Appendices

Green Development Standards Checklists

Low Rise Residential Green Development Standard Checklist

			Criteria	Points	Rationale	Implementation
Energy Conservation						
Energy Conservation	☐	1	**All ground-related dwellings shall be constructed in accordance with the most current version of Energy Star® requirements in place at the time of Building Permit application.**	**12.0**	By some estimates, 40% of energy use in North America can be attributed to the heating, cooling and maintenance of buildings. Building to the Energy Star® standard enables new homes to be approximately 20% more energy efficient that those built to the minimum requirements of the provincial building code and strikes a balance between the premium level of energy efficiency associated with the Energy Star® label and an acceptable incremental cost. According to Natural Resources Canada, an Energy Star® home reduces greenhouse gas emissions by about three tons per year when compared to a similar home build to the minimum building code. Energy Star homes meet minimum insulation requirements and minimum amounts of electrical savings. Due to their high energy efficiency, Energy Star® homes also reduce air pollution and lessen other environmental impacts such as climate change. Various energy conservation incentives may be available for eligible projects. Applicants are encouraged to investigate the availability of any such incentives, including contacting Halton Hills Hydro and the Ontario Power Authority regarding current incentive programs. Information on the SaveONenergy program for homes that install various energy efficient measures including: prescriptive; performance based; custom and training. Information is available at: https://saveonenergy.ca/Business/Program-Overviews/New-Home-Construction.aspx	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement

	Criteria		Points	Rationale	Implementation
☐	2	**Supply all Energy Star® compliant light fixtures.**	**2.0**	According to Natural Resources Canada, Energy Star® products are best energy performers, meeting strict technical specifications for energy performance.	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement
☐	3	**Developers install solar panels on streetlights.**	**5.0**	Streetlights are a major energy user. Energy generated through solar panels is a clean and renewable energy source. Wherever feasible, the proponent will be encouraged to assess the feasibility of installing solar panels on streetlight posts.	Demonstrated at time of: Street light illumination plan Secured by: Subdivision agreement
☐	4	**Install occupancy sensors in the main living areas of the home, as well as motion sensors for all exterior lighting fixtures.**	**1.0**	Occupancy sensors can reduce energy use by ensuring that lights do not remain on when a room is not being used.	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement
☐	5	**Provide zonal HVAC heating and cooling controls.**	**3.0**	The use of zone controls for HVAC systems will allow homeowners to control the temperature in different areas of the home. This can reduce energy consumption since not all spaces will be required to achieve the same temperature.	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement
☐	6	**Supply on-demand water heating.**	**3.0**	On-demand water heating is more efficient as water is heated only when it is needed rather than heated and stored for future use.	Demonstrated at time of: Building Permit Secured by: subdivision or Site Plan agreement
☐	7	**Use triple pane windows with low emissive coatings to help reflect heat and sunlight.**	**2.0**	Highly energy efficient windows can reduce energy use by lowering the need for air conditioning in the summer and heating in the winter.	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement

	Criteria			Points	Rationale	Implementation
	☐	8	**Install an indoor (basement) and outdoor clothesline.**	**0.5**	An electric clothes dryer is a major energy user. The use of a clothesline can significantly reduce energy consumption associated with electric dryers.	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement
	☐	9	**Street and block alignments are designed to achieve passive solar gain.**	**5.0**	East west orientation of units will maximize the passive solar orientation of buildings.	Demonstrated at time of: Draft Plan of Subdivision approval Secured by: Subdivision registration
	☐	10	**Identify opportunities for maximizing solar gain through site layout and building orientation in an Energy Efficiency Report.**	**3.0**	Passive solar gain reduces the need for heating and lighting at no cost to the occupants.	Demonstrated at time of: Site Plan approval Secured by: Site Plan Agreement
	Maximum Possible Points in Energy Conservation			**36.5**		

			Criteria	Points	Rationale	Implementation
Water Conservation and Quality						
	☐	1	**Use WaterSense® water fixtures, including faucets and showers, in all areas.**	**3.0**	Installing water-efficient water fixtures will reduce water consumption, lower environmental impacts and save water bill costs for the homeowner(s).	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement
	☐	2	**Provide purple-pipe rough-in plumbing for future on-site water reuse.**	**4.0**	Reuse of water collected from laundry and bathwater can be used for flushing toilets, irrigation and other non-potable uses which lowers demand for potable water.	Demonstrated at time of: Building Permit Secured by: subdivision or Site Plan agreement
	☐	3	**Provide one rain barrel per 100 square metres of dwelling unit roof area and allow sufficient space at base of downspouts for installation. Each rain barrel shall have secure mosquito protection and an overflow to grade.**	**0.5**	Rainwater collection is an effective method of reducing the use of potable (drinking) water for non-potable purposes such as landscape irrigation. Refer to the Ministry of Environment manual on Stormwater Management Planning and Design.	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement
	☐	4	**Employ opportunities within the subdivision and site design to reduce impermeable surfaces and stormwater runoff through the use of Low Impact Development (LID) techniques.**	**4.0**	Low Impact Development (LID) is an alternative approach to conventional stormwater management. The overall objective of LID is to address stormwater at the source rather than collecting stormwater in traditional stormwater management ponds. This assists with pollution control and reduces runoff. LID techniques include bioretention, use of permeable pavers, tree box planters and disconnected downspouts.	Demonstrated at time of: Subdivision or Site Plan approval Secured by: Approved drawings attached to Subdivision or Site Plan agreements

