

Part B4: Site Design Standards of Acceptance

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Negotiate with municipality, where applicable, extent of curbing, concrete islands, and signage.

Confirm that specified products are suitable for intended applications and are readily available. Review specifics of site design and proposed deviations from Site Design Guidelines with Design Coordinator.

Re-assess instructions and/or implement corrective actions when field conditions change during the project.

Provide appropriate signoffs at the end of the project.

B4.1 Site Design Surveys

Base site design on legal and topographic surveys as follows:

- B Metric topographical survey in AutoCAD format at 1:1 scale in model space, and 1:200 or 1:250 in paper space, including the following.
 - North arrow.
 - Building footprint (outer walls) including columns, posts, canopies, or roof overhangs.
 - Building door locations and door sill elevations. The top of foundation in elevation (brick line) if different from door sill elevations.
 - Locate and indicate all features on the ground, including pathways, catch basins, manholes, storage sheds, extent of playground safety surfacing and edges of play equipment (where applicable), running trails or tracks, baseball backstops, soccer goal posts, basketball posts, jumping pits, infield screenings, drainage swales, benches, bicycle racks and other site furnishings.
 - Geodetic elevations on a 10 m (33 ft) grid (with labelled contour lines at 250 mm [10 in] except for sports fields at 200 mm [8 in] intervals) including reference point (benchmark) on school. Indicate top of slope, bottom of slope for sudden grade changes.

- Diameter of TDSB trees at breast height (dbh is 1.4 m (4 ft 6 in”) above ground level), and type (deciduous or coniferous tree).
- Accurate drip line or canopy dimension of trees.
- High and low ground elevations on circumference of the drip line where tree is on slope.
- General location and drip line of neighbouring trees over-hanging TDSB property.
- Overhead wires.
- Wall taps, basketball backstops, night lighting and security cameras on building walls.
- Inverts and apparent pipe diameters of underground service.
- Include an adequate buffer outside the immediate extents of the area scope where additional grades can assist with drainage concerns.
- Provide Tree Protection Zones, as follows:
 - Exercise care, caution, and respect when working around trees.
 - Indicate accurate trunk and canopy drip line location and size (including trees on neighbouring fence lines).
 - Indicate elevations around the base of existing trees (high side, low side, and average) on survey drawings. Measure three grades at drip line of min 300 mm (12 in) DBH trees.

Inventory and assess (resource evaluation) trees to identify trees to be protected or removed. Evaluate each tree according to factors such as species (tolerance to impact), age, health, vigour, size, form, structure, drainage patterns, location, and surrounding features.

B4.2 Site Access

Provide site access as follows:

- Min 1.5 m (5 ft-6 in) wide walkways. Min 2.4 m (8 ft) wide walkways fenced both sides. Conform to AODA and OBC for exterior paths of travel.
- Min 4.2 m (14 ft) clear width and max 6 m (20 ft) clear width truck access gates.
- Poured concrete curbing around main driveways and parking lot perimeters.

- Curb stops for parking lots next to adjoining sidewalks, positioned min 1 m (3 ft 3 in) from back of curb-stop to chain-link fence or abutments.
- White or yellow paint lines in parking lots.
- Monolithic curb and sidewalk, where feasible.

B4.3 Asphalt

Provide asphalt as follows, and review with Design Coordinator where geotechnical consultant recommends different profiles:

- Heavy duty: Profile: 50 mm (2 in) HL3A on 50 mm (2 in) HL8 on 100 mm (4 in) compacted granular A on 250 mm (10 in) compacted granular B.
- Medium duty: Profile: 30 mm (1.18 in) HL3A on 50 mm (2 in) HL8 on 80 mm (3 in) on 130 mm granular B.
- Light duty: Profile: 50 mm (2 in) HL3A on 100 mm (4 in) of compacted granular. Use in areas inaccessible to vehicles or equipment.

B4.4 Sports Fields, Irrigation and Jumping Pits

Sodded 42 m x 60 m (138 ft x 197 ft) natural sports field as follows:

- Remove all rubble, gravel and screenings when planting trees, constructing planting beds, or establishing areas of sod at formerly hard surfaced areas.
- Soil: 200 mm (8 in) deep per TDSB Specifications for Sports Field Blend.
- Sod: NSGA number one grade Kentucky bluegrass sod harvested with intact growing medium.
- Crowned with 1 to 2% slope.
- Specify watering of newly laid sod as follows:
 - Max 8 hrs after installation.
 - Soak-thru watering every 24 hrs first week after installation.
 - Continue watering to avoid discolouration or turf dormancy.
- Protective fencing for 8 to 16 weeks, until field specialist approves surface for use.
- No mowing of new sod until roots holding sufficiently and leaf blade has reached 110 mm high.

