

Tree Inventory and Preservation Plan – (Sample) 10223 – 135 Street NW Edmonton, Alberta

October 23, 2021

Prepared for:

City of Edmonton
Urban Forestry Operations
12304 – 107 Street NW
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1.0 Introduction	3
2.0 Demolition and Construction	5
3.0 Site Assessment	6
4.0 Mapping	7
5.0 Results/ Observations	7
5.1 Site Features	7
5.2 Tree Inventory Results	8
6.0 Disturbance Types and Site Plan	11
6.1 Above Ground Disturbance –	11
6.2 Below Ground Disturbance –	12
6.3 Remediation Plan	13
6.4 Monitoring of Trees During the Excavation	13
7.0 Recommendations	13
8.0 Tree Preservation Specifications	15
8.1 Pre-construction	15
8.2 Tree protection during construction	15
8.3 Following construction	15
LIMITATIONS	16

1.0 Introduction

The purpose of this report is to present tree inventory data and tree preservation details for 2 City of Edmonton boulevard trees at 10223 - 135 Street NW in Edmonton, Alberta. The lot is zoned as Single Detached Residential Zone (RF1). This report is a requirement by Urban Forestry, City Operations Department, as per The Public Tree Bylaw 18825 Tree Preservation and Protection and the Corporate Tree Management Policy (C456C) found at this link

<https://www.edmonton.ca/public-files/assets/document?path=PDF/Corporate-Tree-Management-Policy-C456C.pdf>.

The report will outline the tree preservation and protection requirements that are recommended for this utility service work as delineated in **Figure 1 and 2 below**.

Figure 1. Google Image of Tree No 26020.

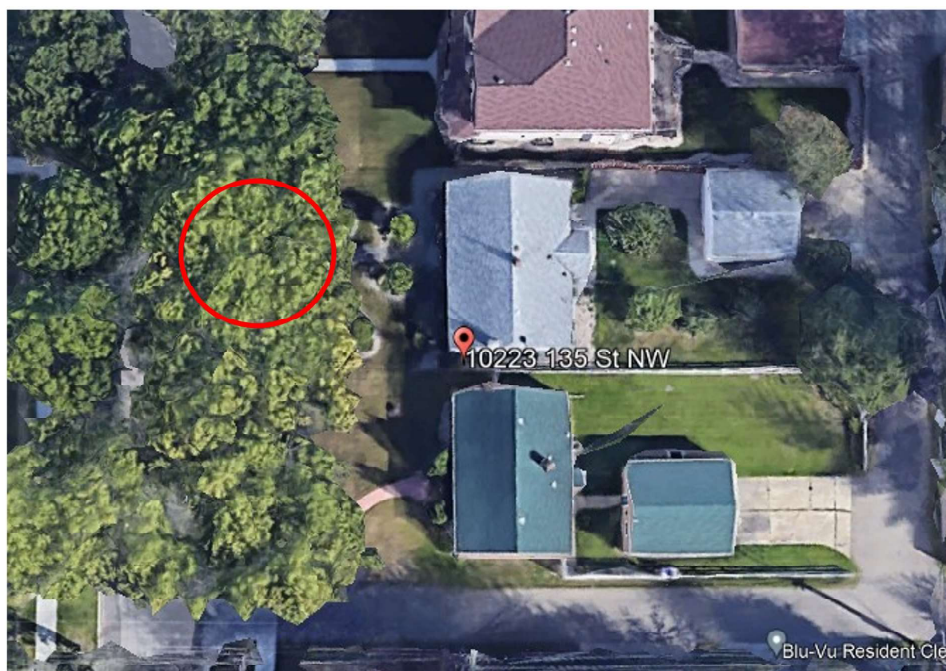


Figure 2. View of Tree No 26020 – August 28, 2021.



There are no private trees affected by this utility repair work.

2.0 Demolition and Construction

There are no existing commercial or residential structures to be demolished. The excavation is required to repair a curb cock (CC) valve and service connection line that lies to the south of tree no 26020 between the right side of the tree trunk and patio block walkway as illustrated in **Figure 3**.

