ARTICLE 8
SCREENING AND LAND USE BUFFERS

Section 8.01 Purpose.

Screening and land use buffers are necessary for the protection and enhancement of the environment, and to ensure reasonable compatibility between land uses of differing intensity or impacts. Screening elements enhance the visual environment; preserve natural features; protect property values; alleviate the impact of noise, traffic, and more intensive land uses; and minimize visual impacts of parking lots, loading areas and storage areas. Screening and buffering also contribute to a healthy development pattern, and increase the level of privacy for residential uses in the Township.

The purposes of this Article are to establish minimum standards for the design, installation, and maintenance of screening elements and plant materials; and to establish reasonable standards for transition strips between uses of a significantly different scale or character, and screening of parking lots, storage areas and similar activities from road rights-of-way and adjacent lots. It is the intent of this Article that required screening and buffering elements shall be immediately effective in achieving the purpose of this Article, and shall maintain that effectiveness as the plant materials mature.

Section 8.02 Scope.

The standards of this Article shall apply to all uses, lots, and sites altered, developed or expanded after the effective date of this Ordinance that are subject to review per Section 12.01 (Site Plan Review), condominium site plan approval per Article 13 (Condominium Regulations) or planned unit development approval per Article 14 (Planned Unit Developments). Uses and activities exempt from site plan approval per Section 12.01 (Site Plan Review) shall be exempt from the requirements of this Article.

The standards of this Article shall be considered the minimum necessary to achieve the purposes of this Article and Ordinance. No provision of this Article shall preclude a developer and the Township from agreeing to more extensive landscaping or screening. Where existing sites have been developed without adequate screening or buffering, the purposes of this Article shall be achieved through improvements that are in reasonable proportion to the scale and scope of proposed building improvements, expansions, and other site improvements.

Section 8.03 General Standards.

The following standards shall apply to all landscaping and screening elements required by provisions of this Ordinance or determined necessary by the Planning Commission as part of site plan approval:

A. Design Standards.

1. **Visibility.** Landscaping and screening materials and layout shall conform to the requirements of Section 3.208 (Corner Clearance Areas), and shall not conflict with visibility for motorists or pedestrian access.

2. **Plantings near utility lines and fire hydrants.** Required plant materials and screening shall be arranged to avoid conflicts with underground and overhead utility lines, and access to or visibility of fire hydrants. The anticipated height at maturity of trees planted near overhead utility lines shall not exceed the line height above grade.

3. **Protection.** Where pavement and landscape areas interface, concrete curbing or similar measures shall be provided to protect plants from vehicle encroachment.

4. **Irrigation.** To assist in maintaining plant materials in a healthy condition and ensure compliance with Section 8.09 (Maintenance), the property owner or developer may provide an automatic irrigation system for landscaped areas. All automatic irrigation systems shall be designed to minimize water usage, and shall be capable of being manually shut off during water emergencies or water rationing periods.

B. Plant Material Standards.

1. **General.** The following shall apply to all plant materials:

   a. All plant material shall conform to size and description set forth in the current edition of "American Standard for Nursery Stock" sponsored by the American Association of Nurserymen, Inc. and approved by the American National Standards Institute, Inc. (ANSI 260.1, 1996).

   b. All plant material shall be true to name in conformance to the current edition of "Standardized Plant Names" established by the American Joint Committee on Horticultural Nomenclature, or other source accepted by the Township.

   c. All plant material shall be nursery grown; hardy to the climate of Michigan; appropriate for the soil, climatic and environmental conditions; and resistant to disease and insect attack.

   d. Artificial plant material shall be prohibited within required screening areas.

