WHEATLAND COUNTY LANDSCAPE & SCREENING GUIDELINES

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EXECUTIVE SUMMARY

The goal of this document is to ensure that future developments maintain or enhance the visual quality of Wheatland County and to preserve our rural character for future generations.

In recent years there has been increasing concern amongst landowners and the County regarding the impact that development has on the visual quality of the landscape. These guidelines provide examples of the types of development in Wheatland County that are considered visually obtrusive and would benefit from screening. These "target activities and facilities" include the outdoor storage of vehicles, materials, or any other goods, exterior work or assembly areas, waste and recycling areas, loading areas, mechanical and electrical equipment, as well as parking and sales lots.

Based on the categories of target activities and facilities a system consisting of three (3) different screening levels is recommended. In order of highest to lowest level of screening they are: full screening, which approximates 100% screening of the property from adjacent properties, partial screening, around 50% screening, and buffer screening, which should obscure approximately 25% of the development from adjacent roads or properties. A table was developed to assist in determining what level of screening is appropriate for different "target activities and facilities".

The level of screening, as well as the method of screening is to be proposed by the developer and approved by Council or by County Administration. Examples of each of the three levels of screening and a variety of methods to achieve each level are illustrated in these guidelines as well as pros and cons for each method. These guidelines should assist the developer in determining how to achieve the desired results.

In addition, a plant species list is included to aid in selecting species appropriate for the area and to provide guidance on what hardy plant material is to be used. Information is included with respect to the size, moisture needs, climactic zone, salt tolerance and native status of plant material. Finally, the County's expectations regarding maintenance of the screening materials are addressed.

1.0 INTRODUCTION

The purpose of the Landscape& Screening Guidelines Package is to provide guidance to landowners and developers who are operating or proposing to operate a commercial or industrial enterprise anywhere in the County including the West Highway 1 Area Structure Plan area, so that they might prevent their business from creating a negative visual impact on surrounding properties.

This package is intended to assist landowners who are planning a new enterprise or developers who are proposing a commercial or industrial project to anticipate if screening might be required at their site, how much screening might be required, how the screening could be achieved, how it should be built, what materials would be acceptable and how much it will cost. It also provides guidance on maintenance that may be required and how sign-off will be achieved.

Section 2 of the document describes the types of activities and facilities that may be subject to screening requirements. The level of screening that may be required can be determined in Section 3 by consulting Table 1. Examples of planting layouts and plant lists along with a discussion of expected costs are provided in Sections 5 through 7.

This document is provided as a guideline to outline potential application submission requirements for a development in the County. Whether or not landscape screening will be required and if so, what level of screening should be achieved will be determined by the County.

2.0 TARGET ACTIVITIES AND FACILITIES

The most common question that is asked, when a guideline like this is adopted, is:

"How do I know if this applies to my business?"

To help answer this question a list of the types of activities and facilities for which screening is generally recommended has been compiled.

The list is not intended to be comprehensive or exhaustive as it will ultimately be up to the County to decide if a proposed development will require screening. The list is solely to provide a general indication of the types of situations where screening is likely to be required.

The Land Use Bylaw provides a range of commercial and industrial land uses. The screening guidelines are not applied solely based on land use designation, but rather on the likelihood that the activity or facilities proposed will detract from the visual character of the area. It should be noted that these guidelines are not intended to be utilized to require screening of agricultural operations, structures or equipment on land that is zoned as Agricultural. The purpose of these guidelines, as mentioned in section 1.0, is to provide guidance to landowners who are operating or proposing to operate a commercial or industrial enterprise anywhere in the County including the West Highway 1 Area Structure Plan area.

When determining what types of activities and facilities might be subject to the requirement for landscape screening, it was determined that the best place to start was by identifying and categorizing visually less appealing or unsightly premises. Assuming that what will be encountered in the future will not differ dramatically from what currently exists, the following categories are suggested:

1. **Outdoor storage areas.** This category would include lumber, pipe, tanks, manufactured goods or materials for manufacturing processes. Establishments which sell bulk goods such as lumber yards would also fit under this category.
2. **Vehicle parking and storage areas**. This category would include cars, farm equipment, recreational vehicles, tractor trailers, boats etc. This does not include a typical parking lot, but an area which will store vehicles for a more extended period.
3. **Stockpile areas**. Large stockpiles of materials such as sand or aggregate used for industrial purposes would qualify for this category.
4. **Exterior work areas**. This includes areas for assembly and construction or repair and industrial processing, which occurs outside. This would include vehicle repair, body work, etc.
5. **Garbage or waste areas**. This would include areas for waste disposal, recycling storage or processing. Auto wrecking and similar activities would be covered here as well.
6. **Loading areas**. This category would cover loading docks and bays or other outdoor loading areas for commercial or industrial

buildings.

7. **Mechanical and electrical equipment**. This would typically include large air conditioning units, ventilation units, electrical transformers, small trash receptacles and other such equipment deemed unsightly by the County.
8. **Parking and sales lots**. This category would include areas, which are deemed unsightly, but still have a need to have some clear sight lines maintained. A vehicle sales lot or a supermarket parking lot are good examples of these areas.
9. **Other**. New technology or future federal/provincial legislation changes may allow for unforeseen uses, structures or equipment.

The above list provides a general guideline for when screening may be required, it should not to be considered exhaustive or cover all examples. Council or County administration may use their discretion to implement these guidelines whenever an application for land use re-designation, subdivision, or development is proposed.

Following are examples of each category for reference:

Category 1: Outdoor Storage Areas **Figure 2.1**

Category 1: Outdoor Storage Areas **Figure 2.2**

Category 2: Vehicle Parking and Storage Areas **Figure 2.3**

Category 2: Vehicle Parking and Storage Areas **Figure 2.4**

Category 3: Material Stockpile Areas **Figure 2.5**

Category 4: Exterior Work Areas **Figure 2.6**

Category 5: Garbage and Waste Areas **Figure 2.7**

Category 6: Loading Areas **Figure 2.8**

Category 7: Mechanical & Electrical Equipment **Figure 2.9**

Category 8: Parking Lots and Sales Lots **Figure 2.10**

3.0 LEVELS OF SCREENING

Based on the categories of target activities and facilities, three (3) levels of screening may be applied. In order of highest to lowest level of screening they are: full screening, which approximates 100% screening of the property from adjacent properties, partial screening, around 50% screening, and buffer screening, which should obscure approximately 25% of the development from adjacent roads or properties. A more detailed description of the three types of screening follows.

3.1 FULL SCREENING

Full screening is used to provide a complete visual barrier of a selected area, using fences, walls, berms and/or tightly spaced evergreen plant material.

Full screening may be considered appropriate when the intent is to fully block the view from adjacent roads or lands. Garbage storage areas and electrical or mechanical equipment locations are examples of areas that may benefit from full screening. There may be circumstances where full screening is used in conjunction with partial or buffer forms of screening on a site.

Closely spaced evergreen trees are one method of providing full screening.

3.2 PARTIAL SCREENING

Partial screening is used to when the intent is to visually block approximately 50% of the activity or facility from adjacent properties or roadways. A partial screen provides a sense of visual transparency between portions of the site and adjacent roads/lands. This moderate level of screening is appropriate for a variety sites.

A combination of walls/ fences, coniferous / deciduous plant material and earth berms can be used to create partial screening. Fences may allow for 50% opacity; trees are planted farther apart. and earth berms may only be half the height necessary to block the view. A hedge of deciduous shrubs, such as lilacs or caragana provides significant coverage for 50% of the year. A combination of multiple screening elements can be used to create an interesting visual barrier from both inside and outside the site.

A mixed landscape is an appropriate method of providing partial screening.

3.3 BUFFER SCREENING

Buffer screening is used to provide a low level of screening or 'landscape softening'. Vehicle sales lots and commercial parking areas are suggested examples of areas that may benefit from buffer screening.

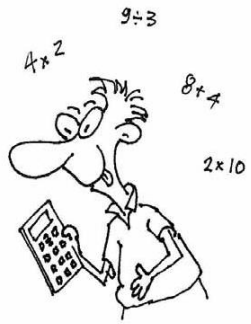
Fences, low walls, earth berms and a mix of deciduous and coniferous trees and shrubs can be used as components of buffer screening.

A landscape buffer screen is one method of providing the 25% screening suggested for buffer screening.

3.4 DETERMINING THE SUGGESTED LEVEL OF SCREENING

In Section 2 of this document several categories of activities and facilities for which screening may be required were described. Some of these categories would benefit from minimal screening, while for others, a more complete screening would be appropriate. A common question is:

"How do I determine how much screening I will be asked to provide for my proposed development?"



The precise level of screening that will be required of a landowner or developer will be at the discretion of the County and will be dependent upon such factors as the visibility of the site as well as adjacent land uses. However, a general idea of what will be required can be determined through use of a table and general check list.

Below is a table with suggested levels of screening for the eight categories of activities and facilities.

Table 1 – Screening Levels

Screening Levels by Activity or Facility Category	Suggested Screening Level		
	Full Screening ~100%	Partial Screening ~50%	Buffer Screening ~25%
Outdoor Storage Areas		✔	
Vehicle Parking & Storage		✔	
Material Stockpile Area		✔	
Exterior Work Areas		✔	
Garbage & Waste Areas	✔		
Loading Areas		✔	
Mechanical & Electrical Equipment *	✔		
Parking Lots & Sales Lots			✔

*This item is suited to full screening of selective areas.

To determine what level of screening is likely to be required:

- First, find the category above that best describes the proposed development and follow along to the checked column. This will give you a preliminary result for the level of screening required.

- Next, answer the following questions:

Extra screening may be required if the proposed development is:

- In or adjacent to a hamlet.
- Located on a major road or provincial highway.
- Located adjacent to residential development.
- Located adjacent to a natural area.
- Located near a major recreational facility.

Less screening may be considered if the proposed development is:

- On a site that has rolling terrain. If the terrain is able to screen, which would depend on the location of visually obstructive activity or facility.
- On a site that is well treed.
- A site that is adjacent to similar uses.

Example 1:

There is a proposal for a recreational vehicle (RV) storage facility. Referring to Table 1, this would fall under Category 2 - Vehicle parking and storage areas. For Category 2 partial screening is suggested.

However, if the proposed facility is located on a flat site with no trees that is both on a major highway and adjacent to a country residential development, the Development Authority may, at their discretion, require full screening.

Example 2:

There is a proposal for a restaurant within a hamlet that requires a large mechanical fan off the kitchen, a used grease collection bin, and a garbage dumpster.

According to Table 1, the mechanical equipment and the garbage/waste area will likely require full screening. As the proposed site is within a hamlet and located adjacent to residential lots, it is likely that the Development Authority will request full screening.

4.0 PROPOSED SCREENING METHODS

Once the level of screening that is likely to be required is determined, a landowner or developer may ask:

"How do I determine what method to use to provide the required screening?

The level of screening required is only the first step in the process. Next, the landowner should determine how they will fulfill the likely requirements. This will be included in the application as the "Landscape Plan" or in case of fencing or berming only the "Site Plan".

STEP 1:

Prepare a detailed site plan to scale as per the requirements listed in the Land Use Bylaw.

STEP 2:

Referring to Table 1, the landowner or developer should determine the suggested level of screening based on their site design, activity or facility category and how they will fulfill the likely requirements.

STEP 3:

Referring to Table 2, Screening Methods and the Screening Level descriptions and examples, determine the most appropriate methods for fulfilling the likely screening requirements. This will be included in the application as part of the "Landscape Plan".

STEP 4:

Prepare a "Landscape Plan" and submit it as part of the development permit application. The "Landscape Plan" must be prepared by a Professional Landscape Architect or Arborist.

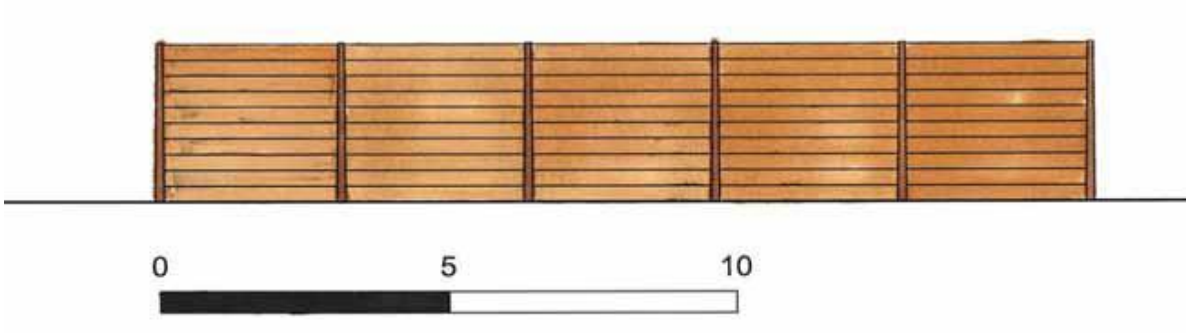
Table 2 – Screening Methods

Screening Method	Screening Level	Description	Advantages	Disadvantages
Fence or Wall	Full Screening	Solid construction fence or wall of sufficient height & length to obscure the activity or facility that requires screening. • Acceptable materials include: concrete block, concrete panels, brick, wood, aluminum, PVC, stucco.	Attractive & generally low maintenance requirements.	Relatively large initial expense. Tend to be difficult to build on rolling or densely vegetated areas.
Fence or Wall	Partial Screening	Solid constructed fence or wall of sufficient height and length to obscure approx. 50% of the activity or facility that requires screening. • Acceptable materials include: See above.	See above	See above
Fence or Wall	Buffer Screening	Sections of fence or wall may be only partially solid – may have sections or wrought iron or lattice or openings which provide some opportunity for views through. The requirement is that it obscures approx. 25% of the activity or facility that requires screening. • Acceptable materials include: See above and add lattice, wrought iron, and glass work.	See above	See above
Earth Berm	Full Screening	A mound or bank of earth of sufficient length and height to obscure the activity or facility that requires screening.	Relatively inexpensive. Very low maintenance requirements.	Not very attractive unless combined with landscaping or hardscaping or both. May need to remove existing vegetation to install.
Earth Berm	Partial Screening	A mound or bank of earth of sufficient length and height to obscure approx. 50% of the activity or facility that requires screening.	See above.	See above.
Earth Berm	Buffer Screening	A mound or bank of earth of sufficient length and height to obscure approx. 25% of the activity or facility that requires screening.	See above.	See above.

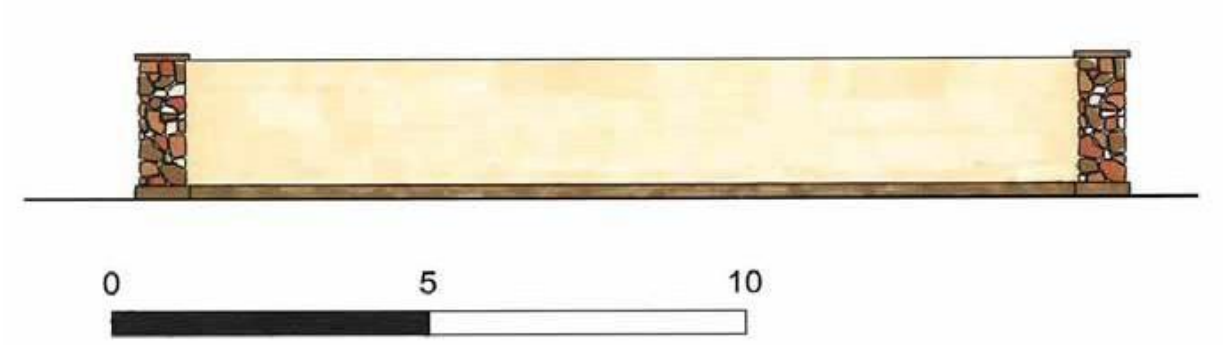
Screening Method	Screening Level	Description	Advantages	Disadvantages
Landscaping	Full Screening	Densely planted rows or groupings of trees of sufficient height and length to completely obscure the activity or facility that requires screening.	Attractive. Can be installed on flat or rolling terrain & can work with existing vegetation.	Relatively large initial expense. Requires maintenance and water.
Landscaping	Partial Screening	Rows of groupings of trees and shrubs, both evergreens and deciduous of sufficient density to obscure approx. 50% of the activity or facility that requires screening.	See above.	See above.
Landscaping	Buffer Screening	Rows of groupings of trees and shrubs, both evergreens and deciduous of sufficient density to obscure approx. 25% of the activity or facility that requires screening.	See above.	See above.
Combination	Full Screening	Sections of fencing or walls may be combined with berms or with rows or groupings of trees and shrubs, both evergreen and deciduous of sufficient density to entirely obscure the activity or facility that requires screening.	Has the potential to be the most attractive option.	Can be very expensive. Water and maintenance requirements may be significant particularly if landscaping is planted on berms.
Combination	Partial Screening	Sections of fencing or walls may be combined with berms or with rows or groupings of trees and shrubs, both evergreen and deciduous of sufficient density to obscure approx. 50% the activity or facility that requires screening.	See above.	See above.
Combination	Buffer Screening	Sections of fencing or walls may be combined with berms or with rows or groupings of trees and shrubs, both evergreen and deciduous of sufficient density to obscure approx. 25% of the activity or facility that requires screening.	See Above.	See Above.

