# Sight Triangle M A N U A L



Design Guidelines and Standards for Sight Triangles



# **Table of Contents**

1.0	Intro	duction
	1.1	Key Terms
	1.0	Quick Reference Guide
2.0	Sight	Triangle Application
	2.1	Submission Requirements
	2.2	Review Process
	2.3	Application Approval
	2.3.1	• • • • • • • • • • • • • • • • • • • •
3.0	Desig	n Guidelines & Standards17
	3.1	Architectural Features
	3.2	Decorative Paving
	3.3	Planting & Landscape Features
	3.4	Site Furnishings
	3.5	Accent Lighting
	3.6	Utilities Access
	3.7	Maintenance



# 1.0 Introduction



## 1.0 Introduction



York Region's public rights-of-way support multi-modal transportation including pedestrians, bicycles, public transit and passenger vehicles. In its physical form, the public right-of-way accommodates:

- Roadways
- Bridges
- On-street parking
- Medians
- Bicycle lanes
- Multi-use paths
- Sidewalks
- Street trees

- Street furniture
- Transit facilities
- Illumination
- Traffic signals
- Signage
- Fencing
- Utilities (above & below ground)

Additional land for future road improvements

This manual responds to strong demand from local municipalities and the development community to enhance their local streetscapes within the public right-of-way, most notably within sight triangles. Upgrading pedestrian areas within sight triangles aligns with York Region's mandate to integrate streetscaping and urban design into road design and construction.

The manual outlines the design guidelines and standards that they are safe and consistent with the Regional Streetscape Policy.

## 1.1 Key Terms

### Back-of-Curb (BOC)

Used for dimensioning; point on curb furthest from edge of roadway and directly adjacent to clear zone.

### **Break-away**

Refers to safety feature allowing site furnishings to detach from permanent footings and anchors in the event of collision; prevents extensive damage to both furnishings and vehicles while also providing some protection for pedestrians.

#### Clear zone

An area where no physical elements may be located, unless required. If objects must be located within a clear zone, visibility may not be obstructed by any object having a diameter greater than 200mm).

### Public Right-of-Way (ROW)

Designated area between private property lines that contains publicly owned and maintained elements (i.e. roads, sidewalks, power lines, etc.); accommodates areas for future expansion.

### Streetscape

Visual elements of a street, including the road, adjoining buildings, street furniture, trees and open spaces, etc, that combine to form the street's character.

### Sight Triangle

Also called Daylight Triangle; refers to area directly adjacent to vehicular intersection and may include central median areas of roadways.

### **Top-of-Curb (TOC)**

Used for dimensioning; highest point on curb from road surface.

## 1.2 Quick Reference Guide

Feature	Sight Triangle Dimensions (m)			
3.1 Achitectural Features	6 x 6	10 x 10		20 x 20
Masonry/Concrete wall — less than 600mm	•	•	•	<b>*</b>
Masonry/Concrete wall — 600mm-800mm	$\Diamond$	•	•	<b>*</b>
Masonry/Concrete wall — 800mm-1200mm	$\Diamond$	$\Diamond$	♦	•
3.2 Paving				
Decorative Paving — more than 50% of surface area	•	•	•	$\Diamond$
3.3 Planting & Landscape Features				
Accent plantings — less than 600mm tall	•	•	•	•
Accent plantings – 600-800mm tall	$\Diamond$	<b>♦</b>	•	<b>*</b>
High-branching trees — trimmed to 1800mm from finished grade	$\Diamond$	$\Diamond$	•	<b>*</b>
Columnar or fastigiate form single-stemmed trees	$\Diamond$	$\Diamond$	♦	<b>*</b>
3.4 Site Furnishings				
Benches	$\Diamond$	<b>♦</b>	•	+
Bike Rack	$\Diamond$	♦	•	<b>*</b>
Garbage Receptacle	$\Diamond$	♦	+	+

<sup>♦ -</sup> Not Permitted ♦ - May Be Permitted • - Permitted

Note: Table sections correspond to sections in 3.0 Design Guidelines & Standards (page 17)

# 2.0 Sight Triangle Application



# 2.0 Sight Triangle Application



A formal application and review process will be undertaken for all proposed development within Regional sight triangles. Applications include both an Application Form and plan drawings which shall be submitted directly to Manager, Development Approvals:

ATTENTION: Manager, Development Approvals The Regional Municipality of York 17250 Yonge Street Newmarket, ON L3Y 6Z1

Refer to Design Guidelines and Standards for direction on design.

For sample drawings and agreements please refer to Appendix A: Additional Resources



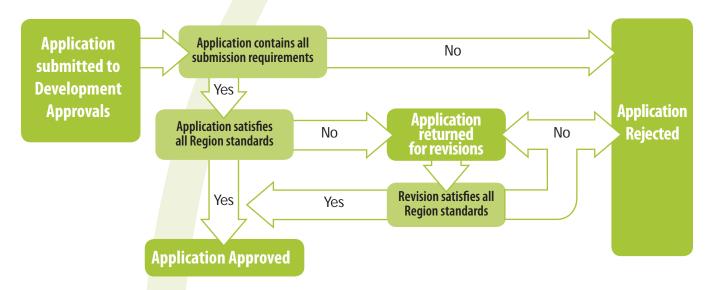
### 2.1 Submission Requirements

- Submission to be prepared by a licensed Landscape Architect (OALA) or Professional Engineer (P.Eng.)
- 2. Completed Application Form (includes intention to sign and honour Maintenance Agreement)
- 3. All applications should include the following drawings (drawn to scale) complete with the following information:



Drawing	Required Information
Title Page	Context & Location Map Legend
Existing Conditions	Existing ROW Edge of pavement Existing grades Existing utilities (above & below ground) Existing above ground features within sight triangle Existing vegetation
Site Plan	Limit of work Proposed elements
Layout Plan	Proposed dimensions Proposed grading & slopes
Planting Plan	Proposed vegetation Plant list (with species, quantities & condition)
Details	All relevant details

### 2.2 Review Process



## 2.3 Application Approval

As a condition of approval on the application, the municipality is obligated to enter into a maintenance agreement.

### 2.3.1 Maintenance Agreement

The Maintenance Agreement is an agreement between York Region and the local municipality which stipulates that the local municipality guarantees the maintenance schedule and functions are performed as a condition of development approval. York Region will monitor the maintenance of all enhancements within the sight triangle to ensure the safety of motorists and pedestrians.

Failure to honour this agreement will result in legal action and will prohibit the consideration of future applications for enhancements for the local municipality.

# 3.0 Design Guidelines & Standards



## 3.0 Design Guidelines & Standards



Sight triangles are an integral part of the public right-of-way. Located at road intersection quadrants, sight triangles require clear visibility for safe vehicular movement between streets, driveways, or alleys and may include central medians. Additionally, sight triangles present an opportunity for enhancing the street and integrating several modes of transportation safely within the Regional right-of-way; however, traffic safety at intersections is critical and will not be compromised.

The following minimum requirements must be met in order to proceed with the full review:

### **Minimum Requirements**

### Safety

- Driver and pedestrian visibility (based on 1.05m driver eye height) is to be maintained within the sight triangle
- Proposed elements shall maintain or improve safety at intersections for all users.
- Landscaping and architectural features may be permitted within the sight triangle if the proposal does not obstruct views of luminaires, traffic signals, traffic signs, and falls outside the clear zone.
- Unnecessary grading is not permitted within the sight triangle.
- All proposed elements must conform to AODA standards for accessibility

#### Context

Tree planting should be avoided on reserved utility corridors. Species selection should suit conditions and avoid conflicts with existing or proposed utility & servicing locations.

#### Maintenance

Plans should include provisional areas for future traffic signal controllers, utility cabinets or gas regulating stations.

Additional design guidelines are provided for the following elements which may be proposed or exist with the sight triangle:

- Architectural Features
- Decorative Paving
- Planting & Landscape Features
- Site Furnishings
- Accent Lighting
- Utility Access
- Maintenance

## 3.1 Architectural Features







### Goal

To create interest, add variety, provide a focal point, and frame views complementary to and subordinate of the Region's designated gateways and entryways.

### **Guidelines**

### Safety

In highly visible areas where fencing is needed, decorative metal fencing is encouraged; fencing shall not impede visibility into a site from the street. Decorative metal fencing is preferred in areas where transparency is desired and security is necessary.

#### Context

- Features should enhance and connect to the surrounding context or development through design with scale, architectural style, detailing, colour, texture, and lighting.
- Architectural walls and fences should minimize visual monotony thorough changes in plane, height, texture, material finish, and colour.
- Architectural interest may be provided with columns, wall inserts, trim, capping, lettering, fencing, sculpture, and a tasteful combination of materials which visually breaks up the long segments of wall.
- Planting shall complement the design and create a sense of foundation and dimension.

#### Maintenance

- Entry feature shall be constructed of quality materials which have integrity and longevity.
- No temporary signs shall be located within the daylight triangle.

### 3.1 Architectural Features

### **Standards**

Feature	Description	Max. height from TOC (m)
Wall	Located between 1.5m & 9.0m from BOC	0.6
	Located between 9.0m & 15.0m from BOC	0.8
	Located adjacent to PL, within York Region ROW	1.2
	Located outside York Region ROW	1.8
Seat Wall*	Located between 1.5m from BOC & PL	0.6
Retaining Wall	Located within Sight Triangle, retaining required greater than 1.2m	0.8/tier
Raised Planter**	Located between 1.5m & 9.0m from BOC	0.6
	Located between 9.0m & 15.0m from BOC	0.8
Fencing	Located adjacent to PL	1.8

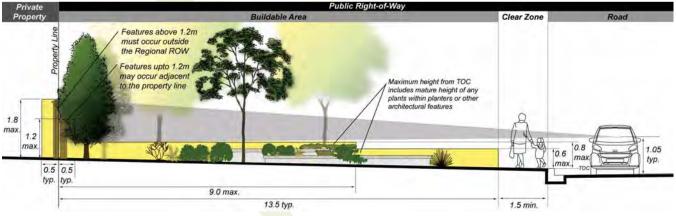
<sup>\*</sup> Seat walls may have a seat depth of 0.3m-0.45m\*\* Maximum height includes mature plant height (max = planter + plant)

BOC - Back of Curb PL - Property Line ROW - Right-of-Way TOC - Top of Curb

- Stone units on walls shall be mortared in place to ensure stability where the wall is over 1000mm high.
- Where a change in grade occurs, fence panels shall step down in 150mm increments to align cross members.
- Metal fencing shall be powder coated and painted black for longevity and transparency.
- Uncoated chain link fencing, razor wire, and barbed wire are not permitted.
- Fountains shall be located on private land and not within public right-of-way with the mechanical equipment remote and completely unobtrusive.
- Fountains may be considered only when coordinated and maintained by private sector developments.

