



TOWN OF OCCOQUAN
Circa 1734 • Chartered 1804 • Incorporated 1874

314 Mill Street
PO BOX 195
Occoquan, VA 22125
(703) 491-1918
www.OccoquanVA.gov
info@occoquanva.gov

Occoquan Town Council
Regular Meeting
November 4, 2015 | 7:00 p.m.

1. **Call to Order**
2. **Pledge of Allegiance**
3. **Citizens' Time** - Members of the public may, for three minutes, present for the purpose of directing attention to or requesting action on matters not included on the prepared agenda. These matters shall be referred to the appropriate town official(s) for investigation and report. Citizens may address issues as they come up on the agenda if advance notice is given during 'Citizens' Time'.
4. **Approval of Minutes**
 - a. October 6, 2015 Regular Meeting Minutes
 - b. October 20, 2015 Work Session Meeting Minutes
5. **Councilmember Reports**
6. **Mayor's Report**
7. **Staff Reports**
 - a. Town Attorney
 - b. Town Engineer
 - c. Building Official
 - d. Town Manager
 - e. Chief of Police
 - f. Boards and Commissions
8. **Regular Business**
 - a. Request to Approve Proposal to Remove Hazardous Trees from Occoquan Heights Development's Resource Protection Area (RPA)
 - b. Request to Approve Bond Release Request a One-Year Maintenance Agreement with Elm Street Development (Occoquan Heights)

Portions of this meeting may be held in closed session pursuant to the Virginia Freedom of Information Act.
A copy of this agenda with supporting documents is available online at www.occoquanva.gov.

- c. Request to Award Snow Removal Contract for FY 2016 and Set Not-To-Exceed Amount
- d. Request to Approve a Not-To-Exceed Amount for the Town's Annual Holiday Party
- e. Request to Approve a Not-To-Exceed Amount for Installation and Removal of Lighted Decorations on Dominion Poles
- f. Request for Council Action on Business Guild of Occoquan Request for Funding
- g. Request to Approve Town Council 2016 Meeting Schedule

9. Closed Session

10. Adjournment



OCCOQUAN TOWN COUNCIL
Regular Meeting Minutes - DRAFT
Town Hall - 314 Mill Street, Occoquan, VA 22125
Tuesday, October 6, 2015
7:00 p.m.

Present: Mayor Liz Quist, Vice Mayor Pat Sivigny, Joe McGuire, Jim Drakes, J. Matthew Dawson, and Tyler Brown
Staff: Kirstyn Jovanovich, Town Manager; Chief Sheldon Levi, Town Sergeant/Chief of Police; Martin Crim, Town Attorney; Bruce Reece, Town Engineer; Abigail Breeding, Town Treasurer; Krista Forcier, Craftshow Director; Greg Holcomb, Town Clerk.

Absent: None

1. Call to Order

Mayor Quist called the meeting to order at 7:00 p.m.

2. Pledge of Allegiance

3. Citizen's Time

Ms. Brenda Seefeldt, 309 Commerce St., noted that she has been a resident for 18 years and this year's Fall Arts and Crafts Show was wonderful. She stated that the turnaround time of moving vendors out of town after the show was fast, volunteer involvement was the best she has seen, and she heard a lot of comments regarding how well the show went.

Ms. Carol Turner, 106 Poplar Lane, stated that there has been an increase in water in her backyard coming from the Woodlee Terrace Apartments retaining wall project. She asked if there was an erosion issue or new drainage going in.

Mr. Reese responded that he has not seen the results from the rainfall, however, the Assistant Zoning Administrator has and they believe it is a temporary problem. He further noted that by Town Code the developer is not required to submit a drainage plan due to the size of the project. He stated that the Town will continue to monitor the project.

4. Approval of Minutes

It was moved to approve the minutes of the September 1, 2015, Regular Meeting and Public Hearing minutes and the September 15, 2015 Special Meeting minutes.

A motion was made by Councilmember McGuire, seconded by Councilmember Brown that the Action Item be approved. The motion carried by poll vote, unanimous.

5. Council Member Reports

None

6. Mayor's Report

Mayor Quist reported that she had recently attended the second meeting of the Convention and Visitors Bureau (CVB) Visitors Center Task Force, . She asked Ms. Jovanovich to place the topic on the October work session to have a further discussion with the Council. She noted that the CVB had identified funding to keep the Visitors Center operational through February 2016.

7. Staff Reports

Report of Town Attorney: Mr. Crim, Town Attorney, reported on the following:

1. He noted that he will be presenting at a conference regarding the Town of Gilbert Supreme Court Case regarding restrictive signage. He noted that he will be using the Town's interim ordinance as an example and a template for other communities to use.

Report of Town Engineer: Mr. Reese, Town Engineer, reported on the following activities:

1. Land Disturbance Report:
 - a. Occoquan Heights
 - b. Vistas of Occoquan
2. Working with the Department of Conservation and Recreation (DCR) to update the Town Code regarding the floodplain ordinance to bring the Town into further compliance with FEMA.
3. We may have our Chesapeake Bay ordinance reviewed. This happens every few years.
4. Have a meeting scheduled with the Occoquan Heights Developer regarding bond release and other issues with the project.
5. River Mill Park Update:
 - a. Phase I is ongoing. The utility trench is complete, the temporary utility pole has been installed.
 - b. The foundation work will begin soon and the wall is being reviewed.
 - c. There are ongoing conversations with Fairfax Water regarding Phase II. There are issues with the weight limits on the site and a structural engineer is reviewing the situation. We should have a report by the end of the month to determine if a pickup truck can be driven on the site for periodic maintenance.

Mayor Quist asked Mr. Reese asked if there would be any preparation work needed by staff to assist with the Chesapeake Bay ordinance review. He stated he would not be surprised if activities came up due to the review.

Mayor Quist also asked if there were concerns regarding the pavilion weight on the site as well. He stated that the review covers all weight loads on the site.

Vice Mayor Sivigny asked if he believed there would be any push back from Occoquan Heights regarding the bond release. Mr. Reese stated that there will likely be some, however, they will want to get off bond and finish the project.

Report of Town Manager: Ms. Kirstyn Jovanovich, Town Manager, submitted a manager's report and held further discussion on the following:

1. Ms. Jovanovich added that the conversation regarding load limits on the new park site also includes the restriction of construction equipment needed to construct the pavilion facility on the site.
2. Discussed the canoe and kayak ramp grant. She noted that it is an 80/20 matching grant that Town has to pay up front and be reimbursed. She stated that the total project cost would be about \$145,000. She said there could be additional funding to cover costs over the grant amount and DCR staff would assist with identifying and securing those additional funds; however, that is not guaranteed.

Mr. McGuire asked how much the Town is receiving for the project. Ms. Jovanovich responded that the grant is for \$100,000. He further asked about the study that has held up the grant up to this point. Ms. Jovanovich stated that the grantor is stating we need the study and the Corp of Engineers states we do not. However, we are starting from the beginning and will provide the grantor with the proper information. She further noted that the Town has a permit for the project but it expires at the end of this year. She asked the Council if they wanted to pursue the project. There were no objections.

3. Ms. Jovanovich requested \$125 in travel reimbursement for Ms. Abigail Breeding, Town Treasurer to attend the VaCO/ VML conference in Richmond regarding the investment pool.

It was moved to approve a not to exceed amount of \$125 for Ms. Breeding to attend the conference.

A motion was made by Councilmember Drakes, seconded by Councilman McGuire. The motion carried by poll vote, unanimous.

4. Vice Mayor Sivigny asked if the residents at Gaslight Landing were satisfied with their meeting with her.

Ms. Jovanovich stated that she believed they were disappointed with a few things, but understood the issues. She further stated that she offered to assist them with the ARB process once they determine the type of signage they want to install. She stated that there was some disappointment regarding the fencing they wished to place across the entrance from the development on to the boardwalk, which is an easement for Town maintenance and emergency response. Mr. Crim stated that this was an ingress/egress easement and they can limit public access to the development, but not to the boardwalk.

Mayor Quist asked if the Town is responsible to limit access to their development. Mr. Crim stated we would only have to respond to a request for police if someone calls because of trespassing. Mayor Sivigny also asked if we have addressed their concern with the end of the boardwalk ending abruptly and having people climbing over the railing to jump onto private property. Mr. Crim stated we can address that as a police matter. He further stated that appropriate signage may be required, such as a no exit beyond this point.

Ms. Jovanovich also stated that the residents were concerned with lighting as well. She stated that she is working on a lighting solution.

Report of Chief of Police: Chief Levi presented his September 2015 report.

Report of Building Official: Mr. Barbeau submitted his September 2015 report.

Architectural Review Board Report: Councilmember Dawson, provided a report on the ARB:

1. There were three signs approved and one exterior elevation approval.

Planning Commission Report: No report.

8. Regular Business

8 A. Request to Accept FYE 2014 Financial Audit

It was moved to accept the FYE 2014 Financial Audit.

A motion was made by Councilmember McGuire, seconded by Vice Mayor Sivigny. The motion carried, unanimous.

8 B. Request to Adopt an Ordinance Amending Chapter 62 of the Town Code Relating to Snow Emergency Routes.

It was moved to adopt an ordinance to amend Chapter 62 of the Town Code relating to snow emergency routes. It was further moved to approve the purchase of Snow Emergency Route Signage in an amount not to exceed \$1,500.

A motion was made by Councilmember Drakes, seconded by Councilmember Dawson. The motion carried, unanimous.

