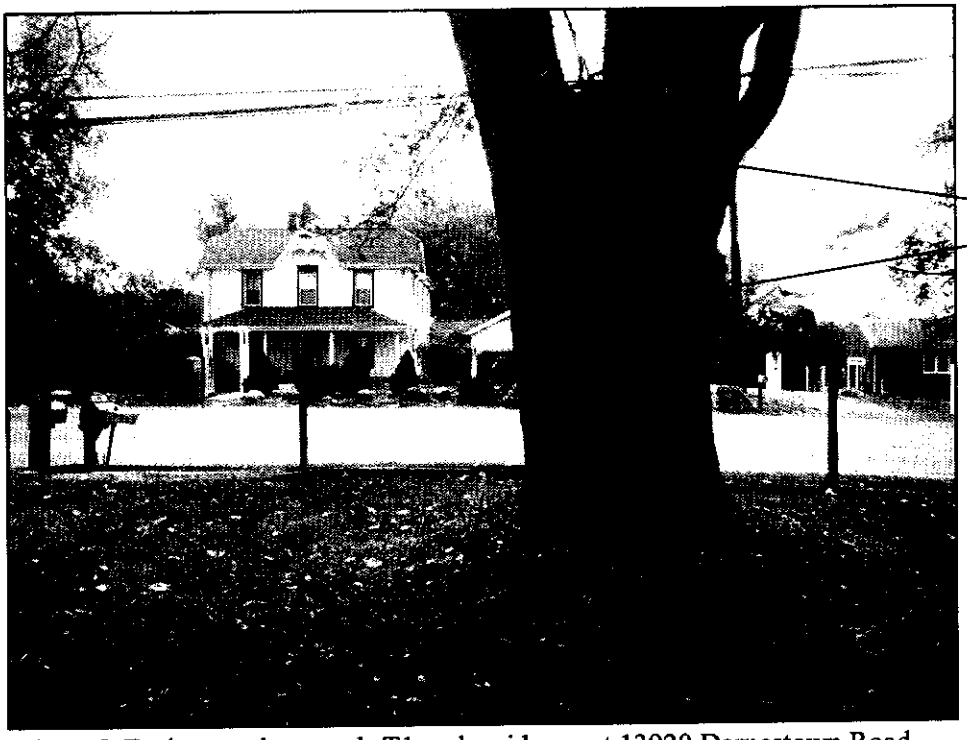


Photo 5. Facing south towards T1 and residence at 13920 Darnestown Road.

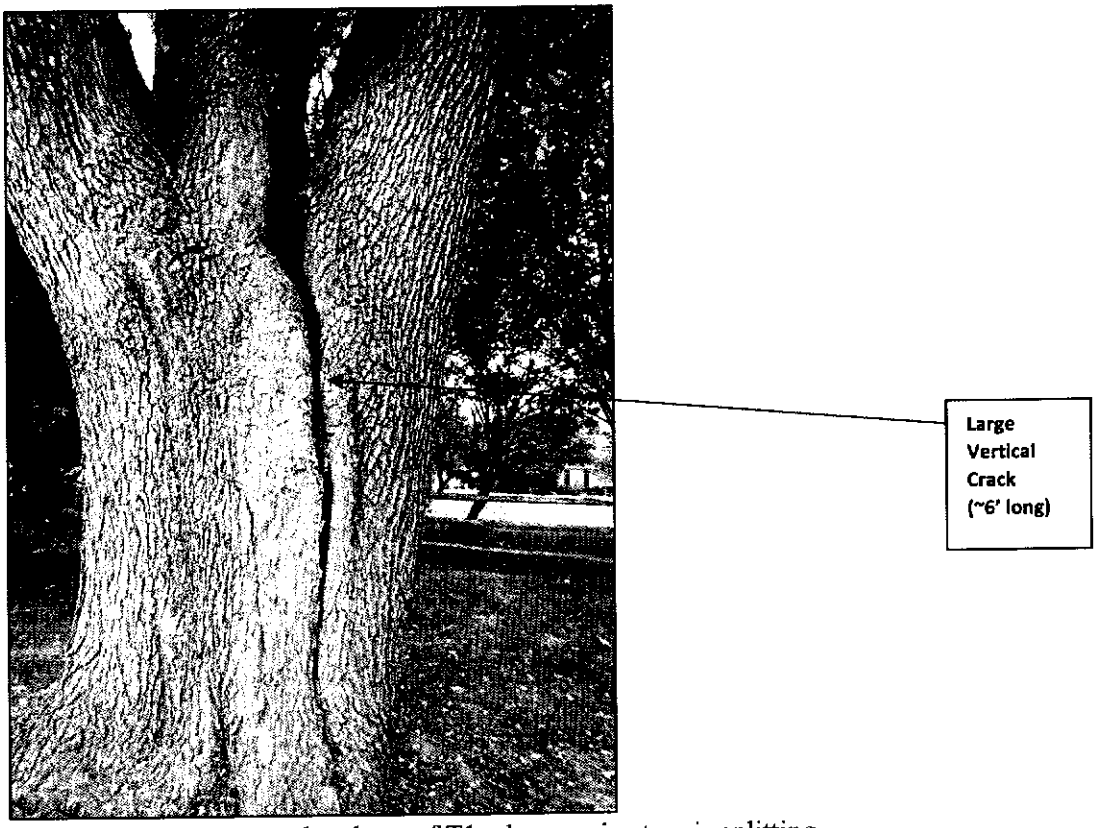


Photo 6. Facing north towards large crack at base of T1 where main stem is splitting.