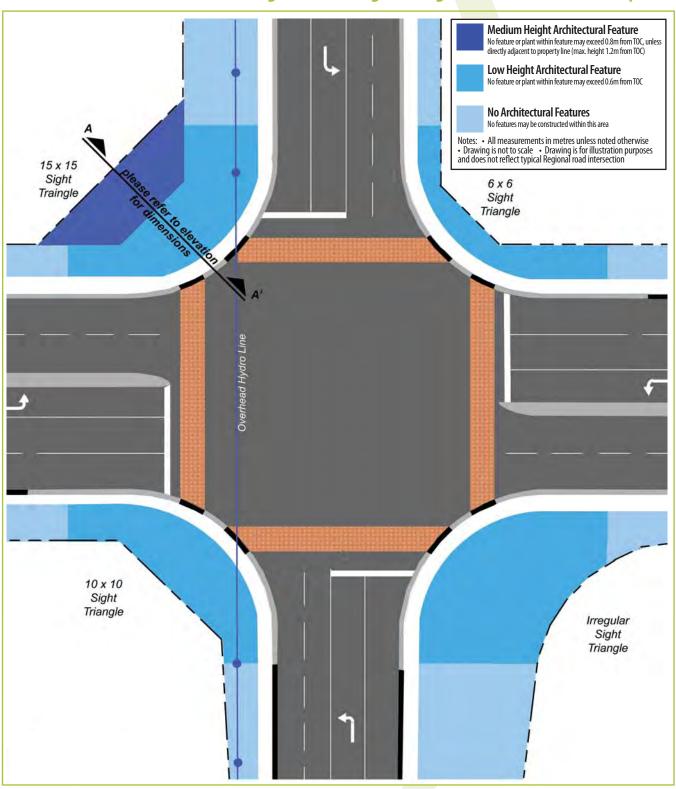
### Elevation A-A': 15 x 15 Sight Triangle Architectural Feature Options

Notes: • All measurements in metres unless noted otherwise • Drawing is not to scale • Clear Zone must be kept clear at all times • Notes pertain only to indicated sight triangle



## 3.1 Architectural Features

### **Regional Road Sight Triangle Architectural Feature Options**



## 3.2 Decorative Paving

### **Guidelines**

### Pedestrian Areas:

- ► Accepted paving material include:
  - · coloured, patterned concrete
  - unit pavers
  - imprinted asphalt.
- Prohibited paving materials include:
  - Asphalt
  - woodchips
  - pea gravel
  - limestone screenings

### Active Transportation Areas:

- Accepted paving material include:
  - coloured concrete
  - asphalt
- Prohibited paving materials include:
- imprinted asphalt
- patterned concrete
- · unit pavers
- · woodchips
- pea gravel
- limestone screenings.
- Ramps should be integrated into the surrounding site elements and not as an add-on feature.

### **Standards**

- Pedestrian sidewalks must be barrier-free at all intersections.
- Where permitted, unit pavers are to be installed on a concrete base for stability and longevity.
- Paved crosswalks and sidewalk extensions are permitted only at signalized intersections; design to be coordinated with York Region streetscaping standards.







## 3.3 Planting & Landscape Features



### Goal

To enhance the public street through unified plantings and landscape treatments in accordance with York Region's Streetscape Policy.

### **Guidelines**

### Safety

Incorporate Crime Prevention Through Environmental Design (CPTED) principles in the planting design of the sight triangle.



### **Context**

Plant material, colour, and texture should be selected to provide unity; accent plant material may be used to create limited contrast.

#### **Maintenance**

- Native, drought tolerant, low maintenance, pest and disease resistant plant varieties are preferred.
- High maintenance groundcovers (traditional sod, ornamental species, etc.) should be avoided in favour of maintenance options.
- Landscape fabric and mulch should be used to mitigate weed growth.
- Underplanting groundcovers as well as understorey planting is not recommended beneath trees if irrigation is not available.
- Trees selected should be listed in the most recent York Region Top Performing Street Tree List for Standard and Hydro Applications.
- Basic lists are provided in Appendix A: Additional Resources, however, designers must refer to the most recent version available through Natural Heritage & Forestry Services.



## 3.3 Planting & Landscape Features

### **Standards**

Plant Type	Description	Max. height* from TOC (m)
Shrub or	Located between 1.5m & 9.0m from BOC	0.6
Perrenial	Located between 9.0m & 15.0m from BOC	0.8
	Located adjacent to PL, within York Region ROW	1.2
	Located outside York Region ROW	1.8
Raised Planting**	Located between 1.5m & 9.0m from BOC & PL	0.6
	Located between 9.0m & 15.0m from BOC & PL	0.8
Plant Type	Description	Min. height from grade (m)
Tree	Located more than 9.0m from BOC, height of lowest branch	1.85
Fastigated or columnar form tree	Located adjacent to PL, more than 9.0m from BOC, within York Region ROW, height of lowest branch	1.5