4.1 SCREENING METHODS – EXAMPLES

Fence or Wall Screen – Full or Partial Screening



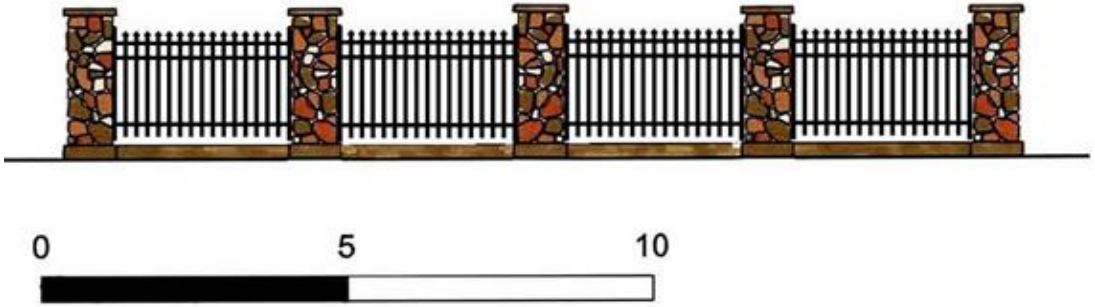
Concrete panel or concrete block fence – Elevation



Stucco wall – Elevation

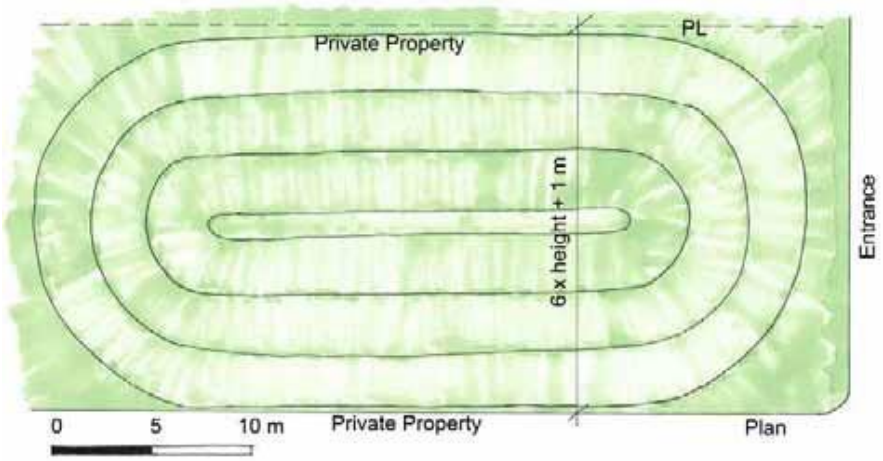
Note: Decreasing height and/or length can change wall or fence from full to partial screening.

Fence or Wall Screen – Buffer Screening

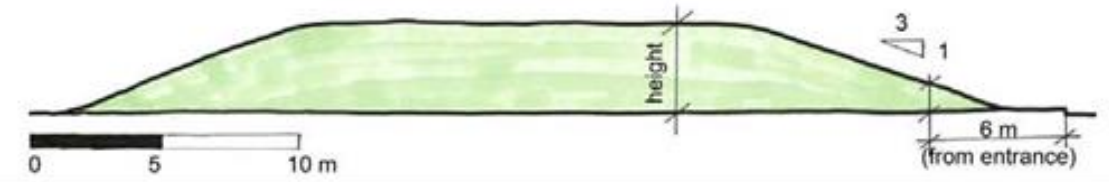


Buffer wall – Elevation

Earth Berm Screen – Full or Partial Screening (Constructed Berm with Turf)



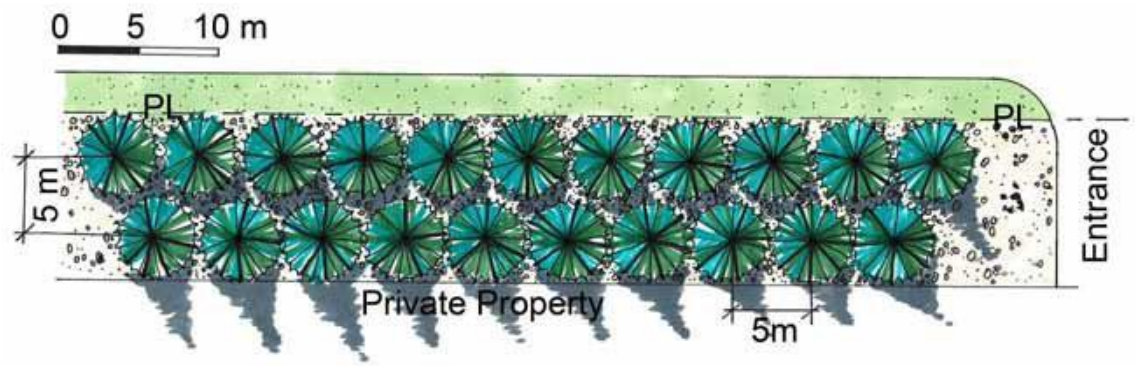
Constructed berm with turf – Plan



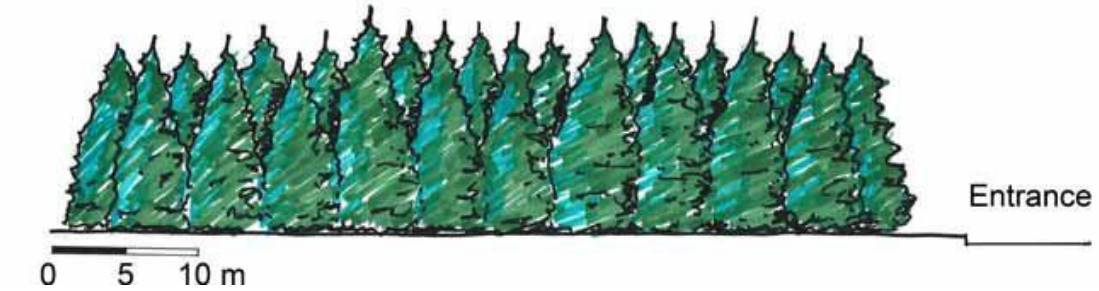
Constructed berm with turf – Elevation

Note: Decreasing height and/or length can change berm from full to partial screening.

Landscaping Screen – Full Screen (Evergreen Screen)



Evergreen Screen – Plan

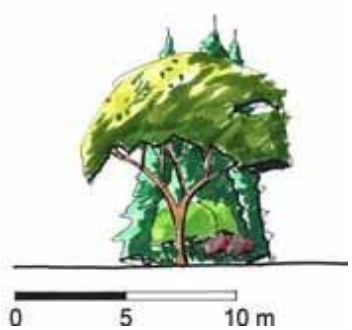


Evergreen Screen – Elevation

Landscaping Screen – Partial Screen (Mixed Landscape Screen)

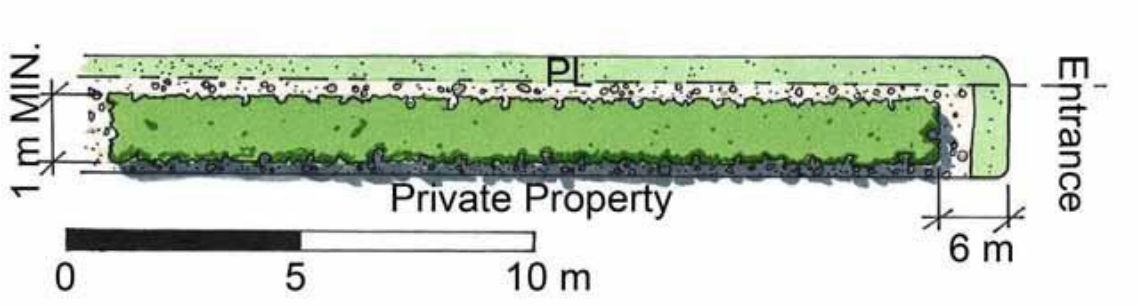
Mixed Landscape – Plan

Mixed Landscape – Elevation

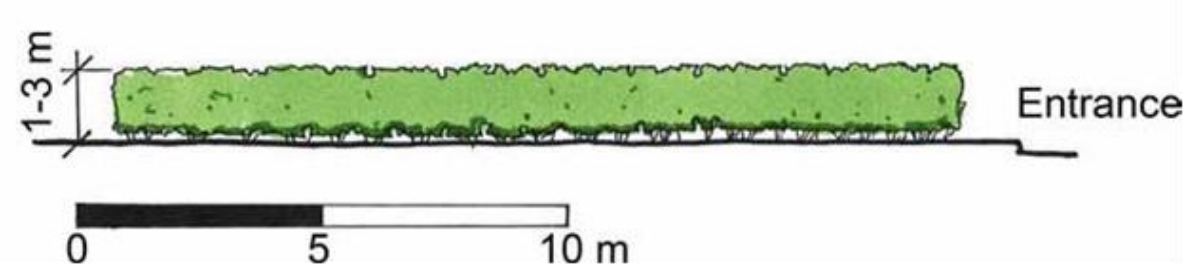


Mixed Landscape – Section

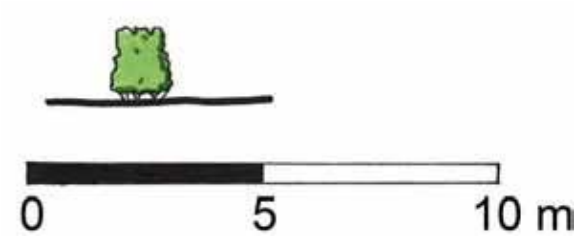
Landscaping Screen – Partial Screen (Deciduous Hedge Screen)



Deciduous Hedge – Plan

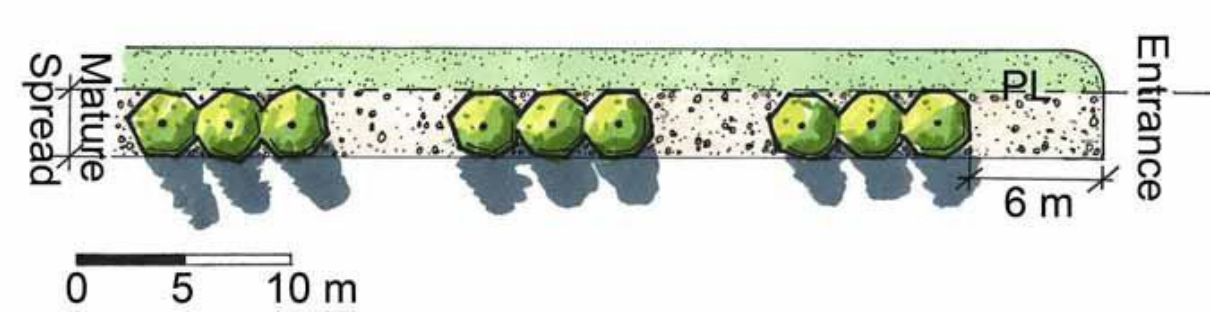


Deciduous Hedge – Elevation

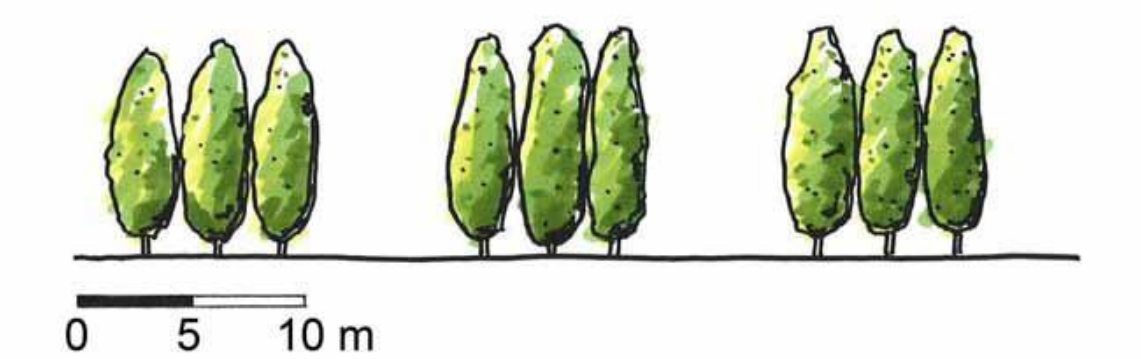


Deciduous Hedge – Section

Landscaping Screen – Partial Screen (Columnar Tree Screen)



Columnar Tree Screen – Plan

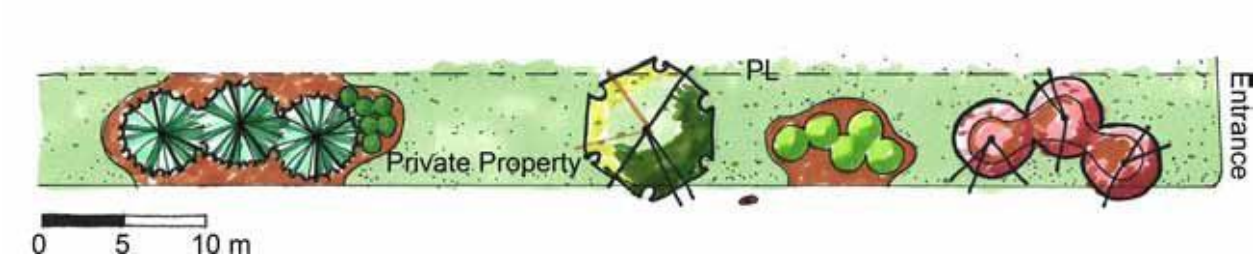


Columnar Tree Screen – Elevation

Note: The above columnar screen qualifies as partial screening if evergreens are used, however, would require more trees if deciduous trees are used.