			Criteria	Points	Rationale	Implementation
	☐	5	**Provide a minimum of 15 cm of high quality, non-compacted topsoil on all lawn and garden areas.**	**1.0**	Poor quality, compacted top soil results in over irrigation by owners in an effort to keep lawns and gardens alive. High quality soil is well drained, un-compacted soil comprised of 5 to 15 % organic material with a pH level of 6.0 to 8.0.	Demonstrated at time of: Grading Plans Secured by: Subdivision or Site Plan agreement
	☐	6	**Use native drought tolerant plant material (which does not include grass but can include groundcovers) for at least 50% of landscaped area (including vegetated roofs and walls).**	**2.0**	Reduces the demand for potable water which can increase by as much as 50% during the summer months placing a strain on potable water systems.	Demonstrated at time of: Grading and/or Site Plan Secured by: Subdivision or Site Plan agreement
	Maximum Possible Points In Water Conservation			**14.5**		

			Criteria	Points	Rationale	Implementation
Community Design						
Community Design	☐	1	**Construct a network of suitable pedestrian facilities and multi-use paths within the development which also connect the development with surrounding neighbourhoods, are integrated with the Town's trail system and implement recommendations of the Town's Cycling Master Plan.**	**5.0**	Pedestrian networks support the Town's Pedestrian Charter, encourage walking which improves health and reduces dependence on automotive travel. Multi-use paths promote active transportation and provide connections between communities. Implementing the recommendations of the Town's Cycling Master Plan will help facilitate active transportation.	Demonstrated at time of: Subdivision approval Secured by: Subdivision agreement
	☐	2	**Create street and block patterns that the emphasize connectivity and linkage by encouraging grid or modified grid patterns and discourage the use of cul de sacs except where necessary for grading and topography.**	**2.0**	Connected streets reduce the length of trips and reduce greenhouse gas emissions.	Demonstrated at time of: Draft plan of Subdivision approval Secured by: Subdivision agreement
	☐	3	**If cul de sacs are necessary, provide pedestrian and / or bicycle connections in the cul de sacs.**	**1.0**	This provides flexibility and allows pedestrians to get to their destination in the most direct route.	Demonstrated at time of: Subdivision approval Secured by: Subdivision agreement

			Criteria	Points	Rationale	Implementation
	☐	4	**Design streets with medium (400 m) to short (less than 250 m) block lengths.**	**2.0**	Research shows that a high density of intersections is among the design factors which facilitate increased walking behaviour and less motor vehicle travel.	Demonstrated at time of: Subdivision approval Secured by: Subdivision agreement
	☐	5	**Where the block perimeter exceeds 400 m provide mid-block pedestrian connections.**	**1.0**	This shortens the length of pedestrian trips.	Demonstrated at time of: Subdivision approval Secured by: Subdivision agreement
	☐	6	**Provide streetscape amenities such as benches, street trees, and waste receptacles.**	**1.0**	This creates an attractive, safe and supportive pedestrian environment which facilitates walking.	Demonstrated at time of: Subdivision approval Secured by: Subdivision agreement
	☐	7	**Design draft plans of subdivision so that residences are located within 500 metres of a public meeting space such as a park, square or recreational facility.**	**2.0**	Close proximity to public facilities encourages residents to walk to such facilities and encourages active lifestyles which promote health.	Demonstrated at time of: Subdivision approval Secured by: Subdivision agreement
	Maximum Possible Points In Community Design			**14.0**		

			Criteria	Points	Rationale	Implementation
Air Quality						
Air Quality	☐	1	**Use low or no VOC paints and finishes (e.g. adhesives, sealants, paints, carpet).**	**1.0**	Using paints and finishes that are rated as having no or being low-VOC (volatile organic compounds) helps improve indoor air pollution as these products eliminate or reduce the amount of contaminants released by these products into the air.	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement
	☐	2	**Install HVAC systems that reduce exposure to indoor air quality pollutants by ventilating with outdoor air.**	**2.0**	Heat Recovery Ventilation systems that use outdoor air can improve indoor air quality.	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement
	☐	3	**Provide additional street trees at least 10% above the minimum required by the Town's Development Standards either within the street right of way and/or in nearby public open spaces.**	**3.0**	Trees improve air quality, reduce heat island effects and enhance the streetscape for pedestrian usage	Demonstrated at time of: draft plan of Subdivision approval – street tree planting plans Secured by: Subdivision agreement
	☐	4	**If surface parking is provided other than in individual driveways, plant shade trees at a minimum ratio of 1 tree native to Halton Region for every 5 parking spaces provided.**	**2.0**	Trees reduce heat island effects of large expanses of hard surfaces	Demonstrated at time of: Site Plan approval – landscaping plans Secured by: Site Plan agreement
	Maximum Possible Points In Air Quality			**8.0**		