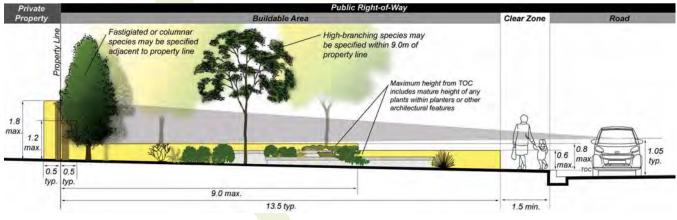
<sup>\*</sup> Maximum height is height at maturity \*\* Maximum height includes planter height (max = planter + plant)

BOC – Back of Curb PL – Property Line ROW – Right-of-Way TOC – Top of Curb

- Standard spacing of 8-10m between trees to be maintained along road ROW.
- Central medians at subdivision multi-residential development entrances should be planted with shrubs/groundcover no more than 0.8m in height, at maturity.
- All plant material to meet or exceed the standards of Canadian Nursery Stock Standards.
- Planting shall be contained within a planting bed and a clean edge maintained.

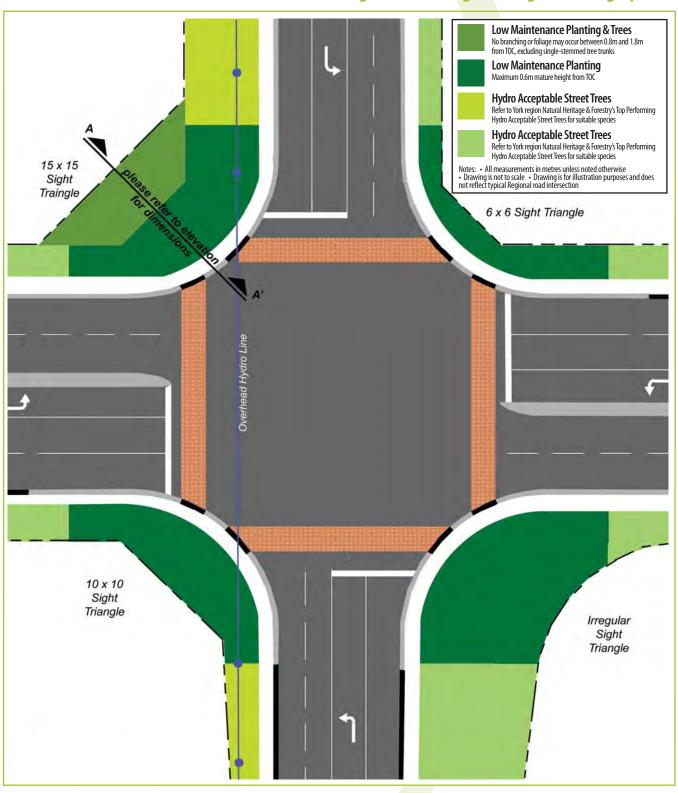
### Elevation A-A': 15 x 15 Sight Triangle Planting Options

Notes: • All measurements in metres unless noted otherwise • Drawing is not to scale • Clear Zone must be kept clear at all times • Notes pertain only to indicated sight triangle



## 3.3 Planting & Landscape Features

### **Regional Road Sight Triangle Planting Options**



## 3.4 Site Furnishings

### Goal

To provide pedestrian comfort through the installation of amenities that compliments surrounding context, materials, and colours.

### **Design Guidelines**

### Safety

All site furniture should be "break away".

#### Context

Site furnishings such as benches, trash receptacles, or bollards may be located strategically at intersections within urban centres as long as they do not obstruct views.

#### Maintenance

Recommended materials include aluminum, cast aluminum, steel with polyester powder coat, stainless steel, and cast iron.





## 3.5 Accent Lighting



### Goal

To provide interest and enhance public safety through responsible and context sensitive illumination.

### **Design Guidelines**

### Safety

- Control light source to avoid glare and minimize unwanted light trespass onto adjacent properties.
- Lighting may not be temporarily or permanently attached to, wrapped around, or aimed up at trees. This interrupts the natural photo period of trees and can cause girdling.



### **Context**

Accent lighting is most appropriate in the daylight triangle.

#### Maintenance

- Use solar and timer-activated photocells to reduce cost of operation.
- Accent lighting shall be owned, maintained, and located by the local municipality.

### 3.6 Utilities Access

### Goal

To integrate existing and proposed utilities within proposed enhancements and decrease visual impact of utility things.

### **Design Guidelines**

### **Context**

Visual screening of utility facilities may be permitted if suitable access is provided

#### Maintenance

- Standard utility locations should be considered
- refer to Appendix A: Additional Resources for utility locations within the York Region ROW

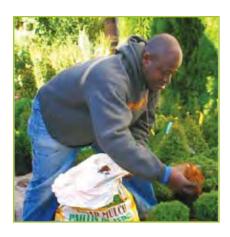
### **Standards**

- Proposed structures or planting shall not obstruct access to site utilities and clearances shall be respected.
- Trees and shrubs shall be planted so that at maturity, they do not interfere with above- and below-ground services and safety sight areas. Consideration should be given to impact on adjacent property.
- Proposed structures shall not interfere or compromise the function or structural integrity of the utility.





## 3.7 Maintenance



### Goal

To ensure long-term investment and civic image are preserved.

