Talbot Mackenzie & Associates
Consulting Arborists

Arborist Report

430 Powell Street, Victoria

PREPARED FOR: Magellan Holdings Ltd
1271 Mt Newton Cross Rd
Saanichton BC
V8M 1S1

PREPARED BY: Talbot, Mackenzie & Associates
Tom Talbot – Consulting Arborist
ISA Certified # PN-0211A
TRAQ - Qualified

Date submitted: June 24, 2020

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Jobsite Property: 430 Powell Street

Date of Site Visit: May 29, 2020

Weather conditions: Partly cloudy, 22° Celsius, east 11km/h

Site Conditions: Flat property, currently paved for parking. No buildings on the site.

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Protection Plan Summary: From the plans that were reviewed it is our opinion that it will be possible to construct the two residential buildings as outlined in the plans that were supplied while mitigating the impacts on the municipal trees that grow along the property frontage. It should also be possible to mitigate the impacts of the construction on elm tree located on the adjacent 547 Michigan Street property although in our opinion the structural issues observed indicate that this tree will be unsuitable to retain in this location Long term.

To Mitigate the impacts on the subject trees we recommend:

1. Retaining the existing asphalt surfacing between the property boundary and the proposed building footprints throughout the construction phase. If it is necessary to remove this surfacing prior to completion of construction, the protective barrier fencing that has been erected will have to be relocated to encompass the larger defined area of the critical root zones, at that time.
2. The Existing driveway crossing is to be replaced. We recommend that where possible, any adjoining hardscape (i.e. curb and sidewalk) be retained undisturbed.
3. We recommend, if possible, installing the underground services on the north side of existing driveway crossing and where they are outside the critical root zones of municipal magnolia and neighbouring elm tree. If the services must be located within the driveway access, we recommend that they be located within the north half of this driveway crossing. The project arborist must supervise the removal and replacement of any hardscape or pavement that is located within the critical root zones of the subject trees. Based on the number an size of roots that are encountered when the paved surfaces are removed, it may only be possible to remove the pavement layer and replace the new surfacing above the existing base layers without any excavation beneath this grade.
4. Any pruning of the municipal trees for clearance must be completed by an ISA Certified arborist and to ANSI 300 standards at the direction of the project arborist or be completed by the municipal Parks Department staff . Pruning of the bylaw-protected elm tree must also be completed by an ISA Certified Arborist.

Scope of Assignment: Provide arborist services to review the impacts on the tree resource of constructing two residential buildings on two separate lots on an existing vacant lot (presently used for parking) at 430 Powell Street. Prepare a tree impact and retention report to be used during the construction of the new buildings, access to and servicing the lots.

Methodology: During our May 29, 2020 site visit we visually examined the structural characteristics of the above ground portions of each of the trees on the municipal frontage and adjacent property where they could potentially be impacted.
Each tree was assigned a reference number that is indicated on the landscape drawing to identify the trees in the field and is referenced in our tree resource spreadsheet that is attached to this report.

Summary of Tree Resource: There are no trees located within the boundaries of this property. The documented trees that are protected and located on the adjacent property at 547 Michigan Street and the 430 Powell Street municipal frontage include the following:

1. One (1) bylaw protected 11/24/25/27 cm d.b.h. Cork elm tree #Nt1, located on the adjacent property, just inside the property boundary. This tree is poorly structured having multiple stems that are weakly attached at their union. Its structural characteristics make this a poor specimen to retain in this location as the risk of stem failure associated with these defects will increase as the tree matures and increases in size. This tree may have grown in this location as a seedling from a nearby tree and may have been cut to the ground historically.
2. One (1) 43 cm d.b.h. Tulip tree #14470, located on the 430 Powell Street municipal frontage.
3. One (1) 05 cm d.b.h. Yellow Bird magnolia, #14471, located on the 430 Powell Street municipal frontage.