- Maintain grass height: Min 90 mm.
- Provide irrigation system based on available pressure and flow rates, as follows:
 - Rainbird ESP-LXMEF Controller with flow module.
 - IQ Communication Card.
 - Master valve and Flow Sensor.
 - Quick Coupling valve.
 - Wireless Rain Sensor.
 - All valves must be Pressure Regulating.
 - Rainbird 8005 series Rotor Pop-up Sprinklers on 1 inch swing arms.
 - Electrical connections: 3M direct burial splice connectors.
- Provide play spaces and features, as follows:
 - Baseball Infield: 150 mm (6 in) depth compacted clear limestone screenings.
- Jumping pits, as follows:
 - Sub-surface drainage.
 - 450 mm (18 in) settled depth Hutcheson granitic sand; separate sand from base materials with non-woven filter cloth, min overlap of 600 mm (24 in) where multiple pieces of fabric are required.

B4.5 Tree Protection

Inspect trees before, during excavation and trenching, and after construction.

- Provide tree protection plan with specifications and drawings where land features of school property will be impacted by landscaping or other construction activities. Anticipate and evaluate impact on tree health and stability and adjust design to mitigate effects. Review tree protection plan with Design Coordinator throughout development process from design phase through to maintenance practices.
- Protect trees (including roots) over 300 mm (12") DBH (diameter breast height) in accordance with municipal bylaws. Do not remove, injure, or destroy without written authorization from City of Toronto. Urban Forestry Tree Protection and

Plan Review may require Letters of Credit or Letters of Acceptance of Responsibility to ensure protection of trees.

- Ensure tree roots within tree protection zone are protected from interference, as follows:
 - Restrict construction vehicle travel and work to hard surfaces and consider use of light equipment and/or alternative routes where feasible.
- Where travel by heavy trucks, tractors, or loaders over tree root zones is necessary during construction, spread min 230 mm (9") layer of Hardwood Blend mulch to reduce root damage and soil compaction. Maintain for duration of project and recycle material on site when job complete.
- Erect protection barriers before construction commences and maintain throughout project and remove when final inspection and signoffs complete.
- Mark tree protection with drip line of tree. The following are not permitted:
 - Root cutting.
 - Alteration or disturbance to existing grades of any kind.
 - Changes to the grade by adding fill, excavating, or scraping.
 - Storage of construction materials or equipment.
 - Stockpiling of soil, debris, or construction waste.
 - Movement or storage of heavy vehicles or equipment.
- Consider horizontal directional drilling for installation of underground services.
- Use low-pressure hydro-vacuuming, air knifing, directional boring, or tunnelling, and arboricultural techniques such as root pruning by hand, hand digging, shoot pruning, mulching, irrigating, and fertilizing before mechanized excavation takes place to reduce or limit root damage.
- Where required, move trees with a tree spade to accommodate site features.
- Avoid excavation and changing of elevations within the drip line of trees.
- Where healthy, stable trees must be removed, or die because of construction activities, replace trees as required by the City Forestry requirements.
- Where affected trees are dead or seriously declining, provide one-for-one tree replacement plan.