8 C. Request to Award Contract for a Document Management System

It was moved to approve the purchase of Treneo Software as the Town's document management system for an amount not to exceed \$6,000.

A motion was made by Councilmember McGuire, seconded by Vice Mayor Sivigny. The motion carried by poll vote, unanimous.

8 D. Request to Award Contract for Town Hall Roof Replacement

It was moved to award a contract not to exceed \$15,000 for Town Hall Roof Replacement from FY 2016 CIP - Public Works. It was further moved to allow the Town Manager to choose the contractor.

A motion was made by Vice Mayor Sivigny, seconded by Councilmember Drakes. The motion carried by poll vote, unanimous.

9. Adjournment

The meeting was adjourned at 8:11 p.m.

Greg Holcomb
Town Clerk

DRAFT



OCCOQUAN TOWN COUNCIL
Work Session Minutes - DRAFT
Town Hall - 314 Mill Street, Occoquan, VA 22125
Tuesday, October 20, 2015
7:00 p.m.

Present: Mayor Liz Quist, Vice Mayor Pat Sivigny, Tyler Brown, Jim Drakes, J. Matthew Dawson and Joe McGuire.
Staff: Kirstyn Jovanovich, Town Manager; Greg Holcomb, Town Clerk; Sheldon Levi, Chief of Police/Town Sergeant

Absent: None

1. Call to Order

Mayor Quist called the meeting to order at 7:00 p.m.

2. Regular Items

A. Visitor Center Status Update

Mayor Quist reported to Council on the two meetings the Convention and Visitor's Bureau (CVB) task force has held. She stated that the meetings did not have agendas and no minutes were taken for the first meeting. She noted that there did not seem to be a willingness of CVB taskforce members to work with the Town's representatives. Due to these occurrences, Mayor Quist advised the Council that they needed to start looking at the long term prospects of the Visitor's Center. She stated that the center is funded through February 2016 by the CVB. She believes we can absorb contractual costs that the center has, which amount to around \$2,300. Mayor Quist further stated that at the last meeting the task force sent the CVB President back to the board to see if they could find the additional \$8,000 needed to keep the Visitor's Center fully open seven days a week for the remainder of the fiscal year.

Mayor Quist stated that she will be attending the October 26, 2015 meeting of Discover Prince William and Manassas to discuss the issue further.

Councilmember McGuire believes the Town should reach out to other County Supervisors to discuss the issue further. He noted that they need to be informed when Discover Prince William submits their budget request to the county that the Visitor's Center is not part of that request.

Councilmember Brown discussed a recent trip he took. He stated that the visitor's center he visited had a gift shop and did hotel bookings to bring in revenue for the center. He thought this was a good idea to research for our center.

Councilmember Drakes asked Mayor Quist if she believed that taskforce members see the Visitor's Center as an "Occoquan Visitors Center" as opposed to a regional center. Mayor Quist responded that they do believe it only benefits Occoquan and is only used

for the restrooms. Mr. Drakes asked the Council if they thought there could be a higher value to the property other than a Visitor's Center.

Vice Mayor Sivigny was concerned about adding additional staff duties to Town staff to manage the project should the Town take over the responsibility of the Visitors Center long-term.

Mayor Quist stated that she would keep the Council informed on the status of the Visitor's Center.

B. Public Safety Priorities- Continued from September 15, 2015

Ms. Jovanovich began the conversation by presenting information that she and Chief Levi compiled at the request of Town Council. She asked Council to provide her with direction on public safety priorities.

The Council discussed what they believed were issues in Town. They agreed that traffic control and enforcement, protection of public property, late night disturbances and night and weekend patrols were the top issues.

There was further discussion on what could be done to increase patrolling. They discussed hiring administrative staff to open up more time for Chief Levi to patrol. In addition, they discussed the benefits of hiring off duty police officers during important events and on nights and weekends. Chief Levi and Ms. Jovanovich stated that current grant funding could be used for these activities.

In summary, the Council agreed by consensus to hiring off duty police to assist in night and weekend patrolling. They agreed that they would like to see time spent on traffic control and enforcement, and protection of public property.

Councilmember Brown asked about the status of implementing body cameras the Chief.

Chief Levi stated that he is working with Prince William County Police to have Occoquan included as part of their body camera program.

3. Adjournment

The meeting adjourned at 8:04 p.m.

Greg Holcomb
Town Clerk



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 J. Matthew Dawson
 Jim Drakes
 Joe McGuire

TOWN MANAGER
 Kirstyn Barr Jovanovich

BUILDING OFFICIAL
 Joseph E. Barbeau, Jr.

OCTOBER 2015 REPORT TO THE TOWN COUNCIL BUILDING OFFICIAL REPORT

PERMITS ISSUED

No permits Issued.

CERTIFICATES OF OCCUPANCY ISSUED

October 1, 2015 - Issued Permanent Certificate of Occupancy to Good Day Hair Salon (308 Mill Street) to close out all permits for this project.

INSPECTIONS

Date	Activity
Oct. 3, 2015	Performed Final Inspection for the deck installed at 1447 Occoquan Heights. The work passed inspection, and the permit is closed.
Oct. 7, 2015	Walk thru with owner's representative at Bar J Rest., to discuss accessibility issues discovered during demolition work, and proposed options relating to these issues.
Oct. 12, 2015	Performed footing excavation inspections with Project Engineer at the retaining wall project at Woodlee Terrace, 12525 Gordon Boulevard. This work is progressing well and the inspection was passed.
Oct. 12, 2015	Performed Final Inspections for the work to renovate the Master Bathroom at 449 Fortress Ave. This work was approved and the permits were closed.
Oct. 14, 2015	Performed Plumbing Inspection for the addition of a Water Service to the bathrooms being constructed at 380 Mill St. This work was approved.
Oct. 19, 2015	Performed Footing Inspections at the retaining wall project at Woodlee Terrace, 12525 Gordon Boulevard. This work is progressing well and the inspection passed.
Oct. 19, 2015	Performed Inspection for the Footings being constructed at 380 Mill St. This work was approved.
Oct. 22, 2015	Performed Deck Footing Inspection at 1431 Occoquan Hgts. Ct., This work was approved.
Oct. 22, 2015	Footing Inspections at the retaining wall project at Woodlee Terrace, 12525 Gordon Boulevard. This work is progressing well and the inspection passed.
Oct. 29, 2015	Performed Final Deck Inspection at 1431 Occoquan Heights Ct.; work was approved.

DOCUMENT REVIEW

No documents are currently under review.

ACTIONS

No new actions are underway at this time.

RECOMMENDATIONS

No recommendations at this time.

OTHER

None.

End of Report, submitted on October 29, 2015.



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TOWN MANAGER
Kirstyn Barr Jovanovich

Town Manager's Report Town Council Meeting - November 4, 2015

Delinquencies

Meals Tax Delinquencies: Pink Bicycle (August and September), Occoquan Inn (August and September), Wolfe & Beene (August and September) and Riverside Coffee and Mini Mart (September). Continuing to work through VFW meals tax issue.

E-Newsletter

Established e-newsletter for the business community, as well as a general e-newsletter for anyone interested in Town activities. The public can subscribe to both lists from the Town's website at www.occoquanva.gov. This will not replace the monthly hard copy newsletter.

Discover Prince William

Met with representatives from sales and marketing with Discover Prince William. Discussed options to ensure website is up-to-date with business information and activities, as well as ensuring communication between the Town and Discover PW.

Attended the CVB Board Meeting on October 26, 2015. Requested CVB FY2017 budget submission to Prince William County be provided to the Town.

Farmers Market

Met with Jean Janssen of SmartMarkets to discuss implementing a farmers market within the town beginning in the spring of 2016. Discussed preliminary plans and potential partners; follow up to occur after January 1, 2016.

Canoe/Kayak Ramp

Continuing to research permitting process. Sent communication to DCR representative regarding next steps; awaiting response.

VDOT Washington Street Sidewalk Project

The VDOT Washington Street sidewalk project is expected to be completed within the next two weeks.

Tree Lighting

The tree lighting ceremony will be held on November 20, 2015 at 8 p.m. following the Guild's Open House event from 4 p.m. to 8 p.m. The Polka Dot Divas have donated decorations for the tree and Virginia Lawn Service is donating its services to assist the town in hanging the lights and decorations on the tree.

Document Management

Town Clerk has begun to work with Treeno to develop the Town's document management system. Once the system has been set up, staff will need to identify additional resource needs to begin migrating documents into the system.

Town Hall Roof

The Town has contracted with Sunshine Contracting to replace the Town Hall roof. Staff is working to schedule the work.

FOTO Cleanup

Participated in annual FOTO Cleanup Day on October 17, 2015.

Leadership Prince William

Attended Leadership Prince William session on October 15, 2015. The session's focus was on local history and government. Began work on class project. Next session is November 12, 2015.

WinterFest - December 12, 2015

Participating on the 2015 Santa's Lake Ridge Parade committee and coordinating the Town's participation as part of WinterFest on December 12, which includes the parade at 11 a.m., a Holiday Market at Tackett's Mill from 12 p.m. to 4 p.m., shopping and dining in Historic Occoquan from 4 p.m. to 7 p.m. and the Second Saturday Art Walk at the Workhouse Art Center from 6 p.m. to 9 p.m. In addition, fireworks will be on display from Prince William Marina and viewable from the town and the Occoquan Regional Park. The Town is coordinating with businesses, OWL, Historic Occoquan and other partners to bring in strolling carolers, safe fire pits, historic demonstrations and musicians. More information will be forthcoming.