Findings and Observations:

Potential Impacts: We anticipate that the highest potential for impacts on the tree resource would occur during:

1. Removal of the existing and installation of hardscape within the 430 Powell Street property and any changes to the existing driveway crossing, municipal curbs, and sidewalk.
2. Locating and installing services and service corridors

From the drawings and the proposal that was reviewed it is our opinion that:

1. It should be possible to mitigate the impacts on the two (2) Municipal trees #14470 and 14471 and retain these trees
2. The elm tree Nt1 on the adjacent property, is in our opinion unsuitable to retain in this location, long term, however it should be possible to mitigate the impacts sufficiently to retain it at this time.

Mitigation of Impacts: Our recommendations for mitigation procedures to reduce the impacts on the tree to be retained, outlined in the following, should be implemented prior to and during the construction period.

Barrier Fencing The areas, surrounding the tree to be retained on the municipal frontage must be isolated from the construction activity by erecting protective barrier fencing. Typically, the fencing is erected at the perimeter of the critical root zones as defined in our Tree Resource Spreadsheet or at the edge of the canopy spread**.** On this site, the canopy has an unusually large spread and extends over the municipal sidewalk and areas of existing pavement on the subject property.
Therefore, we recommend erecting the fencing to protect the municipal trees along the street curb, edge of the existing driveway crossing and along the sidewalk edge out to the side property boundaries. If required, the fencing around the small magnolia tree can be relocated to edge of its critical root zone, to accommodate the service lines that will cross the frontage, once these service locations have been determined. Should it not be possible to retain the existing pavement through the construction phase, it will be necessary to erect or relocated the barrier fencing at the edge of the critical root zones, at the time the pavement is removed.
The barrier fencing to be erected must be a minimum of 4 feet in height, of solid frame construction that is attached to wooden or metal posts. A solid board or rail must run between the posts at the top and the bottom of the fencing. This solid frame can then be covered with plywood, or flexible snow fencing (see attached diagram). The fencing must be erected prior to the start of any construction activity on site (i.e. excavation, construction), and remain in place through completion of the project. Signage must be posted around the protection zone to declare it off limits to all construction related activity. The project arborist must be consulted before this fencing is removed or moved for any purpose.

Demolition: There are no buildings on the site to be demolished, however it will be necessary to remove the existing asphalt surfacing from within the building footprint area and service corridors. We recommend that the portion of this existing pavement that is between the proposed building footprints and the front property boundary be retained through the construction phase to protect any roots from the municipal trees and the adjacent elm tree that extend beneath this paved area.

Building Footprint : Excavation for the footprint is outside the defined critical root zone of the municipal Tulip and magnolia trees, and where the required excavation should not have an impact on the subject trees, if the existing paved area at the front of the lot can be retained through the construction phase.

Servicing: It is our understanding that there are no existing service connections to this property. We recommend that all the underground services be located on the north side of the driveway entrance and where the services and all excavation that is required is located outside the defined critical root zone areas of the municipal trees and of the adjacent elm tree.
The project arborist should review the proposed underground service location once they have been defined and prior to installation to review any potential conflicts with the protected trees and proposed any changes to these locations if they are located where they will have a detrimental impact on the tree resource.

Driveway and Hardscape features: The drawings that were reviewed show the existing driveway crossing is to be removed and reconstructed and used as a common driveway access to both lots with the alignment slightly further from the municipal Tulip tree. It may only be possible to remove the existing concrete layer and replace the new surface over the existing base layers without any excavation beneath this grade. If possible, we recommend retaining any adjoining municipal curbs, and sidewalks undisturbed.

We recommend the portion of this existing pavement that is between the proposed building footprints and the front property boundary be retained through the construction phase to protect any roots from the municipal Tulip tree #14470 and the adjacent elm #Nt1 that extend beneath this paved area.