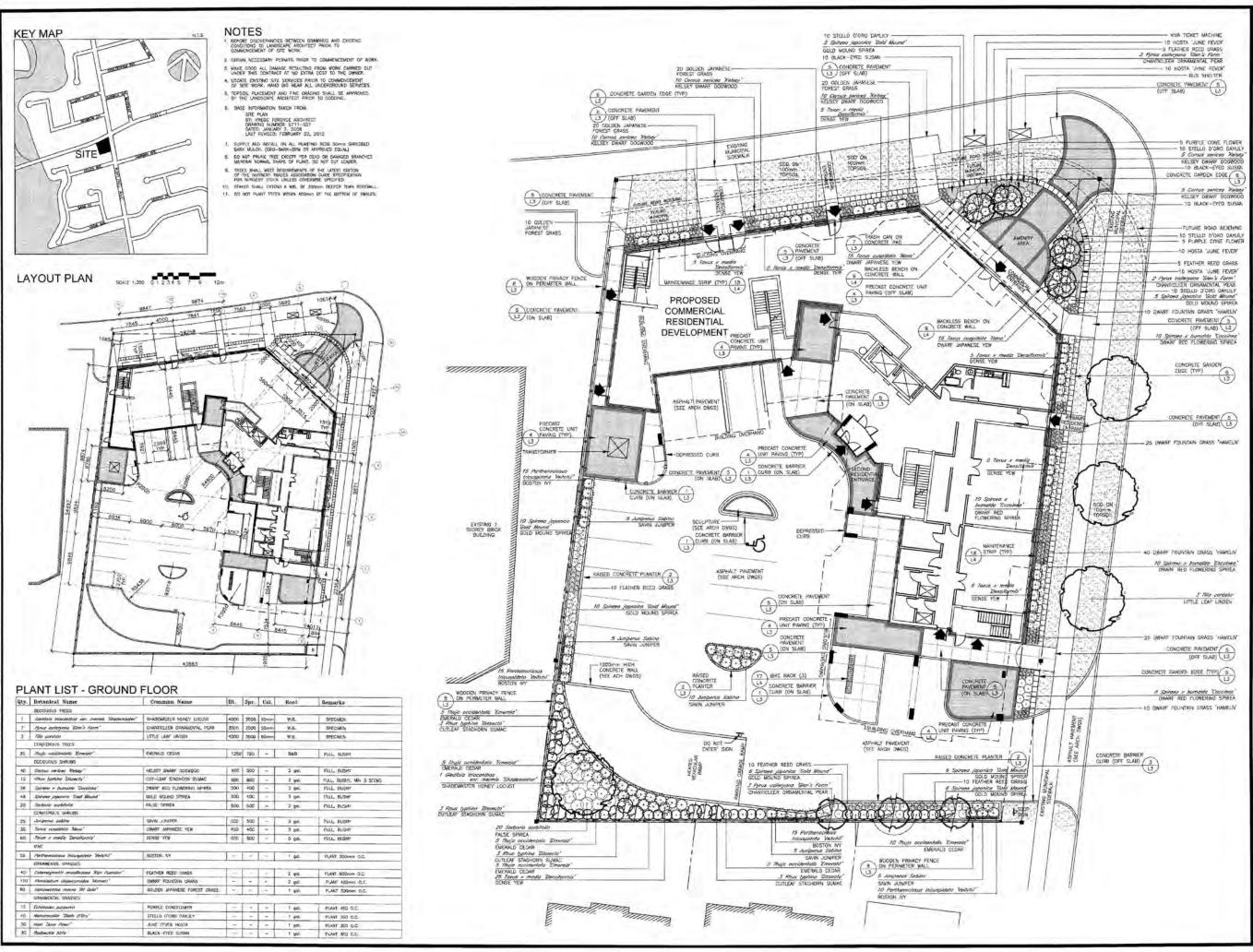
### **Design Guidelines**

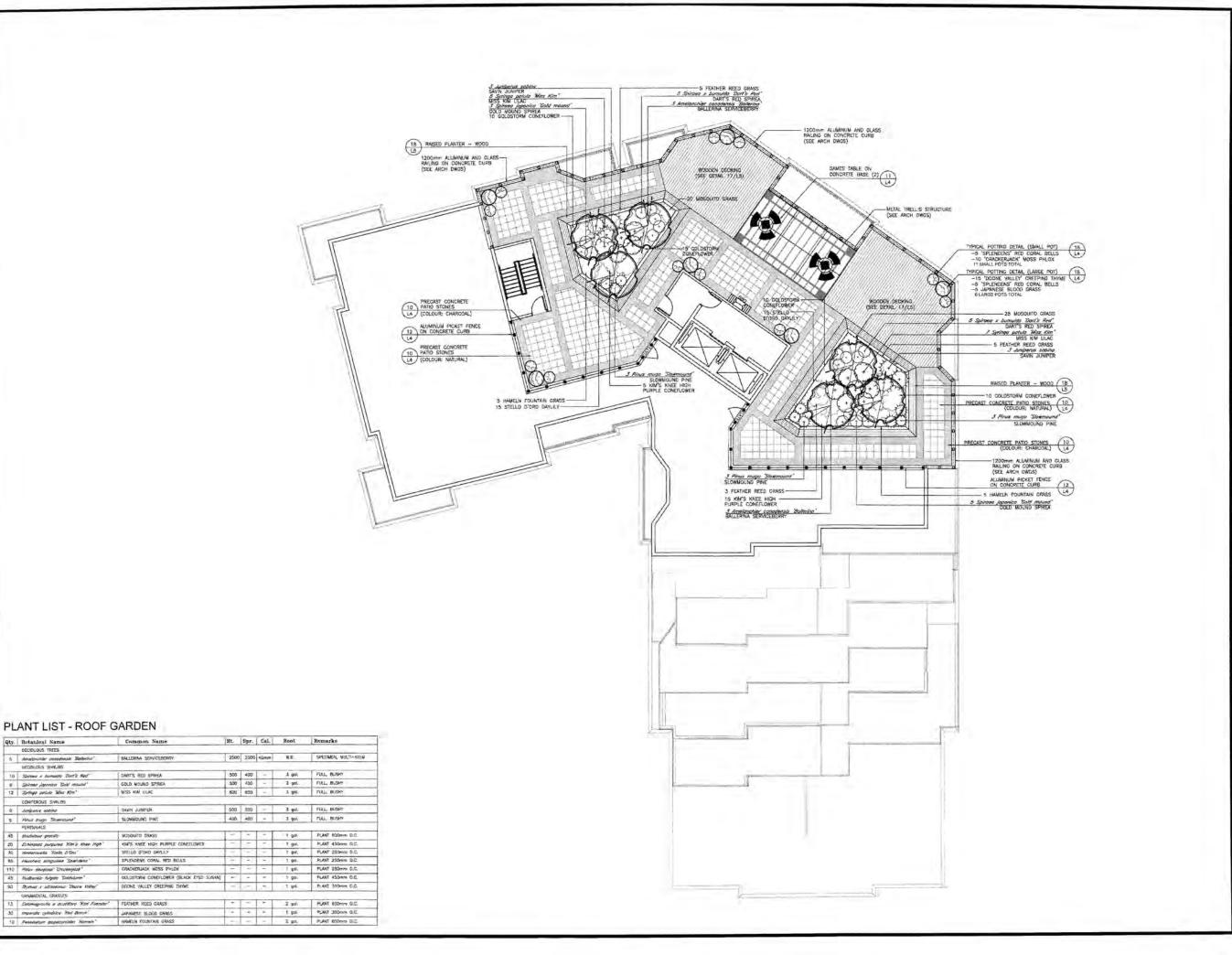
- Maintenance is critical in the aesthetic and longevity of landscape and architectural features.
- Design shall factor in level of maintenance that can be provided by the local municipality.

### **Standards**

- An Encroachment Agreement and Maintenance Agreement will be formed between York Region and the local municipality.
- Inspections by York Region will ensure that the agreement is honoured.

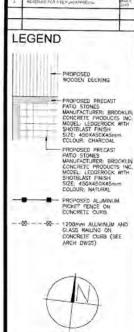
## Sample Drawing Set L1, L2, L3, L4 and L5