-END-



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Joe McGuire

Chief of Police; Town Sgt.
Sheldon E. Levi

October Report to the Town Council - 11/04/2015

- Responded to a merchant report of a pair of shoplifters in Town. I went to the business they were in and saw them. I waited outside the business for them to exit, at which time I was able to get their ID. No actual shoplifting took place, so there was no detention.
- Attended an Emergency Operations storm planning meeting to ensure preparations were in place for the Nor'easter and potential hurricane that was predicted to come through our area.
- Worked the night of the storms. Storm drains that typically cause problems were cleaned out prior to the start of the heavy rains, and there were no issues to report.
- Dispatched to the Service Authority pump station for an unlocked gate. Upon arrival I discovered the gate wide open. SA had workers there that day, and the building was secured. I secured the gate and cleared.
- I have been on Occoquan Heights Court on several occasions for Fire Lane violations; resulting in parking tickets being issued. We are able to issue parking tickets for Fire Lane violations on private property, but no other parking violations without HOA approval.
- Had complaints of a fox running around in the area of Mill Street near the River Mill Park. I was able to locate the fox, and it was walking in the area of the park and Fairfax Water. The fox, while appearing to be mangy, did not exhibit any behavior that would lead one to believe it was rabid, and it did not appear to have any disabling injuries. PWC sent an officer as well, but we concluded there was no danger to the public and we just let it disappear into the woods on its own. It has since been seen several other times.
- Responded to a merchant complaint of solicitors being on Mill Street. I was able to locate them (2), verify their ID, and advised them of the solicitation ordinances in Town. They were told they had to leave the Town immediately, and they complied.
- Responded to a violent domestic dispute on Dara Drive. I responded because the report was there was an active fight between several individuals and I would be able to get there first. The combatants had separated by the time I arrived. PWC, once on the scene, handled the domestic. Charges are pending for unlawful entry and assault.

- Attempted Suicide; on the afternoon of 10/17/2015 I was dispatched to an attempted suicide, initially sending me to the foot bridge. The individual was in fact on the Rte. 123 Bridge. Upon arrival there was an individual threatening to jump in the river. I was able to intercede and get the individual away from the jersey wall, and keep them from jumping until additional help arrived. The individual was taken into custody and eventually committed to a mental health facility. The individual came to Town Hall later that week to thank me for my assistance and compassion during the incident.
- At my own expense and time I attended the National Shomrim Society and International Association of Chiefs of Police (IACP) annual conventions in Chicago. These conventions provided training and networking opportunities.



TOWN OF OCCOQUAN
TOWN COUNCIL MEETING
Agenda Communication

8. Regular Business	Meeting Date: November 4, 2015
8 A: Request to Approve Proposal to Remove Hazardous Trees from Occoquan Heights' Resource Protection Area (RPA)	

Explanation and Summary:

In December of 2013 and in May of 2015, the Town contracted with an arborist to review the health and quality of several trees located within the Occoquan Heights Resource Protection Area (RPA) and provide a report to the Town of Occoquan.

On June 11, 2015, the Town Manager sent a letter to Elm Street Development to request a plan of action to address trees that were located within the RPA and identified as hazardous by the arborist. In addition to the Town's contracted arborist, Elm Street Development hired an arborist to review the health and quality of the trees in the RPA.

The Town Manager, Town Engineer and Joe Jacobs of Elm Street Development met in October to discuss the tree situation and next steps. As a result of this meeting and based on the arborist reports provided by the Town and Elm Street Development, Mr. Jacobs has provided a plan to cut down and leave in place five trees (T-4, T-6, T-12, T-13, and T-19 as identified on the arborist's map) identified as being hazardous with potential impact to property or life.

In addition, within the report provided by Elm Street Development, the arborist details the need for the RPA area to be maintained in order to ensure its health and safety. Maintenance of the RPA will be the responsibility of the Occoquan Heights Homeowner's Association (HOA).

Engineer's Recommendation: Recommend approval.

Town Attorney's Recommendation: Recommend approval.

Town Manager's Recommendation: Recommend approval.

Cost and Financing: N/A

Account Number: N/A

Proposed/Suggested Motion:

"I move to approve Elm Street Development's plan to cut down and leave in place five trees (T-4, T-6, T-12, T-13, and T-19) within the RPA area on the Occoquan Heights Development."

OR

Other action Council deems appropriate.

Attachments: (4)

1. Arborist Map - Tree Identification/Location
2. Letter to Elm Street Development, 6/11/2015
3. Wetland Studies and Solutions Arborist Report (7/15/2015) - Elm Street Development Arborist Report
4. TNT Environmental Arborist Report (5/28/2015 & 12/23/2013) - Town of Occoquan Arborist Reports



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TOWN MANAGER
Kirstyn Barr Jovanovich

June 11, 2015

Elm Street Development Inc.
Mr. Joseph Jacobs, Vice President
1355 Beverly Road, Suite 200
McLean, VA 22101

Dear Mr. Jacobs,

In December 2013, the Town contracted a Certified Arborist to perform an evaluation that focused on 22 trees located within and immediately adjacent to a mapped Resource Protection Area (RPA) on the Occoquan Heights property. The purpose of this work was to evaluate the health and condition of the trees within this area as the Town was concerned with the state of the trees and their potential impact on the development and neighboring homes. During the December inspection, the arborist stated that in general, most of the trees within the specified area were in poor and/or fair condition, with several dead trees located throughout.

Since that time, the Town has expressed its concerns to you regarding the condition of the trees and has requested that you as the property owner and project developer take action to remove the hazardous trees.

On May 27, 2015, the certified arborist conducted a follow up site visit to assess the current condition of the trees within and adjacent to the RPA on the property. During this evaluation, the arborist noted that four of the trees identified in the original review had been removed and one tree has fallen and remains within the area. In addition, the arborist states that most of the trees located within the area remain in poor and/or fair condition, with several dead trees located throughout.

In addition, the report states that clearing and grading for the installation of utility lines on the site occurred very close to the trunks of several trees. It is unknown if root pruning occurred and if so, whether or not it was performed under the supervision of a Certified Arborist as required on Sheet 24 of the site plan.

Please provide a hazardous tree removal and replacement plan and proposed timeline to remedy the issue of hazardous trees existing on the Occoquan Heights property within 14 days of the date of this letter. In addition, please provide information on whether or not root pruning was performed and if so, that it was done under the supervision of a Certified Arborist as required on Sheet 24 of the site plan.

Mr. Joseph Jacobs
June 11, 2015
Page 2

Please note that the Town Code requires under Chapter 46, Section 143, Tree Protection, that trees four caliper inches or larger that are removed, must be replaced by appropriate native vegetation and/or appropriate native trees. Please identify the variety of native tree and/or vegetation that will replace removed trees as part of the replacement plan.

For your information, I have enclosed the report prepared by TNT Environmental dated May 28, 2015. The report details the location and condition of the trees that have been identified as hazardous.

If a removal and replacement plan and timeline is not received by the Town within the above requested time frame, the Town will follow the procedures outlined in Chapter 30, Section 30-1, Dangerous Conditions, to remedy the hazardous situation.

The above referenced code sections are available online at www.occoquanva.gov.

Please let me know if you have any questions. Thank you for your prompt attention to this matter.

Sincerely,



Kirstyn Barr Jovanovich
Town Manager

Enclosure (1)

cc: The Honorable Mayor and Town Council
Martin Crim, Town Attorney
Ned Marshall, Zoning Administrator
Bruce Reese, Town Engineer



MEMORANDUM

TO: Joseph Jacobs- Elm Street Development Inc.

FROM: Chris Cowles, Senior Urban Forestry Consultant

CC: Mark Headly- WSSI, Ben Rosner- WSSI, Cary Hulse, WSSI

RE: Tree Risk Assessment Summary Report – Occoquan Heights
WSSI #21814.01-F

DATE: July 15, 2015; revised July 22, 2015

At your request Wetland Studies and Solutions Inc., (WSSI) conducted a site assessment of several trees in question at the Occoquan Heights project in and around the Resource Protection Area (RPA) on July 7, 2015. The purpose of the assessment was to thoroughly assess, document, and assign risk factors to each tree for its propensity to fail structurally with potential to cause damage, based upon our knowledge of the tree and site conditions at the time of the evaluation¹. Secondly a comment on the invasives and long-term health of the RPA is included.

The tree locations were depicted on site documents prepared by christopher consultants, ltd., dated January 17, 2012 with revisions July 2, 2012 and entitled: "Existing Conditions". Since that time some trees have been removed (#1, 2, 7, & 8) and one (#18) has fallen in place. A total of 17 trees were included, all numbered per the aforementioned plan for reference.

Methodology-

A level 2 basic visual assessment was performed on this property. The methodology used for this assessment is from the Tree Risk Assessment Manual (TRAQ) with the forms for documentation, published by the International Society of Arboriculture (ISA) 2013. Copies of the field forms are attached at the back of this report as Appendix A. In addition representative photographs of the trees were taken and are included in Exhibit B.

The process of a visual assessment considers the following elements for a complete assessment for both health and structural factors:

- Site conditions affecting health and structural integrity
- Roots and root flare
- Trunk
- Scaffold (primary) limbs
- Branching and twigs
- Foliage (if present)

Summary and Recommendations-

Our recommendations are summarized as follows:

- Of the 17 standing trees, five are recommended for Removal including two for Priority Removal.
- Six are recommended to remain as is.
- Four are recommended to allow the owner to choose to retain or remove as they are likely to fail at some future point, but there is no recognizable target.
- Two are recommended to monitor regularly or remove.