Figure 3. Approximate Location of Open Excavation.

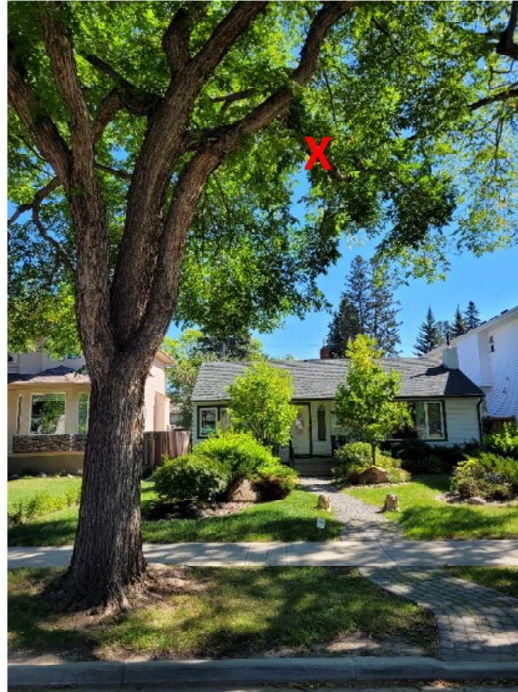


John Excavator from XYZ Construction Ltd. will be carrying out the work and he can be reached at 780 999-9999 or john.excavator@telus.net. The proposed start date will be November 15th, 2021. Pending weather conditions, the site is then to be restored by November 19th, 2021. The depth of the excavation will be approximately 2.5 meters and the width will be about 1.0 meter. A combo-vac truck will be used to expose roots along the entire length of the proposed excavation. Roots of 4.0 cm or smaller will be cut using a pruning blade and Sawzall tool. If roots exceed 5.0 cm, the City Urban Forester will be contacted and consulted with. No further excavation will take place until further direction is given by the Urban Forester.

The excavated soil is to be hauled off site. A laydown area is proposed just west of the 135th Street curb for backfill material and temporary storage of patio blocks. The patio blocks will be removed as required and replaced once repairs are complete.

As the combo-vac truck height is about 5.0 meters, the tree crown on the south side of tree 26020 will be pruned prior to excavation operations – see **Figure 4**.

Figure 4. Location of South Side Codominant Stem to be Pruned – Tree No 26020.



3.0 Site Assessment

The site assessment includes:

- i) existing site conditions
- ii) inventory of boulevard trees along 135th Street, including private trees and neighboring trees potentially affected by the construction, noting:
 - a. trunk diameter at breast height (1.2 m) above ground
 - b. tree species, common name and scientific name
 - c. tree height
 - d. crown radius
- iii) trees to be removed
- iv) existing soil conditions and proposed soil mitigation measures to prevent root damage/ impacts as well as potential soil compaction
- v) site factors that may impact tree health and survival
- vi) overall tree health including abiotic impacts to tree roots, trunk and crown
- vii) current condition of crown, branch, trunk, roots and root collar

The chemical properties of the soil were not assessed. The soils were quite dry and compacted at the time of this assessment.

4.0 Mapping

The tree locations were validated using the City’s tree map. To generate the crown polygons, the tree DBH was used as a reference and measurements from the trunk were taken in four different directions for these elms.

The proposed tree protection fencing design conforms, as much as possible, to the recommended spacing outlined in the City of Edmonton LA 101 Tree Protection Zone – Design and Construction Standards Volume 5 Landscaping (June 2017 Edition).

5.0 Results/ Observations

The site and boulevard trees were inventoried and assessed for various morphological attributes on August 28th, 2021. There was full leaf development at the time of the assessment. Please see **Appendix 1** for the detailed Tree Inventory and Preservation Plan.

5.1 Site Features

The boulevard trees are positioned on flat topography. There is a new sidewalk to the east and patio block walkway to the south of Tree No 26020.

Figure 5. New Sidewalk to East and Patio Walkway South of Elm Tree.