Removal and replacement of the existing pavement and hardscape from within the critical root zone areas of the subject trees may impact any root structures that grow beneath this hardscape. Based on the number an size of roots that are encountered, when the paved surfaces are removed, it may only be possible to remove the pavement layer and replace the new surface over the existing base layers without any excavation beneath this grade.

The project arborist must supervise excavation to remove any of the existing pavement and hardscape from within the critical root zones of trees that are to be retained and monitor and supervise the installation of the replacement surfacing.

Blasting and rock removal: We do not anticipate that any blasting or other means of rock removal will be required. If rock is encountered, the blasting to level these rock areas should be sensitive to the root zones located at the edge of the rock. Care must be taken to assure that the area of blasting does not extend into the critical root zones beyond the building and driveway and servicing footprints. The use of small low-concussion charges, and multiple small charges will reduce fracturing, ground vibration, and reduce the impact on the surrounding environment. Only explosives of low phytotoxicity, and techniques that minimize tree damage, are to be used. Provisions must be made to store blast rock, and other construction materials and debris, away from critical tree root zones.

Arborist supervision: The project arborist must supervise any excavation that encroaches within the critical root zones of the municipal and bylaw-protected trees.

Canopy Pruning: The canopy of municipal Tulip tree and adjacent Elm tree will require pruning for clearance above the proposed parking areas

Any pruning of the municipal trees for clearance must be completed by an ISA Certified arborist and to ANSI 300 standards at the direction of the project arborist or be completed by the municipal Parks Department staff . Pruning of the bylaw-protected elm tree must also be completed by an ISA Certified Arborist.

Work Area and Material Storage: It is important that the issue of storage of excavated soil, construction material, and site parking be reviewed prior to the start of construction; where possible, these activities should be kept outside of the critical root zones of trees that are to be retained.

Clients Responsibility – It is the responsibility of the client or his/her representative to contact the project arborist for the purpose of:

- Locating the barrier fencing
- Reviewing the report with the project foreman or site supervisor
- Locating work zones, where required
- Supervising excavation for the driveway, and service footprints where they encroach within the critical root zones of trees that are to be retained.
- Reviewing and advising of any pruning requirements for building clearances.

Review and site meeting: Once approval of the project is granted; it is important that the project arborist meet with the principals involved in the project to review the information contained herein. It is also important that the arborist meet with the site foreman or supervisor before any site changes or other construction activity occurs.

Please do not hesitate to call us at (250) 479-8733 should you have any further questions. Thank You.

Yours truly,
Talbot Mackenzie & Associates

Tom Talbot & Graham Mackenzie
ISA Certified, & Consulting Arborists

Encl. Tree resource spreadsheet (1), Resource sheet definitions (1), Tree location drawing with tree numbers and Barrier Fencing (1), Barrier fencing specifications (1),

Disclosure Statement

The tree resource assessment conducted is a Level 1 limited visual assessment of the aboveground portions of trees located adjacent to the 430 Powell Street property and municipal frontage, by way of a ground level walking inspection of all sides of the trunk canopy and root collar.
The opinions and recommendations provided are based on the circumstances and observations as they existed at the time of the site inspection of the Client's Property on May 29, 2020 and the trees situate thereon by and upon drawings and information provided by the Client. The opinions are given based on observations made and using generally accepted professional judgment, however, because trees and plants are living organisms and subject to change, damage and disease, the results, observations, recommendations, and analysis as set out are valid only as at the date any such testing, observations and analysis took place and no guarantee, warranty, representation or opinion is offered as to the length of the validity of the results, observations, recommendations and analysis.

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Key to Headings in Tree Resource Spreadsheet – Page 1

Tag: Tree identification number on a metal tag attached to tree with nail or wire at eye level. Trees on municipal or neighboring properties are not tagged and are identified on the site plans usually starting from the number one.
NT: No Tag due to inaccessibility or separate ownership.