A summary table of findings and recommendations is provided as Exhibit A for a quick reference and summary. Refer to the attached ISA Tree Risk Assessment field forms (Attachment A) for back up information from the field.

Alien Invasives and Long Term Health of the RPA-

As mentioned in the prior arborist's report several species of invasive vines and shrubs are heavily concentrated on the ground and in the trees here. This is cause for long term concern for two reasons: One is the mass of vines within the top or crown of trees (especially forest grown, narrow crowned trees) which more readily catches the brunt of wind storms, ice, snow, and rain thus increasing its "sail potential" and likelihood of breakage or failure. Secondly, the thick carpet of vines on the ground subdue much natural regeneration of native forbes, vines, shrubs, and tree seedlings as well decrease the vigor of small and medium sized trees. A long term healthy forest has all these types of natives growing together. This is made more difficult to succeed in developing communities due to the fragmentation of remnant forest that increases the light availability allowing rapid growth and reproduction of invasives and the lack of shade cover which helps out compete the invasive species. A quick review of young trees (which become the future dominant trees) only found about half a dozen 1"-6" trees such as tulip poplar, hackberry, and red maples. In order to begin on the road to a healthier and "safer" forest the following are recommended for your consideration: identify and protect any young native species in the area; mechanical (hand tools) and targeted herbicide spray for invasives 2-3 times per growing season; apply wood chip mulch after a season of invasive control; planting a few native shrubs and trees to increase future canopy and incline the area to a visual asset rather than a liability.

Adjacent forested areas, especially the edges, do contain populations of similar invasive plants. The level of invasives in the adjacent areas are probably not as high as in small areas of remnant forest, such as this one. In areas that have an abundance of sunlight, the situation is exacerbated. Since there is an area of maintained turf between the adjacent forest and this RPA, the spread from one area to another is somewhat limited. However, "nature does find a way", and in time, the invasive species will likely spread to adjacent areas of suitable habitat. It is likely that, if the adjacent areas are left untreated, the invasive species will eventually spread from neighboring areas into the RPA.

Joseph Jacobs
Tree Risk Assessment
July 15, 2015
WSSI #21814.01-F
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The enhancement of wildlife diversity is found to increase when more natural forest conditions are allowed to persist. For instance, instead of mowed turf and manicured trees, simply allowing felled trees to remain on the ground and decay naturally is common practice as long as they are free from highly invasive insects or diseases. Logs cut between four and six foot lengths and left to decay, allows the logs to lay flat on the ground and not to seem intrusive or an impediment to walking through the area. Branches can either be chipped as mulch and put back into the area or cut up into small piles or spread out, creating additional habitat. This approach should be acceptable, as long as the treatment is aesthetically acceptable.

Feel free to contact our office should you have further questions.

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ⁱ Arborist's Disclaimer:

This assessment was performed from only a visual, non-invasive, inspection of each tree from ground level. No sub-surface or aerial inspections were performed at this time. Every effort was made to thoroughly inspect each tree. However, trees are often very large objects and some defects, particularly decay, can and do remain unseen, hidden from sight. As trees are living biology every tree will grow and fail someday. Trees are always changing, normally very slowly, but can change very quickly due to environmental or man induced trauma or stress. As such the health and structural condition can and does change as soon the assessment is completed. The only way to make every trees totally safe is to remove all trees. To live with trees is to live with some inherent risk.

TREE RISK ASSESSMENT SUMMARY

TREE NO.	DIAM. (@4.5')	SPECIES	HEALTH / VIGOR	STRUCTURE / DEFECTS	TARGET	RISK	CONCERNS/ COMMENT	RECOMMENDATION (Monitor, Remove, Remain)
3	17	Red Maple	Fair	Fair	Townhouse/ Deck	Low	Long term washout of cut roots.	Monitor every 6 months or remove.
4	18	Red Maple	Poor	Fair- Poor	Townhouse/ Deck	Moderate	Lean and cambium damage will bring wood decay to trunk over time.	Remove
5	21	Tulip Poplar	Poor	Poor	Storm Drain Easement- possible landscape worker	Low	Top gone- Over time tree will decline.	Monitor annually
6	16	Red Maple	Poor	Poor	Townhouse/ Deck	High	Excessive lean and dead cambium on top.	Priority Removal
9	24	Red Maple	Good	Good	RPA	Low	None	Remain
10	22	Tulip Poplar	Good	Good	Townhouse/ Deck	Low	None	Remain
11	17	Tulip Poplar	Fair	Fair	RPA	Low	None	Remain
12	15	Black Cherry	Poor	Poor	Townhouse/ Deck	High	Top decline + adjacent utility excavation- roots cut.	Priority Removal
13	15	Black Cherry	Poor	Poor	Townhouse/ Deck	Moderate	Small deadwood, decline, + adjacent utility excavation- roots cut.	Removal
14	9	Red Maple	Fair	Fair	Storm Drain Easement- possible landscape worker	Low	None	Remain
15	24	DEAD	DEAD	DEAD	SD Easement, Rear yard.	Low	High potential for failure- low risk due to lack of target.	Allow to fail or remove.
16	34	Sycamore	Fair	Fair	SWM Area- landscape worker.	Low	None	Remain
17	13	Sour Cherry	Fair	Fair	None	Low	None	Remain
19	28	Ash	Poor	Poor	Townhouse/ Deck	Moderate	Limited life + adjacent utility excavation- roots cut.	Remove
20	14	Ash	Poor	Poor	None	Low	Limited life.	Remain or remove
21	15	Box Elder	Poor	Poor	None	Low	Limited life- heavy vines.	Remain or remove
22	12	Box Elder	Poor	Poor	None	Low	Limited life- heavy vines.	Remain or remove

EXHIBIT B



T- 3 Red Maple adjacent townhomes- healthy with roots severed by SD excavation.



T-4,6 Red Maples- both with initial trunk decline and excessive lean toward town homes.



T-4,6- Close up showing scaly bark on trunk indicating cambial die-off and limited life span.

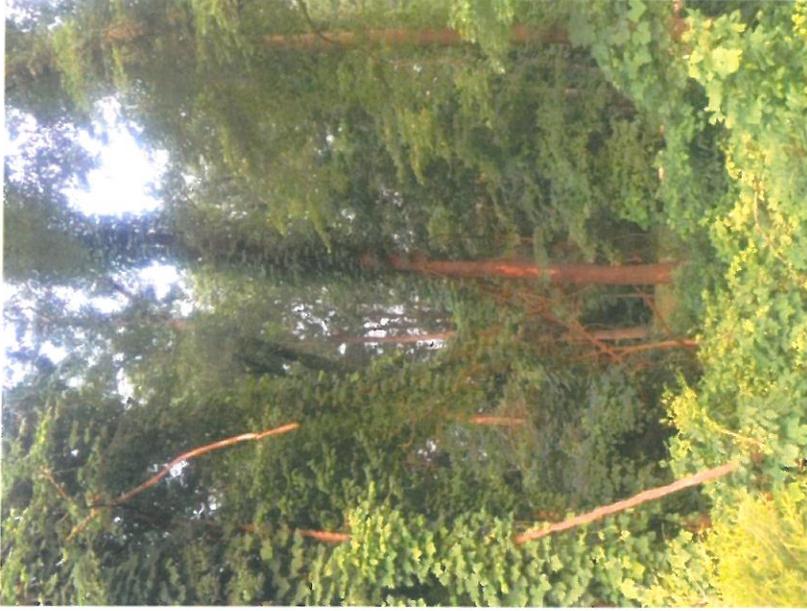
EXHIBIT B



T-5 Tulip Poplar- top gone, limited life, not adjacent town homes.



T-12, 19- Red Maples- decline, limited life.



T-15- Dead with top gone. Center of RPA.

LOW

ISA Basic Tree Risk Assessment Form

Client ELM STREET DEN. Date 7-7-2015 Time 3:00PM
 Address/Tree location OCCOQUAN HEIGHTS, VA Tree no. T-3 Sheet 1 of 1
 Tree species RED MAPLE dbh 15" 17" Height 45' Crown spread dia. 25'
 Assessor(s) C COWLES Time frame _____ Tools used D-TAPE, PROBE

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x ht.	Target within 1.5 x ht.			
1	<u>Townhouse, Rear deck ADJACENT SITE</u>	<u>Y</u>	<u>Y</u>	<u>Y</u>	<u>4</u>	<u>N</u>	<u>N</u>
2							
3							
4							

Site Factors

History of failures ADJACENT DEAD TREES Topography Flat Slope 6-8 % Aspect E
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe STORM DRAIN 7.5' IS
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots 50 % Describe _____
 Prevailing wind direction NW Common weather Strong winds Ice Snow Heavy rain Describe MODERATE Tree sheltered by ADJ. BLDGS + TREES
 Tree Health and Species Profile
 Vigor Low Normal High Foliage None (seasonal) None (dead) Normal 90 % Chlorotic _____ % Necrotic _____ %
 Pests N/D Abiotic PROR UTILITY LINE 10' from TRUNK
 Species failure profile Branches Trunk Roots Describe _____

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss
 Recent or planned change in load factors NA