Photo 7. Facing north side of T1 towards cavity, large split, and lightning protection.

Photo 8. South side of T1 canopy above Darnestown Rd.

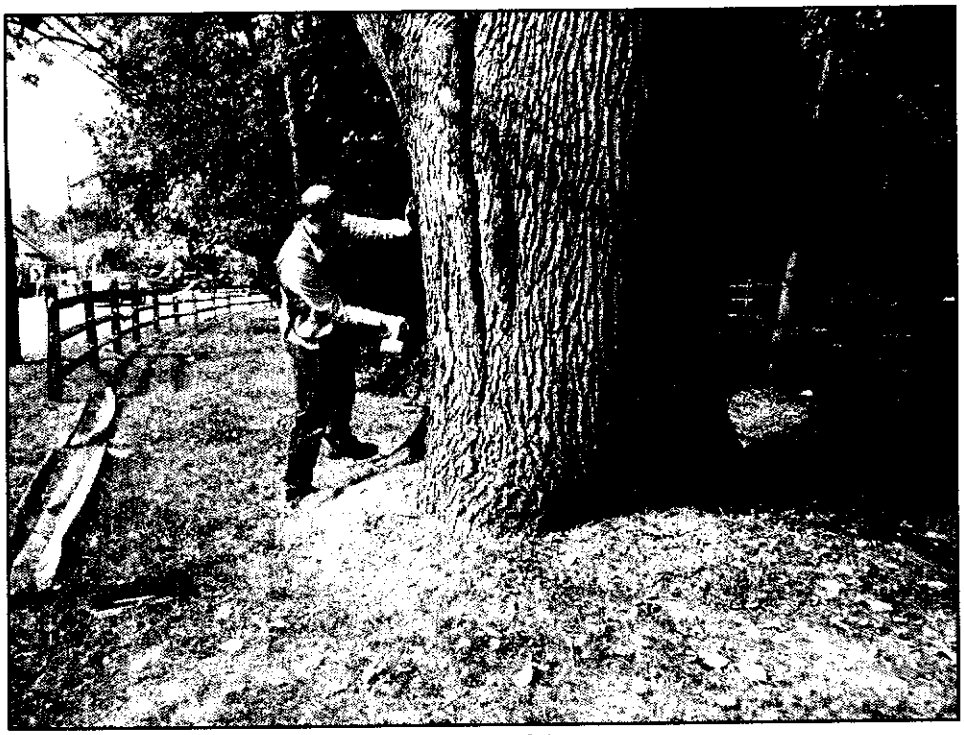


Photo 9. Sounding T1 to determine extent of decay.

Photo 10. Full length of rebar "probe" used to determine depth of cavities.

Photo 11. Determining depth of cavity on north side of T1.

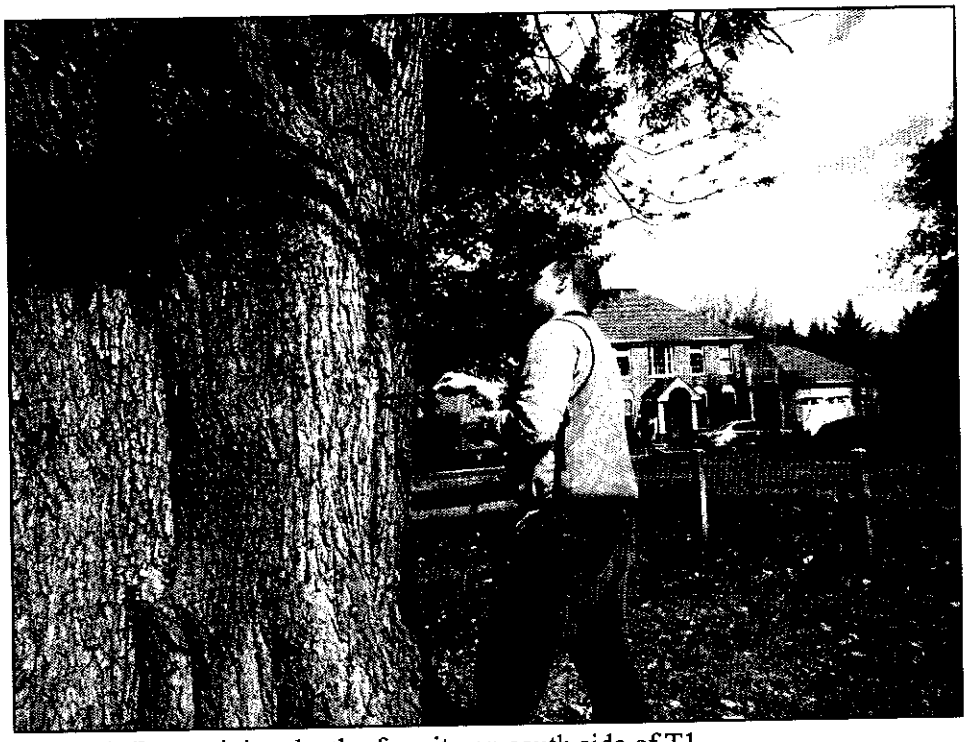


Photo 12. Determining depth of cavity on south side of T1.

Photo 13. Facing east towards 79" northern catalpa (T2).

Photo 14. Facing west towards crack and main stem decay at base of T2.

Photo 15. Close up of crack, main stem decay, and lightning protection at base of T2.

Photo 16. Facing east towards cavities, included and missing bark on T2.

Photo 17. Facing east towards missing bark/decay on the leader and root flare decay on T2.