- *For full screening space 2/3 of mature height from next tree.*
- *Width varies, use width equal to mature spread.*
- *Plant last tree 6 m + 1/2 mature spread from roadway entrance.*

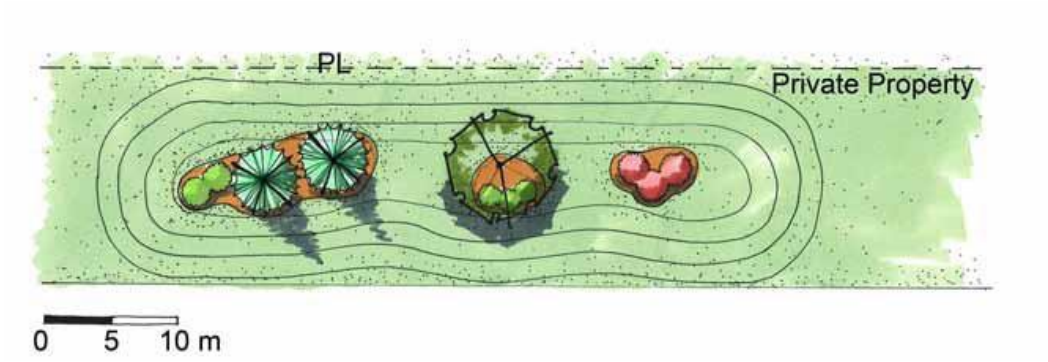
Landscaping Screen – Buffer Screen



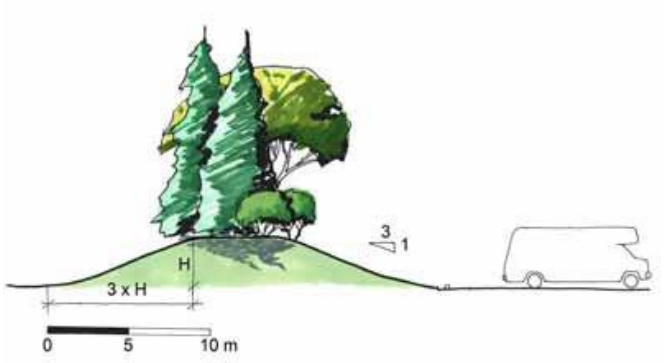
Mixed Planted Landscape – Plan

Mixed Planted Landscape – Elevation

Combination Screen – Full Screening (Berm with Plants on top)



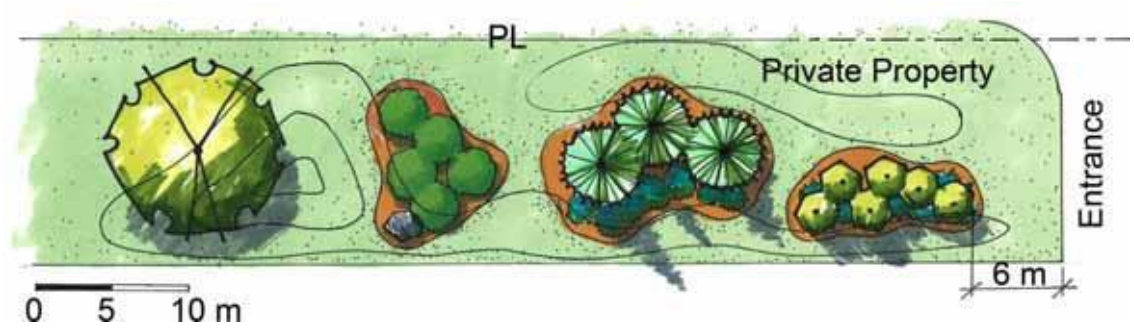
Berm with Plants on Top – Plan



Berm with Plants on Top – Elevation

Note: This option is not recommended unless provisions can be made for irrigation using non-potable or recycled water.

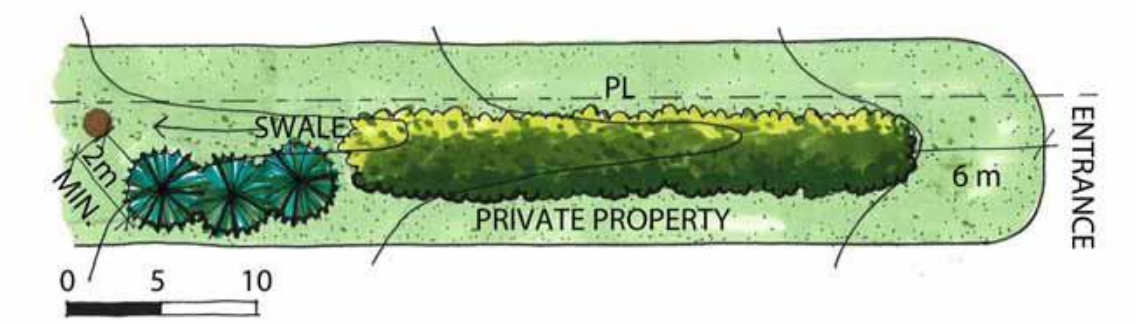
Combination Screen – Full or Partial Screening (Earth Berms and Mixed Planted Landscaping)



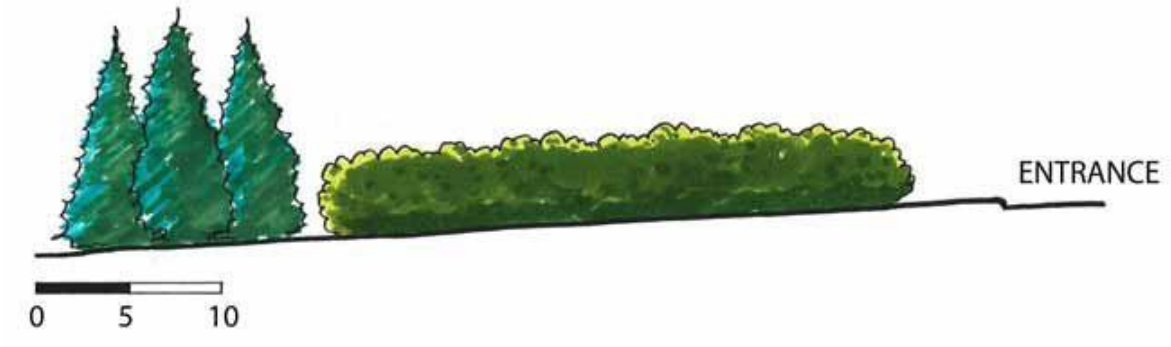
Berms & Mixed Planted Landscape – Plan

Berms & Mixed Planted Landscape – Elevation

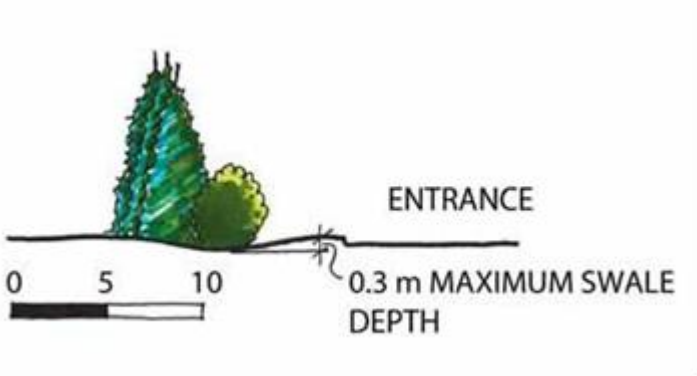
Combination Screen – Partial Screen (Planted Swale Screen)



Swale Planting – Plan



Swale Planting – Elevation



Swale Planting – Section

Note: Width varies, use width equal to mature spread of shrubs plus 1 m.

- *Keep screen out of 6 m from roadway entrance (deciduous trees can have branches removed below 1.8 m).*
- *Use only moisture tolerant species at the bottom of swale (dryer species can be located higher up).*
- *Swale must have outlet to some drainage or depression must drain water within 72 hours.*

5.0 DEVELOPING THE SCREENING PLAN

As mentioned in Section 4.0, a complete application for a proposed development that is likely to require screening should include the proposed screening plan.

The proposed screening plan will include a scaled drawing of the site including proposed access, any rights of way or easements, setbacks that apply from roads or right of ways, all buildings, parking areas, and other proposed site improvements. It will clearly indicate which areas are likely to require screening and the type of screening proposed (full, partial or buffer screening), and the methods that will be used to achieve the screening.

It should also include a schedule that describes how the screening will be constructed and what plants, if any, will be utilized. Wheatland County has provided a list of specifications, a plant list and some planting details that should assist landowners or prospective developers in answering the question:

"How do I construct my landscape screen?"

Wheatland County has developed a set of specifications for landscape screening that will assist applicants with the preparation of their proposed screening plan. These specifications can be found in **Appendix A** of this document.

A list of plant material that is suitable for Wheatland County is also provided, in **Appendix B**. This list includes the hardiness (by zone) to assist with plant selection for specific sites. More exposed areas will tend to require hardier plants more suited to colder zones than sheltered locations. The use of native plant material is usually preferred; however, the native plant palette is quite limited, and many foreign species have been successfully used in Alberta for decades. Moisture need and salt tolerance should also be considered in choosing plant material. When planting in swales or in lower lying areas, or with irrigation drought tolerance is not as critical, but if the screening plan calls for landscaping on berms then drought tolerance is critical. Where salt spray or runoff from de-icing salts coming in contact with plant material is unavoidable, then selecting salt tolerant species will be beneficial. The mature size of the plant material is given, but these are average sizes only. Some plants will grow to surpass these sizes, while some will not achieve the average sizes. The more favourable the growing conditions are the more likely the plants will achieve or surpass average sizes.

6.0 LANDSCAPE CONSTRUCTION APPROVAL REQUIREMENTS

In accordance with direction from Wheatland County Administration, the developer will be required to submit one bound sets of landscape construction drawings, and a digital set (.pdf) of the drawing set. All drawings submitted must provide:

- date, plan scale (preferred scales: 1:200. 1:250. 1:500);
- north arrow, legal address, name of the property owner(s), name and contact information of the person or firm responsible for the landscape plan, name of the project;
- name and endorsement stamp of the landscape architect or arborist;
- boundaries and dimensions of the subject site;
- a site plan in square meters, with the location of proposed landscaping and related landscaping features (e.g., planting beds, boulders, etc.) in relation to all existing and proposed buildings, signs, outdoor storage, parking areas, display areas, approaches, and driveways;
- location of proposed and existing utilities, easements and right-of-ways;
- if landscaping is being proposed within a utility right-of-way, the plan must be endorsed by all utility companies that have access to the right-of-way indicating their approval of the proposed landscaping within the right-of-way;
- location and number of plant material that are proposed to be removed, replaced or retained;
- location of new plant materials;
- location of planting beds and identification of bedding materials;
- plant material list identifying the name, quantity, and size of plant material;
- all plant material shall be scaled to 2/3 maximum size as noted in Alberta Yards and Garden What to Grow;
- all other physical features, existing or proposed, including berms, slopes, screening, walls, fences, outdoor furniture, lighting, garbage enclosures, and decorative paving, open space systems, and pedestrian circulation patterns;
- location of pedestrian sidewalks, trails and/or pathways;
- adjacent existing and proposed roads, trails and sidewalks;
- the existing topography, show contours at 0.5m intervals;
- the layout and type of soft and hard landscaped areas;
- plant list showing quantities, common and botanical name, size and condition, with minimum required number and mix ratio of trees and shrubs in the coniferous/deciduous ratio required;
- minimum site area required and proposed, measured in square meters, to be landscaped pursuant to the measurements of the Landscape guidelines;

- details of the irrigation system, including extent of water delivery;
- maintenance procedure to ensure vegetation survival or replacement;
- details as required, and
- any other information as requested by the County.

Landscape Drawings stamped and submitted by a Registered Landscape Architect shall include a construction cost estimate.

Further to the approval of the screening plan, applicants will generally be required as a condition of a development permit to provide a guaranteed security to ensure landscaping is provided and maintained for one (1) year after Construction Completion Certificate.

7.0 MAINTENANCE REQUIREMENTS

Once the screening has been installed according to specifications, there will be a maintenance requirement to ensure that the screening itself does not become unsightly due to dead or dying vegetation, an abundance of weeds, or fences or walls that are in need of maintenance or repair.

The prospect of maintaining the screening may be daunting so the County has developed a set of requirements that answer the question:

"How much maintenance will be required?"

7.1 LANDSCAPING

- Maintain all plant material from the time of planting until the date of issue of Final Acceptance Certificate.
- Maintenance includes all measures necessary to establish and maintain all plants in a vigorous and healthy growing condition.
- At the time of acceptance, all material must be in a healthy, vigorous growing condition.
- Un-mulched beds and tree pits must be freshly cultivated and free of weeds, rubbish, and debris. Mulched beds should be free of weeds, rubbish and debris.
- Remove all dead branches. Prune broken portions of branches back to live lateral.

7.2 FENCING AND HARDSCAPING

- Fences or walls must be whole and complete including finishes prior to the date of issue of Final Acceptance Certificate.
- Any damage to walls or fences from weather, wildlife, livestock, traffic accidents or vandalism must be repaired in a timely manner.
- Fences or walls should be repainted or refinished at such time as they begin to appear unsightly from age or degradation.

8.0 ESTIMATED SCREENING COSTS

The prospect of constructing screening for a proposed development can seem daunting and applicants will most likely find themselves wondering:

"How much is this going to cost me?"

There are many factors that will influence the cost of the screening.

These include:

- The size of the development;
- The level of screening required;
- The method of screening which is chosen;
- Whether or not the services of a landscape architect or landscape design/installation contractor are enlisted;
- Market factors related to landscaping and construction materials and services.

There are two components to the cost for screening:

- Fees and letters of credit to the Municipality associated with the application process.
- The cost for the design, construction, and maintenance of the screening.

8.1 FEES TO THE MUNICIPALITY

An application that is likely to require a screening component may be assessed screening plan review fees in addition to regular application fees. Also there will be a requirement for a deposit in the form of a letter of credit to be provided upon approval of the application. This will be returned to the applicant once the screening has been constructed according to the screening plan to the satisfaction of the Municipality and the Final Acceptance Certificate has been issued.

8.2 COST FOR THE DESIGN

Construction & Maintenance of the Screening

There are many variables that will determine the cost of design, construction, and maintenance of screening. Table 2 addresses relative preliminary level expenses of some of the different methods for screening, but it is in no way intended to be a comprehensive guide. The best way to ensure that you know what you are getting into is to hire a reputable landscape architect or a landscaping firm that offers a design/build service. They will have up to date information on costing for various forms of screening and may have creative solutions to meet the requirements that have not been presented here.

If the landowner or developer elects to design their own screening plan, they will be responsible for determining costs for their own budgeting.

9.0 CONCLUSION

The purpose of the screening guidelines is to provide guidance to landowners or developers who are operating or proposing to operate a commercial or industrial enterprise anywhere in the County including the West Highway 1 Area Structure Plan area, so that they might prevent their business from creating a negative visual impact on surrounding properties.

These guidelines were developed with the intent to protect the visual quality of the lands within the County and are not intended to impose undue hardship on business owners. The guideline package is intended to assist applicants for commercial or industrial projects in anticipating if screening might be required for their project, and to provide guidance to allow them to successfully navigate the design and approval process.

The package guides applicants through the process of determining what level of screening might be required for their proposed development and then provides materials to assist in the preparation of the Screening Plan. Expectations with respect to maintenance are discussed as well as an approximation of costs for constructing the screening. The appendices contain supplementary information and detailed specifications, all of which are intended to facilitate the approval of the proposed development.

The County will consider a landscape screening proposal submitted by a developer as part of the application process. At their discretion, they will determine if and how much screening is necessary. The goal is to work with applicants to ensure that future developments maintain or enhance the visual quality of Wheatland County and to preserve our rural character for future generations.

APPENDICES

APPENDIX A: SCREENING SPECIFICATIONS

GENERAL

1. All requirements of the Wheatland County Land Use Bylaw must be complied with. Please note Section 7.12 regarding landscaping, fencing and screening.
2. All planting work is to be carried out by experienced personnel under the direction of a skilled horticultural foreman.

SIGHTLINES & SETBACKS

3. Line assignments (setbacks) from utilities, as determined by the County.
4. Ensure required setbacks from highways or municipal roads.
5. Ensure appropriate sight line distance for all entrances.

BERMS

6. Berms are to be three (3) horizontal units on each side for every vertical unit (3:1).
7. Compact earth to 85 standards proctor density.
8. Top of berm is to be rounded.

PLANTING

9. Planting area for coniferous trees, minimum 11m in width for double row and 7m in width of single row.
10. All trees spaced ½ maximum spread or 5m (whichever is less).
11. Keep all roots and root balls watered prior to planting.
12. Dig out all planting excavations by tree spade, backhoe or hand shovel.
13. Ensure width of all planting excavations is 450mm greater on all sides than the width of the root ball or as per site conditions to maintain soil volume.
14. Scarify subgrade to a depth of 75mm under all tree pits and shrub beds.
15. Place plant plumb in the centre of the planting pit with a firm base under the root ball.
16. Face the plant to give the best appearance or relationship to the adjacent structures.
17. Place bare root plants so that the roots lie in a natural position.