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 90 %
 Dead twigs/branches <5 % overall Max. dia. 2
 Broken/Hangers Number 0 Max. dia. _____
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other _____
 Main concern(s) See below "ROOTS"
 Cracks Lightning damage
 Codominant Included bark
 Weak attachments Cavity/Nest hole _____ % circ.
 Previous branch failures 3" SPLIT Similar branches present
 Dead/Missing bark Cankers/Galls/Burls Sapwood damage/decay
 Conks Heartwood decay
 Response growth _____
 Load on defect N/A Minor Moderate Significant
 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 _____ % circ. Depth _____ Poor taper
 Lean _____ ° Corrected? _____
 Response growth _____
 Main concern(s) _____
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

— Roots and Root Collar —

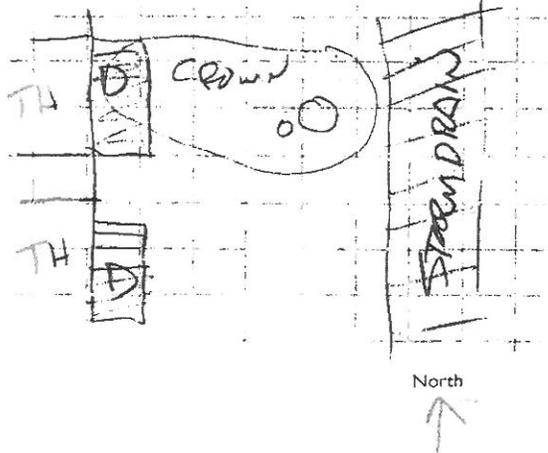
Collar buried/Not visible Depth _____ Stem girdling
 Dead Decay Conks/Mushrooms
 Ooze Cavity _____ % circ.
 Cracks Cut/Damaged roots Distance from trunk 6-8'
 Root plate lifting Soil weakness
 Response growth _____
 Main concern(s) MINOR EROSION DOWN SLOPE AT EDGE OF UTILITY WORK
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

Risk Categorization

Condition number	Tree part	Conditions of concern	Part size	Fall distance	Target number	Target protection	Likelihood								Consequences				Risk rating of part (from Matrix 2)
							Failure				Impact				Failure & Impact (from Matrix 1)				
							Improbable	Possible	Probable	Imminent	Very low	Low	Medium	High	Unlikely	Somewhat	Likely	Very likely	
1	ALL	MINOR ROOT WASH DUE TO EROSION	18' 45"	1	NA	X					X	X				X	Low		
2	BRANCHES		6-10' 30"	1	NA	X				X		X			X	Low			
3																			
4																			

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 _____

Mitigation options MAINTAIN SOIL FROM WASHING OFF ROOT AREA Residual risk _____
 Residual risk _____
 Residual risk _____
 Residual risk _____

Overall tree risk rating Low Moderate High Extreme
 Overall residual risk Low Moderate High Extreme
 Work priority 1 2 3 4
 Recommended inspection interval 1-2 years
 Data Final Preliminary Advanced assessment needed No Yes-Type/Reason _____
 Inspection limitations None Visibility Access Vines Root collar buried Describe _____

MOD LEAN

ISA Basic Tree Risk Assessment Form

Client 21M STREET DEVELOPMENT Date 7-7-2015 Time 3 PM
 Address/Tree location OCCOQUON HTS. VA Tree no. T-4 Sheet of
 Tree species RED MAPLE dbh 18 Height 60 Crown spread dia. 35
 Assessor(s) CCOWLES Time frame Tools used D-TAPE, PROBE

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1x Ht.	Target within 1.5x Ht.			
1	Town House with DECK ON ADJ SITE	N	Y	Y	3-4	N	N
2							
3							
4							

Site Factors

History of failures Dead Trees Topography Flat Slope 6-8 % Aspect E
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe STORM DRAIN
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots Describe EXCAVATION
 Prevailing wind direction NW Common weather Strong winds Ice Snow Heavy rain Describe

Tree Health and Species Profile

Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 90+ %
 Dead twigs/branches 2.5 % overall Max. dia.
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Cracks Lightning damage
 Codominant Included bark
 Weak attachments Cavity/Nest hole % circ.
 Previous branch failures Similar branches present
 Dead/Missing bark Cankers/Galls/Burls Sapwood damage/decay
 Conks Heartwood decay
 Response growth 1
 Main concern(s) SUNSCALD ON TRUNK + SCARFOLD LIMBS WEST SIDE OVER TIME CAUSING BREAKAGE.
 Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean 5-7° Corrected? N
 Response growth
 Main concern(s) ROTTERS + TRUNK DECAY UNDER
 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 6-8'
 Root plate lifting Soil weakness
 Response growth
 Main concern(s)
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

Low

ISA Basic Tree Risk Assessment Form

Client ELM STREET DEV. Date 7-7-2015 Time 3:00 PM
 Address/Tree location Occoquan HS, VA Tree no. T-5 Sheet of
 Tree species TULIP POPLAR dbh 21 Height 35' Crown spread dia. 10'
 Assessor(s) CCOWLES Time frame Tools used DBH TAPE + PROBE

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1x ht.	Target within 1.5x ht.			
1	<u>SD EASEMENT</u>	N	N	Y	1	N	N
2							
3							
4							

Site Factors

History of failures ADJACENT DEAD TREES FALLEN Topography Flat Slope 6-8 % Aspect E
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction NW Common weather Strong winds Ice Snow Heavy rain Describe

Tree Health and Species Profile

Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic %
 Pests Abiotic TOP DIED + BROKE OFF
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss
 Recent or planned change in load factors TOP LONE

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 10 %
 Dead twigs/branches % overall Max. dia.
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Main concern(s)
 Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean ° Corrected?
 Response growth
 Main concern(s) LOWER 20' of TRUNK ALIVE WITH LOWER 20' DEAD NO LIMBS
 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 8-10'
 Root plate lifting Soil weakness
 Response growth
 Main concern(s)
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

HIGH

ISA Basic Tree Risk Assessment Form

Client ELM STREET DEN Date 7.7.2015 Time 3 PM
 Address/Tree location 0 COQUAN HTS, VA Tree no. T-6 Sheet of
 Tree species RED MAPLE dbh 16 Height 45' Crown spread dia. 50'
 Assessor(s) CCOWLES Time frame Tools used D TAPE, PROBE

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x Ht.	Target within 1.5 x Ht.			
1	TOWNHOUSE + DECK, ADJ. SITE	Y	Y	Y	4	N	N
2							
3							
4							

Site Factors

History of failures ADJ. DED TREES Topography Flat Slope 6-8 % Aspect
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction NW Common weather Strong winds Ice Snow Heavy rain Describe
Tree Health and Species Profile
 Vigor Low Normal High Foliage None (seasonal) None (dead) Normal 95 % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 95 %
 Dead twigs/branches 5 % overall Max. dia. 1"
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Cracks Lightning damage
 Codominant Included bark
 Weak attachments Cavity/Nest hole % circ.
 Previous branch failures Similar branches present
 Dead/Missing bark Cankers/Galls/Burrs Sapwood damage/decay
 Conks Heartwood decay
 Response growth

Main concern(s) EXCESSIVE LEAD + BARK PEELING ON UPPER SIDE

Load on defect N/A Minor Moderate Significant
 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/Burrs Sap ooze
 Lightning damage Heartwood decay Conks/Mushrooms
 Cavity/Nest hole % circ. Depth Poor taper
 Lean 30° Corrected?

Response growth
 Main concern(s) DYING CAMBIUM ON UPPER SIDE OF TRUNK + ROOT DISTURBANCE OPPOS. LEAN

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 10-12'
 Root plate lifting Soil weakness

Response growth
 Main concern(s) SATURATED SOILS, SNOW OR ICE LOAD OR UP HEAVAL

Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

LOW

ISA Basic Tree Risk Assessment Form

Client ELM STREET DEN, Date 7-7-2015 Time 3 PM
 Address/Tree location OCCOQUAN HB, VA Tree no. 1-9 Sheet of
 Tree species RED MAPLE dbh 24 Height 55 Crown spread dia. 40
 Assessor(s) Time frame Tools used DBH TAPE, PROBE

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x Ht.	Target within 1.5 x Ht.			
1	LANDSCAPED RPA	Y	Y	Y	1	N	N
2							
3							
4							

Site Factors

History of failures ADD DEAD TREES Topography Flat Slope % Aspect E
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction NW Common weather Strong winds Ice Snow Heavy rain Describe

Tree Health and Species Profile

Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss VINES ON TRUNK
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 95%
 Dead twigs/branches % overall Max. dia. 2"
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Main concern(s) NONE
 Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean ° Corrected?
 Response growth
 Main concern(s) NONE
 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
 Main concern(s) NONE
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

Low

ISA Basic Tree Risk Assessment Form

Client ELM STREET DEV. Date 7.7.2015 Time 3PM
 Address/Tree location OCCOQUAN HTS, VA Tree no. T-10 Sheet of
 Tree species TULIP PODLAR dbh 22 Height 80 Crown spread dia. 40'
 Assessor(s) Time frame Tools used D-TAPE, PROBE

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1x Ht	Target within 1.5x Ht			
1	TOWN HOUSE + DECK - ADJ SITE	N	Y	Y	3	N	N
2							
3							
4							

Site Factors

History of failures ADJ DEAD TREES Topography Flat Slope 3-4 % Aspect E
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction NW Common weather Strong winds Ice Snow Heavy rain Describe

