

15.0 LANDSCAPE DESIGN

Landscape Standards:

Appropriate landscaping is required to achieve the following:

- Provide seasonal colour, texture and variety.
- Add visual interest to open spaces, blank facades and enhance the appearance of building setbacks and yard areas.
- Soften dominant building mass and provide human scale for the pedestrian.
- Provide definition of public walkways, open areas and private spaces.
- Provide a consistent visual image between adjacent properties and streetscape.
- Screen unsightly areas and provide protection from excessive wind, sun, rain and snow.
- Stabilize steep embankments.
- Mitigate or minimize the visual impact of parking and service facilities from adjacent properties and streets.
- Achieve energy conservation and water efficiency.
- Implement design practices which contribute to successful long-term maintenance.
- Protect natural features and promote tree conservation.
- Create safe urban environments.

Planting Standards for all Land Uses:

Planting Material Specifications

Figure 15.1 indicates the minimum landscape standards for various types of development. These features should be incorporated into the site plan and later detailed on the landscape plan.

Minimum acceptable sizes for plant material:

- Deciduous Trees: 50 mm caliper for all land uses except for Residential High Rise where 70 mm caliper will be required
- Coniferous Trees: 1.8 m high
- Shrubs: 35-50 cm high minimum depending on species.

The spacing of plant material should account for the ultimate size and form of the selected species as well as intention e.g. screening, shade, aesthetics, naturalizing, rehabilitation, etc.

Sod / seed planting areas shall have a minimum topsoil depth of 150mm. Shrub planting areas shall have a minimum topsoil depth of 300mm. Areas accommodating trees are required to have a minimum of 1.0m continuous soil depth or a minimum of 20m³ of soil volume per tree (all depth measurements are taken from base of root ball or container). Adequate soil volume should be provided to allow for the expected mature size of a tree, and, where necessary this should go beyond the specified minimum of 20 cubic meters of soil. Project Landscape Architect to provide written confirmation to City of Kitchener staff that soil volumes noted have been achieved prior to commencement of final planting.

For final acceptance of a project and release of the Letter of Credit, all required plant material must be in good health and actively growing. Seeded areas should be well germinated with a minimum of 70% coverage.

Tree Spacing

High branching deciduous trees (shade trees) are required along property lines according to Figure 15.2. These trees should have a mature height that is expected to exceed eleven (11) metres and have an expected crown spread of nine (9) metres or greater. These perimeter planting requirements are in addition to other landscape planting requirements that may be necessary for a particular development.

Landscape plantings along property lines serve numerous aesthetic, environmental and social functions and in order for these plantings to thrive, minimum soil depth/volume requirements and a minimum bed-width to property line are required based on proposed and adjacent land uses.

LANDSCAPE SITE STANDARDS

Standard	Indus	Com	High Rise Res'al	Low Rise Res'al	Instit
Vehicular access to the site is to be defined by accent planting	x	x	x	x	x
Main building entrances to be identified by a landscape area (accent and/or foundation planting)	x	x	x	x	x
Pedestrian walkways to building entrances to be provided from the parking area	x	x	x	x	x
Walkways, flush curb & ramps to be provided and designed for people with disabilities	x	x	x	x	x
Landscaping screening required for parking storage and service areas	x	x	x	x	x
Air vents and underground storage tanks are not to be located in the landscaped area	x	x	x	x	x
Children's recreation facilities c/w walkway connections from the building to the recreational facilities			x	x	
Where landscaping will be placed on a roof structure, the following depths of materials are required: • 15 cm of drainage gravel plus 40 cm topsoil for sod • 15 cm of drainage gravel plus 60 cm topsoil for shrubs • 15 cm of drainage gravel plus 90 cm topsoil for trees	x	x	x	x	x
Landscape screening of privacy areas required from adjacent pedestrian walkways, internal roadways, recreational amenities & service areas			x	x	
Landscape screening and/or fencing required for all exposed parking, ground-level units, service & garbage areas adjacent to other uses		x	x	x	x
Streetscape along internal roads			x	x	x
Landscape screening of rear yard setbacks between privacy areas of townhouse blocks				x	
Patios which may include wood decks required to be a minimum of 11m ² (not including steps)				x	
Privacy screens (1.8m high wood screen fence required between rear privacy areas of units)				x	
Privacy screen returns may be required depending upon layout of townhouse blocks				x	
For large and/or high profile sites, establish focal points or areas of greater interest. For example, a sculpture, flower garden, pool fountain, patio, naturalized areas, etc.		x	x		x
Incorporate landscape features into rest areas to provide protection from environmental elements such as wind, sun, street noise, etc.	x	x	x	x	x
Construction of berms or grade changes is encouraged to provide topographical relief	x	x	x	x	x
Bicycle racks	x	x	x	x	x
Intensive landscape treatment required at intersection of municipal roadways	x	x	x	x	x
Pedestrian walkways to be minimum of 1.5m wide; walkways abutting parking stalls a minimum of 1.8m . Walkways through the drive aisle should be in an alternate, high-contrast material.	x	x	x	x	x
Emergency fire routes, other than vehicular routes, shall conform to the to the satisfaction of the Deputy CAO Community Services Division	x	x	x	x	x
Retaining walls over 1.0m high require a guard rail at top of the wall	x	x	x	x	x