18. Backfill with topsoil and firmly compact to ensure the plant retains its orientation. Ensure no air pockets remain around the roots.
19. Thoroughly water trees within the same working day of planting trees.
20. Minimum size for coniferous trees is 1 meter height, 600mm root ball diameter.
21. Minimum #5 pot for all shrubs.
22. Minimum 40mm caliper for deciduous trees, 600mm root ball diameter.
23. All planting bed should be mulched to a depth of 75mm. Keep material 50mm away from trunks and stems to prevent rotting of bark.
24. Ensure that the trees remain at grade surrounded by a tree well to a depth of 100mm after planting and watering. All trees to be mulched starting 50mm from the root flare (trunk) and extending the length of the hole.
25. Wood type of mulch can be any type except Fraxinus species. All non-wood mulch types must receive approval of the County.
26. Mulch sizes to be an even mix of sizes ranging from 10mm x 10mm x 5mm to 40mm x 60mm x 35mm.
27. Mulch material should have no more than 5% by volume of soil, sawdust, peat moss, needles and twiggy material or longer strips.
28. Minimum 125mm depth of topsoil for sod, minimum 150mm depth of topsoil for seed.
29. Shrubs to be in 600mm depth topsoil bed.
30. As a minimum, all plant material must be nursery grown and meet the specifications set out in the latest Guide Specifications for Nursery Stock prepared by the Canadian Nursery Trade Association (C.N.T.A) and the International Society of Arboriculture (I.S.A.) for size, height, spread, grading, quality and method of cultivation.
31. Nomenclature of the specified plants shall conform to the International Code of Nomenclature for Cultivated Plants and the latest edition of Standardized Plant Names.
32. Any plant material not conforming to (the CNTA point above) will be designed as “collected plants”.
33. “Collected plants” may only be used when approved in writing by the County.
34. All material must conform to the sizes shown on the plant list. Larger material may be used only when approved by the County. Use of larger plants will not increase the contract price.
35. Do not use plant material on which the root ball has been cracked or broken preparatory to or during the planting process.

APPENDIX B: PLANT LIST

SHRUBS FOR WHEATLAND COUNTY						
Deciduous Shrubs						
Name & Hardiness Zone	**Scientific Name & Reference**	**Height & Width (m)**	**Growth Rate & Lifespan**	**Characteristics (Drought Resistance as Noted)**	**Ideal Growing Conditions & Issues**	**Use**
Cherry Prinsepia 3a	Prinsepia sinesis CoCYS, CoCLUB, ELN	2 & 2	Medium 40 years	Dense foliage from grade, multi-stemmed & round form. Yellow flowers & red berries. Tolerates dry or moist conditions & pollution. "Low water shrub" – CoCLUB.	Full sun. Spiny branches. Fruit consumed by birds. Low maintenance.	Barrier plant. Suitable for mass plantings & screening.
Double Flowering Plum (Flowering Almond) 3a	Prunus triloba 'Multiplex' CoCLUB, TOO, ELN	2 & 1.5	Medium 40 years	Foliage from grade, multi-stemmed & round form. Striking pink flowers. No fruit. Tolerates pollution. Intolerant of standing water. "Low water tree" – CoCLUB.	Full sun. Requires consistent moisture & moderate maintenance.	Suitable for mass plantings & screening.
Evans Cherry 3a	Prunus 'Evans' TOO, ELN	4 & 4	Medium 30 years	Small tree (canopy 0.6m from grade) or multi-stemmed shrub. White flowers, edible sour cherries. Pollution tolerant. Intolerant of standing water.	Full sun. Requires consistent moisture. Fruit may require clean up unless consumed by birds.	Accent plant. Orchard.
Emerald Carousel Barberry 4a	Berberis 'Tara' or Berberis thunbergii 'Tara' CoCYS, ELN	1.2 & 1.2	Medium 30 years	Dense multi-stemmed with round form & canopy at grade. Yellow flowers, red fruit & bright red foliage in fall. Tolerates moist or dry conditions & salt. Highly tolerant of pollution. Drought resistant.	Full sun. Spiny. Requires some maintenance.	Effective barrier plant. Mass plantings.
Highbush Cranberry (American Cranberry bush) 2a	Viburnum opulus var. americanum CoCYS, ELN See Note 2.	3.5 & 2.5	Medium 40 years	Multi-stemmed dense shrub with white flowers & red, tart, edible fruit. Tolerates pollution & well-drained to poorly drained soils.	Full to partial sun. Sandy to loam soils. Requires consistent moisture. Fruit consumed by birds. May require some maintenance.	Accent or barrier plant. Suitable for mass planting & screening.
Meyers Dwarf Lilac (Dwarf Korean Lilac) 3a	Syringa meyerii 'Palibin' CoCYS, ELN	1.2 & 1.5	Slow 30 years	Dense foliage from grade, multi-stemmed round form. Purple flowers. Tolerates pollution & moist or dry conditions.	Full sun. Low maintenance. Requires consistent moisture.	Accent plant, mass planting & screening.

Deciduous Shrubs

Name & Hardiness Zone	Scientific Name & Reference	Height & Width (m)	Growth Rate & Lifespan	Characteristics (Drought Resistance as Noted)	Ideal Growing Conditions & Issues	Use
Mockorange 2a, 2b, 3a depending on variety	Mockorange ELN, (*TOO: Philadelphus species)*	'Blizzard' 2.5 & 0.6, 'Galahad' 1.2 & 1.2, 'Snowbelle' 1.2 & 1.2, x virginalis 'Minnesota Snowflake' 1.5 & 2.2, lewisii 'Waterton' 1.8 & 1.5	Fast 30 years	White flowers. Multi-stemmed. Form varies. Tolerant of pollution. Canopy height from grade: 'Blizzard' 0.6m, 'Galahad' 0.3m, 'Snowbelle' at grade, Minnesota Snowflake 0.6m, Waterton 0.6m,	Full sun to partial shade. Low maintenance. Requires consistent moisture.	Accent plant. Mass planting & screening.
Mongolian Cherry (European Dwarf Cherry) 3a	Prunus fruiticosa CoCLUB, ELN	0.9 & 0.9	Medium 20 years	Multi-stemmed round form with canopy at grade White flowers & edible red fruit. Tolerates pollution. Intolerant of standing water. "Low water shrub" – CoCLUB.	Full sun. Requires consistent moisture & some maintenance. Suckers.	Accent plant. Mass planting & naturalizing.
Nanking Cherry 2a	Prunus tomentosa CoCLUB, ELN	1.8 & 1.8	Medium 30 years	Multi-stemmed, round form with canopy at grade. Pink flowers, edible sweet fruit. Tolerates pollution. Intolerant of standing water. "Low water shrub" – CoCLUB.	Full sun. Requires consistent moisture & some maintenance.	Accent plant. Mass planting & screening. Orchard.
Nannyberry (Sheepberry) 2a	Vigurnum lentago CoCYS, CoCLUB	4 to 3.5	Medium 40 years	Multi- stemmed upright spreading form with canopy 0.6 – 1.2m from grade. White flowers & purple fruit. Tolerates moist or dry conditions & pollution. "Low water shrub" – CoCLUB.	Full sun to full shade. Requires some maintenance. Suckers. Fruit edible, consumed by birds.	Accent plant. Mass planting & screening.
Ninebark (Eastern Ninebark) 3a	Physicarpus opulifolius CoCYS, ELN	'Center Glow' 2.2 & 2.2, 'Copperina' 2.5 & 1.5, 'Dart's Gold' 1.5 & 0.9, 'Diablo' 2.5 & 2.5, 'Donna May' 1.2 & 0.9, 'Jefam' 1.8 & 1.2, 'Nugget' 1.8 & 1.5, 'SMPOTW' 1.2 & 1.2, 'Summer Wine' 1.8 & 1.5	Medium 30 years	Multi-stemmed upright spreading form with canopy with canopy about 0.3m from grade & white flowers. Canopy is upright spreading except 'Dart's Gold', 'SMPOTW', & Summer Wine which are considered round. Foliage is red or purple or turns red or purple except 'Dart's Gold' (light green foliage) & 'Nugget (bright green foliage). Tolerates dry or moist conditions. Highly tolerant of pollution. Hardy.	Full sun to partial shade. Requires occasional maintenance.	Accent plant. Mass planting & screening.

Deciduous Shrubs

Name & Hardiness Zone	Scientific Name & Reference	Height & Width (m)	Growth Rate & Lifespan	Characteristics (Drought Resistance as Noted)	Ideal Growing Conditions & Issues	Use
Potentilla (Shrubby Cinquefoil) All are 2a except 'Mango Tango' & 'Pink Beauty' 3a	Potentilla fruiticosa (or Dasiphora fruiticosa) CoCYS, TOO	'Abbotswood': 0.9 & 0.9, 'Coronation Triumph' 0.9 & 0.9, 'Gold Drop' 0.75 & 0.75, 'Gold Star' 0.75 & 0.75, 'Goldfinger' 1.5 & 0.9, 'Mango Tango' 0.9 & 1.2, 'McKay's White' 0.75 & 0.9, 'Pink Beauty' 0.9 & 0.9, 'Yellow Gem' 0.75 & 0.9	Slow 30 years	Multi-stemmed round form. All varieties have yellow flowers except 'Abbotswood' & McKay's White (white), Pink Beauty (pink), Mango Tango (orange). Canopy height is at or near grade in all cases. Tolerates moist or dry conditions & pollution. Drought resistant. "Low water shrub" – CoCLUB.	Full sun to partial shade.	Mass planting.
Preston Lilac 2a	Syringa prestoniae CoCYS Syringa x prestoniae 'Donald Wyman', 'Minuet', 'Miss Canada', 'Royalty', 'Charisma' ELN *(Syringa spp. CoCLUB)*	'Donald Wyman': 3 & 2, 'Minuet': 2 & 2, 'Miss Canada': 2 & 2, 'Royalty': 2.5 & 2, 'Charisma': 1.2 to 0.5	Medium 30 years	Multi-stemmed. Color of flowers varies from pink to purple. All varieties tolerate moist or dry conditions, pollution & are non-suckering. Canopy height from grade: 'Donald Wyman': 0.9m, 'Minuet' 0.3m, 'Miss Canada' 0.6m, 'Royalty' 0.9m, 'Charisma' at grade. Syringa spp. "Low water shrub" – CoCLUB.	Full sun, well-drained soil.	Accent plant. Mass planting & screening.
Prickly Rose (Prickly Wild Rose) 2a	Rosa acicularis CoCYS, TOO	2.5 & 3.5	Fast 30 years	Multi-stemmed upward spreading with canopy at grade. Pink flowers. Intolerant of standing water & somewhat tolerant of pollution.	Full sun. Requires consistent moisture & some maintenance. Spiny. Disease is identified as an issue.	Accent plant. Mass planting.
Purpleleaf Sandcherry (Cistena Cherry) 3b	Prunus x cistena CoCLUB, ELN	1.8 & 1.5	Medium 20 years	Multi-stemmed upright spreading form with canopy 0.3m from grade. Pink flowers & purple leaves. Tolerant of pollution. Intolerant of standing water. "Low water shrub" – CoCLUB.	Full sun. Requires consistent moisture.	Accent plant. Mass planting.

Deciduous Shrubs

Name & Hardiness Zone	Scientific Name & Reference	Height & Width (m)	Growth Rate & Lifespan	Characteristics (Drought Resistance as Noted)	Ideal Growing Conditions & Issues	Use
Red Barberry (Rose or Rosy Glow Japanese Barberry) 4a	Berberis thunbergii 'Rose Glow' CoCYS	1.5 & 1	Medium 20 years	Multi-stemmed round or elliptical form with canopy at grade. Yellow flowers, red fruit & burgundy leaves in fall. Tolerates moist or dry conditions & salt. Highly tolerant of pollution. Drought resistant	Full sun to partial shade. Requires occasional maintenance. Spiny.	Mass planting. Screening.
Red Elder (Red-Berried Elder, European Red Elder) 2a	Sambucus racemosa CoCYS, *(CoCLUB – excluding var. pubens)*	3.5 & 4	Fast 30 years	Multi-stemmed, upright form with canopy 0.6m from grade. White flowers & red berries. Tough & vigorous. Tolerates dry or moist locations & pollution. "Low water shrub" – CoCLUB.	Full sun to partial shade. Requires occasional maintenance.	Mass planting. Screening.
Russian Almond 3a	Prunus tenella ELN, CoCLUB	1.5 & 0.9	Medium 20 years	Multi-stemmed upright spreading form with canopy 0.3 m from grade. Pink flowers. Tolerates dry or moist conditions & pollution. Intolerant of standing water. "Low water shrub" – CoCLUB".	Full sun. Suckers. Requires maintenance. Confirm variety & nursery information.	Mass planting
Saskatoon 2a	Amelanchier alnifolia CoCYS, CoCLUB, ELN	3 & 2	Medium 25 years	Multi-stemmed with canopy 0.6m from grade. White flowers, edible blue berries. Hardy. Somewhat tolerant of pollution. See also 'Northline', 'Smokey' & 'Thiessen' varieties. "Low water shrub" – CoCLUB.	Full sun to partial shade. Requires consistent moisture. Confirm variety & nursery information.	Mass planting, screening & orchards.
Silver Buffaloberry 2a	Shepherdia argentea CoCYS, CoCLUB, TOO	4 & 3.5	Medium, 25 years	Multi-stemmed, with canopy 0.3m from grade. Silver foliage, yellow flowers, & red fruit. Very hardy. Tolerates salt & pollution. Intolerant of standing water. Drought resistant. "Low water shrub" – CoCLUB.	Full sun, well-drained alkaline soil. Spiny and suckering.	Accent plant. Naturalizing.
Sister Justina Lilac (Hyacinth-Flowered Lilac) 2	Syringa x hyacinthiflora 'Sister Justina' CoCYS	4 & 3	Medium 30 years	Multi-stemmed, with canopy 0.9m from grade. White flowers. Tolerates moist or dry conditions & pollution.	Full sun, well-drained soil. Requires some maintenance.	Accent plant. Mass planting & screening.
Snowberry 4a	Symphoricarpos albus CoCY, ELN	0.9 & 0.9	Fast 20 years	Dense multi-stemmed with round canopy at grade. White flowers & white berries. Durable & hardy, adaptable to poor conditions. Tolerates dry or moist conditions.	Full sun to full shade. Suckers. Requires some maintenance.	Accent plant, mass planting.

Deciduous Shrubs						
Name & Hardiness Zone	**Scientific Name & Reference**	**Height & Width (m)**	**Growth Rate & Lifespan**	**Characteristics (Drought Resistance as Noted)**	**Ideal Growing Conditions & Issues**	**Use**
Three Lobed Spirea 2b	Spirea trilobata 'Fairy Queen' MNL (*CoCLUB Spirea trilobata)*	0.9 & 0.9	Fast 20 years	Multi-stemmed with round arching canopy at grade. White flowers. Tolerant of pollution. "Low water shrub" – CoCLUB"	Full sun. Requires consistent moisture. Confirm variety & nursery information.	Mass planting.
Coniferous or Evergreen Shrubs						
Bearberry 3a (Kinnikinnick)	Arctostaphylos uva-ursi ELN, CoCLUB	0.15 & 0.2	Slow 20 years	Multi-stemmed, deciduous evergreen shrub with green leaves, burgundy in fall. Red flowers & red berries. Maximum height is about 15 cm. Tolerates dry or moist conditions & salt. Somewhat tolerant of pollution. Intolerant of standing water. Drought Resistant. "Low water shrub" – CoCLUB.	Full sun. Requires acidic, sandy and well-drained/ light soils.	Groundcover.
Globe Blue Spruce 2a	Picea pungens 'Glauca Globsa' CoCYS, ELN	2.5 & 1.8	Slow 60+ years	Dense bluish-green foliage, round/ pyramidal shape with crown at grade. Tolerates moist or dry conditions & salt. Highly tolerant of pollution. Drought tolerant.	Full sun to partial shade.	Vertical accent plant.
Mugo Pine (Mountain Pine, Swiss Mountain Pine) 3a	Pinus mugo CoCYS, ELN	Height varies from 0.75m to 6m depending on variety. See Note 3. 'Mops' 0.75 & 0.9m, 'Slowmound' 0.75 & 1.2, 'Tannenbaum' 3.5 & 1.8, 'var. pumilio' (dwarf) 0.9 & 1.5	Slow 50 years except 'Tannen-baum' 40 years	Dense green foliage. Generally round canopy at grade except 'Tannenbaum' which has pyramidal Christmas tree shape. Tolerates dry conditions & highly pollution tolerant. Intolerant of standing water. Drought resistant.	Full sun. Relatively low maintenance. Well-drained soil. Confirm variety & nursery information.	Mass planting, screening.
Nest Spruce (Norwegian Spruce) 3a	Picea abies 'Nidformis' CoCYS,, MNL	0.6 & 1.2	Slow 50 years	Multi-stemmed with dense round canopy at grade. Intolerant of standing water. Tolerant of salt & urban pollution.	Full sun to partial shade. Requires consistent moisture. Relatively low maintenance.	Mass plantings.