Please see **Table 1** for inventory results. More detailed characteristics of the trees are also outlined below.

5.2 Tree Inventory Results

Two City of Edmonton trees were identified within 5 meters of the proposed excavation. There were no private trees identified or associated with this excavation

Boulevard Tree (135 Street) - Tree No 26020

The trees are located on 135 Street NW as illustrated at this link

[OpenTreeMap](#) | [vegTreeMap](#) | [Map](#)

This is a mature American elm (*Ulmus americana*) that lies to the north of the proposed excavation.

Figure 6. View from the West of Tree No 26020.



Boulevard Tree (135 Street) - Tree No 26018

There is also a mature American elm (*Ulmus americana*) that lies to the south of the proposed excavation. The crown is well developed to the east and extends to 8.5 meters. There was evidence of “bacterial wetwood” or “slime flux” caused by the bacterium, *Enterobacter cloacae*. This bacterial species invades the stem and branch wounds causing infection in the inner sapwood and outer heartwood. The bacteria grow inside the tree wound, using tree sap as its source of nutrients. In the Figure to the right below, the tree has tried to compartmentalize and close off the wound.

**Figure 7. View of Trunk from the West of Tree No 26018
(Note photo taken September 26, 2021).**



A summary of all the tree inventory measurements is outlined in **Table 1** below.

Table 1. Tree Inventory and Summary Measurements.

Tree No From COE	Scientific Name	Common Name	DBH ¹	Circ (cm) (3.148 x diam)	Crown Length North (m)	Crown Length East (m)	Crown Length South (m)	Crown Length West (m)	Average Crown Radius (m)	Height to Bottom of Crown (m)	Height to top of Crown (m)	Live Crown Ratio (%)
26020	<i>Ulmus americana</i>	American elm	68.1	214.4	4.3	8.5	6.6	10.6	7.5	4.9	17.0	71.2
26018	<i>Ulmus americana</i>	American elm	57.3	180.4	4.3	8.6	6.8	7.3	6.8	4.9	16.8	70.8

¹ diameters taken at breast height 1.2 meters from point of germination

Biotic and Abiotic Agents

At the time of the assessment, there was only the presence of bacterial wetwood on Tree No 26018. No other insects or disease agents were noted.

6.0 Disturbance Types and Site Plan

6.1 Above Ground Disturbance

A detailed site plan is attached as **Appendix 1 Tree Inventory and Preservation Plan A**.