2. **Groundcovers.** The following shall apply to all groundcover materials:

   a. Lawn areas shall be planted in species of grass normally grown as permanent lawns in Michigan. Grass may be sodded or hydro-seeded,

provided that adequate measures are taken to minimize soil erosion. Sod or seed shall be clean and free of weeds and noxious pests or disease.

b. The creative use of groundcover alternatives is encouraged. Groundcover used in lieu of grass shall be planted to present a finished appearance after one (1) complete growing season. Prairie grass and natural wildflower and grass mix may be used where appropriate.

c. Synthetic materials shall not be used as a permitted groundcover. Use of stone and gravel as a groundcover shall be limited to decorative accents within a planting bed, subject to Planning Commission approval.

3. **Mulch.** Planting beds shall present a finished appearance; with shredded hardwood bark mulch or similar natural material at a minimum depth of three (3) inches. Mulch used around trees and shrubs shall be a minimum of four (4) inches deep, and shall be pulled one (1) inch away from tree trunks. An effective edge treatment shall be provided to contain and prevent migration of the mulch.

4. **Topsoil.** A minimum four (4) inches of topsoil shall be provided for all lawn areas, ground covers and planting beds.

C. Standards for Size and Variety of Plant Materials.

To ensure adequate variety, and to avoid monotony and uniformity within a site, required plant materials shall not include more than thirty percent (30%) of any single plant species, and shall comply with the following schedule for minimum sizes at planting:

Screening Materials	Minimum Size at Installation
Deciduous Shade Trees	2½ - 3 caliper-inches diameter
Evergreen Trees	6.0 feet overall height
Deciduous Ornamental Trees	2.0 caliper-inches diameter or 6 feet overall height
Shrubs	30 inches in height or 24 inches in spread

D. Existing Plant Materials.

Healthy existing trees and other plant materials on a site may be used to satisfy specific screening standards of this Article, subject to Planning Commission approval and the following:

1. The location, size, and species of individual trees and other plant materials to be preserved shall be identified on the site plan.

2. The Planning Commission may require Township inspection of existing plant materials prior to or as a condition of site plan approval to determine the health and desirability of such materials. Such inspections shall be performed by qualified Township staff or consultants.

3. Where plant materials are to be preserved as part of a proposed development, prior approval shall be obtained by the property owner from the Township Planner or Zoning Inspector prior to any delimbing, root pruning, or similar work.

4. During land preparation and construction, protective fencing shall be placed at the drip-line of existing trees, and around the perimeter of other preserved plant materials. Details of proposed protective measures shall be noted on the final site plan for the development. No vehicle or other construction equipment shall be parked or stored within protected areas.

5. In the event that trees or other plant materials identified to be preserved on an approved final site plan are destroyed or damaged, as determined by the Township Planner or Zoning Inspector, the owner, developer or contractor shall replace the plant material with a comparable size, amount, and species.

Section 8.04 Methods of Screening.

Required landscaping and screening elements shall be provided by one (1) or more of following methods as best suited to the existing conditions, subject to Planning Commission approval:

A. Greenbelt Buffer.

The purpose of this method is to establish a buffer between adjacent land uses, or between uses and adjacent road rights-of-way. This method is intended to provide a partial visual screen, particularly where the adjacent uses (including uses that are adjacent across a road right-of-way) are less intense than the use of the subject site. Greenbelt buffers shall consist of the following (see illustration):

1. Greenbelts shall have a minimum width of ten (10) feet, and may be interrupted only to provide for pedestrian or vehicular access.

2. Greenbelts shall be sodded, hydro-seeded, or planted with appropriate groundcovers.

3. A mixture of deciduous shade trees, ornamental trees, evergreen trees, and shrubs shall be planted along the greenbelt buffer at a minimum concentration of one (1) tree and three (3) shrubs per 15 linear feet of greenbelt length.

    a. Such required plant materials may be placed at uniform intervals, at random or in groupings.

    b. The greenbelt length shall be measured along the centerline of the greenbelt for its entire length, inclusive of all driveways.

B. Hedgerow.

The purpose of this method is to visually screen parking lots, adjacent uses, and road rights-of-way. This method is intended to create an effective obscuring screen within a limited land area. This method shall consist of shrubs planted and maintained as a continuous visual screen, subject to the following (see illustration):

1. The maximum permitted spacing between individual plants shall not exceed three (3) feet on-center, unless a different separation distance is determined by the Township Planner to be more appropriate for the type of shrub proposed.