Coniferous or Evergreen Shrubs						
Name & Hardiness Zone	**Scientific Name & Reference**	**Height & Width (m)**	**Growth Rate & Lifespan**	**Characteristics (Drought Resistance as Noted)**	**Ideal Growing Conditions & Issues**	**Use**
Rocky Mountain Juniper 3a 'Tolleson's Weeping' var. 4a	Juniperus scopulorum CoCYS, *(CoCLUB: Juniperus spp.)* ELN: var. 'Cologreen', 'Medora', 'Moonglow', 'Tolleson's Weeping', 'Witchita Blue'	Cologreen' 4 & 1.5, 'Medora' 3 & 0.9, 'Moonglow' 4 & 1.5, 'Tolleson's Weeping' 3 & 3, 'Wichita' 4 & 1.5	Slow 60 to 70 years	Multi-stemmed. All range from columnar to pyramidal to oval depending on the width of the canopy. Canopy from grade: 'Cologreen' dark green at grade, 'Medora' bluish-green 0.6m, 'Moonglow' silvery-blue 0.6m, 'Tolleson's Weeping' bluish-green 0.9m, 'Witchita Blue' silvery-blue 0.6m. Tolerates dry or moist conditions. Somewhat tolerant of pollution. Intolerant of standing water. Drought resistant. "Low water shrub" – CoCLUB.	Full sun. Low maintenance. Cologreen identified as subject to disease. Relatively low maintenance in all cases.	Accent, vertical accent, screening.
Savin Juniper 3a	Juniperus sabina CoCYS (*CoCLUB Juniperus spp.)*	'Arcadia' 0.5 & 1.8, 'Blue Danube' 0.6 & 1.8, 'Broadmoor' 0.4 & 1.8, 'Buffalo' 0.4 & 1.8, 'Calgary Carpet' 0.3 & 1.5, Moor-Dense -'Monard' 0.3 & 1.8, 'New Blue Tam' 0.6 & 2.2, 'Skandia' 0.3 & 1.5	Slow 30 years	Multi-stemmed with canopy at grade. 'Arcadia' dark green, 'Blue Danube' bluish-green, 'Broadmoor' greyish green, 'Buffalo' emerald green, 'Calgary Carpet' lime green, 'Monard' grey- green, New Blue Tam bluish- green. Tolerates dry or moist conditions. Highly tolerant of pollution. Drought resistant. Juniperus sabina is a "Low water shrub" – CoCLUB.	Full sun. Relatively low maintenance in all cases.	Groundcover, mass planting.

Reference of source document Town of Strathmore

Notes: 1. Abbreviations and References

a) *CoCYS* *City of Calgary, Environment, Water Conservation, YardSmart – Trees and Shrubs*
b) CoCLUB City of Calgary Land Use Bylaw No. 1P2007 (as of October 1, 2018) Part 6 Division 1 General Rules
c) ELN Eagle Lake Nurseries, eaglelakenurseries.com (plant search)
d) MNL Millcreek Nursery, millcreeknurery.ca (plant search)
e) TOO *Town of Okotoks, Horticulture Hotline, Recommended trees and shrubs for Okotoks. Oct. 2017.*
f) *USDA NRCS* *United States Department of Agriculture, Natural Resources Conservation Service.*

2. Alternate Names: Viburnum opulus L.ssp triblobum (Marsh.) Clausen, Viburnum trilobum March. highbush cranberry. (USDA NRCS)

TREES FOR WHEATLAND COUNTY

Deciduous Trees – Large Park Trees

Name & Hardiness Zone *(See Note 1)*	Scientific Name & Reference *(See Note 2)*	Height & Width at Maturity (m) *(See Note 3)*	Canopy Height from Grade (m) *(See Note 4)*	Growth Rate & Lifespan	Characteristics (Drought-Resistance as Noted)	Ideal Growing Conditions, Issues & Use	Utility Considerations
American Elm (White Elm) 2	Ulmus americana CoC *(see Note 4. Abbreviations & References)*	25 & 12	High canopy, lower branches can be removed.	Medium to fast 100 years	Large shade tree, vase-shaped form, broad canopy. Adaptable, tolerant of pollution, salt, & dry or moist conditions.	Susceptible to elm scale & Dutch Elm Disease. A high maintenance tree. Monoculture risks spread of Dutch Elm disease. Boulevard tree.	Traditional boulevard tree but shallow roots may heave sidewalks in narrow boulevards. Unsuitable under overhead utility lines.
Balsam Poplar 1a	Populus balsamifera CoC, ELN	25 & 6	High canopy, lower branches can be removed.	Fast 60+ years	Oval canopy. Hardy, very adaptable to both dry conditions & some standing water.	Full sun, sandy to loamy well-drained soil. High maintenance tree. Fragrant but sticky resinous buds drop & may require maintenance. Resin from buds are difficult to remove from vehicles. Aggressive, shallow roots, avoid placing tree close to buildings.	Roots can heave sidewalks, pavement & create uneven ground. Avoid in boulevards & adjacent to parking lots. Unsuitable under overhead utility lines.
Brandon Elm (Patmore Elm) 2b	Ulmus americana 'Brandon' CoC	15 & 6+	High canopy, lower branches can be removed.	Fast 80 years	Vase shaped form, smaller than American Elm. Very hardy & adaptable. Tolerant of pollution, salt, & dry or wet conditions.	Full sun. Susceptible to Dutch Elm disease. Avoid monoculture. May require pruning to develop good form. Boulevard tree.	Unsuitable under overhead utility lines.
Bur Oak (Burr Oak) 2b	Quercus macrocarpa CoC, ELN	14+ & 8+ Treat as a large tree	High canopy, lower branches can be removed.	Slow 300 years	Round canopy, dense foliage. Hardy & moderately pollution resistant. Drought resistant & Chinook tolerant (deep tap root). "Low water tree" – CoCLUB.	Full sun, deep moist soils. Produces acorns, attracts birds & squirrels. A satisfactory shelterbelt variety (AAF). Boulevard tree.	Unsuitable under overhead utility lines. Deep tap root may be acceptable near shallow utilities.
Fallgold Black Ash 2b	Fraxinus nigra 'Fallgold' AAFRD, MNL	14 & 7.5	High - 2.1 Lower branches can be removed.	Medium 70 years	Upright form, adaptable to soil & moisture conditions. Some tolerance to pollution.	Full sunlight. Prefers moist soils & will tolerate some standing water. Low maintenance, no fruit. Susceptible to Cottony Ash Pysllid. See Note 5. **Avoid** planting unless authorized.	Unsuitable under overhead utility lines.

Deciduous Trees – Large Park Trees							
Name & Hardiness Zone *(See Note 1)*	**Scientific Name & Reference** *(See Note 2)*	**Height & Width at Maturity (m)** *(See Note 3)*	**Canopy Height from Grade (m)** *(See Note 4)*	**Growth Rate & Lifespan**	**Characteristics (Drought-Resistance as Noted)**	**Ideal Growing Conditions, Issues & Use**	**Utility Considerations**
Greenspire Linden 3b	Tilia cordata 'Greenspire' ELN, SIU CoMH	15 & 7 to 9	Medium – 1.8 Lower branches can be removed	Medium 70+ years	Pyramidal form, dense foliage, fragrant flowers in early summer. Adaptable to moist or dry conditions. Drought & pollution resistant.	Full sun. Low maintenance. Boulevard tree. Monitor survivability - not recommended by AAFRD. **Avoid** planting unless authorized.	Unsuitable under overhead utility lines.
Laurel Leaf Willow 3a	Salix pentandra CoC, AAFRD	13 & 13	Low - 1.2 or less	Very fast 60 years	Generally, round & wide spreading canopy. Very hardy. Tolerates some standing water, intolerant of alkaline soils. Drought resistant according to some sources.	Full or partial sun. Susceptible to die back but few pest or disease issues. High maintenance tree, pruning required. Risk of dropping branches. Aggressive shallow roots. Do not plant near buildings. Unsatisfactory for shelterbelts in this region (AAF).	Shallow roots create issues for shallow utilities. Unsuitable under overhead utility lines.
Manitoba Maple (Box Elder) 2a	Acer negundo CoC, SIU	9 to14 & 8 to 15 Treat as large tree due to brittle branches.	Low – 1.2	Fast 50+ years	Canopy varies from round to oval form. Multi-stemmed trees are likely have oval form. Hardy. Tolerates dry or wet conditions, a variety of soils & is moderately tolerant of salt. Shallow roots. Drought resistant.	Wood is brittle, subject to snow & wind damage. Unsuitable where breaking branches risk property damage. Susceptible to aphids. Suitable for windbreaks, soil stabilization & site remediation. Unsatisfactory for shelterbelts in this region (AAF).	Shallow roots may create issues for shallow utilities. Unsuitable under overhead utility lines.
Northern Gem Hybrid Ash 2b	Fraxinus nigra x mandshurica 'Golden Gem' ELN, MNL	10 to 12 & 7 to 9	Medium - 1.8 Lower branches can be removed.	Medium 70 years	Oval canopy, hardy, adaptable to moist or dry conditions, pollution & drought resistant.	Full sun, low maintenance. Susceptible to Cottony Ash Psyllid. *See Note 5.* **Avoid** planting unless authorized.	Unsuitable under overhead utility lines.
Northern Treasure Hybrid Ash 2b	Fraxinus nigra x mandshurica 'Northern Treasure' ELN, MNL	10 to 15 & 5 to 10	Medium – 2.1 Lower branches can be removed	Medium 70 years	Upright spreading oval canopy, adaptable to moist or dry conditions & pollution. Drought resistant.	Full sun, low maintenance. Good street tree. Susceptible to Cottony Ash Psyllid. *See Note 5.* **Avoid** planting unless authorized.	Unsuitable under overhead utility lines.

Deciduous Trees – Large Park Trees

Name & Hardiness Zone *(See Note 1)*	Scientific Name & Reference *(See Note 2)*	Height & Width at Maturity (m) *(See Note 3)*	Canopy Height from Grade (m) *(See Note 4)*	Growth Rate & Lifespan	Characteristics (Drought Resistance as Noted)	Ideal Growing Conditions, Issues & Use	Utility Considerations
Northwest Poplar 2a	Populus x jackii 'Northwest' CoC	25 & 20	Medium to high Lower branches can be removed.	Fast 30 to 60 years	Oval canopy, very hardy, tolerant of dry conditions & some standing water. Drought resistant once established.	Full sun or partial shade. Requires generous growing space & watering to establish. Shallow, aggressive roots. Susceptible to wind damage. A satisfactory shelterbelt variety (AAF).	Roots risk heaving sidewalks, pavement & create issues with shallow underground services. Unsuitable under overhead utility lines.
Paper Birch (White Birch, Canoe Birch) 2a	Betula papyrifera CoC	18 & 11	Low - 0.9	Medium 15 to 50+ years	Oval canopy, white bark & shallow roots.	Full sun to partial shade, well-drained sandy or silty loam soils. Requires consistent moisture & wind protection. Susceptible to insects. Unsatisfactory for shelterbelts in this region (AAF).	Unsuitable under overhead utility lines.
Prairie Spire Green Ash (Red Ash) 2b	Fraxinus pennsylvanica 'Rugby' *(CoC: Franxinus pennsylvanica species)* ELN, MNL	15 to 18 & 4 to 7.5	Medium - 1.8 Lower branches can be removed.	Fast 70 years	Narrow pyramidal form becoming more elliptical with age. Hardy. Tolerates moist or dry conditions. Pollution & salt tolerant. Drought resistant.	Full sun. Seedless. Green Ash recommended for shelterbelts in this region (AAF).	Confirm species, variety, etc. & nursery information as canopy width may reach 12m according to CoC. Unsuitable under overhead utility lines.
Trembling Aspen (Quaking Aspen) 1a	Populus tremuloides CoC	15 & 9	Low - 1.5	Fast 50 years	Upright oval canopy, smooth white bark. Tolerates dry or moist conditions, & some standing water. Intolerant of pollution. Drought resistant.	Full sun. May require pruning; subject to suckering, insects & disease. Best suited for large park/ woodland setting.	Unsuitable under overhead utility lines.
True North Linden (Basswood, American Linden) 2a	Tilia americana 'Duros' ELN, CoMH	15 & 5	Medium – 1.8 Lower branches can be removed	Medium 60 years	Narrow pyramidal/ upright oval canopy. Yellow flowers, dense foliage. Tolerates moist or dry conditions, somewhat pollution tolerant.	Full sun. Low maintenance. Boulevard tree.	Unsuitable under overhead utility lines.

Coniferous Trees – Large Park Trees

Name & Hardiness Zone *(See Note 1)*	Scientific Name *(See Note 2)*	Height & Width at Maturity (m) *(See Note 3)*	Canopy Height from Grade (m) *(See Note 4)*	Growth Rate & Lifespan	Characteristics (Drought Resistance as Noted)	Ideal Growing Conditions, Issues & Use	Utility Considerations
Blue Colorado Spruce 2a	Picea pungens 'var. glauca' MNL	15 & 6	Low – at grade Avoid removing lower branches whenever possible	Slow 80 years	Pyramidal form, dense blue green foliage. Colour is more reliable than Colorado Spruce. Tolerates moist or dry conditions, salt & pollution. Intolerant of standing water. Drought resistant.	Full sun, low maintenance Excellent windbreak. (AAF)	Unsuitable under overhead utility lines.
Colorado Spruce 2a	Picea pungens CoC, CoCLUB	20 & 7+	Low – at grade Avoid removing lower branches whenever possible	Medium 80 years	Pyramidal form, silvery blue foliage typical but can range from bright green to silvery blue. Drought resistant once established. Tolerates moist or dry conditions, pollution & salt. Intolerant of standing water. "Low water tree" – CoCLUB.	Full sun & acidic soil. Susceptible to spider mites, spruce gall aphid. A recommended shelterbelt variety (AAF).	Unsuitable under overhead utility lines.
Jack Pine 1	Pinus banksiana CoCLUB, SIU	14 & 11	Low – at grade Lower branches may be removed.	Slow 80 years	Pyramidal to round form. Form can be variable due to circumstances & location. Intolerant of pollution. Drought resistant. "Low water tree" – CoCLUB.	Full sun. Prefers dry to moderately moist conditions. Requires sandy & well-drained soils. Generous growing space is recommended.	Unsuitable under overhead utility lines.
Lodgepole Pine 3a	Pinus contorta 'subsp. latifolia' ELN, MNL	12 to 18+ & 3.5 to 7.5	Low – 1.5 Lower branches can be removed.	Medium 100 years	Narrow pyramidal form, open branches. Requires some moisture, tolerates dry conditions & pollution. Intolerant of standing water. Drought resistant. "Low water tree" – CoCLUB.	Full sun. Low maintenance. Alberta's official tree.	Unsuitable under overhead utility lines.