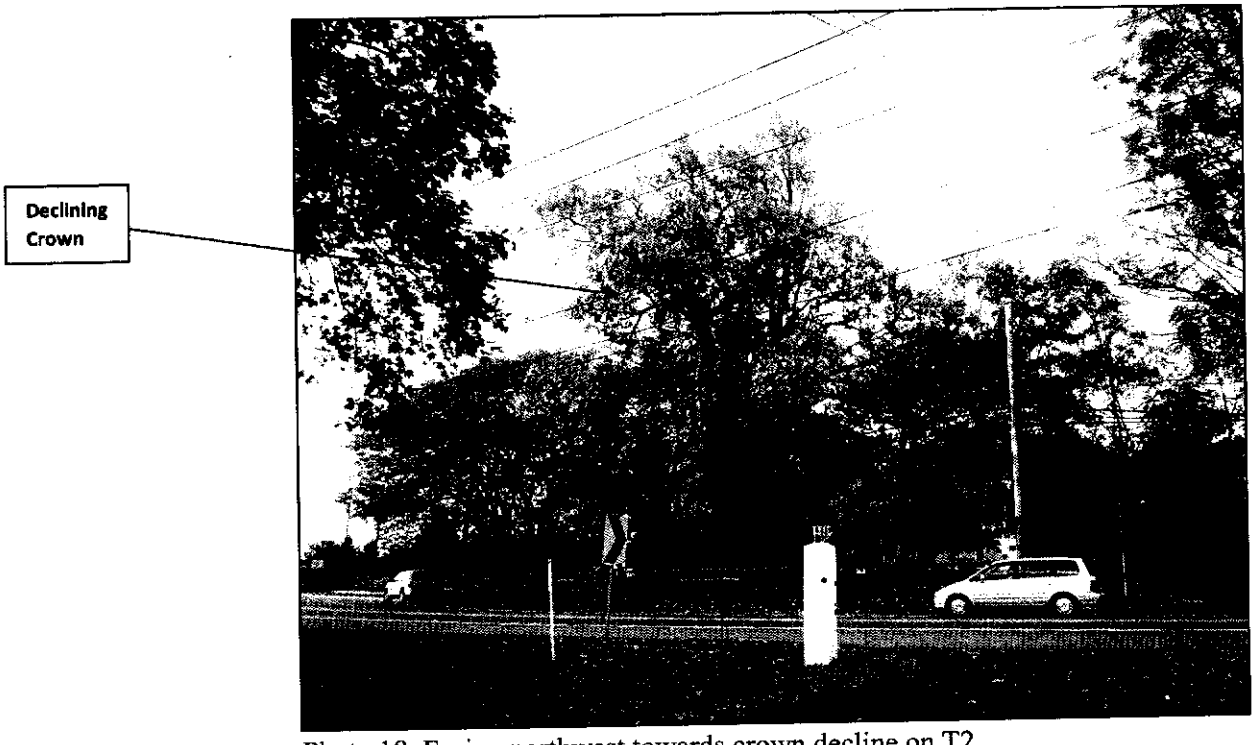


Photo 18. Facing northwest towards crown decline on T2.

Photo 19. Dieback in the canopy on the east side of T2.

Photo 20. Probing crack at base of T2 to determine depth of cavity inside.

Photo 22. Probing cavity on west side of T2 to determine depth of the cavity.

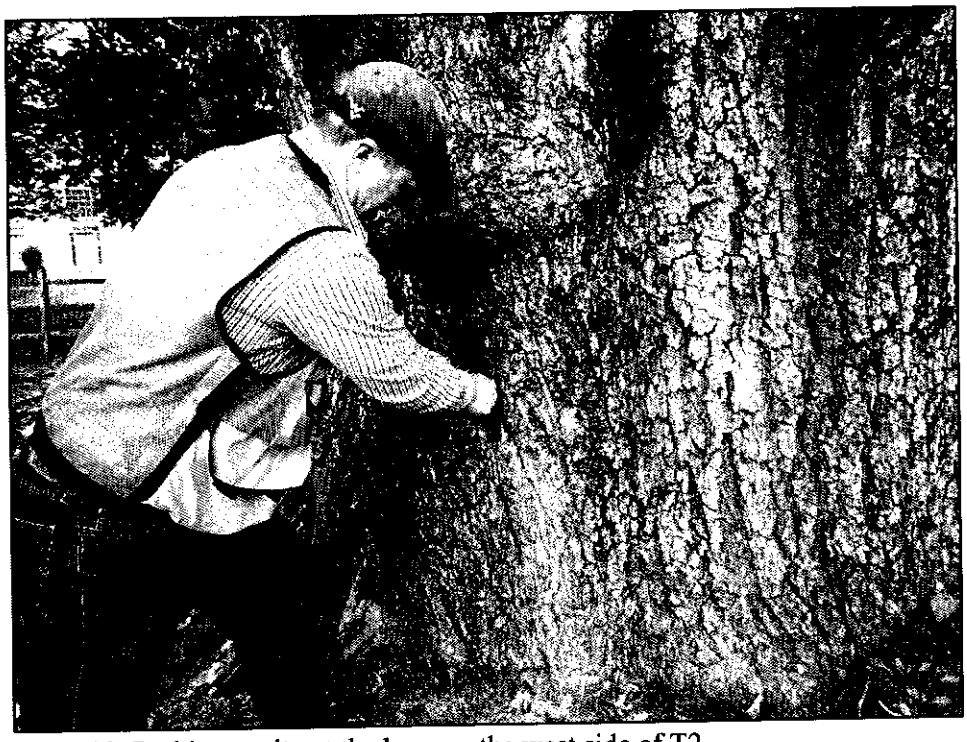


Photo 23. Probing cavity at the base on the west side of T2.