2. Maintained plant height at maturity shall be adequate for the intended screening function.

    a. Low height shrubs [two (2) to four (4) feet in height] shall be used to provide necessary ground-level screening to block headlight glare or similar low level impacts.

    b. Larger shrubs [exceeding four (4) feet in height] shall be used to establish a landscaped barrier between land uses of differing intensities, or to provide more complete screening.

C. Fence.

The purpose of this method is to visually screen parking lots, outdoor storage areas, and similar uses where the predominant impacts are at or below eye level. This method shall consist of an ornamental, rail or privacy fence constructed along the lot or zoning district boundary, or around the perimeter of the area to be screened, subject to the following (see illustration):

1. Required fences shall have a minimum height of three (3) feet, and shall not exceed six (6) feet in height above grade unless a higher fence height is determined by the Planning Commission to be necessary to provide adequate screening.

2. Such fences shall conform to the standards of Section 6.102 (Fences).

3. The fence materials, height, location, and design shall be consistent with existing fences on adjacent lots, and shall be subject to Planning Commission approval.

D. Berm.

The purpose of this method is to effectively screen visual and noise impacts using natural-appearing landforms. This method is intended to provide an obscuring screen to block noise and light from adjacent uses or road rights-of-way, or to create a buffer between developed and undeveloped areas of a site. Berms shall consist of a combination of a sculpted earth mound and plantings, which shall meet the following standards (see illustration):

1. Berms shall have side slopes no steeper than four (4) feet horizontal to one (1) foot vertical (4:1 ratio).

2. Berms shall have a minimum height of three (3) feet above the grade elevation. Overall berm height shall be adequate for the intended screening function. Grade elevation shall be the ground elevation at the nearest lot line adjacent to the proposed berm.

3. The interior face of the berm may be constructed as an earthen slope, or may be retained by means of a wall, terrace or similar means acceptable to the Planning Commission.

4. The berm shall be designed and graded to blend with existing topography, and sodded, hydro-seeded or planted with appropriate groundcovers.

5. The Planning Commission may require greenbelt plantings on the berm, per Section 8.04A (Greenbelt Buffer). For the purpose of determining any required plant materials, the length of any required berm shall be measured from one toe of the berm (the farthest point at one end of the berm's long dimension where the berm height equals the surrounding grade level) along the berm's centerline to the toe at the opposite end of the berm.

E. Evergreen Screen.

The purpose of this method is to create a dense obscuring screen that meets the objectives of this Article. This method is intended to establish a year-round screening barrier between land uses of differing intensities, to effectively block noise and light, or to completely separate developed and undeveloped portions of a site.

This method shall consist of closely spaced evergreen trees with year-round screening characteristics. Such trees shall be planted a maximum of 15 feet apart in at least two (2) staggered rows (see illustration).

F. Masonry Wall.

The purpose of this method is to create a solid, year-round barrier and obscuring screen to effectively block noise, light, and other impacts between land uses of differing intensities. Such walls shall be subject to the following (see illustration):

1. Masonry walls shall have a minimum height of two (2) feet, and shall not exceed six (6) feet in height above grade unless a higher wall height is determined by the Planning Commission to be necessary to provide adequate screening.

2. Walls shall be solid in character, and capped with a stone or concrete cap.

3. Wall materials shall be coordinated with the principal building materials on the site. The Planning Commission may require that decorative masonry (brick, stone, or decorative block) materials be incorporated into the wall design and construction.

Section 8.05 Standards for Specific Areas.