Tree Health and Species Profile

Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss ON TRUNK
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 90 %
 Dead twigs/branches 5 % overall Max. dia. 2"
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Main concern(s) NONE
 Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean ° Corrected?
 Response growth
 Main concern(s) NONE
 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
 Main concern(s) NONE - NO SOIL DISTURBANCE
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

LOW

ISA Basic Tree Risk Assessment Form

Client ELM STREET DEV Date 7-7-2015 Time 4 PM
 Address/Tree location OCCOQUAN, HB, VA Tree no. T-11 Sheet of
 Tree species TULIP POPLAR dbh 17 Height 70 Crown spread dia. 30'
 Assessor(s) CCOWLES Time frame Tools used D-TAPE, PROBE

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x Ht.	Target within 1.5 x Ht.			
1	NA (RP2)						
2							
3							
4							

Site Factors

History of failures ADD DEAD T.W. Topography Flat Slope 3-4 % Aspect E
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction Common weather Strong winds Ice Snow Heavy rain Describe

Tree Health and Species Profile

Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR %
 Dead twigs/branches 5 % overall Max. dia. 3"
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Main concern(s) NONE
 Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean * Corrected?
 Response growth
 Main concern(s) NONE
 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
 Main concern(s) NONE
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

High

ISA Basic Tree Risk Assessment Form

Client ELM STREET DEN Date 7-7-2015 Time 4:0 PM
 Address/Tree location OCLOQUAN HTS, VA Tree no. T-12 Sheet of
 Tree species BLACK CHERRY dbh 15 Height 60 Crown spread dia. 30'
 Assessor(s) Time frame Tools used D-TAPE, P.P.A.R.E

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1x Ht.	Target within 1.5x Ht.			
1	Town House & Deck, ADS SITE	N	Y	Y	4	N	N
2							
3							
4							

Site Factors

History of failures ADS DEAD TREES Topography Flat Slope 3-4 % Aspect E
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe EXCAVATION FOR STORM DR.
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction Common weather Strong winds Ice Snow Heavy rain Describe
Tree Health and Species Profile
 Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic 50% %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 50%
 Dead twigs/branches 50% overall Max. dia. 9"
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Main concern(s) TOP DEAD
 Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean ° Corrected?
 Response growth
 Main concern(s) OVERALL DECLINE
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

— Roots and Root Collar —

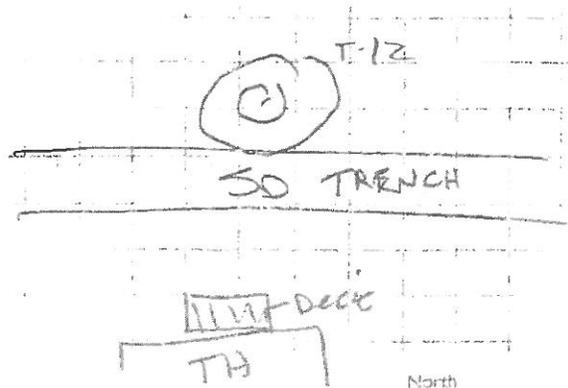
Collar buried/Not visible Depth Stem girdling
 Dead Decay Conks/Mushrooms
 Ooze Cavity % circ.
 Cracks Cut/Damaged roots Distance from trunk 3-5'
 Root plate lifting Soil weakness
 Response growth
 Main concern(s) RECENT UTILITY EXCAVATION
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

Risk Categorization

Condition number	Tree part	Conditions of concern	Part size	Fall distance	Target number	Target protection	Likelihood								Consequences				Risk rating of part (from Matrix 2)	
							Failure				Impact				Failure & Impact (from Matrix 1)					
							Improbable	Possible	Probable	Imminent	Very low	Low	Medium	High	Unlikely	Somewhat likely	Likely	Very likely		Negligible
1	TOP	TOP BRK	9	30	1	N		X			X		X				X			LOW
2	WHOLE	UPROOT	15	70	1	N	X					X		X				X		HIGH
3																				
4																				

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 _____

Mitigation options _____ Residual risk _____
 _____ Residual risk _____
 _____ Residual risk _____
 _____ Residual risk _____

Overall tree risk rating Low Moderate High Extreme
 Overall residual risk Low Moderate High Extreme Work priority 1 2 3 4
 Data Final Preliminary Advanced assessment needed No Yes-Type/Reason _____
 Inspection limitations None Visibility Access Vines Root collar buried Describe _____



Basic Tree Risk Assessment Form

MOD
Lean

Client ELM STREET DEU, Date 7-7-2015 Time 4PM
 Address/Tree location OCOQUAN HTS, VA Tree no. T-13 Sheet of
 Tree species BLACK CHERRY dbh 15 Height 60 Crown spread dia. 25'
 Assessor(s) CCOWLES Time frame Tools used D-Tape, PROBE

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x Ht.	Target within 1.5 x Ht.			
1	TOWN HOUSE + DECK	N	Y	Y	4	N	N
2							
3							
4							

Site Factors

History of failures ADJ TREES Topography Flat Slope 2-3 % Aspect SE
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe SD EXCAVATION
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction Common weather Strong winds Ice Snow Heavy rain Describe

Tree Health and Species Profile

Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic 25 %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 75 %
 Dead twigs/branches 25 % overall Max. dia. 3"
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Cracks Lightning damage
 Codominant Included bark
 Weak attachments Cavity/Nest hole % circ.
 Previous branch failures Similar branches present
 Dead/Missing bark Cankers/Galls/Burls Sapwood damage/decay
 Conks Heartwood decay
 Response growth
 Main concern(s) Small deadwood sailing onto deck
 Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean 15 ° Corrected?
 Response growth
 Main concern(s) WEIGHT OVER T.H.
 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 5-8'
 Root plate lifting Soil weakness
 Response growth
 Main concern(s) SD EXCAVATION
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

Risk Categorization

Condition number	Tree part	Conditions of concern	Part size	Fall distance	Target number	Target protection	Likelihood								Consequences				Risk rating of part (from Matrix 2)	
							Failure				Impact				Failure & Impact (from Matrix 1)					
							Improbable	Possible	Probable	Imminent	Very low	Low	Medium	High	Unlikely	Somewhat	Likely	Very likely		Negligible
1	Small BRANCHES	Dead	4	30	1	N		X			X		X				X			Low
2	WHOLE TREE	Root dist.	15'	30	1	N		X			X		X					X		Low
3																				
4																				

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 _____

Mitigation options _____

Residual risk _____

Residual risk _____

Residual risk _____

Residual risk _____

Overall tree risk rating Low Moderate High Extreme

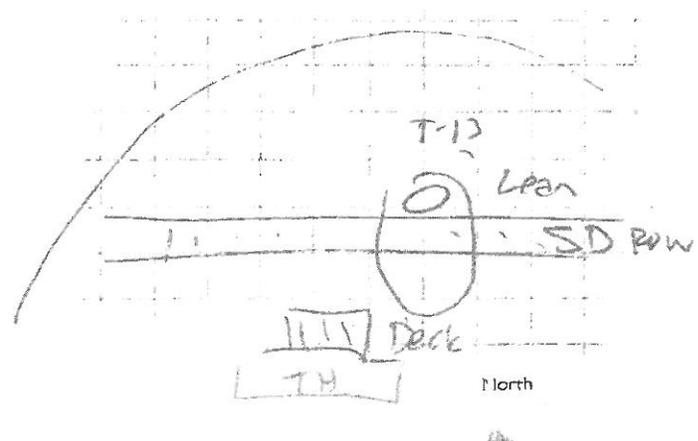
Work priority 1 2 3 4

Overall residual risk Low Moderate High Extreme

Recommended inspection interval 6 mo

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

Inspection limitations None Visibility Access Vines Root collar buried Describe _____



LOW

ISA Basic Tree Risk Assessment Form

Client ELM STREET DEV. Date 7-7-2015 Time 4 PM
 Address/Tree location OCOQUAN HTS, VA Tree no. T-14 Sheet of
 Tree species RED MAPLE dbh 9 Height 40 Crown spread dia. 28
 Assessor(s) CRAWLERS Time frame Tools used D-TAPE, PRZ#5R

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x Ht.	Target within 1.5 x Ht.			
1	<u>NONE</u>						
2							
3							
4							

Site Factors

History of failures ADJ DEAD TREES Topography Flat Slope 3 % Aspect E
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe SD EXCAVATION
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction Common weather Strong winds Ice Snow Heavy rain Describe

Tree Health and Species Profile

Vigor Low Normal High Foliage None (seasonal) None (dead) Normal 90 % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 95 %
 Dead twigs/branches % overall Max. dia.
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Main concern(s) NONE
 Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean ° Corrected?
 Response growth
 Main concern(s) NONE
 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 3-5 '
 Root plate lifting Soil weakness
 Response growth
 Main concern(s) NONE
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

High failure
Low target

ISA Basic Tree Risk Assessment Form

Client ELM STREET DEV. Date 7-7-2015 Time 4PM
 Address/Tree location OCOQUAN Tree no. T-15 Sheet of
 Tree species DEAD dbh 24 Height 55 Crown spread dia.
 Assessor(s) CCOWLES Time frame Tools used D TAPE, PROBE

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1 - rare 2 - occasional 3 - frequent 4 - constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1.5x Ht.	Target within 1.5x Ht.			
1	LANDSCAPED REAR YARD / SD BASEMENT	N	Y	Y	2	N	N
2							
3							
4							

Site Factors

History of failures ADJ DEAD Topography Flat Slope % Aspect 1
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction NW Common weather Strong winds Ice Snow Heavy rain Describe

Tree Health and Species Profile

Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss Very Heavy Vines
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 0 %
 Dead twigs/branches % overall Max. dia.
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Main concern(s) TOP IS SAME

Cracks Lightning damage
 Codominant Included bark
 Weak attachments Cavity/Nest hole % circ.
 Previous branch failures Similar branches present
 Dead/Missing bark Cankers/Galls/Burls Sapwood damage/decay
 Conks Heartwood decay
 Response growth

Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean * Corrected?