LANDSCAPE SITE STANDARDS					
Standard	Indus	Com	High Rise Res'al	Low Rise Res'al	Instit
Drainage swales shall be graded with gradually sloping banks and sodded for stabilization and ease of maintenance	x	x	x	x	x
Landscaped portable sign locations	x	x			x
Recycling and garbage collection areas. For industrial sites, enclosures are only required if the recycling and garbage collection area is visible from street.	x	x	x	x	x
Curbed traffic islands defining major internal routes to be minimum of 2.6m wide (measured from back face of curb to back face of curb) for plant material installation		x	x	x	x
Ground supported and portable sign locations	x	x	x	x	x
Community Garden			x	x	
Minimum required soil: sod/seed (150mm depth); shrub beds (300mm depth); trees (1000mm continuous soil depth or 20m ³ per tree).	x	x	x	x	x

Figure 15.1 Landscape Requirements for Various Land Uses

Tree Spacing Requirements Between Proposed and Adjacent Land Uses						
Proposed Land Use	Adjacent Commercial	Adjacent Industrial	Adjacent Institutional	Adjacent Residential / Mixed Use	Adjacent Municipal Street	Adjacent Green Belt/ Park
Commercial	12 m	9 m	9 m	6 m	7.5 m	9 m
Industrial	9 m	12m	6 m	6 m	7.5 m	9 m
Institutional	9 m	9 m	9 m	6 m	7.5 m	9 m
Residential / Mixed Use	6 m	6 m	6 m	6 m	7.5 m	9 m
Municipal Street	7.5 m	7.5 m	7.5 m	7.5 m	N/A	N/A
Green Belt/Park	9 m	9 m	9 m	9 m	N/A	N/A

Note:

- All plant material shall be nursery grown in accordance with C.N.L.A.
- Minimum bed width for landscaped areas along property lines in industrial or commercial land uses adjacent to residential or institutional land uses is 3m. For all other land uses 1.5m bed width is required.
- Minimum 1.0m continuous soil depth or minimum 20m³ of soil volume per tree for all tree planting areas within medians adjacent to road ways and islands within parking area.

Figure 15.2: Tree Spacing Requirements Between Proposed and Adjacent Land Uses

Signage within the Landscape:

All building and ground-based signage is subject to the City of Kitchener Sign By-law. Sign permits are required for all permanent and temporary signage including contractor's signs for new construction. The City of Kitchener Sign By-law can be found on-line at:

<http://code.municipalworld.com/kitchener/680.pdf>

Portable Signs

The key requirements of portable signs are:

- To keep portable sign locations out of the road right-of-way and improve the quality of the streetscape, specific areas must be selected for the placement of portable signs. Conceptual layout and landscaping requirements for portable signs are found in Figure 15.3.
- To be placed in such defined locations as shown on a landscape plan approved by the Director of Planning, or designate, for all new development or redevelopment sites. Landscape plantings are to skirt the base of the lowest level of the trailer/sign bed while still providing adequate access to the portable sign.
- Portable signs are prohibited within 0.6m of any lot line, within 10m of any traffic light, within the 4.57m visibility triangle at an entrance or exit to a site, or within the 4.57 visibility triangle where two lots abut at a street line.

Ground Supported Signs

All ground supported signs are subject to the requirements outlined in the City of Kitchener Sign By-law and should be designed and located to achieve the following:

- Signage should not impact or interfere with the growth of either municipal street trees or on-site trees. Removal or significant pruning of trees to accommodate signage is not acceptable. A minimum separation distance of 10 metres from any existing or proposed tree trunk for signs greater than 2.5 metres in height is required.

- Signage should not clutter the streetscape by way of graphic overload or too much information.
- Signage should compliment the architectural design and materials of the building(s) found on site.
- Signage should be integrated into the landscape design for the development and be illustrated on the approved Landscape Plan.
- Signage shall not obstruct drivers' views of approaching pedestrians or vehicular traffic.

Parking Lots:

Landscape plantings, including trees, are required both around the perimeter of parking lots and on parking lot islands internally on the site.

Landscaping of parking lots shall:

- Provide an aesthetically pleasing view from the street.
- Break up the monotony of large expansive parking surfaces.
- Reduce summer pavement temperatures.
- Unify, through landscaping, the appearance of the subject site and co-ordinate it with the surrounding development.
- Screen adjacent areas from headlights, and the view of cars.
- Define access aisles to and from parking facilities.
- Attractively and efficiently separate adjacent parking lots under separate ownership and serving separate developments (except in cases of joint legal access).
- Counter balance the ecological deterioration caused by extensive pavement area and exhaust emissions from automobiles.
- Promote the safety and orientation of users.