The following standards are intended to address the specific screening and buffering needs of particular areas or portions of a site, in accordance with the purpose and objectives of this Article:

A. Parking Lot Landscaping and Perimeter Screening.

Parking lot landscaping and perimeter screening shall be arranged to improve the safety of pedestrian and motorists; guide traffic movement; define egress/ingress points, traffic circulation, and fire lanes; and improve the appearance of the parking area. Parking lot landscaping and perimeter screening shall be subject to the following:

1. **Perimeter screening.** Parking lots shall be screened from all abutting RURAL USES, RESIDENTIAL USES, residential zoning districts, and road rights-of-way per Section 8.04 (Methods of Screening).

2. **Snow storage area.** Adequate snow storage area shall be provided within the site. Plant materials in snow storage areas shall be hardy, salt-tolerant species characterized by low maintenance requirements.

3. **Landscaping within parking lots.** Planting islands shall be installed within parking lots that exceed 20 parking spaces or 6,000 square feet of paved surface area. Not more than 20 parking spaces shall be permitted in a continuous row without being interrupted by landscaping. Such planting islands shall be subject to the following (see illustration):

    a. Planting islands shall have a minimum width of ten (10) feet, and a minimum area of 160 square feet.

    b. A minimum of one (1) deciduous shade tree or ornamental tree shall be provided for each planting island. Shrubs and live groundcover plantings shall be used to cover all unplanted areas of the island.

    c. Planting islands shall be located at the ends of each parking row.

    d. All landscaping and perimeter screening, except designated snow storage areas, shall be protected from vehicle encroachment with concrete curbing or similar permanent means.

B. Loading, Storage, and Service Area Screening.

Loading, storage, and service areas, public utility and essential service uses and structures, ground equipment shelters, ground-mounted transformers, generators, and HVAC units, electric sub-stations, gas regulator stations, and similar facilities shall be screened from road rights-of-way and adjacent uses in accordance with Section 8.04 (Methods of Screening).

C. Outdoor Trash Storage Area Screening.

Outdoor trash storage areas shall be screened and secured in accordance with the following:

1. Outdoor trash storage areas shall be screened by a six (6) foot high masonry wall enclosing three (3) sides of the storage area, subject to the standards of Section 8.04F (Masonry Wall).

2. The enclosure shall be secured by steel-reinforced and lockable gates designed to obscure visibility into the enclosure.

3. Concrete-filled bollards or similar protective devices shall be installed at the opening and to the rear of any storage area to prevent damage to the walls.

4. A concrete pad shall be provided under the trash storage area, extending out a minimum of ten (10) feet in front of the enclosure's gates.

5. Such storage area shall be located and arranged as to minimize visibility from adjacent road rights-of-way and RESIDENTIAL USES. In no instance shall any trash storage area be located in a front yard.

6. Outdoor trash storage shall be limited to normal refuse collected on a regular basis and maintained in a neat, orderly and sanitary condition. In no instance shall any refuse be visible above required screening.

D. Detention and Retention Basin Screening.

Where a detention or retention basin, or similar stormwater management facility is required, such facilities shall comply with the following:

1. To the extent possible, basin configurations shall be incorporated into the natural topography. Where this is not practical, the basin shall be shaped to emulate a naturally formed or free form depression. The basin edge shall consist of sculptured landforms to filter and soften views of the basin.

2. Basins shall be designed to avoid the need for perimeter fencing. Where such fencing is necessary, the location and design shall be subject to Planning Commission approval.

3. Basins shall be planted with a mixture of groundcover and wetland-based plantings native to Michigan, such as native grasses or wildflowers.

4. A perimeter greenbelt buffer shall be provided in accordance with Section 8.04A (Greenbelt Buffer) and the following:

    a. Plantings shall be clustered around the basin to achieve a variety of plant materials, and to replicate a natural environment. Deciduous shade trees shall be clustered around the south and west sides of the basin to provide shade and minimize solar heating of the water.

b. Trees shall be planted above the freeboard line of the basin. Any plantings proposed below the freeboard line shall be tolerant of wet or moist soil conditions. The location of plant materials shall take into consideration the need to provide access for routine basin maintenance.