Response growth
 Main concern(s) TRUNK CHANGE

Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

— Roots and Root Collar —

Collar buried/Not visible Depth Stern girdling
 Dead Decay Conks/Mushrooms
 Ooze Cavity % circ.
 Cracks Cut/Damaged roots Distance from trunk
 Root plate lifting Soil weakness

Response growth
 Main concern(s) NA

Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

Low

ISA Basic Tree Risk Assessment Form

Client ELM STREET DEV. Date 7-7-2015 Time 5PM
 Address/Tree location OCCOQUAN HTS, VA Tree no. T-16 Sheet of
 Tree species SYCAMORE dbh 34 Height 90 Crown spread dia. 60'
 Assessor(s) Time frame Tools used D-TAPE, PRAPR

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1x Ht.	Target within 1.5x Ht.			
1	LANDSCAPED SUM AREA	Y	Y	Y	1	N	N
2							
3							
4							

Site Factors

History of failures ADD Topography Flat Slope % Aspect
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction Common weather Strong winds Ice Snow Heavy rain Describe
Tree Health and Species Profile
 Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR %
 Dead twigs/branches % overall Max. dia.
 Broken/Hangers Number Max. dia.
 Over-extended branches
Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Cracks Lightning damage
 Codominant Included bark
 Weak attachments Cavity/Nest hole % circ.
 Previous branch failures Similar branches present
 Dead/Missing bark Cankers/Galls/Burls Sapwood damage/decay
 Conks Heartwood decay
 Response growth

Main concern(s) Heavy Vines

Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean ° Corrected?

Response growth
 Main concern(s) Heavy Vines

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 20'
 Root plate lifting Soil weakness

Response growth
 Main concern(s) None

Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

LOW

ISA Basic Tree Risk Assessment Form

Client ELM STREET DEN. Date 7-7-2015 Time 4PM
 Address/Tree location OCCOQUAN HTS, VA Tree no. T-17 Sheet of
 Tree species SOUR CHERRY dbh 13 Height 40 Crown spread dia. 30
 Assessor(s) CROWLES Time frame Tools used D-TAPE, PROBE

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1x Ht.	Target within 1.5x Ht.			
1	<u>NONE</u>						
2							
3							
4							

Site Factors

History of failures AND DEAD TREES Topography Flat Slope % Aspect
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction Common weather Strong winds Ice Snow Heavy rain Describe
Tree Health and Species Profile
 Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss Heavy Vines
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR %
 Dead twigs/branches % overall Max. dia.
 Broken/Hangers Number Max. dia.
 Over-extended branches
Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Cracks Lightning damage
 Codominant Included bark
 Weak attachments Cavity/Nest hole % circ.
 Previous branch failures Similar branches present
 Dead/Missing bark Cankers/Galls/Burls Sapwood damage/decay
 Conks Heartwood decay
 Response growth
 Main concern(s) NONE
 Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean * Corrected?
 Response growth
 Main concern(s) NONE
 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
 Main concern(s) NONE
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

MOD
LONG TERM
LLS

ISA Basic Tree Risk Assessment Form

Client FLM STREET DEV. Date 7-7-2015 Time 6PM
 Address/Tree location OCCOQUAN HTS, VA Tree no. 19 Sheet of
 Tree species ASIT SPALDIS dbh 28 Height 90 Crown spread dia. 38
 Assessor(s) CCOWLES Time frame _____ Tools used D-TAPE, PROSE

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1x Ht.	Target within 1.5x Ht.			
1	Town House Deck, ADJ SITE	N	Y	Y	2		
2							
3							
4							

Site Factors

History of failures _____ **Topography** Flat Slope _____ % Aspect _____
Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe _____
Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots _____ % Describe _____
Prevailing wind direction _____ **Common weather** Strong winds Ice Snow Heavy rain Describe _____
Tree Health and Species Profile
Vigor Low Normal High **Foliage** None (seasonal) None (dead) Normal _____ % Chlorotic _____ % Necrotic _____ %
Pests _____ **Abiotic** _____
Species failure profile Branches Trunk Roots Describe _____

Load Factors

Wind exposure Protected Partial Full Wind funneling _____ **Relative crown size** Small Medium Large
Crown density Sparse Normal Dense **Interior branches** Few Normal Dense **Vines/Mistletoe/Moss** HV
Recent or planned change in load factors _____

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown **LCR** 50%
 Dead twigs/branches 50% overall Max. dia. 6'
 Broken/Hangers Number _____ Max. dia. _____
 Over-extended branches
Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other _____
 Main concern(s) SHORT LIVED
 Cracks _____ **Lightning damage**
 Codominant _____ **Included bark**
 Weak attachments _____ **Cavity/Nest hole** _____ % circ.
 Previous branch failures _____ **Similar branches present**
 Dead/Missing bark **Cankers/Galls/Burls** **Sapwood damage/decay**
 Conks **Heartwood decay** _____
 Response growth _____
Load on defect N/A Minor Moderate Significant
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 _____ % circ. Depth _____ **Poor taper**
 Lean _____ ° Corrected? _____
 Response growth _____
 Main concern(s) SHORT LIVED
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** 12-15'
 Root plate lifting **Soil weakness**
 Response growth _____
 Main concern(s) ONGOING SITUATION
long term
Load on defect N/A Minor Moderate Significant
Likelihood of failure Improbable Possible Probable Imminent

Low

ISA Basic Tree Risk Assessment Form

Client FLUM STREET DEU Date 7-7-2015 Time 5PM
 Address/Tree location Oregon HTB, VA Tree no. T20 Sheet of
 Tree species ASH sp. dbh 14 Height 35 Crown spread dia. 20'
 Assessor(s) CCAWG Time frame Tools used

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x Ht.	Target within 1.5 x Ht.			
1	<u>None</u>						
2							
3							
4							

Site Factors

History of failures Topography Flat Slope % Aspect
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction Common weather Strong winds Ice Snow Heavy rain Describe

Tree Health and Species Profile

Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss HV
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 25 %
 Dead twigs/branches % overall Max. dia.
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Main concern(s) None
 Cracks Lightning damage
 Codominant Included bark
 Weak attachments Cavity/Nest hole % circ.
 Previous branch failures Similar branches present
 Dead/Missing bark Cankers/Galls/Burls Sapwood damage/decay
 Conks Heartwood decay
 Response growth
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

TAP gone - minor side tabs

— 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 % circ. Depth Poor taper
 Lean ° Corrected?
 Response growth
 Main concern(s)
 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
 Main concern(s)
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent

Low

ISA Basic Tree Risk Assessment Form

Client ECM STREET DEV. Date 7-7-2015 Time 5PM
 Address/Tree location OPCO QUAN HTB, VA Tree no. 7-21 Sheet of
 Tree species BOX ELDER dbh 15 Height 28 Crown spread dia. 20'
 Assessor(s) Time frame Tools used D-TAPE, PRUNER

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1.5 Ht.	Target within 1.5 x Ht.			
1	<u>NONE</u>						
2							
3							
4							

Site Factors

History of failures Topography Flat Slope % Aspect
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction Common weather Strong winds Ice Snow Heavy rain Describe

Tree Health and Species Profile

Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss Very heavy
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR 10 %
 Dead twigs/branches % overall Max. dia.
 Broken/Hangers Number Max. dia.
 Over-extended branches
 Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Main concern(s) NONE
 Load on defect N/A Minor Moderate Significant
 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 % circ. Depth Poor taper
 Lean * Corrected?
 Response growth
 Main concern(s) NONE
 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
 Main concern(s) NONE
 Load on defect N/A Minor Moderate Significant
 Likelihood of failure Improbable Possible Probable Imminent



Basic Tree Risk Assessment Form

Low

Client ELM STREET DEV. Date 7-7-2015 Time 5PM
 Address/Tree location OCCOQUAN HTS, VA Tree no. T-22 Sheet of
 Tree species BOX ELDER dbh 12 Height 40 Crown spread dia. 25
 Assessor(s) Crowles Time frame Tools used D-TAPE PRUNING

Target Assessment

Target number	Target description	Target zone			Occupancy rate 1-rare 2-occasional 3-frequent 4-constant	Practical to move target?	Restriction practical?
		Target within drip line	Target within 1 x Ht.	Target within 1.5 x Ht.			
1	<u>None</u>						
2							
3							
4							

Site Factors

History of failures Topography Flat Slope % Aspect
 Site changes None Grade change Site clearing Changed soil hydrology Root cuts Describe
 Soil conditions Limited volume Saturated Shallow Compacted Pavement over roots % Describe
 Prevailing wind direction Common weather Strong winds Ice Snow Heavy rain Describe
Tree Health and Species Profile
 Vigor Low Normal High Foliage None (seasonal) None (dead) Normal % Chlorotic % Necrotic %
 Pests Abiotic
 Species failure profile Branches Trunk Roots Describe

Load Factors

Wind exposure Protected Partial Full Wind funneling Relative crown size Small Medium Large
 Crown density Sparse Normal Dense Interior branches Few Normal Dense Vines/Mistletoe/Moss Heavy Vines
 Recent or planned change in load factors

Tree Defects and Conditions Affecting the Likelihood of Failure

— Crown and Branches —

Unbalanced crown LCR %
 Dead twigs/branches % overall Max. dia.
 Broken/Hangers Number Max. dia.
 Over-extended branches
Pruning history
 Crown cleaned Thinned Raised
 Reduced Topped Lion-tailed
 Flush cuts Other
 Cracks Lightning damage
 Codominant Included bark
 Weak attachments Cavity/Nest hole % circ.
 Previous branch failures Similar branches present
 Dead/Missing bark Cankers/Galls/Burls Sapwood damage/decay
 Conks Heartwood decay
 Response growth

Main concern(s) None

Load on defect N/A Minor Moderate Significant

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 % circ. Depth Poor taper
 Lean ° Corrected?