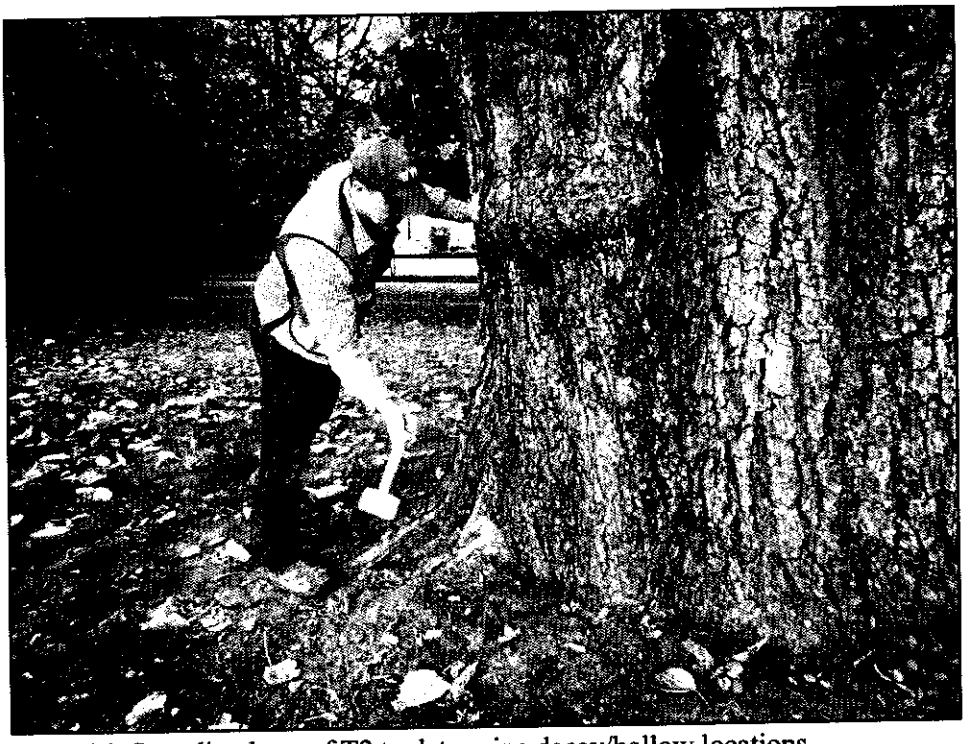


Photo 24. Sounding base of T2 to determine decay/hollow locations.

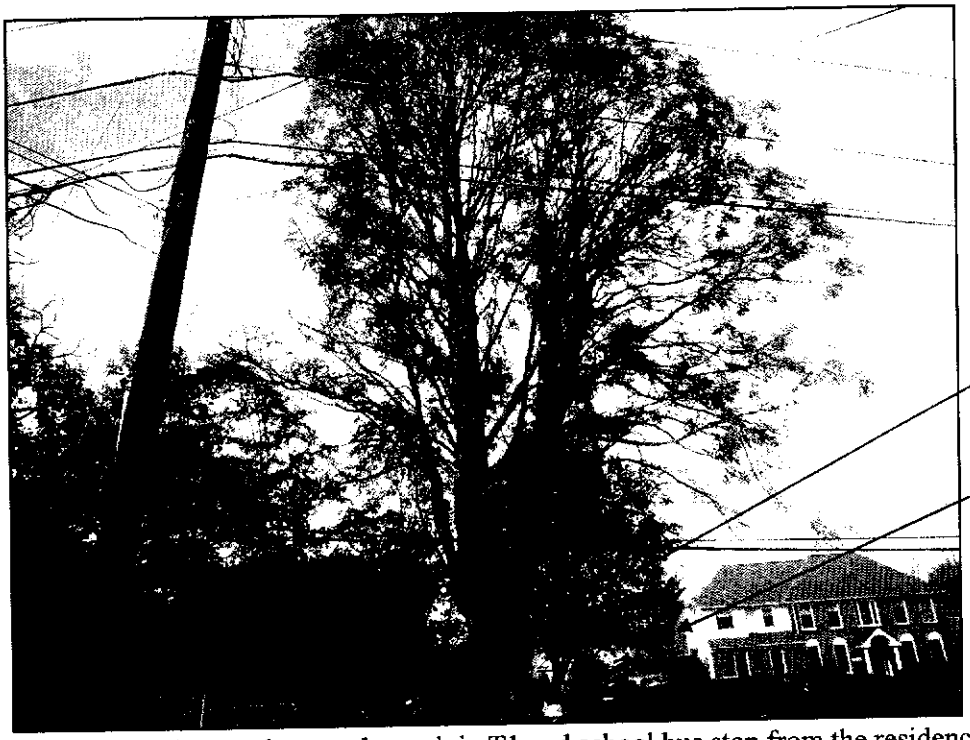


Photo 25. Facing north towards crack in T1 and school bus stop from the residence at 13920 Darnestown Rd.