E. Front Yard Landscape Strips and Street Tree Plantings.

Front yard setback areas along road rights-of-way hall be landscaped to enhance the visual character of Township roads and minimize adverse impacts of vehicular traffic on adjacent uses, shall be subject to the following:

1. **Street trees.** Street tree plantings shall be required along the margins of road rights-of-way for all development projects subject to site plan approval, subject to the following (see illustration):

   a. Street trees shall consist of deciduous shade trees planted at a minimum concentration of one (1) street tree per 40 linear feet of right-of-way. Required trees may be planted at regular intervals or in groupings.

   b. Where such plantings are not permitted within a road right-of-way, required street trees shall be planted within the front yard setback area, or at an alternative location approved by the Planning Commission.

   c. Existing trees near or within road rights-of-way may be used to satisfy this requirement, and shall be preserved where feasible.

   d. Permits may be required by the Township, or county or state road authorities for installation of street trees within rights-of-way under their jurisdiction.

2. **Front yard landscape strip.** Where a front yard setback area is required by Article 3 (Dimensional Standards), the area shall be improved with landscaping materials in accordance with the standards of this Article. Existing vegetation or required parking lot or other screening may be used to satisfy this requirement.

3. **Groundcover plantings.** Road rights-of-way and disturbed areas of a development site shall be planted with grass or other suitable ground cover to prevent erosion.

4. **Maintenance of right-of-way landscaping.** Landscaping within rights-of-way shall be maintained by the owner of the abutting lot(s).

Section 8.06 Transition Strip.

A transition strip, where required by this Section or Ordinance, shall be provided in accordance with the following:

A. Location.

A transition strip shall be required along any side or rear lot boundary within a subject parcel that abuts a zoning district or permitted use as specified in the following table:

Zoning District or Use	
Subject Parcel	**Abutting Parcel**
C-1 (Local Commercial) District	A-1 (Agricultural-Conservation) District; or any RURAL USES or RESIDENTIAL USES
C-2 (Special Commercial) District	
I-1 (Industrial-Research) District	
Multiple-Family Housing, Townhouses, and Stacked Flats	A-1 (Agricultural-Conservation) District; or any RURAL USES
Any OFFICE, SERVICE OR COMMUNITY USES; COMMERCIAL USES; INDUSTRIAL, RESEARCH, AND LABORATORY USES; or OTHER USES	A-1 (Agricultural-Conservation) District; or any RURAL USES or RESIDENTIAL USES

B. Width.

The width of a required transition strip shall not be included as part of any required setback from the same lot boundary. Where a transition strip is required, the setback shall be measured from the near edge of the transition strip, rather than the lot boundary. The minimum width of a transition strip shall be in accordance with the following:

Zoning District or Use on the Subject Parcel	Required Minimum Width
C-1 (Local Commercial) District	10 feet
C-2 (Special Commercial) District	10 feet
I-1 (Industrial-Research) District	20 feet
Multiple-Family Housing, Townhouses, and Stacked Flats	10 feet
OFFICE, SERVICE OR COMMUNITY USES	10 feet
COMMERCIAL USES	10 feet
INDUSTRIAL, RESEARCH, AND LABORATORY USES; or OTHER USES	20 feet

C. Materials and Design.

The transition strip shall be improved with a landscaped greenbelt, evergreen screen or combination thereof in accordance with Section 8.04 (Methods of Screening). Where the transition strip abuts a required side or rear yard setback area, the landscaped greenbelt, evergreen screen or combination thereof shall be extended to include the combined width of the transition strip and setback area.

D. Modifications.

The Planning Commission shall have the authority to:

1. Permit the substitution of a hedgerow, fence or wall in accordance with the standards of Section 8.04 (Methods of Screening) for the required transition strip. Such action shall be based upon a determination that the alternative would equal the performance of the transition strip, or that the lot is too limited in dimension or area to reasonably accommodate the transition strip.

2. Waive the requirement for a transition strip, upon determination that a pending or probable change in land use or zoning classification of an abutting parcel will render the transition strip unnecessary.