Name & Hardiness Zone *(See Note 1)*	Scientific Name *(See Note 2)*	Height & Width at Maturity (m) *(See Note 3)*	Canopy Height from Grade (m) *(See Note 4)*	Growth Rate & Lifespan	Characteristics (Drought Resistance as Noted)	Ideal Growing Conditions, Issues & Use	Utility Considerations
Coniferous Trees – Large Park Trees							
Norway Spruce (Norwegian Spruce) 3	Picea abies CoC	39 & 10	Low – at grade Avoid removing lower branches	Medium to fast 100+ years	Pyramidal form, dense branches. Tolerates seasonal drought & pollution. Resistant to high winds (deep spreading roots).	Full to partial sun. Moist well-drained soils. Susceptible to gall aphids & mites. Requires irrigation – less drought tolerant than other varieties. Unsatisfactory for shelterbelts in this region (AAF).	Unsuitable under overhead utility lines.
Scots Pine 2b	Pinus sylvestris CoCYS, MNL	15+ & 11 Width varies depending on variety. (ACS)	Low – 1.5 Lower branches can be removed.	Medium 50 years	Form can vary depending on variety. Commonly pyramidal to round form. Pollution tolerant. Intolerant of standing water. Drought resistant.	Full sun. Requires well-drained soil.	Unsuitable under overhead utility lines.
Siberian Larch 1b	Larix sibirica CoC	15 & 6	Low – 0.3	Medium 70 years	Pyramidal form. Loses its needles in the fall. Not drought or pollution resistant.	Full sun to partial shade. Prefers moist, light & well- drained soils. A recommended shelterbelt variety (AAF).	Unsuitable under overhead utility lines.
White Spruce 2	Picea glauca CoC	25 & 6	Low – at grade	Medium 70 years	Pyramidal form, bluish-green foliage, hardy & drought resistant.	Full sun, moist acidic soil. Unsatisfactory for shelterbelts in this region (AAF).	Unsuitable under overhead utility lines.
Deciduous Trees - Medium Park Trees							
Dropmore Linden *2a*	Tilia x flavescens 'Dropmore' CoC	10 & 7	Medium - 1.8 Lower branches can be removed.	Slow to Medium 70 years	Pyramidal form, dense foliage, fragrant flowers in summer. Tolerates moist & dry conditions. Pollution & drought resistant.	Full sun, well-drained soil. Low maintenance. Boulevard tree. This is the preferred Linden variety.	Unsuitable under overhead utility lines.
Harvest Gold Mongolian Linden 3a	Tilia mongolica 'Harvest Gold' MNL, CoMH	12 & 6	Low - 1.2	Medium 70 years	Pyramidal form, dense foliage, fragrant flowers. Adaptable to moist or dry conditions. Moderately pollution resistant.	Full sun. Low maintenance. Boulevard tree. Monitor survivability - not recommended by AAFRD. Avoid planting unless authorized.	Unsuitable under overhead utility lines.

Deciduous Trees - Medium Park Trees							
Name & Hardiness Zone *(See Note 1)*	**Scientific Name** *(See Note 2)*	**Height & Width at Maturity (m)** *(See Note 3)*	**Canopy Height from Grade (m)** *(See Note 4)*	**Growth Rate & Lifespan**	**Characteristics (Drought Resistance as Noted)**	**Ideal Growing Conditions, Issues & Use**	**Utility Considerations**
Mancana Manchurian Ash 2b	Fraxinus mandshurica 'Mancana' ELN (*AAFRD: Manchurian Ash)*	12 & 6	High - 2.1 Lower branches can be removed.	Medium 70 years	Round canopy, dense foliage. Adaptable to moist or dry conditions. Pollution tolerant & drought resistant.	Full sun. Low maintenance. Leaves open early making it susceptible to late spring frost. Susceptible to Cottony Ash Psyllid. *See Note 5.* Avoid planting unless authorized.	Unsuitable under overhead utility lines.
Russian Mountain Ash 2b	Sorbus aucuparia 'Rossica' CoA, ELN	10 & 6	Low – 1.2 Lower branches can be removed.	Medium 50 years	Pyramidal to upright oval form. White flowers & reddish orange fruit clusters. Tolerates pollution & dry or moist conditions.	Full sun. Fruit consumed by birds. May be suitable for boulevards & medians with a width of at least 2.5 m. (CoA)	Unsuitable under overhead utility lines.
Ussurian Pear (Harbin Pear, Manchurian Pear, Ure Pear) 3	Pyrus ussuriensis CoC, CoCYS, CoCLUB	6 to 10 & 4.6 to 6	Low - 1.2	Medium to fast 70 years	Round/ elliptical canopy, dense flowers in spring, burgundy leaves in fall. Pollution tolerant. "Low water tree" – CoCLUB.	Full sun, consistent moisture. Fruit edible. Fruit may require periodic clean-up.	Unsuitable under overhead utility lines.
Coniferous Trees – Medium & Small Park Trees							
Black Hills Spruce 2b	Picea glauca 'Densata' ELN	12 & 6	Low – at grade Avoid removing lower branches whenever possible.	Slow 90 years	Slender pyramidal form, densely branched. Tolerant of pollution & dry or moist conditions. Drought resistant.	Full sun. Low maintenance.	Unsuitable under overhead utility lines.
Montgomery Spruce (Colorado Blue Spruce) 2a	Picea pungens 'Montgomery" CoCYS, ELN	3 to 4 & 1.5 to 2.5	Low – at grade Avoid removing lower branches whenever possible.	Slow 60+ years	Pyramidal form, densely branched. Tolerant of pollution & dry or moist conditions. Does not tolerate standing water. Drought resistant.	Full sun or partial shade. Low maintenance. Tolerates a variety of soil types & pH. Ornamental.	Suitable under overhead utility lines provided there is adequate clearance.
Ponderosa Pine (Western Yellow Pine) 2a	Pinus ponderosa CoCLUB, AAFRD ELN	15 & 5+	High – 2.1 Lower branches can be removed.	Medium 100 years	Pyramidal form. Tolerant of salt. Intolerant of pollution. Drought resistant. "Low water tree" – CoCLUB.	Full sun. Prefers dry to slightly moist conditions with well-drained soils. Not suitable for boulevards due to pollution intolerance.	Not suitable under overhead utility lines.

Coniferous Trees – Medium & Small Park Trees							
Name & Hardiness Zone *(See Note 1)*	**Scientific Name** *(See Note 2)*	**Height & Width at Maturity (m)** *(See Note 3)*	**Canopy Height from Grade (m)** *(See Note 4)*	**Growth Rate & Lifespan**	**Characteristics (Drought Resistance as Noted)**	**Ideal Growing Conditions, Issues & Use**	**Utility Considerations**
Mountain Pine (Dwarf Mountain Pine, Mugo Pine, Swiss Mountain Pine) 2a	Pinus uncinata, or Pinus mugo subsp. 'uncinata' ELN, CoCLUB *(CoCYS: pinus mugo)*	'uncinata' 4 & 2.2, P. mugo 4 & 3, 'Big Tuna' 6 & 3	Low – at grade to 0.6	'uncinata' Medium 50 years. P. mugo & 'Big Tuna' Slow 70 years.	Upright multi-stemmed spreading form. Very hardy. Tolerant of drought, salt & somewhat tolerant of pollution. Pinus mugo "Low water shrub" – CoCLUB.	Full sun. Low maintenance. Treat as a tree or shrub depending on the size.	May be suitable under overhead power lines. Confirm species, variety, etc. & nursery information.
Swiss Stone Pine (Arolla Pine) 3a	Pinus cembra ELN	10 & 4.5	Low – 0.9	Slow 120 years+	Columnar & compact form. Dense foliage. Tolerant of dry soils & pollution. Drought resistant.	Requires well-drained soils.	Unsuitable under overhead utility lines.
Deciduous Trees – Small Park Trees							
American Mountain Ash (Rowan) 2a	Sorbus americana CoC, ELN	8 & 5	Low - 0.9	Slow to medium. 40 – 80 years.	Elliptical canopy, multi-stemmed. Four season accent tree. White flowers in spring, clusters of bright red berries lasting until winter. Orange & red fall foliage. Tolerant of pollution & moist or dry conditions. Intolerant of saline & waterlogged soils.	Full sun. Berries require clean-up.	Suitable under overhead utility lines.
Amur Cherry 2b	Prunus maakii CoA, ELN, CoCYS	6 to 8 & 5 to 6	Low – 0.9	Fast 30 years	Round canopy, white flowers in spring. Tolerates pollution. Intolerant of standing water.	Full sun, moist soils. Plant as solitary specimen or with generous spacing to avoid competition.	May be suitable under overhead utility lines.
Amur Maple (Ginnala) 3b	Acer ginnala CoCYS, CoCLUB, ELN	6 & 6	Low – 1.2	Medium 60 years	Round or spreading oval shape. Red samaras (winged seed pairs) & bright red fall foliage. Tolerates moist & dry conditions, pollution & drought. "Low water tree" – CoCLUB.	Full sun to partial shade. Low maintenance.	May be suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.

Deciduous Trees – Small Park Trees

Name & Hardiness Zone *(See Note 1)*	Scientific Name *(See Note 2)*	Height & Width at Maturity (m) *(See Note 3)*	Canopy Height from Grade (m) *(See Note 4)*	Growth Rate & Lifespan	Characteristics (Drought Resistance as Noted)	Ideal Growing Conditions, Issues & Use	Utility Considerations
Hot Wings Tatarian Maple	Acer tartaricum 'Gar Ann'	7.5 & 7	Low - 1.2	Medium 70 years	Upright spreading habit of grow. Blazing red samaras and leaves turn shades of yellow, orange, red in the fall	Full sun to partial shade. Low maintenance. Adaptable to both dry and moist location.	May be suitable under overhead utility lines.
Crabapple 2-3 depending on the variety.	Malus CoC, CoA	Varies depending on the variety.	Low – 0.6 Lower branches can be removed.	Medium 50 years	Generally round to elliptical form, flowers in spring. Some varieties produce flowers & fruit.	Fruit bearing varieties can attract hornets. Not all varieties produce fruit. Fruitless varieties preferred. Dropped fruit may require clean-up. Varieties with a canopy width of 3 m or less may be suitable for boulevards & medians with a width of at least 2.5 m. (CoA)	May be suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.
Ivory Pillar Japanese Tree Lilac 3b	Syringa reticulata 'Willamette' ELN, *(CoC: Syringa reticulata species)*	6 to 7 & 4 to 5	Low – 1.5	Medium 40 years	Upright, multi-stemmed spreading canopy. Dense foliage, white flowers in spring. Tolerates pollution. Requires consistent moisture.	Full sun. Suitable for narrow boulevards.	Suitable under overhead utility lines.
Japanese Tree Lilac 3b	Syringa reticulata CoC	7 & 5 (Varies according to variety.)	Low – 1.5	Medium 40 years	Round canopy or upright spreading canopy depending on variety. Dense white flowers in spring. Tolerates pollution & requires consistent moisture.	Full sun. Suitable for narrow boulevards. 'Ivory Silk' recommended by CoCYS & CoA but not AAFRD.	May be suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.
Mayday (Asian, European or Common Bird Cherry) 3a	Prunus padus 'var. commutata' CoC, CoA CoCLUB	6 & 8	Low - 1.2 Lower branches can be pruned	Medium to fast 30 years	Oval canopy, early leaves & white blossoms. Pollution tolerant. Requires consistent moisture. Intolerant of standing water. "Low water tree" – CoCLUB.	Full sun. Susceptible to Black Knot Fungus. May sucker. A satisfactory shelterbelt variety (AAF). May be suitable for boulevards & medians with a width of at least 2.5 m. (CoA)	Unsuitable under overhead utility lines.

Deciduous Trees – Small Park Trees

Name & Hardiness Zone *(See Note 1)*	Scientific Name *(See Note 2)*	Height & Width at Maturity (m) *(See Note 3)*	Canopy Height from Grade (m)	Growth Rate & Lifespan	Characteristics (Drought Resistance as Noted)	Ideal Growing Conditions, Issues & Use	Utility Considerations
Midnight Schubert Chokecherry (Common Chokecherry) 2a See also Schubert Chokecherry below	Prunus virginiana 'Midnight Schubert' ELN	8 & 5	Low - 1.2	Medium 40 years	Round canopy, white flowers in spring, dark purple leaves, black cherries. Requires consistent moisture & tolerates pollution. Intolerant of standing water.	Full sun. Susceptible to black knot fungus & tent caterpillars. Less suckering at base of trunk than other varieties. High maintenance, may require pruning. Self-pollinating. May be suitable for boulevards & medians with a width of at least 2.5 m. (CoA)	Suitable under overhead utility lines.
Pincherry (Mary Liss) 3a	Prunus pennsylvanica CoCYS ELN	6 & 4.6	Low – 0.6	Medium 30 years	Round to elliptical shape. White flowers, red fruit. Requires consistent moisture & tolerates pollution. Intolerant of standing water.	Full sun. Fruit commonly consumed by birds. May be suitable for boulevards & medians with a width of at least 2.5 m. (CoA)	May be suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.
Pyramidal Mountain Ash (Rowan) 3a	Sorbus aucuparia 'Fastigata' CoA, ELN	6 & 3 'Rossica" variety 10 & 6	Low – 0.9	Medium 40 years	Narrow, columnar canopy. Clusters of white flowers in spring, orange berries in summer to winter. Tolerates pollution & dry or moist conditions.	Full sun. Suitable for boulevards & medians with a width of at least 2.5 m. (CoA)	Suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.
Rosthern Columnar Siberian Crabapple 2b	Malus baccata 'Columnaris' ELN, CoCYS *(CoC: Malus species)*	5.5 & 2	Low – 0.9	Medium 50 years	Narrow, columnar canopy. Clusters of white flowers in spring. Tolerates pollution, requires consistent moisture.	Full sun. Fruit requires clean-up. See comments for Crabapple.	Suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.
Schubert Chokecherry 2a	Prunus virginiana 'Schubert' CoC, ELN (Black Chokecherry var. melanocarpa - CoCLUB, USDA NRCS	8 & 4 var. melanocarpa 3.7 & 4.1	Low - 1.2	Medium 40 years	Round canopy, white flowers in spring, dark purple leaves, black cherries. Shade & pollution tolerant. Intolerant of standing water. Drought resistant. Var. melanocarpa is identified as a "Low water tree"-CoCLUB.	Full sun for fruit production. Susceptible to black knot fungus, tent caterpillars & prone to suckering at base. High maintenance. May be suitable for boulevards & medians with a width of at least 2.5 m. (CoA)	Suitable under overhead utility lines.

Deciduous Trees – Small Park Trees

Name & Hardiness Zone *(See Note 1)*	Scientific Name *(See Note 2)*	Height & Width at Maturity (m) *(See Note 3)*	Canopy Height from Grade (m)	Growth Rate & Lifespan	Characteristics (Drought Resistance as Noted)	Ideal Growing Conditions, Issues & Use	Utility Considerations
Spur Schubert Chokecherry (Common Chokecherry) 3a	Prunus virginiana 'Spur' MNL	5.5 & 3.1	Low - 1.2	Medium 40 years	Oval canopy, white flowers in spring, dark purple leaves, black cherries. Pollution tolerant. Intolerant of standing water.	Full sun. High maintenance. Self-pollinating. May be suitable for boulevards & medians with a width of at least 2.5 m. (CoA) Prunus virginiana L. is a satisfactory shelterbelt variety (AAF) but leaves are toxic to sheep & cattle especially after frost due to hydrocyanic content.	Suitable under overhead utility lines.
Spring Snow Flowering Crabapple (Rosybloom) 3a	Malus 'Spring Snow' ELN *(CoC: Malus species)*	7.5 & 4.9	Low - 1.2 Lower branches can be removed.	Medium 40 years	Oval upright form. Abundant white flowers in spring. Tolerant of pollution. Requires consistent moisture.	Full sun, moist conditions. Fruitless but requires maintenance.	May be suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.
Snowbird Hawthorn 3a	Crataegus x mordenensis 'Snowbird' ELN *(CoC, CoCLUB: Hawthorn species)*	4.9 & 4	Low - 1.2 Lower branches can be removed.	Medium 40 years	Round to vase shaped canopy, dense white flowers in spring. Tolerant of dry or moist conditions & moderately tolerant of pollution. Intolerant of standing water. "Low water shrub" – CoCLUB.	Full sun to partial shade. Thorns may be hazardous to children. May be suitable for boulevards & medians with a width of at least 2.5 m. (CoA)	Suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.
Toba Hawthorn 3b	Crataegus x mordenensis 'Toba' ELN *(CoC, CoCLUB: Hawthorn species)*	4.9 & 4	Low - 1.2 Lower branches can be removed.	Medium 40 years	Vase shaped form pink or white flowers. Red fruit. Hardiest variety. Tolerant of dry or moist conditions & moderately tolerant of pollution. Intolerant of standing water. "Low water shrub" – CoCLUB.	Full sun to partial shade. Thorns may be hazardous to children. May be suitable for boulevards & medians with a width of at least 2.5 m. (CoA)	Suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.
Thunderchild Flowering Crabapple 2b	Malus 'Thunderchild' ELN, AFRD, *(CoC: Malus species)*	6 & 4	Low - 0.9	Medium 50 years	Upright spreading form. Lavender flowers in spring, purple foliage. Requires consistent moisture. Tolerates pollution.	Full sun. Fruit requires clean-up. See comments for Crabapple.	Suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.