ISA Basic Tree Risk Assessment Form

Client SHA Date 10/14/15 Time 10:45Am
Address/Tree location 14001 Darnestown Rd (MD 28) Tree no. 1 Sheet 1 of 2
Tree species Kentucky Coffee tree dbh 59" Height ~95' Crown spread dia. ~96'
Assessor(s) CPS Time frame 1 year Tools used mallet, rebar probe, d-tape, tangent height guide

Target Assessment

Target number	Target description	Target zone: Target within drip line	Target zone: Target within 1 x Ht.	Target zone: Target within 1.5 x Ht.	Occupancy rate (1 – rare, 2 – occasional, 3 – frequent, 4 – constant)	Practical to move target?	Restriction practical?
1	Vehicles on MD 28	✓			3	N	N
2	Powerlines on South side of MD 28		✓		4	N	N
3	Homeowners in yards or driveway (Bus stop) 14001 + 13909		✓		3	N	N
4	Residence @ 13920 Darnestown Rd		✓		4	N	N
5	Residence @ 13909 Darnestown Rd			✓	4	N	N

Site Factors

History of failures minor broken branches Topography Flat ☑ Slope ☐ 0-1 % Aspect W
Site changes None ☑ Grade change ☐ Site clearing ☐ Changed soil hydrology ☐ Root cuts ☐ Describe
Soil conditions Limited volume ☐ Saturated ☐ Shallow ☐ Compacted ☐ Pavement over roots ☑ 30 % Describe MD 28 + driveway
Prevailing wind direction W Common weather Strong winds ☑ Ice ☐ Snow ☐ Heavy rain ☑ Describe Strong storms more frequent in recent years

Tree Health and Species Profile

Vigor Low ☑ Normal ☐ High ☐ Foliage None (seasonal) ☐ None (dead) ☐ Normal 70 % Chlorotic ___ % Necrotic ___ %
Pests Abiotic Starting fall leaf drop + declining crown
Species failure profile Branches ☐ Trunk ☐ Roots ☐ Describe Species not prone to failure typically

Load Factors

Wind exposure Protected ☐ Partial ☑ Full ☐ Wind funneling ☐ Trees to west + north Relative crown size Small ☐ Medium ☐ Large ☑
Crown density Sparse ☑ Normal ☐ Dense ☐ Interior branches Few ☐ Normal ☑ Dense ☐ Vines/Mistletoe/Moss ☑ poison ivy
Recent or planned change in load factors Crown is showing decline

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

existing lightning protection

Unbalanced crown ☐ LCR 70-80 %
Dead twigs/branches ☑ 20 % overall Max. dia. 6-8"
Broken/Hangers Number N/A Max. dia. ___
Over-extended branches ☐
Pruning history
Crown cleaned ☑ Thinned ☐ Raised ☑
Reduced ☐ Topped ☐ Lion-tailed ☐
Flush cuts ☐ Other Roadway clearance
Cracks ☐ ___
Codominant ☑ Lots of co-doms
Weak attachments ☑ @ trunk
Previous branch failures ☐ ___
Dead/Missing bark ☑ Cankers/Galls/Burls ☐
Conks ☐
Lightning damage ☐
Included bark ☑
Cavity/Nest hole 15 % circ.
Similar branches present ☐
Sapwood damage/decay ☑
Heartwood decay ☑ large decay spot on lead over MD 28
Response growth evident, but low
Main concern(s) Numerous co-dominant leads with included bark and decay/cavity on crack @ attachment with trunk. Large decay area in lead over MD 28
Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☑ significant crown weight
Likelihood of failure Improbable ☐ Possible ☐ Probable ☑ Imminent ☐

— Trunk —

Dead/Missing bark ☑ Abnormal bark texture/color ☐
Codominant stems ☑ Included bark ☑ Cracks ☑
Sapwood damage/decay ☑ Cankers/Galls/Burls ☐ Sap ooze ☐
Lightning damage ☐ Heartwood decay ☑ Conks/Mushrooms ☐
Cavity/Nest hole 15 % circ. Depth 3' Poor taper ☐
Lean ___° Corrected? ___
Response growth minor response growth
Main concern(s) Signif decay w/ large trunk crack that is separating
Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☑
Likelihood of failure
Improbable ☐ Possible ☐ Probable ☑ Imminent ☐

— Roots and Root Collar —

Collar buried/Not visible ☐ Depth ___ Stem girdling ☐
Dead ☐ Decay ☑ Conks/Mushrooms ☐
Ooze ☐ Cavity ☐ ___% circ.
Cracks ☐ Cut/Damaged roots ☐ Distance from trunk ___
Root plate lifting ☐ Soil weakness ☐
Response growth Normal root collar visible
Main concern(s) Decay may be present @ base of trunk near root collar interface
Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☑
Likelihood of failure
Improbable ☐ Possible ☑ Probable ☐ Imminent ☐