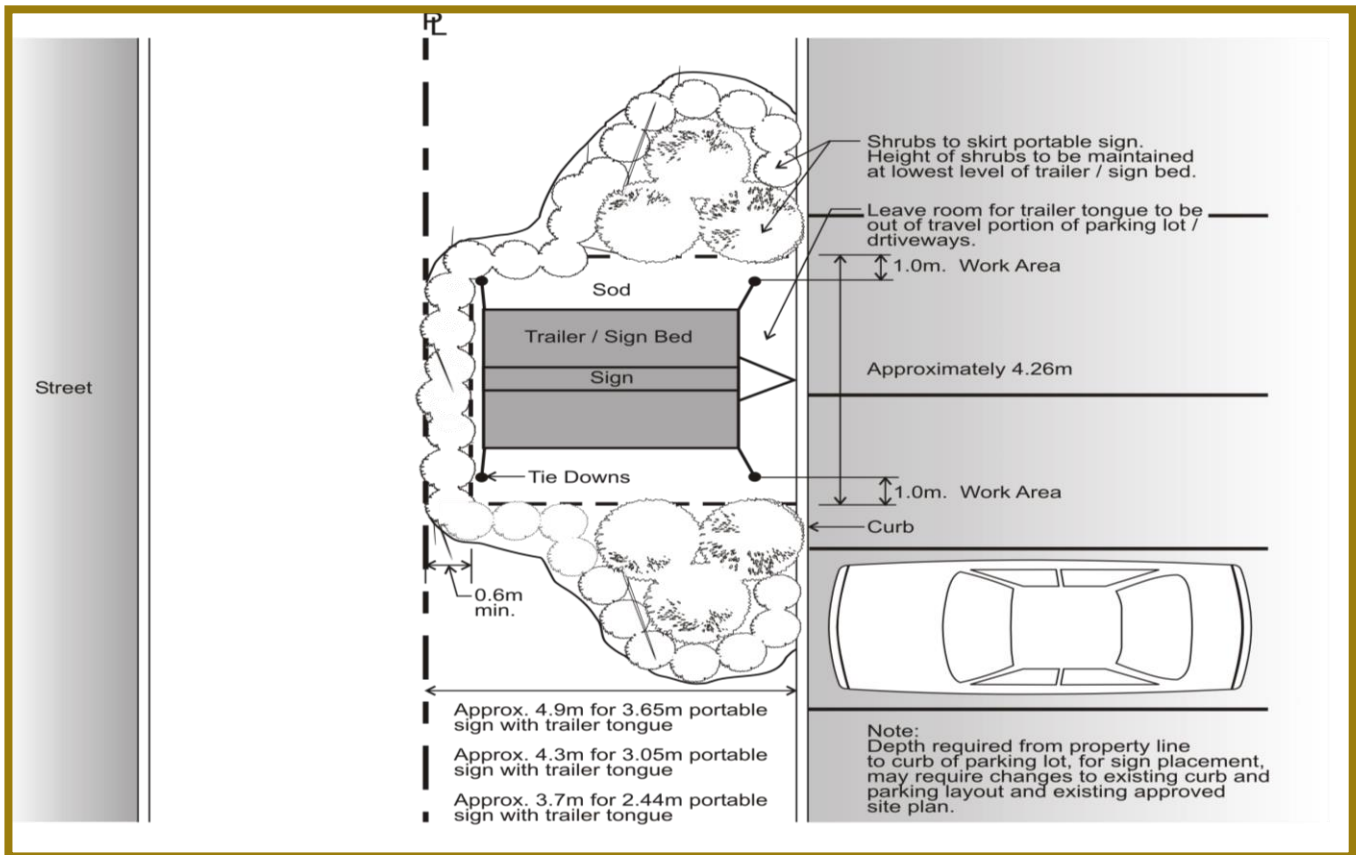


Figure 15.3: Conceptual Layout and Landscape Requirements for Portable Signs

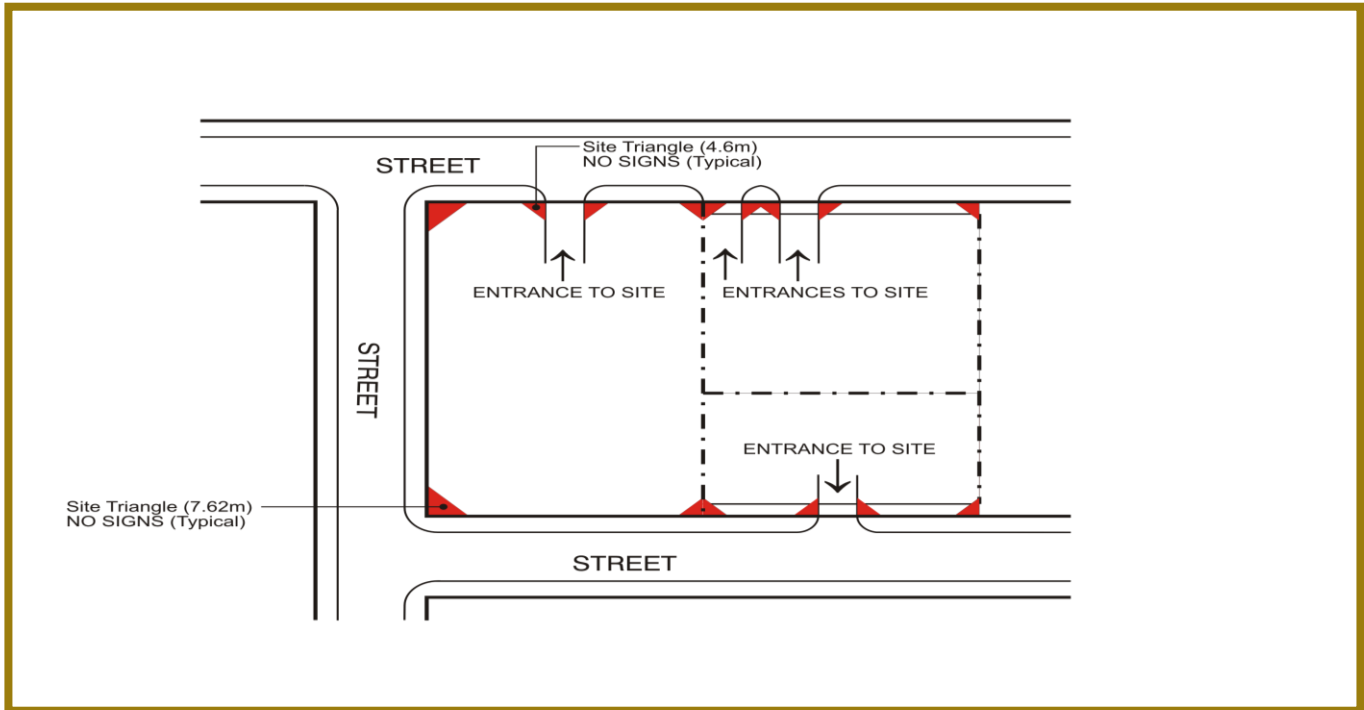


Figure 15.4: Site Plan Illustrating Sign Restrictions for Sight Visibility

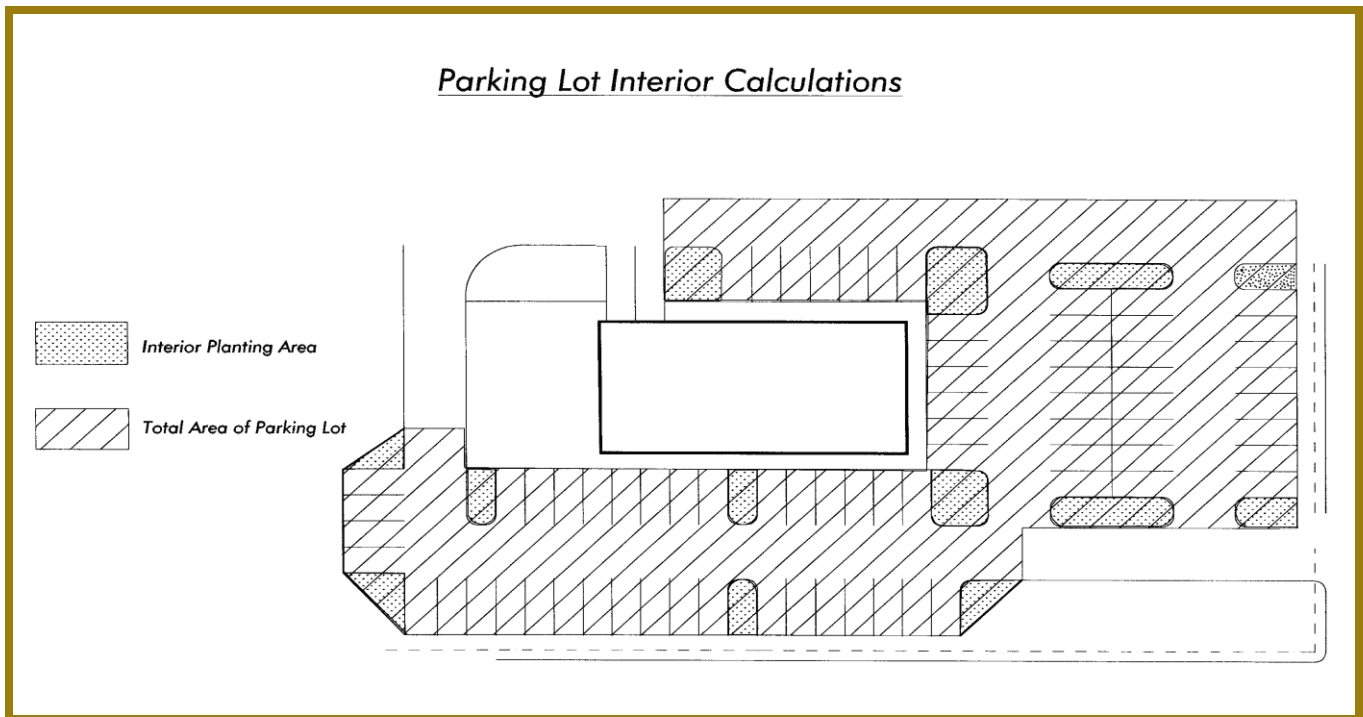


Figure 15.5: Planting Areas for Parking Lots

Landscape Development External to the Parking Lot:

When a parking lot is located adjacent to a public right-of-way, a landscaped strip shall be provided on the property between the parking lot and the right-of-way. The landscaped strip may not include any paved area except pedestrian walkways and parking lot and loading zone driveways which cross the landscaped strip.