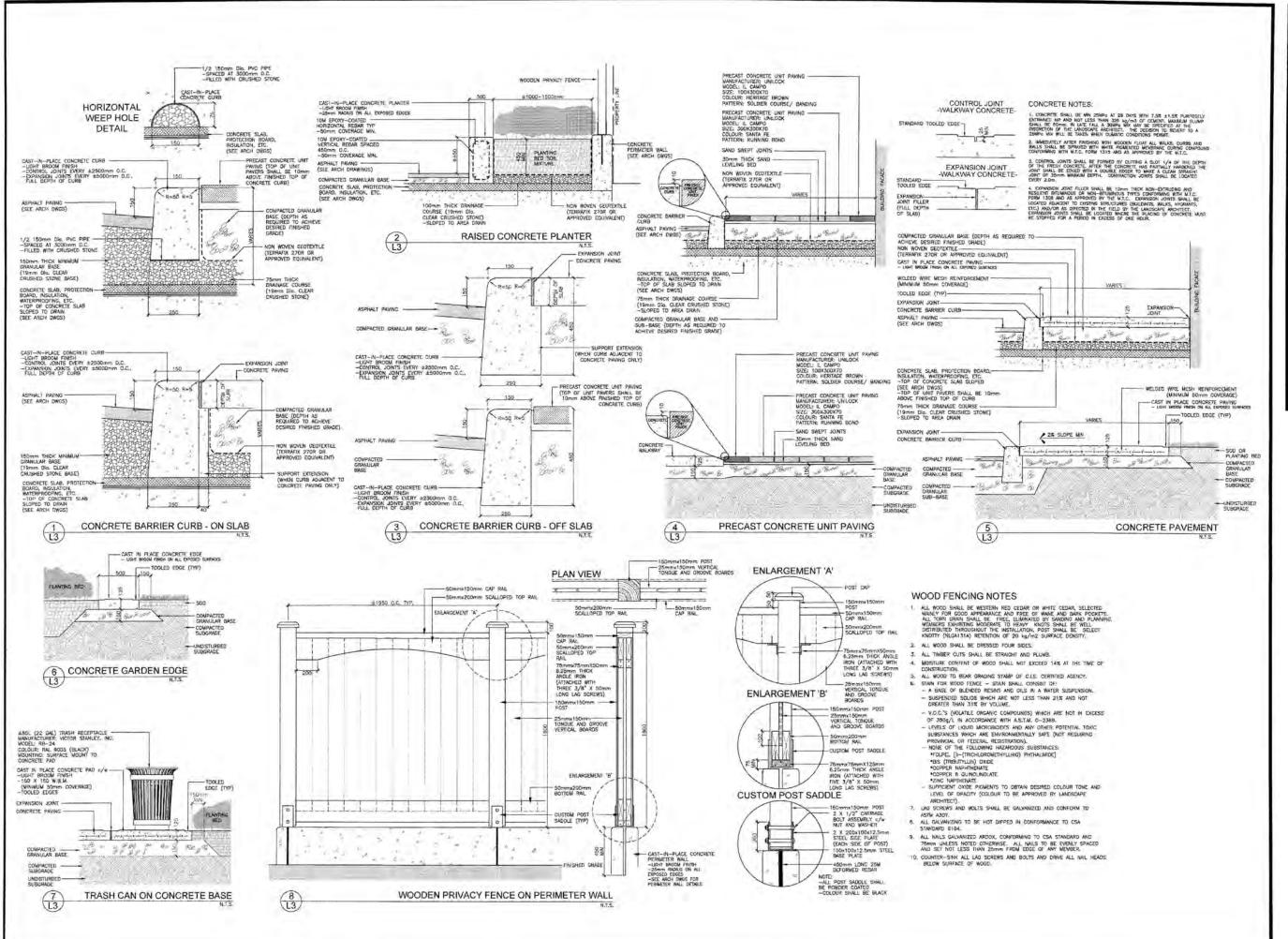




The Contractor shall verify all almensions prior to commencement of the work. All prints and specifications are the property of the Architect and must be properly of the Architect and must be

	ISSI	SSUE or REVISION	
	No.	Description	Date
	4	BAND FOR BITTLAND CATION	DANNE