Heartwood is significantly decayed/hollow. Approx 2/3 of trunk

Looking from MD 28

Risk Categorization

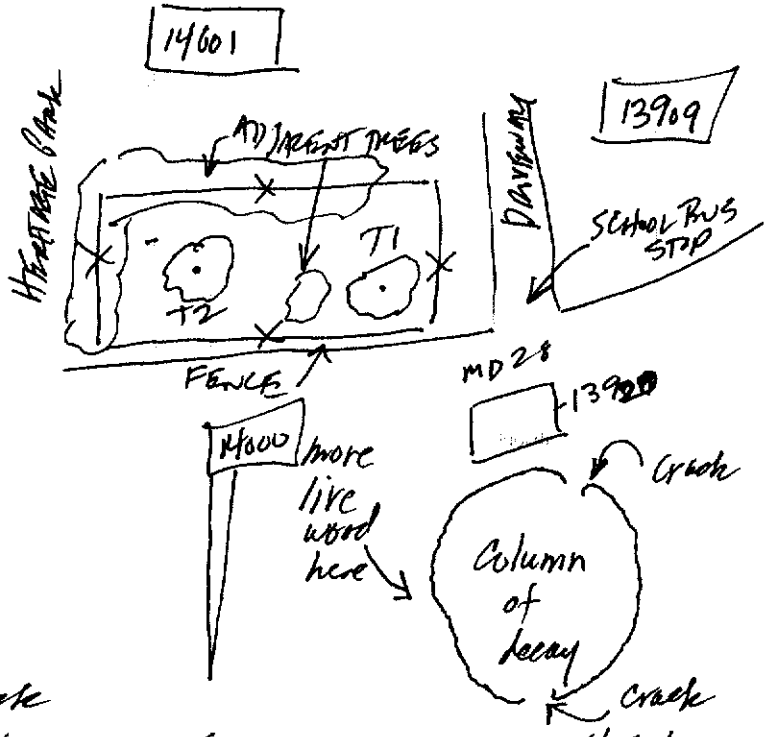
Condition number	Tree part	Conditions of concern	Part size	Fall distance	Target number	Target protection	Likelihood: Failure: Improbable	Failure: Possible	Failure: Probable	Failure: Imminent	Likelihood: Impact: Very low	Impact: Low	Impact: Medium	Impact: High	Failure & Impact (from Matrix 1): Unlikely	Somewhat	Likely	Very likely	Consequences: Negligible	Minor	Significant	Severe	Risk rating of part (from Matrix 2)
1	Right Side of Trunk	major crack in trunk	30"	40'	3	None			✓					✓			✓					✓	HIGH
			30"	30'	1	None			✓					✓			✓				✓		HIGH
			30"	120'	5	None			✓		✓				✓					✓			LOW
2	Left Side of Trunk	major crack in trunk	30"	20'	1	None		✓						✓		✓						✓	MOD
			30"	50'	2	None		✓						✓		✓					✓		MOD
			30"	80'	4	None		✓				✓			✓						✓		LOW
3	Co-Dom Stem Over MD 28	Decay in Lead	16"	20'	1	None		✓						✓		✓						✓	MOD
			16"	50'	2	None		✓						✓		✓					✓		MOD
			16"	80'	4	Powerlines		✓			✓				✓					✓			LOW
4	Co-Dom Leader Lead in Backside	Cavity in base of Lead	20"	40'	3	TREES		✓			✓				✓						✓		LOW
			20"	30'	1	Co-Doms		✓			✓				✓							✓	LOW

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impacting Target			
	Very low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low



Notes, explanations, descriptions: Major crack in the trunk with heartwood decay. Significant column of decay with significant loading from canopy weight. Crown decline is evident with load reaction wood around crack

Mitigation options: Bracing of trunk, cabling of canopy, crown reduction to reduce weight + fertilization are possible but not recommended due to extent of trunk decay + declining tree health. Removal is recommended for this high risk tree

Residual risk: HIGH

Residual risk:

Residual risk:

Residual risk:

Overall tree risk rating: Low ☐ Moderate ☐ High ☑ Extreme ☐

Work priority: 1 ☑ 2 ☐ 3 ☐ 4 ☐

Overall residual risk: Low ☐ Moderate ☐ High ☑ Extreme ☐

Recommended inspection interval: 6 months + after major storm events

Data ☑ Final ☐ Preliminary Advanced assessment needed ☑ No ☐ Yes-Type/Reason

Inspection limitations ☑ None ☐ Visibility ☐ Access ☐ Vines ☐ Root collar buried Describe

ISA Basic Tree Risk Assessment Form

Client SHA Date 10/14/15 Time 1:30PM
Address/Tree location 14001 Darnestown Rd (MD 28) Tree no. 2 Sheet 1 of 2
Tree species Northern Catalpa dbh 19" Height ~60 Crown spread dia. ~84'
Assessor(s) GRO Time frame 1 year Tools used mallet, rebar probe, d-tape, tangent height guide

Target Assessment

Target number	Target description	Target zone: Target within drip line	Target zone: Target within 1x Ht.	Target zone: Target within 1.5x Ht.	Occupancy rate (1 – rare, 2 – occasional, 3 – frequent, 4 – constant)	Practical to move target?	Restriction practical?
1	Vehicles on MD 28	✓			3	N	N
2	Homeowners in yard @ 14001 Darnestown Rd		✓		3	N	N
3	Powerlines on South side of MD 28		✓		4	N	N
4	People in park			✓	2	N	N

Site Factors

History of failures branch failures Topography Flat ☑ Slope ☐ 0-1 % Aspect W
Site changes None ☑ Grade change ☐ Site clearing ☐ Changed soil hydrology ☐ Root cuts ☐ Describe
Soil conditions Limited volume ☐ Saturated ☐ Shallow ☐ Compacted ☐ Pavement over roots ☑ 15% Describe MD 28 to the South
Prevailing wind direction W Common weather Strong winds ☑ Ice ☐ Snow ☐ Heavy rain ☑ Describe Strong storms have occurred frequently in recent years

Tree Health and Species Profile

Vigor Low ☑ Normal ☐ High ☐ Foliage None (seasonal) ☐ None (dead) ☐ Normal 50 % Chlorotic ___ % Necrotic 10 %
Pests Minor leaf damage (chewing + holes) Abiotic ↑ Fall leaf drop underway
Species failure profile Branches ☐ Trunk ☑ Roots ☐ Describe Trunk failure due to internal decay