DBH: Diameter at breast height – diameter of trunk, measured in centimetres at 1.4m above ground level. For trees on a slope, it is taken at the average point between the high and low side of the slope.
* Measured over ivy.
~ Approximate because of inaccessibility or on neighbouring property.

Crown Spread: Indicates the diameter of the crown spread measured in metres to the dripline of the longest limbs.

Relative Tolerance Rating: Relative tolerance of the species of tree to construction related impacts such as root pruning, crown pruning, soil compaction, hydrology changes, grade changes and other soil disturbance. This rating does not take into account individual tree characteristics, such as health and vigour. Three ratings are assigned: Poor, Moderate or Good.

Optimal Root Protection Zone: A calculated radial measurement in metres from the trunk of the tree. It is the optimal size of tree protection zone and is calculated by multiplying the DBH of the tree by 10, 12 or 15 depending on the Tree's Construction Tolerance Rating. This methodology is based on the methodology described by Nelda Matheny and James R. Clark in their book "Trees and Development: A Technical Guide to Preservation of Trees During Land Development."

- 15 x DBH = Poor Tolerance of Construction
- 10 or 12 x DBH = Moderate
- 08 or 10 x DBH = Good

For this purpose, the DBH of multiple stems is considered the sum of 100% of the diameter of the largest trunk and 60% of the diameter of each additional trunk. It should be noted that these measures are solely mathematical calculations that do not take into account crown spread, soil depth, age, health, or structure (such as lean).

Health Condition

- Poor - significant signs of visible stress and/or decline that threaten the long-term survival of the specimen
- Fair - signs of significant stress
- Good - no visible signs of significant stress and/or only minor aesthetic issues

Key to Headings in Tree Resource Spreadsheet – Page 2

Structure Condition

- Very Poor – Potentially imminent hazard that requires immediate action such as large dead hanging limbs or an unstable root plate
- Poor - Poor structural defects that have been in place for a long period of time to the point that mitigation measures are limited
- Fair - Structural concerns such as codominant stems that are still possible to mitigate through pruning
- Good - No visible or only minor structural flaws that require no to very little pruning

Tree Status:

- Bylaw-protected – Tree that is of a size or species that is protected under the current municipal Tree Protection Bylaw.
- Not Protected – Tree that is of a size or species that is not protected under the current municipal Tree Protection Bylaw.
- Municipal – Tree that is located on the municipal frontage.

Retention Status:

- Remove - Not possible to retain given proposed construction plans
- Retain - It is possible to retain this tree in the long-term given the proposed plans and information available. This is assuming our **recommended mitigation measures are followed**
- Retain * - See report for more information regarding potential impacts
- TBD (To Be Determined) - The impacts on the tree could be significant. However, in the absence of exploratory excavations and in an effort to retain as many trees as possible, we recommend that the final determination be made by the supervising project arborist at the time of excavation. The tree might be possible to retain depending on the location of roots and the resulting impacts but concerned parties should be aware that the tree may require removal.
- NS - Not suitable to retain due to health or structural concerns

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Tree Resource Spreadsheet for 430 Powell Street

Tree ID	Common Name	Latin Name	DBH (cm) * over ivy ~ approximate	Crown Spread (m)	CRZ (m)	Health	Structure	Relative Tolerance	Remarks and Recommendations	Retention Status
14470	Tulip tree	*Lirodendron tulipifera*	43.0	9	5.0	Good	Fair	Moderate	Structure altered by topping below hydro primary conductor .	Retain
14471	Magnolia Yellow bird	*Magnolia accuminata 'Yellow Bird'*	5.0	2	1.0	Good	Good	Moderate	Can be transplanted.	Retain
Nt1	Cork elm	*Ulmus carpinifolia*	11\24\25\27	12	5.0	Good	Poor	Good	Multiple stems, weakly attached at union. Located on adjacent property at 547 Michigan Street. Poor location for a tree of this ultimate size, may have grown as seedling.	TBD