Trees for Narrow Spaces

Name & Hardiness Zone *(See Note 1)*	Scientific Name *(See Note 2)*	Height & Width at Maturity (m) *(See Note 3)*	Canopy Height from Grade (m)	Growth Rate & Lifespan	Characteristics (Drought Resistance as Noted)	Ideal Growing Conditions, Issues & Use	Utility Considerations
Big River Flowering Crabapple (Rosybloom) 3a	Malus 'Big River' ELN, *(CoC: Malus species)*	5 & 3	Low – 1.2	Medium 50 years	Narrow upright form. Pink flowers & red fruit. Pollution tolerant. Requires continuous moisture.	Full sun to partial shade & well-drained soil. Moisture requirements & fruit limit its application in narrow spaces. Fruit requires clean-up. See comments for Crabapple.	Suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.
Bristlecone Pine (Hickory Pine) 2a	Pinus aristata CoCLUB, ELN	7 & 3	Low – 0.3	Slow 300 years	Upright spreading from. Tolerates dry or moist conditions. Intolerant of pollution. Drought resistant. "Low water tree" – CoCLUB.	Full sun. Requires well-drained soil. Not a suitable boulevard tree due to form & pollution intolerance.	May be suitable under overhead utility lines.
Columnar Blue Colorado Spruce 2a	Picea pungens 'Fastigiata' CoC, ELN, MNL	6 & 1.5 to 2.5	Low - 0.6	Slow 90 years	Narrow pyramidal form, with upward reaching branches. Bluish-green foliage. Pollution & salt tolerant. Drought resistant.	Full sun, tolerates a range of soils.	Unsuitable under overhead utility lines.
Columnar Scots Pine (Columnar Scotch Pine) 3b	Pinus sylvestris "Fastigiata' MNL *(CoCYS – Pinus sylvestris species)*	6 & 2	Low – 0.9	Fast 80 years	Narrow columnar form with upward reaching branches. Pollution tolerant & drought resistant. Intolerant of standing water.	Full sun, requires well-drained soil.	Unsuitable under overhead utility lines.
Emerald Spire Flowering Crabapple (Rosybloom) 2a	Malus 'Emerald Spire' ELN, MNL *(CoC - Malus species)*	4 to 4.6 & 1.9	Low – 0.3	Medium 50 years	Narrow columnar form. Pink or white flowers, green fruit. Pollution tolerant. Requires consistent moisture.	Full sun. Moisture requirements & fruit limit its application in narrow spaces. Fruit requires clean-up. See comments for Crabapple.	Suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.

Trees for Narrow Spaces

Name & Hardiness Zone *(See Note 1)*	Scientific Name *(See Note 2)*	Height & Width at Maturity (m) *(See Note 3)*	Canopy Height from Grade (m)	Growth Rate & Lifespan	Characteristics (Drought Resistance as Noted)	Ideal Growing Conditions, Issues & Use	Utility Considerations
Flowering Plum (Princess Kay Plum, Princess Kay Canadian Plum)) 3a	Prunus nigra 'Princess Kay' CoC, ELN, MNL	4 to 4.9 & 1.9 to 3	Low - 0.9	Medium 30 years	Upright spreading form. Dramatic white flowers with no or sparse fruit. Requires consistent moisture. Tolerates pollution. Intolerant of standing water.	Full sun, consistent moisture, no standing water.	Suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.
Purple Spire Columnar Crabapple (Rosybloom) 3a	Malus 'Jefspire' ELN, *(CoC - Malus species)*	4.6 to 8 & 1.9 to 2.5	Low – 0.3	Medium, 50 years	Narrow columnar upright form. Pink flowers & purple fruit. Pollution tolerant. Requires continuous moisture.	Full sun. Moisture requirements & fruit limit its application in narrow spaces. Fruit requires clean-up. See comments for Crabapple.	Suitable under overhead utility lines. Confirm species, variety, etc. & nursery information.
Swedish Columnar Aspen 2a	Populus tremula 'Erecta' CoC	15 & 1 to 1.5	Low - 1.5	Fast, 50 years	Tall, spire-like form. Drought resistant & somewhat tolerant of pollution.	Fun sun, well-drained soil with consistent moisture. Susceptible to Bronze Leaf disease. Intersperse with other trees to reduce the risk of spreading this disease.	Narrow canopy. May be suitable adjacent to overhead utility lines.
Parkland Pillar Birch 3a	Betula platyphylla 'Jefpark'	9 & 2	Low .6	Fast 40 years	Narrow upright columnar growth. Leaves turn outstanding gold in the fall and smooth white bark is extremely showy. Tolerates urban pollution.	Full sun to partial shade, average moist conditions should not be allowed to dry out.	Unsuitable under overhead utility lines.

Trees for Boulevards, Medians and Walkways - Summary		
Name	**Characteristics**	**Summary Comments**
American Elm	Large boulevard tree (25m high, 12m wide).	Requires adequate space. Avoid monoculture. Tolerates pollution, salt & dry or moist conditions. High canopy, lower branches can be removed.
Brandon Elm	Large boulevard tree but smaller than American Elm (15m high, 6+m wide)	Requires adequate space. Avoid monoculture. Tolerates pollution, salt & dry or wet conditions. High canopy, lower branches can be removed.
Bur Oak	Large boulevard tree (14+m high, 8+m wide)	Requires adequate space. Hardy, drought resistant & Chinook tolerant. High canopy, lower branches can be removed. Some sources (e.g. AAF) cite a lesser spread (i.e. 6m) but this tree requires sufficient space. A tall tree will tend to sway more in high winds than a short tree potentially affecting buildings and other structures.
Crabapple (fruitless varieties)	Small trees with low canopies. Height and width varies depending on variety.	Varieties with a canopy width of 3m or less may be suitable in boulevards or medians with a width of at least 3m. Lower branches require removal to allow pedestrian traffic & visibility of pedestrians and vehicular traffic.
Dropmore Linden	Medium boulevard tree (10m high, 7m wide)	Comparatively narrow canopy. Tolerates moist or dry conditions. Drought and pollution resistant. Medium canopy, lower branches can be pruned. This is the preferred Linden variety.
Hawthorn (Toba or Snowbird)	Small boulevard tree (4m high, 4m wide	Toba variety is the hardiest Hawthorn variety. Tolerant of moist or dry conditions & moderately pollution tolerant. Low canopy may require pruning but thorns risk injury.
Ivory Pillar Japanese Tree Lilac	Small tree (6 to 7m high, 4 to 5m wide)	Walkway tree for narrow spaces. Tolerates pollution. Requires consistent moisture. See also Japanese Tree Lilac.
Pincherry	Small tree (6m high, 4.6m wide)	Suitable for median & boulevards with a width of at least 2.5m. Fruit typically consumed by birds. Requires consistent moisture.
Pyramidal Mountain Ash	Small tree with narrow canopy (6m height, 3m wide)	Suitable for median & boulevards with a width of at least 2.5m. Tolerates pollution & dry or moist conditions.
Russian Mountain Ash	Medium boulevard tree (10m high, 6m wide)	Suitable for median & boulevards with a width of at least 2.5m. Tolerates pollution & dry or moist conditions.
Schubert Chokecherry	Small boulevard tree (height varies from 5.5 to 8m, width varies from 3.1 to 5m depending on variety	Suitable for medians, boulevards & walkways with a width of at least 2.5 m. See Midnight Schubert Chokecherry, Schubert Chokecherry & Spur Schubert Chokecherry. Low canopy requires maintenance.
True North Linden	Large boulevard tree (15m high, 6m wide)	Comparatively narrow canopy. Tolerates moist or dry conditions, moderately pollution resistant. Medium canopy, lower branches can be pruned. Dropmore Linden is the preferred variety. See also Greenspire Linden & Harvest Gold Mongolian Linden.

Not Recommended at this time:

Russian Olive (Oleaster), Elaeagnus angustifolia, 3a. This tree has a deep taproot and lateral root system which makes it very hardy, drought resistant and difficult to eradicate. It is identified as an invasive species by the Alberta Invasive Species Council but it is not regulated at this time. Seeds are spread by birds. This tree is controversial since it may not be invasive in this region. It may be used with the permission of Community Services Department.

Must Not be used Alberta Weed Act Prohibited Noxious Weeds include the following:

Common Barberry (Berberis vulgaris), **Common Buckthorn** (Rhamnus cathartica), **Autumn Olive** (Elaeagnus umbellate), **Chinese Tamarisk** (Tamarix chinensis), **Smallflower Tamarisk** (Tamarix parviflora), **Saltcedar** (Tamarix ramosissima)

Notes:

1. Wheatland County Hardiness Zone varies from 3a – 4a, but this does not ensure that all plants with a 3a – 4a designation will survive due to Chinook conditions and periodic droughts (See column 6 – Characteristics). Calgary's Hardiness Zone is 4a making its climate warmer and less severe than Strathmore's for example. This is due to the Heat Island Effect and the fact that a large urban development provides more shelter than a smaller community.

2. Identifying a specific tree that may be suitable in a particular situation requires sufficient information, recognizing that there are about 140 varieties of Colorado spruce ranging from small shrubs and dwarf trees to large trees with narrow to large spreading canopies. Understanding how the botanical or scientific name for a tree is determined together with its meaning helps provide essential information on a specific tree. In most cases the scientific name is based on 3 parts. The first identifies the genus, the second the species and the third the trinomial. The latter may identify the cultivar (in single quotes), the variety (var.), the subspecies (subsp. or ssp.), the form (f.) or the hybrid (x). In the case of *Columnar Blue Colorado Spruce*, "Picea" denotes the genus (spruce), "pungens" denotes the species (Colorado spruce) and "Fastigiata" denotes the trinomial. Fastigiata typically describes a columnar tree with a narrow spread and upright branches. *(American Conifer Society)*.

3. The height of a tree and the width of its canopy will vary according to environmental conditions. Varying sources (including but not limited to nurseries) may provide alternate information and this is reflected in the range of values, where applicable. As far as possible, confirm the height and width of a canopy with the nursery. Avoid planting trees that are too large or inappropriate for the space on maturity. The height of a tree and the width of its canopy at maturity are <u>essential</u> <u>considerations</u> in residential yards and where landscaping is required or provided on commercial, industrial and institutional sites. Growth can be impeded by space limitations, (e.g. a small landscaped island in a parking lot), or aided by generous space and soil conditions in a park setting. Knowing the expected height, width and location of a tree's canopy at maturity is essential to avoiding issues in the long term. In some cases tree spacing

recommendations are based on dimensions that are 2/3 of the mature width. As these trees approach maturity, branches may interfere with or damage windows (especially in windy conditions), parking areas, drive aisles or overhang sidewalks impeding pedestrians.

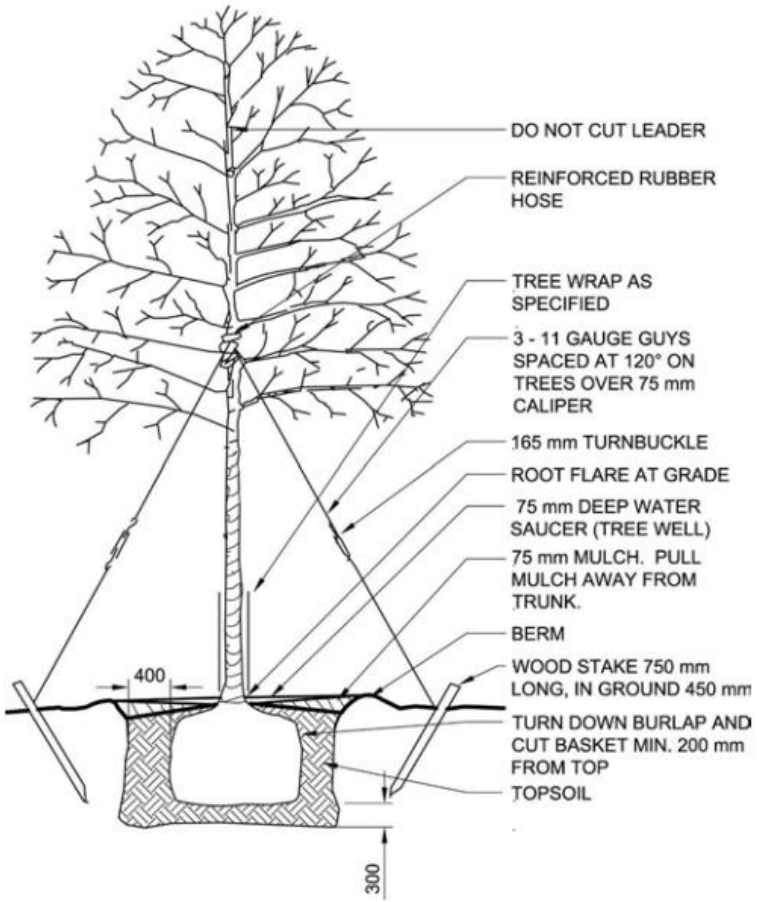
4. Trees with a low canopy should be avoided at corners, near the entrances or exits to driveways and other locations where they limit sight lines for pedestrians or drivers. Where noted in Column 4, lower branches may be trimmed to allow pedestrian traffic, avoid corner visibility issues at intersections or enable the visibility of pedestrians and vehicles at or near driveways and crosswalks.
5. Pollution tolerant means tolerant to urban pollution in Column 6.
6. Abbreviations and References
    a) ACS American Conifer Society
    b) AAF Alberta Agriculture & Forestry, Shelterbelt Varieties for Alberta
    c) AAFRD Alberta Agriculture Food & Rural Development (currently Alberta Agriculture & Forestry), Regional Woody Plant Project 2005, Crop Diversification Center South, Brooks AB. Pamphlet No. 2006-3
    d) CoA City of Airdrie, Standard Landscape Guidelines and Specifications, 2014, Appendix "F"
    e) CoC City of Calgary, Parks, Top Tree Species for Calgary
    f) CoCYS City of Calgary, Environment, Water Conservation, YardSmart – Trees and Shrubs
    g) CoCLUB City of Calgary Land Use Bylaw No. 1P2007 (as of October 12, 2017) Part 6 Division 1 General Rules
    h) CoMH City of Medicine Hat, Preferred Tree Species List – 2016
    i) ELN Eagle Lake Nurseries, eaglelakenurseries.com (plant search)
    j) MNL Millcreek Nursery, millcreeknurery.ca (plant search)
    k) SIU Spruce It Up Garden Centre, spruceitupgardencentre.com
    l) The Gymnosperm Data Base, www.conifers.org
    m) USDA–NRCS United States Department of Agriculture, Natural Resources Conservation Service.
7. Cottony Ash Psysllid or Psyllopis discrepans (plant lice). This insect introduced recently affects Fallgold Black Ash *(Fraxinus nigra 'Fallgold')*, Manchurian Ash and the cultivar "Mancana" (*Fraxinus manshurica 'Mancana')*, and hybrids of Black Ash and Manchurian Ash, namely Northern Gem Hybrid Ash *(Fraxinus 'Golden Gem')* and Northern Treasure Hybrid Ash *(Fraxinus 'Northern Treasure').*

Generally these trees are desirable in this region but the insect requires management. As such, these trees should not be planted at this time without permission from the Community Services Department. Green Ash and Mountain Ash are not affected.