Load Factors

Wind exposure Protected ☑ Partial ☑ Full ☐ Wind funneling ☐ Smaller trees adjacent Relative crown size Small ☐ Medium ☐ Large ☑
Crown density Sparse ☑ Normal ☐ Dense ☐ Interior branches Few ☐ Normal ☐ Dense ☑ Vines/Mistletoe/Moss ☑ minor poison ivy
Recent or planned change in load factors die back in canopy

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown ☑ LCR 50 %
Dead twigs/branches ☑ 40 % overall Max. dia. 8-10"
Broken/Hangers Number 3 Max. dia. 8"
Over-extended branches ☐
Pruning history
Crown cleaned ☑ Thinned ☐ Raised ☑
Reduced ☐ Topped ☐ Lion-tailed ☐
Flush cuts ☐ Other roadway clearance
Cracks ☑ Numerous cracks visible Lightning damage ☐ existing lightning protection
Codominant ☑ Codominant stems in canopy Included bark ☑
Weak attachments ☑ Several in canopy Cavity/Nest hole ___ % circ.
Previous branch failures ☑ Smaller Similar branches present ☑
Dead/Missing bark ☑ Cankers/Galls/Burls ☐ Sapwood damage/decay ☑
Conks ☐ Heartwood decay ☑
Response growth Low response growth observed
Main concern(s) Major crown decline with decay, cracks, and branch mortality evident in the canopy. Four cables already installed in canopy with questionable stability w/decay present
Load on defect N/A ☐ Minor ☐ Moderate ☑ Significant ☐
Likelihood of failure Improbable ☐ Possible ☑ Probable ☑ Imminent ☐ One limb is probable

— Trunk —

Dead/Missing bark ☑ Abnormal bark texture/color ☑
Codominant stems ☑ Included bark ☑ Cracks ☑
Sapwood damage/decay ☑ Cankers/Galls/Burls ☐ Sap ooze ☐
Lightning damage ☐ Heartwood decay ☑ Conks/Mushrooms ☐
Cavity/Nest hole 5 % circ. Depth 73' Poor taper ☐
Lean ___° Corrected? ___
Response growth Very minor visible on decay areas
Main concern(s) Trunk is hollow w/major internal decay. Root collar interface is decayed
Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☑
Likelihood of failure
Improbable ☐ Possible ☐ Probable ☑ Imminent ☐

— Roots and Root Collar —

Collar buried/Not visible ☐ Depth ___ Stem girdling ☐
Dead ☐ Decay ☑ Conks/Mushrooms ☐
Ooze ☐ Cavity ☑ 5 % circ.
Cracks ☑ Cut/Damaged roots ☑ Distance from trunk 2-5'
Root plate lifting ☐ Soil weakness ☐
Response growth Very Minor is evident
Main concern(s) Root decay @ base of hollow trunk
Load on defect N/A ☐ Minor ☐ Moderate ☐ Significant ☑
Likelihood of failure
Improbable ☐ Possible ☐ Probable ☑ Imminent ☐

(3/4) Significant heartwood + butt rot evident. Trunk hollow with More than 2/3 of trunk diameter is decayed Smoulder

Risk Categorization

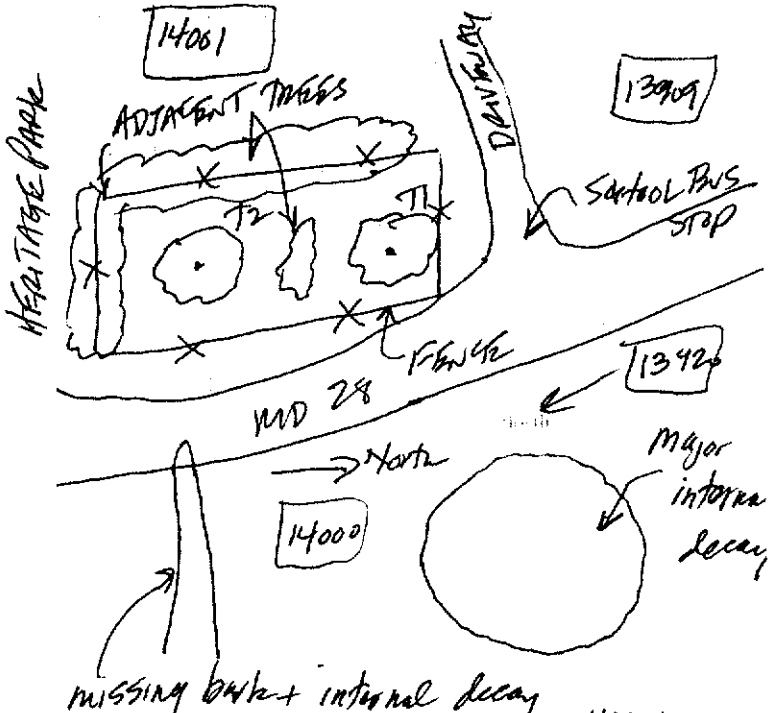
Condition number	Tree part	Conditions of concern	Part size	Fall distance	Target number	Target protection	Likelihood: Failure: Improbable	Failure: Possible	Failure: Probable	Failure: Imminent	Likelihood: Impact: Very low	Impact: Low	Impact: Medium	Impact: High	Failure & Impact (from Matrix 1): Unlikely	Somewhat	Likely	Very likely	Consequences: Negligible	Minor	Significant	Severe	Risk rating of part (from Matrix 2)
1	Whole Tree	Trunk + Root Decay, Hollow	79"	30'	1	None			✓					✓			✓					✓	HIGH
			79"	50'	2	Trees			✓			✓			✓							✓	LOW
			79"	50'	3	None			✓					✓			✓				✓		HIGH
2	Front Half of Tree	Hollow @ Base	40"	30'	1	None			✓					✓			✓					✓	HIGH
			40"	50'	3	None			✓					✓			✓				✓		HIGH
3	Back Half of Tree	Hollow @ Base + Major Decline	40"	50	2	Trees		✓				✓			✓							✓	LOW
			40"	50	4	Trees		✓			✓				✓						✓		LOW
4	Lean over MD 28	Signif Lean + Internal Decay @ Attachment	24"	25'	1	None		✓						✓		✓						✓	MOD
			24"	40'	3	None		✓						✓		✓					✓		MOD

Matrix 1. Likelihood matrix.