Response growth

Main concern(s) None

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

Main concern(s)

Load on defect N/A Minor Moderate Significant

Likelihood of failure Improbable Possible Probable Imminent

Risk Categorization

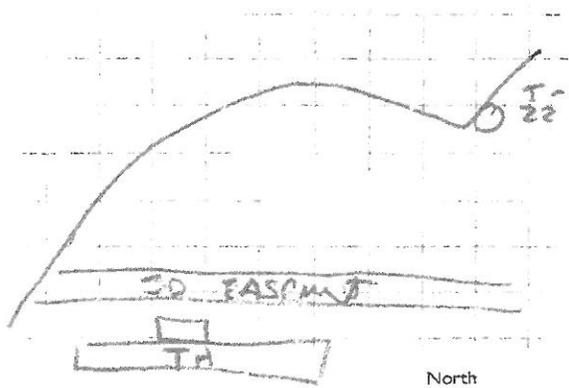
Condition number	Tree part	Conditions of concern	Part size	Fall distance	Target number	Target protection	Likelihood								Consequences				Risk rating of part (from Matrix 2)		
							Failure				Impact				Failure & Impact (from Matrix 1)						
							Improbable	Possible	Probable	Imminent	Very low	Low	Medium	High	Unlikely	Somewhat	Likely	Very likely		Negligible	Minor
1																				low	
2																					
3																					
4																					

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 _____

Mitigation options _____ Residual risk _____
 _____ 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 _____
 Data Final Preliminary Advanced assessment needed No Yes-Type/Reason _____
 Inspection limitations None Visibility Access Vines Root collar buried Describe _____



December 23, 2013

Mr. Bruce A. Reese, PE, LS
The Engineering Groupe, Inc.
13580 Groupe Drive, Suite 301
Woodbridge, Virginia 22192

TNT Project #: 021

Reference: Arborist Evaluation, Occoquan Heights, Town of Occoquan, Virginia

Dear Mr. Reese,

At your request, a TNT Environmental, Inc. (TNT) Certified Arborist conducted a site reconnaissance on the above-referenced project site in the Town of Occoquan, Virginia on Friday, December 20, 2013. TNT was accompanied by Mr. Pat Sivigny and Mr. Sheldon Levi. The evaluation was conducted at ground level using non-invasive techniques and represents the conditions encountered.

The Occoquan Heights project site consists of an active residential construction site. TNT utilized the existing conditions plan prepared by Christopher Consultants, dated January 17, 2012 during the reconnaissance. The field work focused on approximately 22 trees located within and immediately adjacent to a mapped Resource Protection Area (RPA) located on the subject property.

In general, most of the trees located within the tree save/RPA area are in Poor/Fair condition, with several dead trees located throughout. Many of the trees are covered in English Ivy and the forest floor consists mostly of Japanese Honeysuckle, both of which are invasive species. Further, many of the trees in Poor condition are located in proximity to an existing residential development located to the south and southwest of the tree save/RPA area. The failure of some of these trees may result in damage to these existing structures, thus qualifying them as Hazard Trees.

Based on site conditions encountered, it appears that a utility line was installed between the south-adjacent residential development and the project site. The limits of clearing and grading for this installation are very close to the trunks of several trees. It is unknown as to whether or not root pruning was conducted, and if so, if it was conducted under the supervision of a Certified Arborist, as specified on Sheet 24 of the provided plans.

It is the recommendation of TNT that several trees located within the tree save/RPA area be removed due to their condition and/or hazard potential. Further, it is our recommendation that invasive species be removed per the methods outlined below. Enclosed is a map showing the approximate tree locations, types, conditions, notes and removal recommendations. Due to the removal of previously existing trees and associated grading activities, several of the remaining trees are now subject to direct winds, which tend to prevail from the west. This exposure to winds increases the risk of tree throw.

Any application of environmentally sensitive approved herbicides shall be applied by a Virginia Certified Applicator or Registered Technician.

For English Ivy, remove from trees by cutting all vines at ground level. Vines should be cut again several feet up the trunk. Peel the cut section of ivy off, but care should be taken not to strip the bark off the tree. Pull ground ivy back a few feet from the base of the tree to slow regrowth up the tree trunk. Remove ground ivy by hand pulling, cutting and mulching over top, and/or applying a systemic herbicide like Triclopyr to leaves or freshly cut large stems. Retreatment may be necessary for complete eradication. The English Ivy remnants shall be bagged and removed from the site.

Japanese Honeysuckle shall be removed by hand to minimize site disturbance. During the growing season, an application of an environmentally sensitive approved herbicide may be applied by a Virginia Certified Applicator. To reduce damage to non-target plants, herbicides such as Glyphosate and Triclopyr may be applied to foliate by a Virginia Certified Applicator in autumn, since Japanese Honeysuckle continues to photosynthesize after many other species lose their leaves.

Invasive species control shall be conducted until the plants noted above are no longer in abundance or until bond release, whichever is later.

TNT would like to thank you for the opportunity to provide you with this evaluation. We look forward to assisting you further with this project and other environmental concerns you may have. If you have any questions, please feel free to contact us at any time at (703) 466-5123.

Sincerely,

TNT ENVIRONMENTAL, INC.



Avi M. Sareen, PWD, PWS, ISA-CA
President/Principal
Avi@TNTenvironmentalinc.com

Enclosures: Photographs & Site Map



May 28, 2015

Mr. Bruce A. Reese, PE, LS
Legacy Engineering
1404 Sandy Circle
Fredericksburg, VA 22401

TNT Project #: 021-A

Reference: Arborist Follow-Up, Occoquan Heights, Town of Occoquan, Virginia

Dear Mr. Reese,

At your request, a TNT Environmental, Inc. (TNT) Certified Arborist conducted a site reconnaissance on the above-referenced project site in the Town of Occoquan, Virginia on Wednesday, May 27, 2015. The evaluation was conducted at ground level using non-invasive techniques and represents the conditions encountered during the time of evaluation.

The Occoquan Heights project site consists of an active residential construction site. TNT utilized the existing conditions plan prepared by Christopher Consultants, dated January 17, 2012 during the reconnaissance. The field work focused on the 22 trees previously evaluated and discussed in our December 23, 2013 letter located within and immediately adjacent to a mapped Resource Protection Area (RPA) located on the subject property.

Since TNT's December 2013 site visit, several trees have been removed from within the study area. Specifically trees 1, 2, 7, and 8 have been removed. Tree 18 has fallen over and remains within the study area. It is unknown as to what removal methods were employed for the aforementioned trees.

In general, most of the trees located within the tree save/RPA area are in Poor/Fair condition, with several dead trees located throughout. Many of the trees are covered in English Ivy and the forest floor consists mostly of Japanese Honeysuckle, both of which are invasive species. Further, many of the trees in Poor condition are located in proximity to an existing residential development located to the south and southwest of the tree save/RPA area. The failure of some of these trees may result in damage to these existing structures, thus qualifying them as Hazard Trees.

Based on site conditions encountered, it appears that a utility line was installed between the south-adjacent residential development and the project site. The limits of clearing and grading for this installation are very close to the trunks of several trees. It is unknown as to whether or not root pruning

was conducted, and if so, if it was conducted under the supervision of a Certified Arborist, as specified on Sheet 24 of the provided plans.

It is the recommendation of TNT that several trees located within the tree save/RPA area be removed due to their condition and/or hazard potential. Further, it is our recommendation that invasive species be removed per the methods outlined below. Enclosed is a map showing the approximate tree locations, types, conditions, notes and removal recommendations. Due to the removal of previously existing trees and associated grading activities, several of the remaining trees are now subject to direct winds, which tend to prevail from the west. This exposure to winds increases the risk of tree throw.

Any application of environmentally sensitive approved herbicides shall be applied by a Virginia Certified Applicator or Registered Technician.

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Invasive species control shall be conducted until the plants noted above are no longer in abundance.

Legacy Engineering
TNT Project #: 021-A
May 28, 2015
Page | 3

TNT would like to thank you for the opportunity to provide you with this evaluation. We look forward to assisting you further with this project and other environmental concerns you may have. If you have any questions, please feel free to contact us at any time at (703) 466-5123.

Sincerely,

TNT ENVIRONMENTAL, INC.

A handwritten signature in black ink, appearing to read 'Avi M. Sareen', with a long horizontal flourish extending to the right.

Avi M. Sareen, PWD, PWS, ISA-CA
President/Principal
Avi@TNTenvironmentalinc.com

Enclosures:

- Site Map