	7	BOWER OF MANCHES COMMON	XXIII
. 7	2	SCHOOLS FOR ESCHAPANIONS	MAR. 0

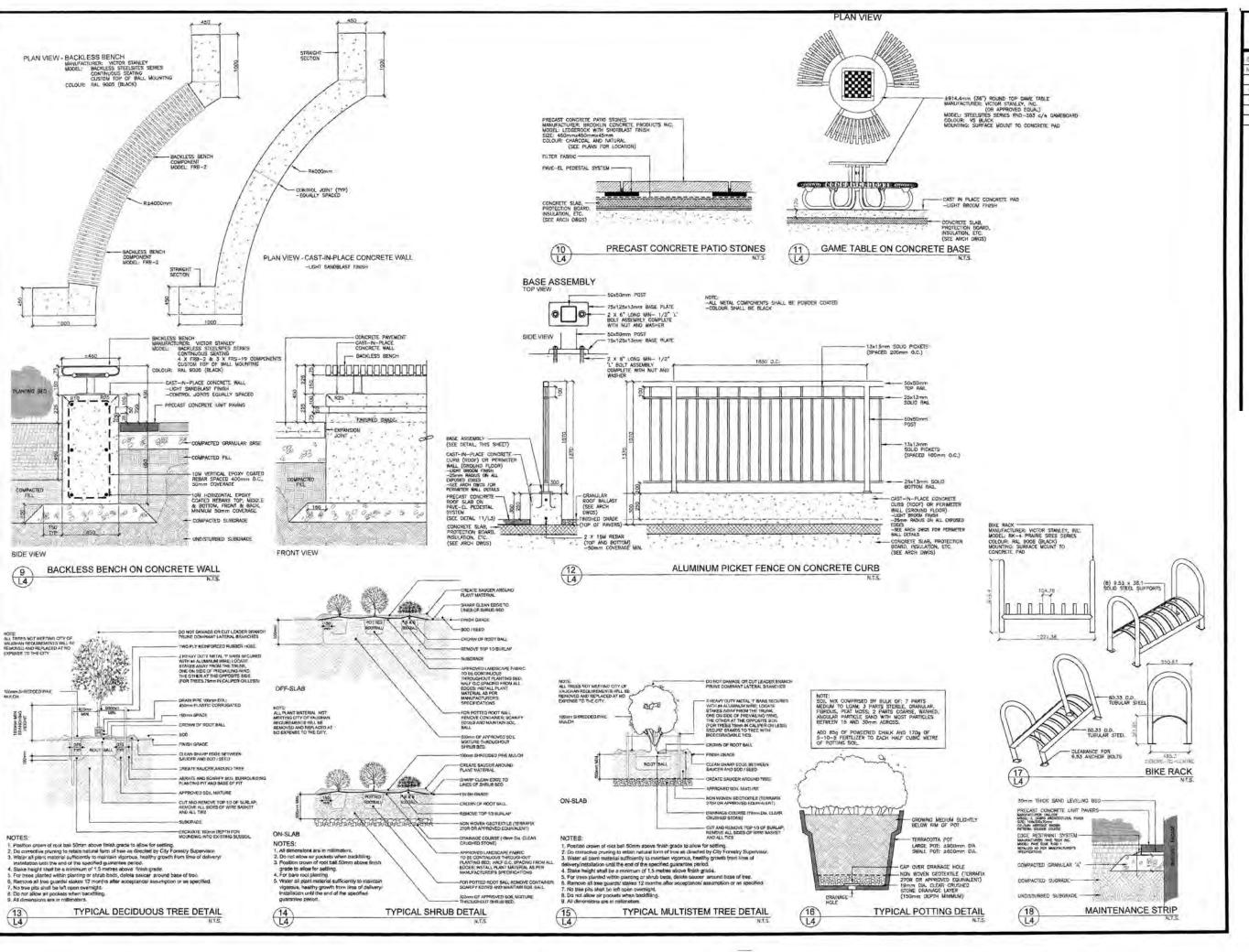




The Contractor shall verify all dimensions prior to commencement of the work. All prints and specifications are the property of the Architect and must be returned upon completion of the work.