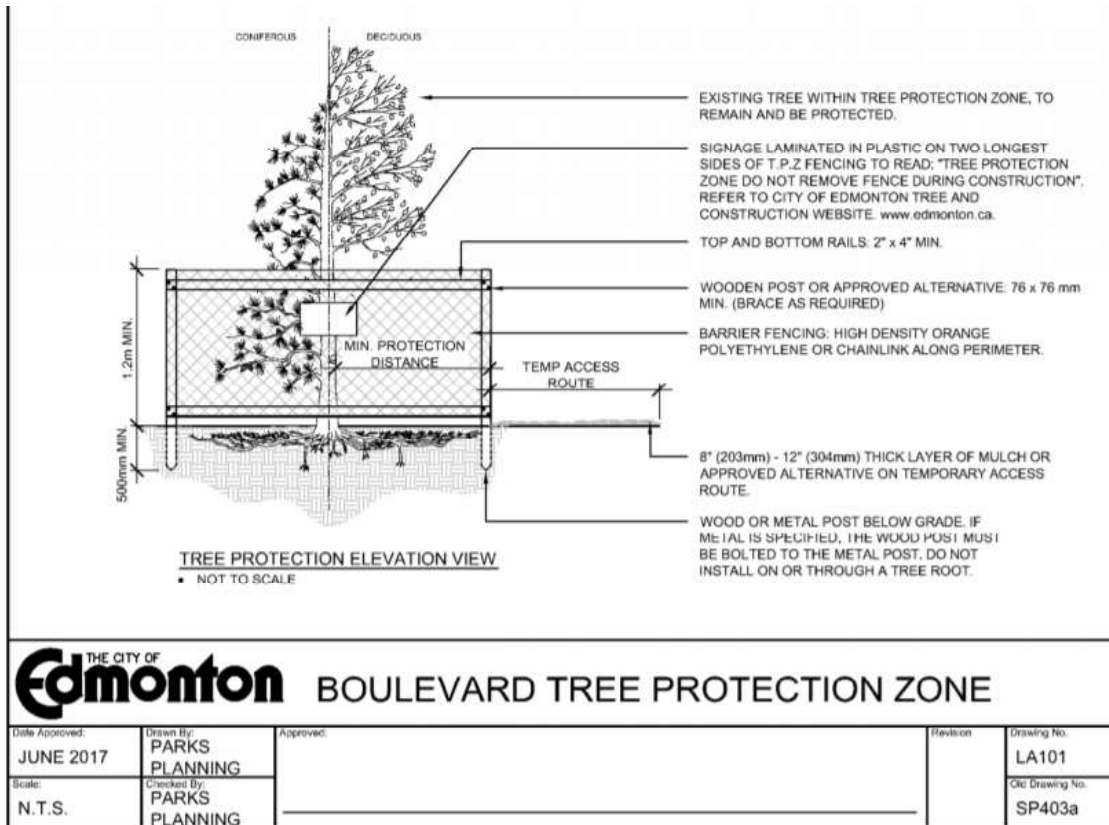
The single access point will be from 135th Street NW and this is mapped on the site plan. For the purposes of the excavation, there will be no equipment traffic across the boulevard and sidewalk on 135th Street.

Tree Crowns - It is anticipated that some pruning of the upper branches on these elm trees may be required to accommodate the equipment travel and excavation on the site. All tree-related costs, including the required pruning shall be covered by the proponent as per the Corporate Tree Management Policy (C456C). City of Edmonton forestry will schedule and carry out all required tree work.

Tree Trunks and Root Systems – A number of measures are being proposed to ensure the integrity of existing tree trunks and root systems

- i. **watering regime** – Within 10 days of the excavation, the soils will be tested for adequate soil moisture using a Dutch soil auger. If required, the trees will be watered over the root ball.
- ii. **tree protection zone (TPZ) fencing** – The TPZ for the elm trees will conform to the specification contained–City of Edmonton Design and Construction Standards – Volume 5 Landscaping (March 2021).

Figure 8. Tree protection details for boulevard trees.



THE CITY OF Edmonton		BOULEVARD TREE PROTECTION ZONE		
Date Approved: JUNE 2017	Drawn By: PARKS PLANNING	Approved:	Revision:	Drawing No. LA101
Scale: N.T.S.	Checked By: PARKS PLANNING			Old Drawing No. SP403a

The elm trees to be protected will have the City of Edmonton “This is a Protected Tree” sign on the fence. Tree protection fencing is to be in place before other work, such as site preparation and demolition, commences. The fencing shall be maintained in place during and after construction up to the point when final landscaping occurs.

6.2 Below Ground Disturbance

Surface Soil and Underground Roots – Boulevard Trees

The removal of the patio block walk south of the elm will disrupt surface roots. Any exposed roots will be pruned at the time of the excavation.

There will be no equipment traffic over the boulevard on 135 Street, so no root mats will be required during the development. Please refer to section 7.0 of this report for details on root pruning.

6.3 Remediation Plan

The excavation will be backfilled with a suitable inert granular and top soil material mix as soon as possible on completion of the works. The backfill will be compacted with care so as not to create an impenetrable barrier to future root elongation. The patio blocks will be reinstalled to the same dimensions as prior to the excavation.

6.4 Monitoring of Trees During the Excavation

The elm tree will be monitored by an ISA Certified Arborist throughout the construction. A site visit with the Urban Forester will be arranged prior to completion of the project. If the Urban Forester does not require a site visit, photos may be requested at various stages of the project. All monitoring data will be recorded along with digital images

7.0 Recommendations

The tree protection recommendations have been summarized in **Table 2**.