B4.6 Tree Planting

- Provide min 75 mm caliper, where available (min 2500 mm height) deciduous species, as follows:
 - *Acer freemanii* (Freeman Maple)
 - *Acer nigrum* (Black Maple)
 - *Acer rubrum* (Red Maple)
 - *Acer saccharinum* (Silver Maple)
 - *Acer saccharum* (Sugar Maple)
 - *Celtis occidentalis* (Hackberry)
 - *Catalpa speciosa* (Catalpa)
 - *Gleditsia triacanthos* (Honey Locust)
 - *Gymnocladus dioicus* (Kentucky Coffeetree)
 - *Liquidambar styraciflua* (Sweet Gum)
 - *Liriodendron tulipifera* (Tulip-Tree)
 - *Nyssa sylvatica* (Black Gum)
 - *Ostrya virginiana* (Ironwood)
 - *Platanus occidentalis* (Sycamore)
 - *Platanus x acerifolia* (London Planetree)
 - *Quercus macrocarpa* (Bur Oak)
 - *Quercus rubra* (Red Oak)
 - *Tilia americana* (American Linden)
 - *Tilia americana* (Basswood)
 - *Tilia cordata* (Little Leaf Linden)
- Provide tree setbacks as follows:
 - 5 to 7 m (23 ft) from any building structure or receiving area to centre of trunk.
 - 2 m (6 ft 6 in) from vertical elements (stone, fencing) to tree cage.
 - 3 m (10 ft) from fencing to tree cage in sodded areas (mow strip).
 - 2 m (6 ft 6 in) from driveway/internal roadway to centre of trunk.
 - 2 m (6 ft 6 in) from edge of paved parking area to tree cage.
 - 2 m (6 ft 6 in) from concrete sidewalks to tree cage.

- 10 m (33 ft) from flagpoles to centre of the trunk.
- Minimum of 5 to 7 metres between trees.
- Provide minimum 2500 mm (wire basket) coniferous species as follows:
 - *Larix decidua* (Larch)
 - *Picea glauca* (White Spruce)
 - *Pinus strobus* (White Pine)
 - *Thuja occidentalis* (White Cedar)
 - *Tsuga canadensis* (Hemlock)
- Provide soil volume for trees, as follows:
 - Min 15 m³ (529 cu ft) of high-quality soil per tree in shared planter.
 - Min 30 m³ (1,059 cu ft) of high-quality soil in single planter.

B4.7 Shrub Planting

- Provide min 1800 mm (wire basket) shrub species as follows:
 - *Amelanchier arborea* (Downy Serviceberry)
 - *Cercis canadensis* (Eastern Redbud)
 - *Cornus alternifolia* (Alternate Leafed Dogwood)
 - *Cornus racemosa* (Grey Dogwood)
 - *Physocarpus opulifolius* (Ninebark)
 - *Viburnum lentago* (Nannyberry)
- Provide shrub setbacks as follows:
 - Min 1.5 to max 3 meters between shrubs.
 - 1.5 m (5 ft) from any building structure or receiving area to centre of trunk/stems.
 - 1.5 m (5 ft) from vertical elements (stone, fencing, etc.) to trunk/stems.
 - 3 m (10 ft) from fencing to edge of mulch in sodded areas (mow strip).
 - 2 m (6 ft 6 in) from driveway/internal roadway to centre of trunk/stems.
 - 2 m (6 ft 6 in) from edge of paved parking area to centre of trunk/stems.
 - 1.5 m (5 ft) from concrete sidewalks to centre of trunk/stems.

B4.8 Fencing

Confirm fencing details with Design Coordinator. Provide galvanized steel fencing as follows:

- Swinging or sleeved slider gates at entrances to parking lots, where required.
- Swing gates at fields toward driveway or parking lot for winter access.
- 3 m (10 ft) wide maintenance gates for all enclosed areas such as outdoor kindergarten spaces.
- 1.5 m (5 ft) wide pedestrian gates.
- Direct bury posts.
- Top and bottom rails.
- 50 x 50 mm (2 in x 2 in) 6-gauge galvanized wire mesh.
- Schedule 40 pipe posts and rails.
- Line posts 2.4 m (8 ft) OC.
- Fasten mesh on side of the fence where snow removal activities occur or play side of fence.

B4.9 Play Area and Safety Surfacing

The Play Area must be barrier free.

Play area safety surface, as follows:

- Recently harvested North American Cedar softwood comprised of virgin off-the-log material only, as follows:
 - Fiberweave. Review proposed alternative material with Design Coordinator.
 - Free of soil, leaves, twigs, or other contaminants, which could hasten decomposition.
 - Free of any chemical treatments and/or additives.
 - Free of recycled wood from pallets or construction debris.
 - Free of tramp and heavy metals.

Safety surface perimeter containment as follows:

- Min 100 mm (4 in) change in grade between top of mulch and perimeter containment.
- Level entry into play areas per AODA requirements.
- Dimensions, randomly sized.

B4.10 Sand boxes

Granular sand washed prior to installation.