Likelihood of Failure	Likelihood of Impacting Target			
	Very low	Low	Medium	High
Imminent	Unlikely	Somewhat likely	Likely	Very likely
Probable	Unlikely	Unlikely	Somewhat likely	Likely
Possible	Unlikely	Unlikely	Unlikely	Somewhat likely
Improbable	Unlikely	Unlikely	Unlikely	Unlikely

Matrix 2. Risk rating matrix.

Likelihood of Failure & Impact	Consequences of Failure			
	Negligible	Minor	Significant	Severe
Very likely	Low	Moderate	High	Extreme
Likely	Low	Moderate	High	High
Somewhat likely	Low	Low	Moderate	Moderate
Unlikely	Low	Low	Low	Low



Notes, explanations, descriptions SIGNIFICANT DECAY IN TRUNK AND ROOT FLARE JUNCTION. FOUR CABLES HAVE BEEN INSTALLED BUT STABILITY IS QUESTIONABLE WITH DECAY IN CROWN + SIGNIFICANT CANOPY DIEBACK

Mitigation options MITIGATION IS NOT RECOMMENDED DUE TO SIGNIF INTERNAL STEM DECAY AND ROOT COLLAR DECAY WITH CROWN DECLINE. CATALPA IS SUSCEPTIBLE TO TRUNK FAILURE AND THIS HIGH RISK TREE IS RECOMMENDED FOR REMOVAL

Residual risk HIGH

Residual risk

Residual risk

Residual risk

Overall tree risk rating Low ☐ Moderate ☐ High ☑ Extreme ☐

Work priority 1 ☑ 2 ☐ 3 ☐ 4 ☐

Overall residual risk Low ☐ Moderate ☐ High ☑ Extreme ☐

Recommended inspection interval 6 months + after major storm events

Data ☑ Final ☐ Preliminary Advanced assessment needed ☑ No ☐ Yes-Type/Reason

Inspection limitations ☑ None ☐ Visibility ☐ Access ☐ Vines ☐ Root collar buried Describe

STATE OF MARYLAND
DLLR
DEPARTMENT OF LABOR, LICENSING AND REGULATION

LICENSE * REGISTRATION * CERTIFICATION * PERMIT

STATE OF MARYLAND

DEPARTMENT OF LABOR, LICENSING AND REGULATION

Martin O'Malley
Governor

Anthony G. Brown
Lt. Governor

Leonard J. Howie, III
Secretary

STATE BOARD OF FORESTERS

CERTIFIES THAT:

GREGORY RICHARD O'HARE

IS AN AUTHORIZED: 01 - FORESTER

LIC/REG/CERT	EXPIRATION	EFFECTIVE	CONTROL NO
658	11-15-2015	N/A	4462511

Signature of Bearer

Secretary DLLR

WHERE REQUIRED BY LAW THIS MUST BE CONSPICUOUSLY DISPLAYED IN OFFICE TO WHICH IT APPLIES

STATE OF MARYLAND
DEPARTMENT OF NATURAL RESOURCES
FOREST SERVICE

Certificate of Registration
as a
Licensed Tree Expert

This is to certify that

Mr. Gregory O'Hare
ROMMEL, KLEPPER AND KAHL, LLP
81 Mosher Street
Baltimore, MD 21217

having met the requirements in the Maryland Code is hereby licensed and qualified to practice as a tree expert and to engage in the business of the treatment and care of trees in the state of Maryland.

License **000511**

Issued this **Tenth** day of **January 2014**

This license expires December 31, 2015 and is renewable yearly thereafter upon payment of the proper fee, or revoked by the Department for non-compliance with the terms of the Tree Expert Law.

Steven W. Koehn
Director / State Forester

This certificate must be displayed in a conspicuous place.

INTERNATIONAL SOCIETY OF ARBORICULTURE

CERTIFIED ARBORIST™

Gregory R O'Hare

Having successfully completed the requirements set by the Arborist Certification Board of the International Society of Arboriculture, the above named is hereby recognized as an ISA Certified Arborist®

Jim Skiera, Executive Director
International Society of Arboriculture

Certification Board, Chair
International Society of Arboriculture

Certification Number	Certified Since	Expiration Date
MA-3158A	Jan 20, 2000	Jun 30, 2018

ISA QUALIFICATIONS

International Society of Arboriculture™
Tree Risk Assessment Qualification

Gregory R. O'Hare

Having successfully completed the requirements established by the Certification Board of the International Society of Arboriculture,™ the above named is hereby recognized as ISA Tree Risk Assessment Qualified.

Skip Kincaid, Certification Board Chair
International Society of Arboriculture

Jim Skiera, Executive Director
International Society of Arboriculture

August 21, 2013
Issue Date

August 21, 2018
Term of Validity End Date