Any of the following landscaped strip treatments may be used alone or in combination:

- Provide a minimum 3 metre wide landscaped strip between the right-of-way and the parking lot which is to be planted with a minimum of one (1) shade tree and twelve (12) square metres of shrub bed per 7.5 metres of frontage.
- Provide a minimum three (3) metre wide landscaped strip and a maximum one (1) metre grade drop from the right-of-way line to the adjacent parking lot pavement. Plant the resulting embankment with a minimum of one (1) shade tree and eight (8) square metres of shrub bed per 7.5 linear metres of frontage, excluding driveway openings
- Provide a minimum three (3) metre wide landscaped strip and a berm, the top of which is at least 0.75 metres higher than the elevation of the adjacent parking lot pavement. The slope of the berm shall not exceed 33% (3:1) for lawn areas. Berms planted with ground covers and shrubs may be steeper. However, no slope shall exceed 50% (2:1). Berms should be graded to appear as smooth, rounded, naturalistic forms. Avoid narrow bumps, which result from creating too much height for the width of the space. Plant with a minimum of one (1) shade tree and eight (8) square metres of shrub bed per 7.5 linear metres of frontage, excluding driveway openings
- Provide a minimum three (3) metre wide landscaped strip between the right-of-way line and the parking lot, with a 0.91 metre high brick, stone or finished concrete wall to screen the parking lot.

Plant with a minimum of one (1) shade tree per 7.5 linear metres of frontage and four (4) square metres of shrub beds abutting the wall per 7.5 linear metres of frontage undisturbed.

The equivalent number of trees and combining of shrub beds can be provided in a group or groupings along the landscaped strip. No shrub shall be more than 0.6 metres high within the first metre parallel to the property line. The remaining shrubs are to be maintained at a maximum height of 1.2 metres, for safety reasons and 1 metre maximum height within a visibility triangle.

The above noted groupings will provide opportunities for visibility windows, mass shrub bed plantings, and pedestrian access points. The use of these groupings will discourage monotonous linear planting and encourage imagination in design and layout.

Landscape Requirements Around the Edge of Parking Lots for Vehicular Sales Facilities:

When a vehicular sales facility is located adjacent to a public right-of-way, a three (3) metre wide landscape strip shall be provided as per the requirements contained in "Landscape Development External to the Parking Lot". The parking lot area landscape strip requirements for vehicular sales facilities will allow for the creation of picture frame(s) along streets for vehicular sales display.

The following formula shall be used to determine the display area allowed per street frontage: $\text{Linear Distance of Street Frontage (from lot line to lot line or from lot line to corner in metres)} \times 0.25 = \text{Display area (in metres)}$. Vehicles in the display area shall be located behind a continuous 30 cm height planting and all vehicles shall be parked at grade.

Landscape Requirements for Development Internal to a Parking Lot:

- Divide lot into smaller sections by the use of curbed, landscaped islands and peninsulas.
- Islands (and circulation aisles) should be oriented in the direction of pedestrian movement.
- Islands or peninsulas are required at the end of the parking aisles.

- Landscaped planting areas, measured from backside of curb, shall have a minimum dimension of 2.6 m.
- Islands and peninsulas are to be 1 m shorter (face of curb) than the length of the adjacent parking stall.
- Planting area shall contain no more than one shade tree per 11.5 square metres, minimum 50 mm caliper shade tree and suitable ground cover; not pavement or turf.
- No vehicular parking space shall be located farther than twenty five metres (25m) from an interior shade tree planting area. In addition, the maximum number of parking stalls in a consecutive row is 20 with a planting island separating the next 20 stalls or drive aisle.
- Planting islands are to be designed to hold 1 shade tree, minimum 50mm caliper, or 2 ornamental single stem trees (e.g. Serviceberry, Crabapple, Silk Lilac, etc.) and a minimum one half of the island area to be covered with shrubs or perennial plantings. (Note: materials other than trees should be specified to be 0.9m high or less) and trees must be limbed up with no branches between 0.9m and 1.6m high.
- All interior landscaped planting areas must be protected from the encroachment of automobile traffic by continuous concrete curbing.
- Plant material should be carefully chosen for parking lot treatments having such qualities as:
 - Pollution, salt and drought tolerant.
 - Easily maintained.
 - Free of nuisance fruit or berries.
 - Hardy and strongly branched.
 - Ground cover rather than turf under trees.
- Plant material at intersections shall not obstruct drivers' views of approaching pedestrians or vehicular traffic and must be less than 0.9m in height.

- Consideration must be given in the landscape design for winter maintenance/snow plowing and snow storage.

Irrigation Systems:

The City requires the installation of underground irrigation systems for commercial properties and prestigious industrial sites (i.e. Lancaster Corporate Centre, sites zoned B-3, sites adjacent to Regional roads). This requirement applies to ornamental plantings within the streetscape. It is also highly encouraged to install underground irrigation systems for areas of high stress such as interior landscaped planting areas in parking lots. The City also highly recommends underground irrigation systems for industrial, multi-residential and institutional sites.