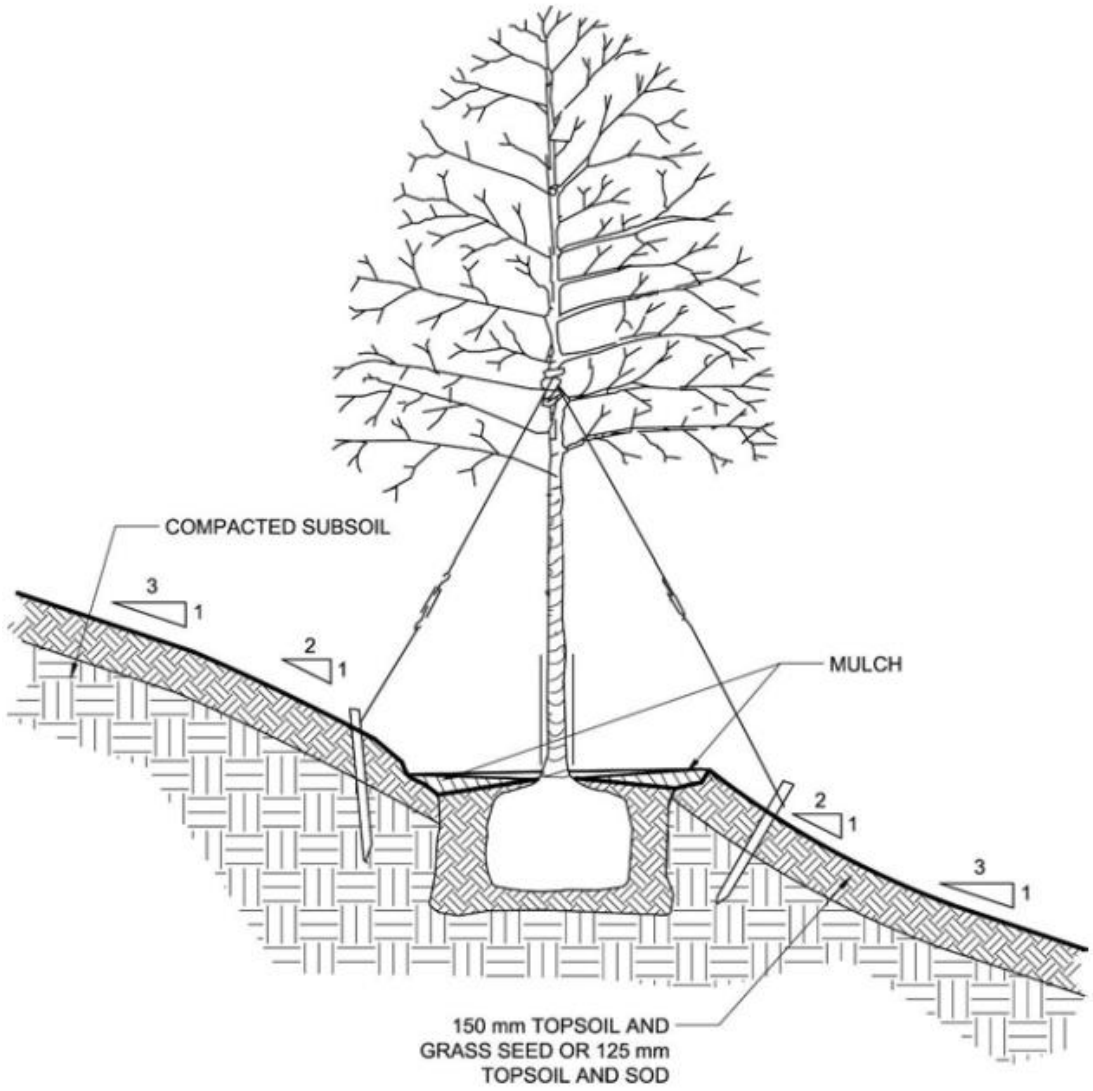
8. Acknowledge Plant List source of this document from the Town of Strathmore, Eligible Tree and Shrubs October 2018

APPENDIX C: TYPICAL PLANTING DETAILS

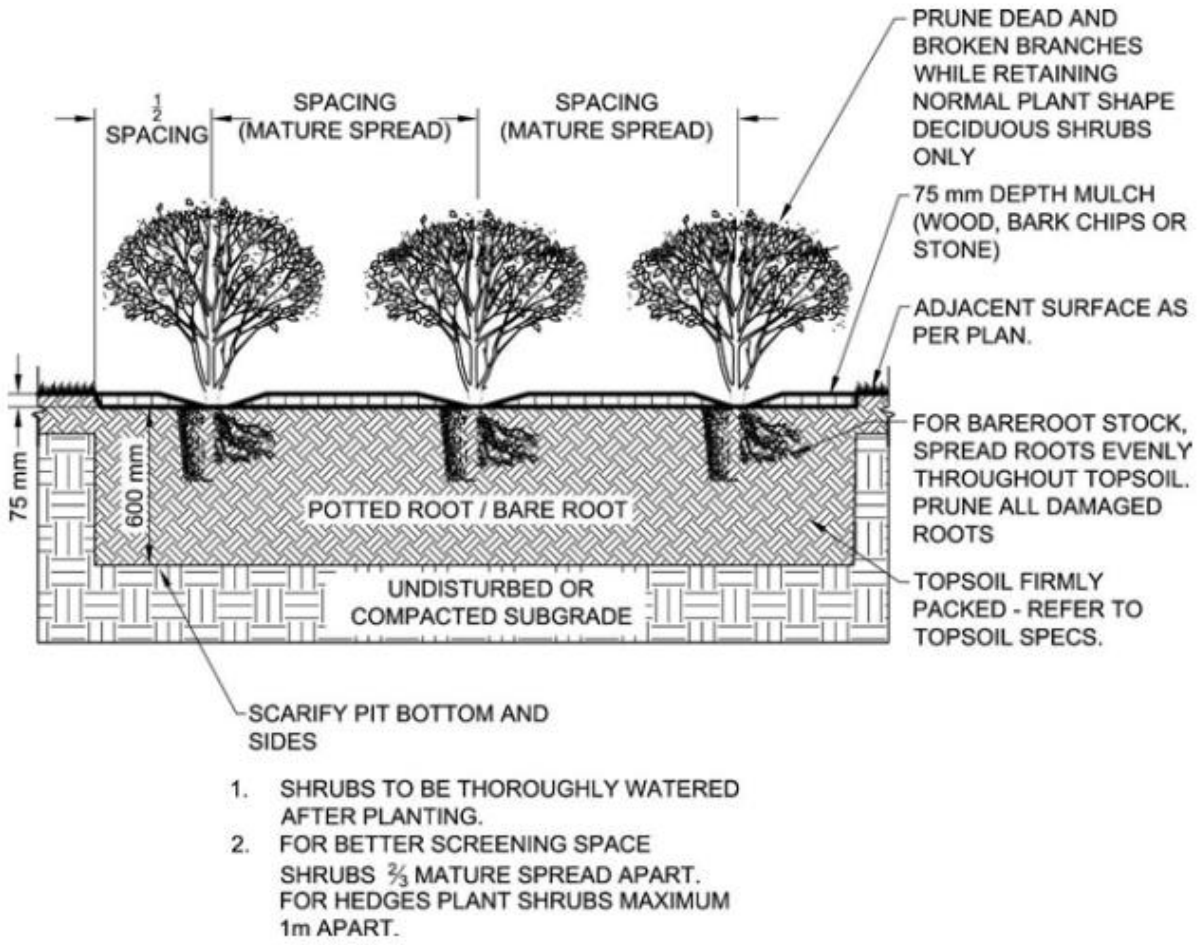
The following are generic details of how trees and shrubs can be planted. The details would be typical of most situations using plants in screening, but individual circumstances may vary.



Typical Tree Planting Detail



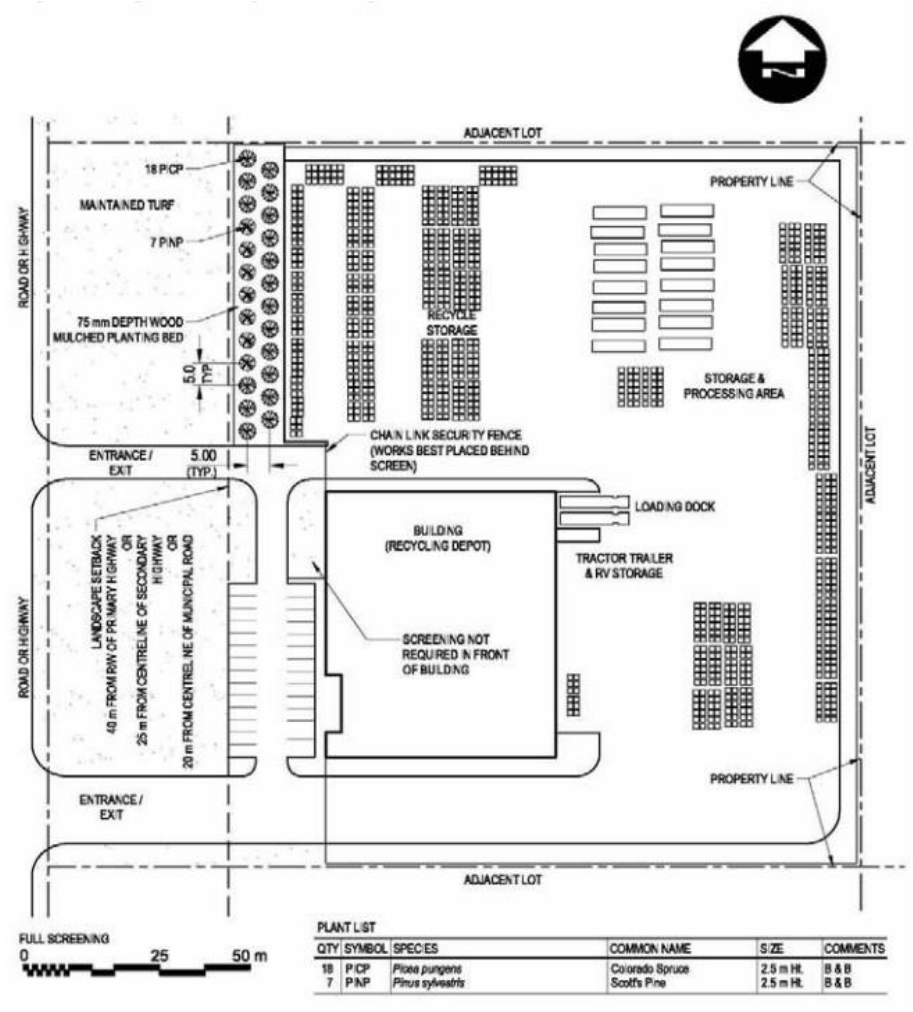
Tree Planting with Berm Detail



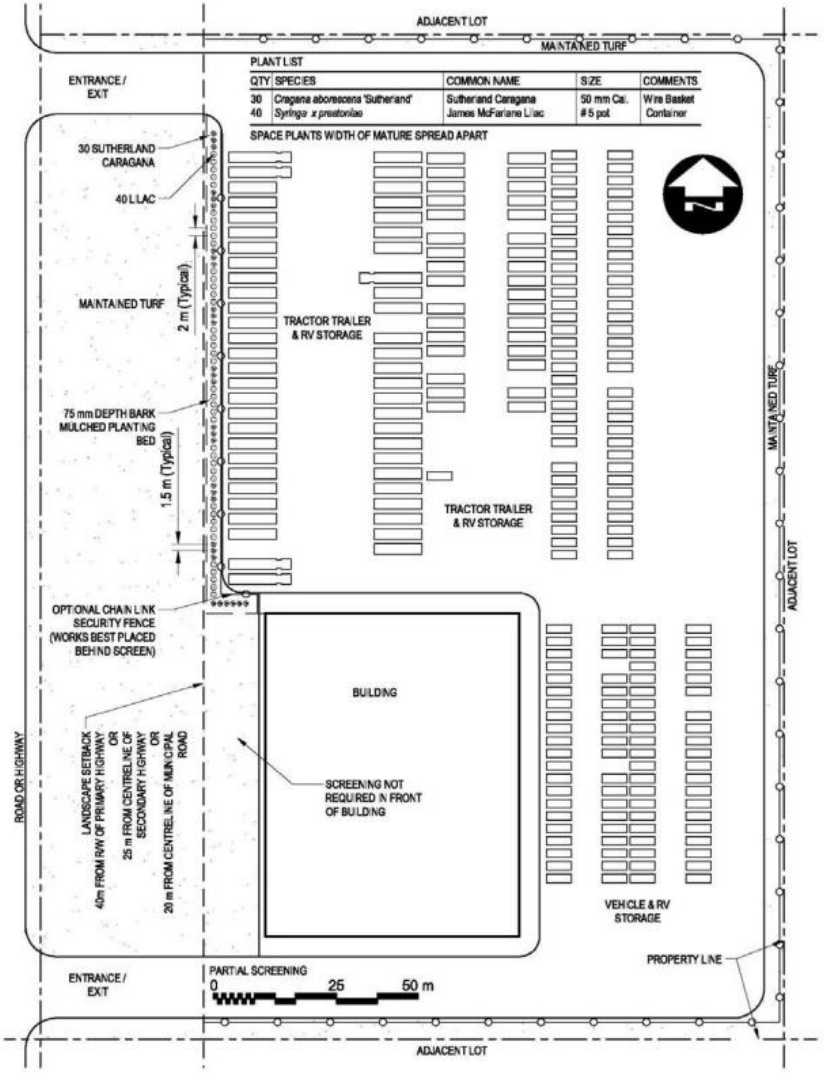
Typical Shrub Bed Planting Detail

APPENDIX D: SAMPLE SCREENING PLANS

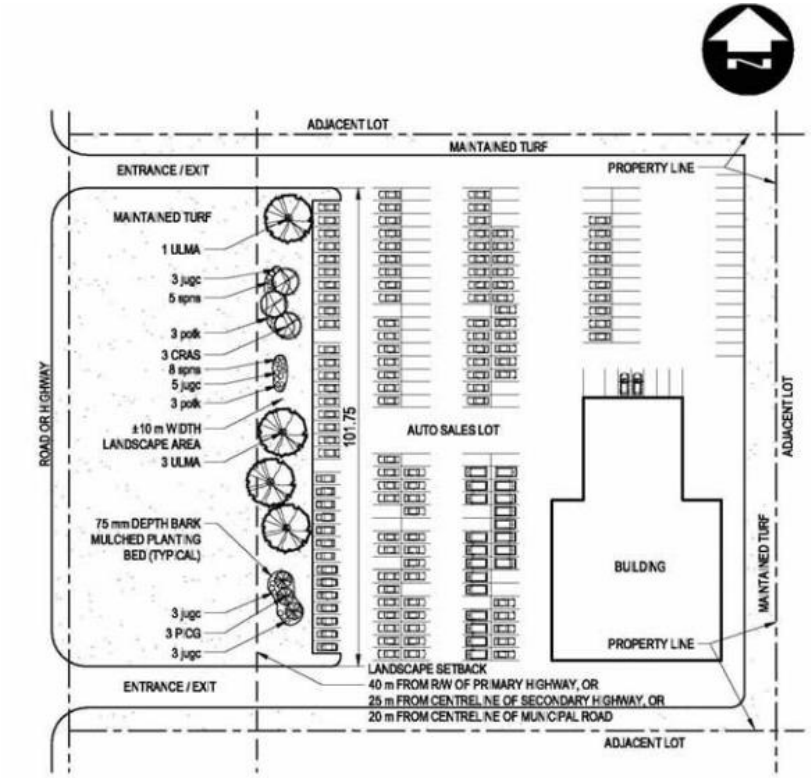
SAMPLE SCREENING PLAN – FULL



SAMPLE SCREENING PLAN – PARTIAL



SAMPLE SCREENING PLAN – BUFFER



PLANT LIST

QTY	SYMBOL	SPECIES	COMMON NAME	SIZE	COMMENTS
3	CRAS	*Crataegus succulenta*	Fleshy Hawthorne	50 mm Cal.	Wire Basket
3	PICG	*Picea glauca*	White Spruce	2.5 m Ht.	B & B
4	ULMA	*Ulmus americana*	American Elm	50 mm Cal.	Wire Basket
SHRUBS					
12	jugc	*Juniperus horizontalis 'Gold Coast'*	Gold Coast Juniper	# 2 pot	Container
6	potk	*Potentilla fruticosa 'Katherine Dykes'*	Katherine Dykes Potentilla	# 2 pot	Container
13	spns	*Spirea nipponica 'Snowmound'*	Snowmound Spirea	# 2 pot	Container

100 m X (3 SMALL SHRUBS + 1 TREE / 10 m) = 30 SHRUBS + 10 TREES
33% OF PLANTS ARE CONIFEROUS (EVERGREEN)

APPENDIX E: WARNING - UTILITY & PIPELINE LOCATION

As with any activity that requires excavation, it is of paramount importance that you call Alberta 1. Call at least two (2) business days prior to commencing work on any screening installation. It's easy and there is no charge.

You will need to have the following information ready:

- your dig area information (address or legal land description, whether you will be digging on public or private property, which portion of the site you will be digging on etc.);
- the type of work you are doing; and
- the date you require locates to be completed by.

CALL BEFORE YOU DIG!

Alberta 1 Call 1-800-242-3477 - Field location service calls
Alternatively, visit their website at: http://www.alberta1call.com/