Section 8.07 Prohibited Plant Materials.

The following trees are not considered desirable plant materials because of various problems, except where removal of existing trees would result in a loss of screening or buffering, or where noted below:

Species	Common Name
Acer negundo	Box Elder
Ulmus x	Elm varieties; except disease-resistant cultivars, such as 'Regal', 'Pioneer', 'Homestead', 'Jacan' and 'Accolade'
Aesculus x	Horse Chestnut; except for use in greenbelts and transition zones between developed and un-developed areas of a site
Populus x	Poplar varieties
Elaeagnus x	Olive varieties
Salix x	Willow varieties; except in appropriate wetland ecosystems
Catalpa x	Catalpa varieties
Ailanthus altissima	Tree of Heaven
Ginkgo biloba	Ginkgo (female); male trees are acceptable
Robinia pseudoacacia	Black locust
Morus alba	Mulberry (white)

Species	Common Name
Acer saccharinum	Silver Maple
Fraxinus x	Ash varieties

Section 8.08 Installation.

All screening elements and plant materials shall be installed in a manner consistent with the standards of the American Association of Nurserymen, the approved site plan, and the following:

1. **Deadline for installation.** Installation of required screening elements and plant materials shall be completed within 365 calendar days from the date of site plan approval for the project.

2. **Extension.** The Township Planner or Zoning Inspector may extend the deadline to allow installation of required plant materials by the end of the next planting season, upon determination that weather conditions, development phasing, or other factors would jeopardize required plant materials and prevent their installation by the deadline specified in this Section.

3. **Performance guarantee.** The Township Planner or Zoning Inspector may require submittal of a performance guarantee, per Section 1.08 (Fees and Performance Guarantees), to cover the cost of installing required screening elements and plant materials. After installation has been completed, the Township Planner or Zoning Inspector shall conduct an inspection of the plant materials before the guarantee may be released.

Section 8.09 Maintenance.

All screening elements and plant materials shall be maintained in accordance with the approved site plan, and the following:

1. Maintenance procedures and frequencies to be followed shall be specified on the site plan, along with the manner in which the effectiveness, health, and intended functions of the screening elements and plant materials on the site will be ensured.

2. Adequate provisions shall be made to regularly supply water to all required plant materials as necessary to ensure proper growth and development.

3. Plant materials shall be kept in a neat, orderly and healthy growing condition, free from weeds, debris and refuse. Tree stakes, guy wires and tree wrap shall be removed after one (1) year.

4. Pruning of plant materials shall be limited to the minimum necessary to ensure proper maturation of plants to achieve their intended purpose.

5. All required screening elements and plant materials shall be planted and maintained in accordance with an approved site plan. Failure to maintain required screening, including the removal and replacement of dead or diseased plant materials, shall be a violation of this Ordinance.

6. The replacement or removal of plant materials in a manner not consistent with an approved site plan shall be a violation of this Ordinance.

Section 8.10 Modifications.

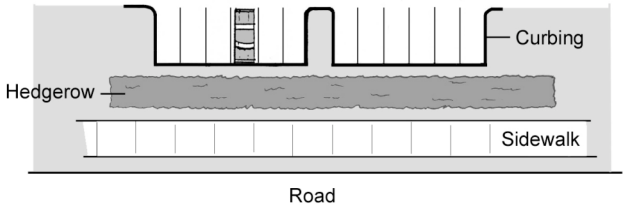
The Planning Commission shall have the authority to approve alternative designs or plant materials, and to determine how the standards of this Article apply to existing conditions and redevelopment sites in accordance with the following:

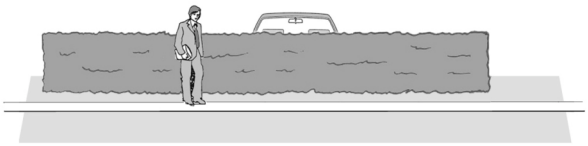
1. **Alternative designs or materials.** The Planning Commission may approve alternative landscape designs or plant materials upon determination that the alternative would meet the purpose and objectives of this Article.