Irrigation Design Criteria are as follows:

- Commercial properties require irrigation everywhere, including parking islands.
- Cultivated landscaped areas shall be watered with an irrigation system.
- Irrigation sprinkler layouts shall be designed to minimize the amount of spray that will fall on sidewalks, neighbouring properties, and adjacent buildings.
- Back flow prevention devices shall be placed per Ontario Regulation 815/84, plumbing code under Ontario Water Resources Act.
- The City encourages the use of water efficiency system design and materials and the use of drip irrigation where appropriate, depending on site conditions (i.e. soil type, etc.).
- All underground irrigation systems shall be designed and certified by a Landscape Architect or a certified irrigation designer.
- Specifications for the irrigation system shall include a watering schedule with amendments for seasonal changes. Water used for irrigation shall be minimized to the amount needed to maintain adequate plant health and growth.

- Install separate control valves for turf and non-turf areas and to accommodate different water use requirements within each control valve circuit.
- If a system is found to have overspray resulting in water wasted on paved or street areas, then system modifications to prevent overspray will be required before the release of the letter of credit.
- In some areas, low angle trajectory sprinklers with pressure compensating devices, bubblers, or drip irrigation should be used to prevent excessive loss of water due to dissipation from winds and surface runoff.
- The following irrigation system information should be included:
 - Location and type of all sprinkler heads.
 - Size of mainline and irrigation piping.
 - Location and size of water meter.
 - Location of backflow prevention device.
 - Location, size and circuit numbers of all valves.
 - Location of irrigation controller.
 - A table showing the manufacturer and model number of all parts used in the irrigation plan.
 - Location of rain sensors and/or tensiometer (a sensor which measures soil moisture and salinity) to avoid over watering.

Community Garden:

The following are standards for the development of a community garden within a high rise or multi-residential development:

- Supply a minimum of one garden plot per every 18 units within the development.
- Supply a minimum of 2.35 sq. m of garden area per unit.
- Gardens are suggested to be 4.6 m x 4.6 m with a minimum of 1.5 m walkway around each garden to allow access to each side of a garden plot.

- Supply a hose bib for watering within a 30 m radius of any garden plot.
- Supply a location (room at ground floor with an outside door or a garden shed) for the storage of tenants' rakes, shovels, hoses, etc.
- Ensure that the community garden location receives sufficient sunlight.

Invasive Non-Native Species:

The planting of aggressive non-native species within or adjacent to woodlands or natural areas is discouraged in order to help safeguard the long term ecological integrity of these areas. Section 14 contains a list of trees and shrubs native to the Waterloo Region and a list of aggressive alien species which are not to be planted in the vicinity of woodlands and natural areas.

Native Trees and Shrubs in Waterloo Region:

The species making up this list are indigenous to the Waterloo Region and some are Regionally Significant. Species restricted to the Carolinian Forest Zone have been highlighted. Although most Carolinian species are only found in North Dumfries Township some do occur north of this area (e.g. *Juniperus virginiana*, Eastern Red Cedar). A complete listing of the Native Trees and Shrubs of Waterloo Region is located in Section 14.

Landscape Plan Submission Requirements:

All landscape plans are to bear the Landscape Architect's "Ontario Association of Landscape Architects" membership stamp and signature. Where it has been determined by the City's Director of Planning that the proposed development will require limited landscaping, the requirement above will be waived with the provision that it will be reinstated if satisfactory landscape plans have not been produced after two formal submissions.

Landscape plan(s) submissions are to conform to the City's approved Site Plan. The grading is to conform to the Site Grading, Drainage and Siltation Erosion Control Plan and Storm Water Management Plans for this project as submitted by the Professional Engineer (s) for the project.

Landscape Plan(s) submissions are to be final design and working drawings. All landscape plan(s) submissions are to be FOLDED to letter or legal size.

All landscape plan(s) submissions are to be submitted at a maximum scale of 1:250.

Landscape plans are to include the following information and drawing instructions:

- A Key Plan at a scale of approximately 1:10,000 indicating the exact location of the site with a north arrow.
- Natural features which are existing and those which the developer has designated for preservation, shall be indicated.
- Existing and proposed contours.
- Top and bottom of bank contours of all water courses within the property.
- Adjacent roads and properties surrounding the subject lands are to be adequately marked with spot elevations to show the slope of the land.
- Proposed walls within the project boundaries are to be marked with “top of wall” and “bottom of wall” elevations.
- Steps shall be shown indicating their number and size. Spot elevations are to be shown at the top and bottom of the steps - drainage and flow arrows to indicate direction of drainage.
- All catch basins and sub-drains shall be clearly marked with proposed spot elevations.
- Building entrances and spot elevations at each entrance (door and garages) and show the finished ground floor elevations of all buildings.
- Location and elevation of underground structures.
- Location of walkways, parking lots, screens, garbage enclosures, protective fencing, exterior lighting, street furniture, hydrants, curbs, ground supported and portable signs, and all other existing and proposed features.
- Location of all temporary contractor signs, development notices, zone change notices, etc. must be indicated on landscape and site plans.
- Plant material is to be clearly located and labeled with a key system. A plant list is to include the full botanical name, common name, quantity, caliper, height, spread and special remarks.
- Planting details - coniferous and deciduous trees and shrubs (staking, guying, installation, etc.).
- Soil depth/volume, types and additives (fertilizers, peat moss, mulch etc.).
- Landscape structures - benches, play structures, fences, walkways, garbage enclosure, retaining walls, planters, stairs, ramps, etc.
- Playground structure details and CSA design standard certification
- Surface materials should be specified and installation details provided e.g.paving, sodding, seeding, etc.
- All existing trees to be either preserved or removed are to be accurately located and clearly identified as to the species, diameter and condition on the plan. If these trees are large, they should be dealt with on an individual basis, otherwise, general areas of small trees or shrub growth may be shown. Trees on adjacent properties that will be impacted by the proposed development should also be noted.
- Type and location of all easements, sight triangles and road widenings.
- Adult’s and children’s amenity areas should be illustrated and fully dimensioned.
- Snow storage areas or methods of snow disposal.
- The following declarations should be included on all Landscape Plans:

We agree to implement the approved landscape plans within one year of the date of first occupancy and will retain the Landscape Architect/Designer to make periodic site inspections and on completion of the landscape works, we will forward to you a copy of the Site Development Works Notification Form from the Landscape Architect/Designer.

Any revision to the landscape plans will be submitted to the Urban Designer, City of Kitchener, before commencement of the works, for review and approval.

We hereby authorize the City, its employees, agents or contractors to enter upon our land to which these drawings apply, to complete the required site development works and agree to indemnify the City and its authorized agents and save them harmless from any and all actions arising out of the exercises by the City, its employees, agents or contractors of the rights hereby given to them. And we further undertake to notify the City forthwith of any change of ownership of the said lands.

Signature of Owner

Name of Owner

Address

Date

Telephone

I hereby certify that the Landscape Plans and the Site Grading, Drainage and Erosion Control, and Storm Water Management Plans for this project are coordinated with respect to proposed works and site conditions.

Signature and stamp (if applicable) of Landscape Architect/Designer:

Date

Signature and optional stamp of the Professional Consultant(s) for Site Grading, Drainage and Siltation Control, and Storm Water Management.

Date

Fencing Requirements:

Wood Fencing

The following are standards for typical solid screen fencing:

- Height to be 1.8 m unless otherwise noted on the approved site plan.
- Footings minimum 1.2 m deep poured concrete in sonotubes.
- Posts maximum of 2.4 m on centre.
- Fasteners are to be non-corrosive (e.g. galvanized rail hangers or brackets).

Chain Link Fence

Galvanized chain link fencing is to be detailed and installed in a manner conforming to the detail found in Figure 15.6.

Acoustical Walls

The design and structure of acoustical walls are to be certified by the Consulting Engineer for the project and approved by the Regional Municipality of Waterloo and the Manager of Site Development and Customer Services in Community Services Department City of Kitchener.