- Sand separated from base materials with non-woven filter cloth, min overlap of 600 mm (24 in) where multiple pieces of fabric are required. Stone seating, as follows:
 - 450 mm (18 in) max height of above finished grade; 300 mm (12 in) in kindergarten play areas.
 - Place seating units min 2 m (6' ft 6 in) from protective caging around trees or other vertical elements

B4.11 Quarry Stones

- Fit stone units tightly together with gap max 20 mm (3/4 in), or spaced min 2 m (6' ft 6 in) apart.
- Specify stones free of sharp edges; exposed edges beveled with min 10 mm (1/3 in) radius.
- Place stone in asphalt areas on granular base with new asphalt placed around stone.
- Angular, irregular flat-topped, natural, hard (dolomitic) stone.
- Natural stone walls, single course, as follows:
 - Review with structural engineer min 600 mm (24 in) high. Lay stones with appropriate base material and drainage control measures, including geotextile membranes.
 - Fit stones tightly together, with max 20 mm (3/4 in) gap or spaced min 2 m (6' ft 6 in) apart.
 - Stones: bevelled, min 10 mm (1/3 in) radius exposed edges, free of sharp edges.

B4.12 Precast Stones

Review with Design Coordinator use of Stone-Link precast concrete manufactured stone.

Precast systems, as follows:

- Approved by manufacturer for proposed application, installed per manufacturer's recommendations.
- Heavy-duty precast concrete walls not requiring adhesive.
- Acceptable products:
 - Unilock - Dura-hold
 - Unilock – Siena Stone

B4.13 Log seating

- Min 600 mm (24 in) dia. solid, peeled hardwood logs for seating cut longitudinally to be flat on top and bottom, completely free of splinters, wood decay, or protrusions. Refer to [24.13 Seating Log Detail](#).
 - Logs placed on 150 mm (6 in) on cradles to avoid soil/wood contact, with level seating surface.
 - Logs fitted tightly together (mitered) with max 20 mm (3/4 in) gap or spaced min 2 m (6' ft 6 in) apart.

B4.14 Limestone screening pathways

- 150 mm (6 in) depth compacted limestone screenings.
- where slopes exceed 2%: Premixed with Envirobond stabilizer.

B4.15 Benches

- With backrest and backless: Model Bench 56 Classic Display Benches Accessible Riverside Bench.
- Direct bury installation.

B4.16 Picnic Tables

Refer to [Picnic Table Resource](#).

B4.17 Bicycle Racks

Henderson Stacker Model 24 bike bicycle racks supplied by Classic Displays, Vista Furnishings.

B4.18 Storage Sheds

- Type 40, Type 70, or Type 105 precast concrete storage sheds, supplied by Brooklin Concrete Products.
- 3 m (10 ft) corrugated metal storage sheds supplied by Secure Container. Refer to [Storage Unit Information and Specifications](#).

Review with Design Coordinator.

B4.19 Garden Resource and Stock Tanks

Refer to [School Garden Resources](#) for stock tank information and 24.05 Galvanized Steel Planter Detail.

B4.20 Soccer Goals

- Permanently in-ground, including footings c/w hex ground sleeves.
- Standard white powder-coated finish, where requested.
- Post size: Varies depending on the size of the site (typically 1980 mm x 5640 mm (6.5 ft X 18.5 ft) or 2130 mm x 6400 mm (7 ft x 21 ft)).

Soccer Posts

- Gymnasium & Health Model # PSG-18 or PSG-21. B4.21 Baseball Backstop
- Size to suit site conditions
- End posts: 100 mm (4 in) outside diameter (OD) galvanized steel pipe.

- Upright posts: 60 mm (2 ¾ in) OD galvanized steel pipe.
- Crossbars: 43 mm (1½ in) OD galvanized steel pipe.
- Mesh: 50 x 50 mm (2 in x 2 in) 6-gauge galvanized steel.
- Tension bands: galvanized steel.
- Tension wire: 6-gauge galvanized steel.
- Hardware: galvanized steel.
- Posts and rails: schedule 40 steel pipe.

B4.22 Basketball Backstop and Triple Hoops

- Do not locate basketball uprights within 7.5 meters of a neighbour's fence or in areas where TDSB does not have control of lighting.
- Permanently mounted at fixed height.
- Direct bury, c/w necessary footings.
- Basketball triple hoop – Dynamo DX-BB3
- Single Post – Dynamo DX-BB1