Table 2. Tree Protection Specifications by Tree Number.

Tree No	Scientific Name	Common Name	DBH (cm)	Circumference (cm) (3.14 x diam)	Fencing for Tree Protection (m)
26020	<i>Ulmus americana</i>	American elm	68.1	214.4	2.3 x 7.9
26018	<i>Ulmus americana</i>	American elm	57.3	180.4	2.3 x 7.6

The tree protection distances were calculated using the breast height diameter and the tree protection zone calculation table at this link

https://www.edmonton.ca/residential_neighbourhoods/Tree_Protection_Details.pdf

7.1 Boulevard Trees -

The utility company/contractor will make every attempt to work around the elm trees as directed by the project arborist, but there are no guarantees that the disturbance will not kill the trees.

A city of Edmonton Urban forester will be contacted to complete the required pruning, all cost shall be borne by the project. The contractor is to irrigate trees under the direction of a City of Edmonton urban forester. Monitoring of all trees in the fall of 2021 and for 1 year after disturbance is suggested and all actions on site should be documented with field reports and photographs for future reference.

7.2 Private trees within the Property Line -

There are no private trees associated with this excavation work.

8.0 Tree Preservation Specifications

Detailed recommendations for tree preservation are as follows:

8.1 Pre-construction

Retain an ISA Certified Arborist to work with the City of Edmonton Urban forester and coordinate. A city of Edmonton Urban forester will be contacted to complete the required pruning, all cost shall be borne by the project. The tree pruning, root pruning, installation of tree protection fencing and any other tree protection measures shall be completed before excavation and shoring commences. Other requirements include the following:

- i. Tree protection zones shall be established and enforced to minimize root damage and to prevent any possible damage to the tree trunk and root system. Tree protection shall conform to details shown in **Appendix 1** sample detail for tree protection fence.
- ii. No concrete spoil areas will be required. Temporary storage of the patio blocks will be on 135th street.
- iii. Tree protection signage in English shall be installed on tree protection fencing.

8.2 Tree Protection During Construction

Consider having an ISA Certified Arborist periodically monitor tree condition and health throughout construction. Periodic monitoring of tree protection throughout construction activity could occur to document and verify:

- i. Tree protection devices are in place and operating properly
- ii. Tree protection signage is in place
- iii. No materials or equipment are stored within the critical root zones of protected trees

8.3 Following Construction

At completion of the construction phase, the tree protection fencing will be removed and the boulevard will be returned to its original condition including the replacement of the patio blocks and installation of sod.

LIMITATIONS

This report has been prepared for the exclusive use by the City of Edmonton relative to the proposed project described in the report. It may not be used or relied upon in any manner whatsoever, or for any purpose whatsoever, by any other party.

The Consultant makes no representation of fact or opinion of any nature whatsoever to any person or entity other than the company, organization or individual to whom this report is addressed. Company, denies any liability whatsoever to other parties who may obtain access to this report for any injury, loss or damage suffered by such parties arising from their use of, or reliance upon, this report or any of its contents without the express written consent of the author and the client.

Subject to the following conditions and limitations, the investigation described in this report has been conducted in a manner consistent with a reasonable level of care and skill normally exercised by members of the urban forestry consulting profession currently practicing under similar conditions in the area.

The possibility of contamination from past activities on the property and the impact to tree root systems and future tree health, or other public safety risks, were not included in this assessment.

List of Appendices

Appendix 1 - Tree Inventory and Preservation Plan A

Glossary

critical root zone (CRZ) – area of soil around a tree where the minimum amount of roots considered critical to the structural stability or health of the tree are located

tree protection zone (TPZ) – defined area within which certain activities are prohibited or restricted to prevent or minimize potential injury to designated trees, especially during construction or development

Technical References

1. ANSI A300 (Part 8) – 2020 Root Management for Tree Care Operations.
2. Best Management Practices. Managing Trees During Construction. 2 ed. Kelby Fite, E. Thomas Smiley.