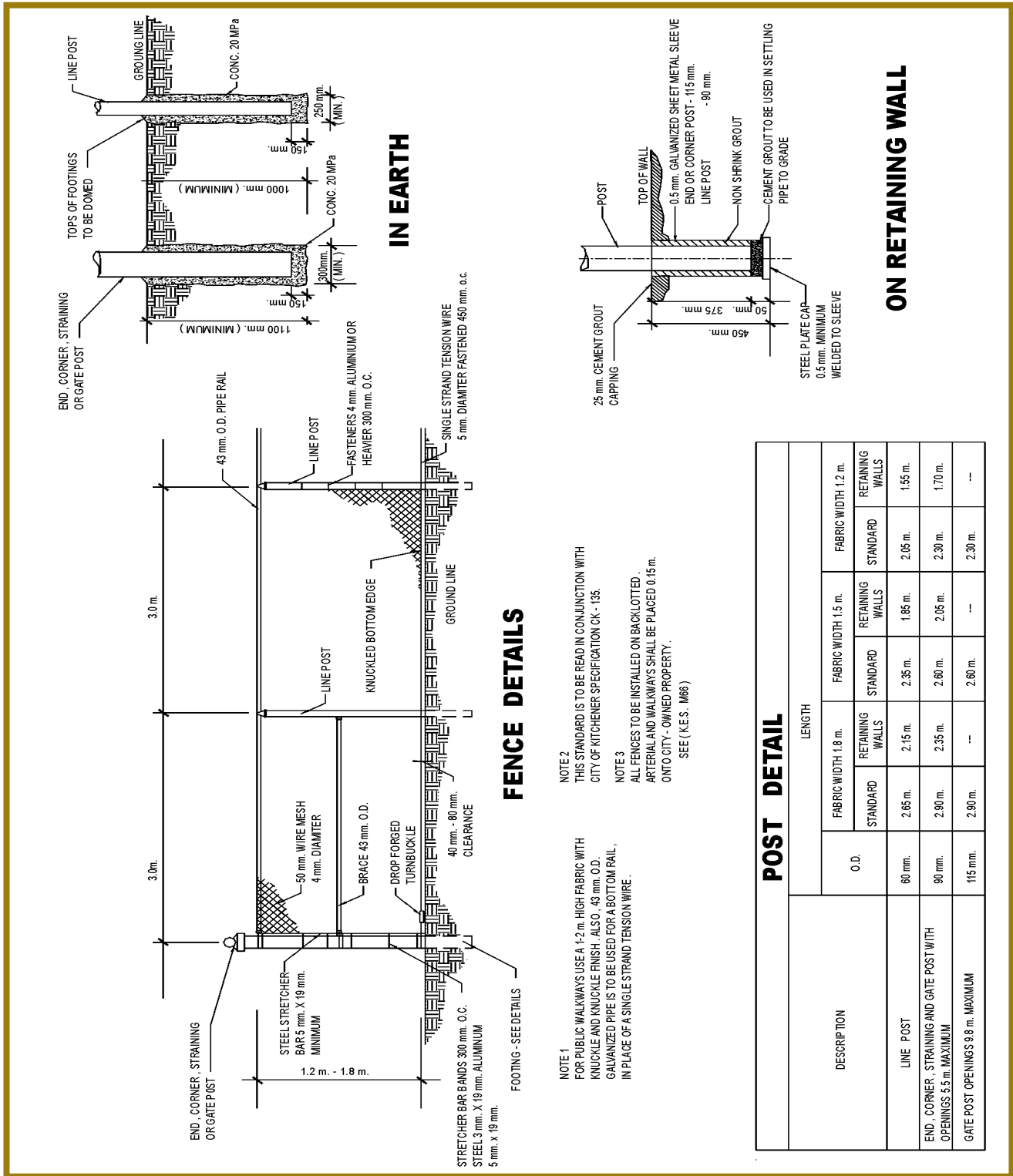


Figure 15.6: Chain link Fence Details

Cycling Facilities

The design of our urban areas has a significant impact on people’s ability/willingness to cycle. The bikeway and trail network recommended in the City’s Bikeways Study and the Regional Cycling Master Plan identifies a network of routes and design specifications intended to make cycling a comfortable, safe and viable mode of transportation. Development in all land uses will provide bicycle parking according to the appropriate rate noted below and be designed and located to achieve the following criteria.

Bicycle racks must be designed so that they:

- Do not bend wheels or damage other bicycle parts.
- Have two points of contact with the bike.
- Accommodate U-shape locks which secure the frame and both wheels.
- Are separated from motor vehicles.
- Do not interfere with pedestrians.
- Are covered where users will leave their bikes for longer periods of time.
- Are easily accessible from the street.
- Are securely anchored to a hard surface or a structure.

Bicycle Parking:

Dimensions

- Bicycle parking spaces should be at least 1.8 metres long and 0.6 metres wide, and overhead clearance in covered spaces should be at least 2.1 metres.
- A 1.5 metre aisle for bicycle maneuvering should be provided and maintained beside or between each row of bicycle parking.

Covered Parking

The Canadian climate permits cycling virtually year round. Leaving bicycles parked and exposed to precipitation for longer periods of time is a deterrent to

cycling in inclement weather. To promote transportation based on cycling, sheltered bicycle parking should be provided to encourage cycling in all weather conditions.

Covered parking is necessary for land uses where long-term bicycle parking is anticipated, for example, some residential, institutional, commercial and industrial uses having concentrated numbers of users. For customers, visitors and other occasional short-term users, covered parking is also beneficial. Covered spaces can be building or roof overhangs, awnings, lockers or bicycle storage spaces within buildings.

The effectiveness of bicycle parking is often determined by location. To reduce theft, a highly visible location with pedestrian traffic is preferable to obscure and dark corners. Because of its smaller size, the bicycle can be parked closer to the rider’s destination than a car.

Bicycle parking should be located in well lit, secure locations within 15 metres of the main entrance to a building, but not further from the entrance than the closest automobile parking space, but in no case further than 15 metres from an entrance where several entrances are involved. Curb cuts at the rack location discourage users from riding on the sidewalk to access the racks.

Bicycle Parking Requirements

Land Use	Required Number of Spaces
All land uses except school-related Institutional	10% of the number of automobile spaces required by the zoning by-law
College or University	6% of the number of students plus 10% of required parking spaces
Primary or Secondary School	10% of the number of students plus 10% of required parking spaces

Garbage/Recycling Collection Structures:

A structure to accommodate garbage and recycling - complete with roof, walls and a solid door – is required for all multi-residential, institutional and commercial

developments. Enclosures must be constructed of material that is similar to or compatible with the architecture of the main buildings.

Additional storage for materials that relate to the proposed development may be required e.g. storage of oil/grease recycling, coffee grounds or auto parts.

Collection facilities associated with restaurants, grocery stores, etc. contain a higher percentage of food waste. It is preferred that such uses integrate garbage/recycling storage within the main building and incorporate adequate ventilation and seals to ensure rodent resistance and odor prevention. If HVAC equipment is utilized for garbage/recycling enclosures it must be screened in accordance with the provisions of Section 7.0.

Garbage/recycling storage facilities shall not be situated next to a rear or side lot line that abuts existing or potential residential uses.

Industrial developments are required to have complete enclosures only when visible from a public street.

Required building setbacks will apply to all structures.

Although stand alone facilities may be used for facilities associated with any form of medical or dental use, waste storage should, preferably, be located within the main building. All medical waste storage facilities must contain an effective locking mechanism for security purposes.

As an alternative to a full enclosure, deep well collection systems may be used for any commercial institutional or multi-residential development.

All garbage/recycling storage areas are to be designed such that they are easily accessible by service vehicles and do not require the collection vehicle to reverse out onto a public street.