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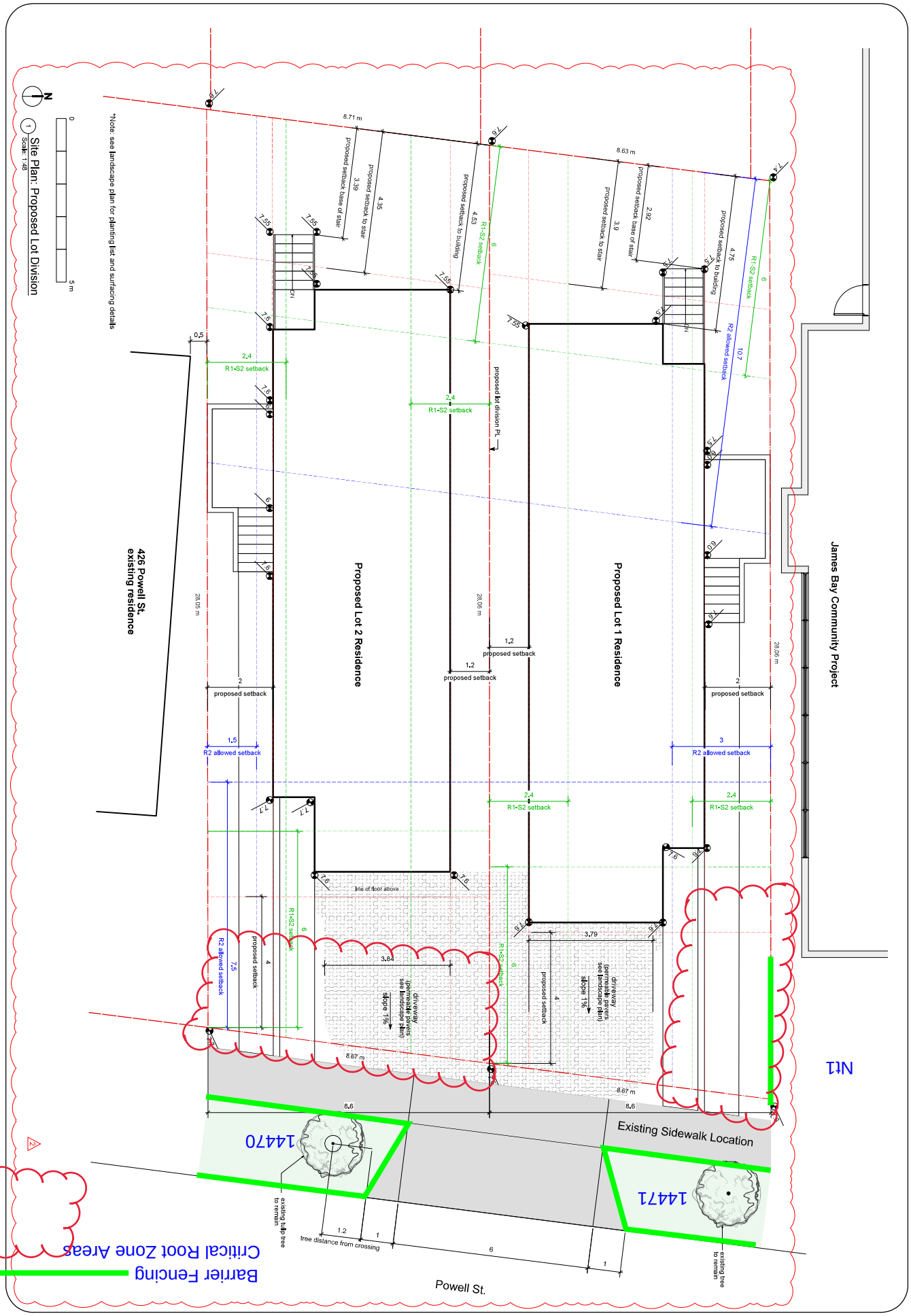
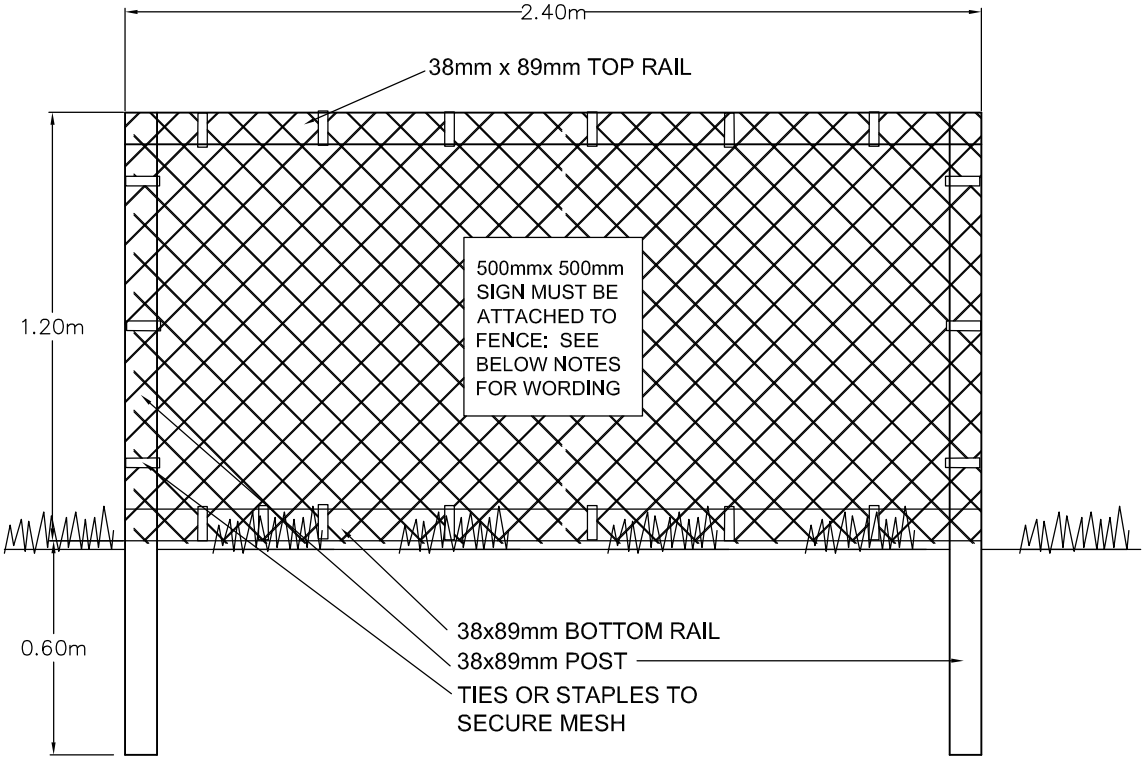


A 0.3
Site Plan

PROJECT
430 Powell St.

ISSUE
June 10, 2020: Application Revisions

Arcata
778.432.3550 | 924 McClure St.



TREE PROTECTION FENCING

1. FENCE WILL BE CONSTRUCTED USING 38 mm X 89mm WOOD FRAME: TOP, BOTTOM AND POSTS * USE ORANGE SNOW-FENCING MESH AND SECURE THE WOOD FRAME WITH"ZIP" TIES OR GALVANIZED STAPLES.

2. ATTACH A 500mm X 500mm SIGN WITH THE FOLLOWING WORDING: WARNING- TREE PROTECTION AREA. THIS SIGN MUST BE AFFIXED ON EVERY FENCE OR AT LEAST EVERY 10 LINEAR METERS.

* IN ROCKY AREAS, METAL POSTS (T-BAR OR REBAR) DRILLED INTO ROCK WILL BE ACCEPTED