ISSUE or REVISION

No.	Description	Date
	GRUES HER HITE ANNI CONTON	040000
1	NEVERS AS FER MAYORIC COMMENT	29/349
4.	IS BELLO FOR OTHER WARRANT	1,446/ ± 1/2/17
-		

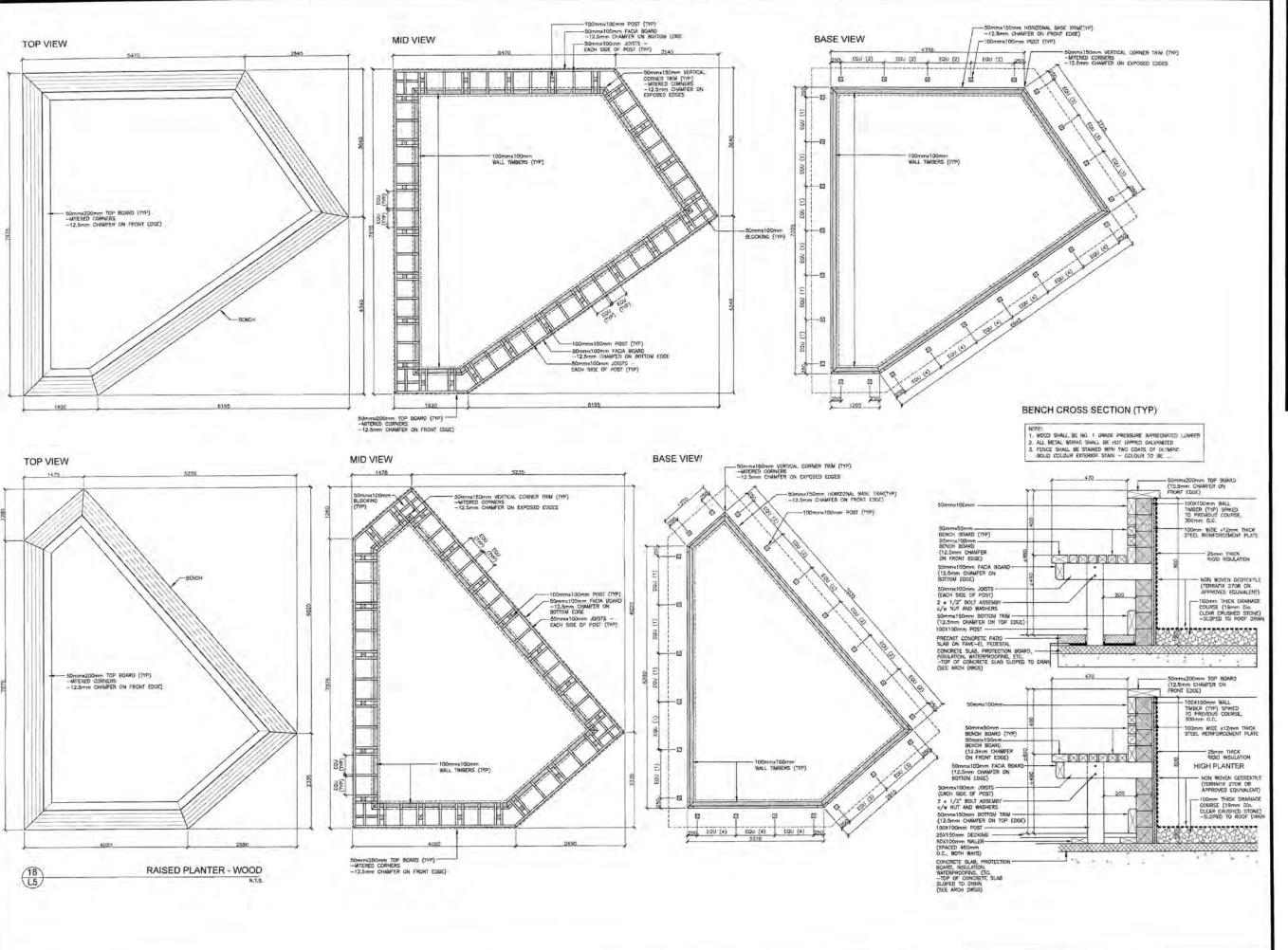


The Contractor shall verify all dimensions prior to commencement of the work. All prints and specifications are the property of the Architect and insust be returned upon completion of the work.

ISSUE or REVISION

No. Description Date

1 Season of the Market of the M



The Contractor shall verify all dimensions prior to commencement of the work. All prints and specifications are the property of the Architect and must be returned upon computing of the work.

IF PRIVICION	
Description	Date
seastcharius autoro	PACHER
*LVMID AS THE REPORT SHAPE	22(24)
HE REMOTE THREE PLANTSWALL	96/6 S
	RANCE FOR INTEREST BOTTON FLORID AS THE BUTTON A STANFOR