2. **Existing conditions.** The Planning Commission shall have the authority to determine that requirements of this Article have been satisfied by existing topography, vegetation or other means acceptable to the Planning Commission.

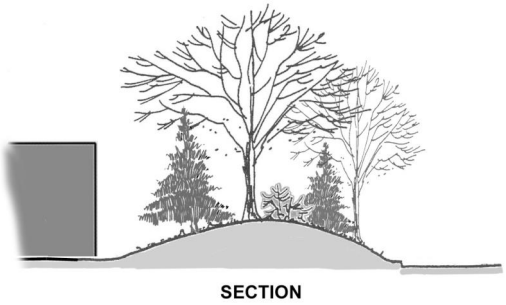
3. **Redevelopment sites.** Where an existing building is undergoing renovation, expansion, or change in use, required landscaping and screening improvements shall be in reasonable proportion to the size and configuration of the site and the scale of proposed improvements, as determined by the Planning Commission in accordance with the purpose and objectives of this Article.

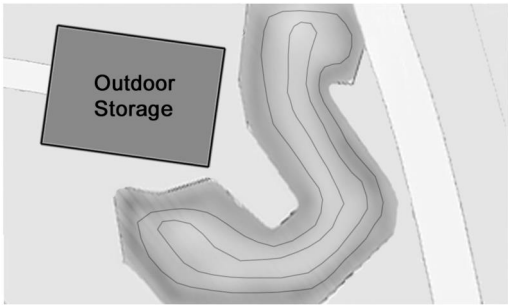
ILLUSTRATIONS



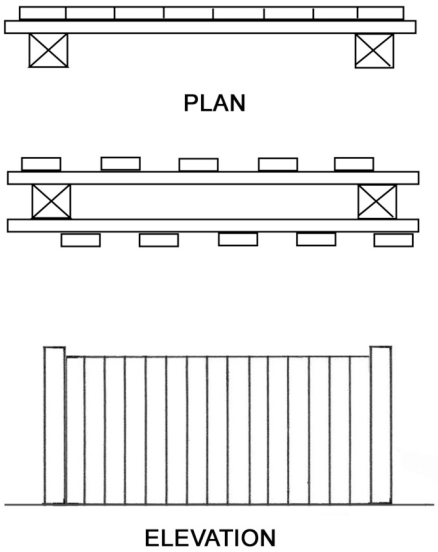


Hedgerow

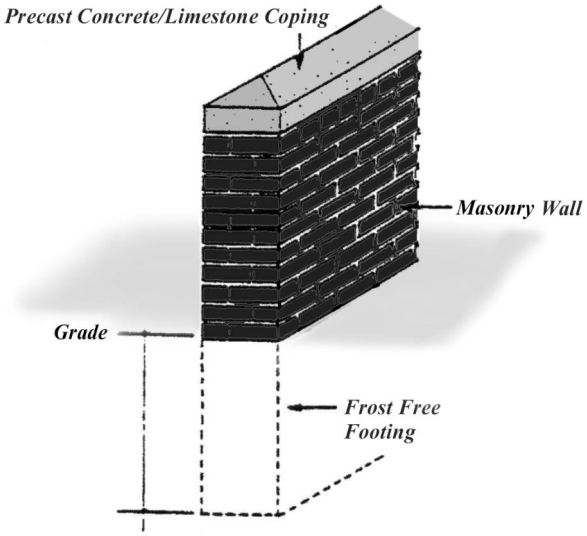




Berm

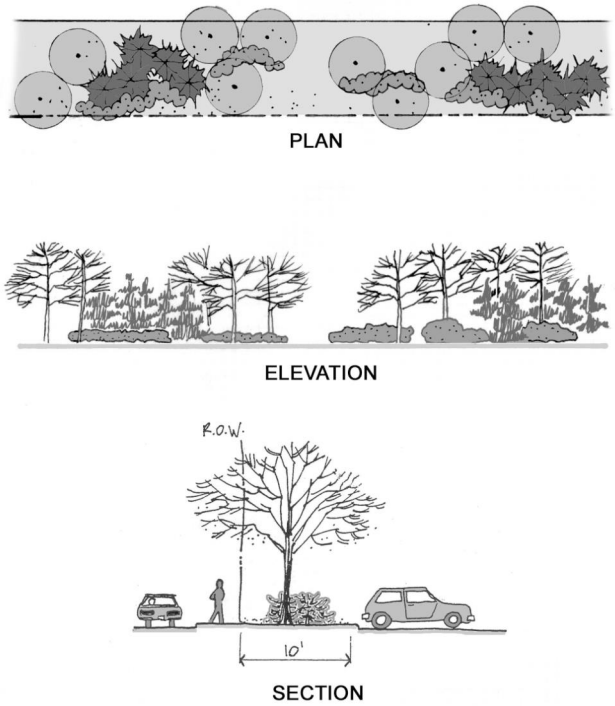


Fence

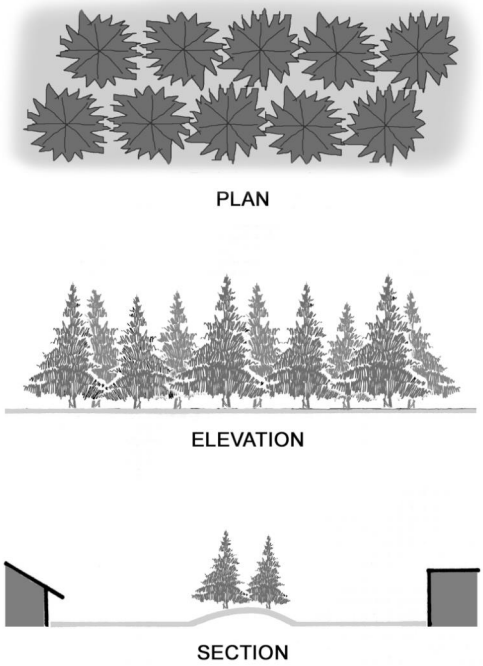


Screen Wall

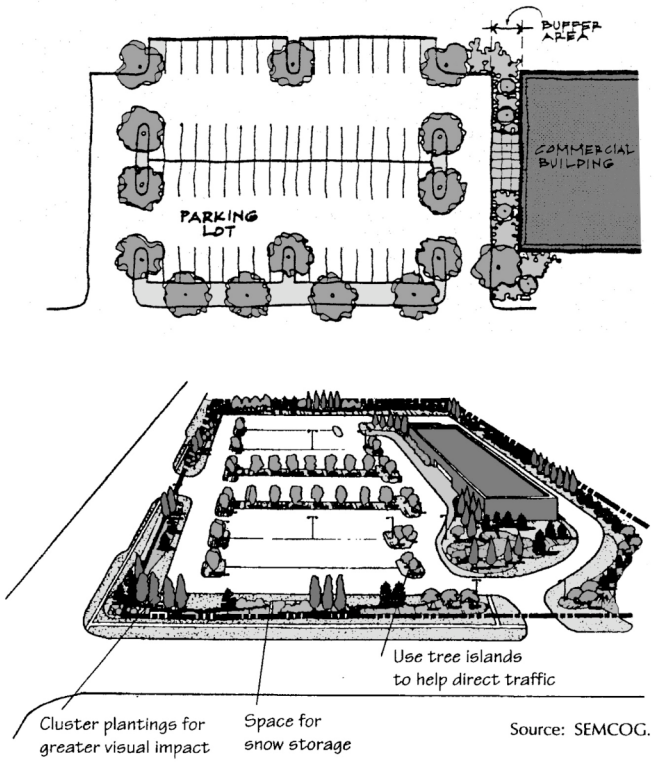
ILLUSTRATIONS



Greenbelt Buffer



Evergreen Screen



Landscaping Within Parking Lots