			Criteria	Points	Rationale	Implementation
Innovation and Other Green Features						
Innovation & Green Features	☐	1	**Each home purchaser(s) shall be provided with an option to select one (1) or more of the following green building options:** **i. Solar water and space heating** **ii. 100% native to Halton region, non-invasive species and/or drought-resistant xerophytic landscaping** **iii. Energy saving features, including window awnings, vegetation shade landscaping package and window blinds** **iv. Universal accessibility package (e.g. wheelchair accessible layouts, ground-level entry, etc).**	**2.0**	By offering green building options, the proponent (i.e. builder) will promote green technologies. At the same time, homeowners will be provided with an opportunity and be educated on the benefits of incorporating green technologies into their home.	Demonstrated at time of: Building Permit Secured by: Subdivision Agreement

			Criteria	Points	Rationale	Implementation
	☐	2	**Innovative design or performance features not listed that receive prior approval from the Town have been provided.**	**Generally up to a total of 5.0 points**	Green development opportunities are constantly evolving and therefore this provides for new and emerging ideas and technology that may not have been contemplated in this checklist. Innovative design or construction that enhances the environmental performance of communities and buildings will be encouraged. Although these standards apply to new buildings, the retrofit and retention of existing buildings (including heritage buildings) on site which retains the embodied energy and reduces the need to extract and transport new resources will also be encouraged and can be given points under these criteria. Points can also be considered under this category for infill development and intensification which utilize existing infrastructure and promote more compact communities.	To be discussed in pre-consultation meetings
	Possible Points in Innovation & Other Green Features			**7.0**		

			Criteria	Points	Rationale	Implementation
Waste Management						
Waste Management	☐	1	**Utilize a minimum of 25% of wood based materials and products that are certified in accordance with the Forest Stewardship Council's principles and criteria for wood building components.**	**2.0**	The Forest Stewardship's Council ensures sustainable harvesting and replanting practices.	Demonstrated at time of: Building permit Secured by: Subdivision or Site Plan agreement
	Maximum Possible Points In Waste Management			**2.0**		

			Criteria	Points	Rationale	Implementation
Communication						
Communication	☐	1	**Familiarize the homeowner(s) with all of the dwelling's green building features as part of the Pre-Delivery Inspection.**	**Required**	Communicating the dwelling's green building features and familiarizing the homeowner(s) with these features will help to ensure their proper use and maintenance.	Demonstrated at time of: Subdivision approval Secured by: Subdivision agreement
	☐	2	**A Homeowner's Information Package will outline all of the dwelling's green building features, neighbourhood conveniences and information that promotes green lifestyle choices such as water conservation, stormwater management and use of rain barrels, recycling, green procurement, organic lawn care and renewable energy generation. The Package must also provide information on the proper use and maintenance of the home's green features and will include a copy of the Town's Green Plan and Community Sustainability Strategy.**	**Required**	Communicating the dwelling's green building features and familiarizing the homeowner(s) with these features will ensure their proper use and maintenance.	Demonstrated at time of: Subdivision approval Secured by: Subdivision agreement

Maximum Total Possible Points	**82**
Minimum Required Number of Points	**33**
Number of Points achieved	**_____**

Mid to High Rise Green Development Standard Checklist

			Criteria	Points	Rationale	Implementation
Energy Conservation						
Energy Conservation	☐	1	**Achieve 10% or better energy efficiency improvements over ASHRAE 90.1-2010 as demonstrated by third party certification.**	**12.0**	By some estimates, 40% of energy use in North America can be attributed to the heating, cooling and maintenance of buildings. Building more energy efficient buildings reduces greenhouse gas emissions, reduces air pollution and lessens other environmental impacts such as climate change. Various energy conservation incentives may be available for eligible projects. Applicants are encouraged to investigate the availability of any such incentives, including contacting Halton Hills Hydro and the Ontario Power Authority regarding current incentive programs. Information on the SaveONenergy program for high performance new construction that addresses energy efficiency. Approved projects are eligible in 1 of 3 programs: prescriptive; engineered; and custom. Information is available at: https://saveonenergy.ca/Business/Program-Overviews/New-Construction.aspx	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement
	☐	2	**Commission building systems to ensure they function properly.**	**2.0**	Commissioning of a building is a systematic process that documents and verifies that all the facility's energy related systems perform interactively as per the design specifications and operational requirements for at least one year following construction. See LEED-NC Energy & Atmosphere Prerequisite 1 – Fundamental Building Systems Commissioning or The Building Commissioning Guide at www.wbdg.org//ccb/GSAMAN/buildingcommissioningguide.pdf	Demonstrated at time of: Building Permit Secured by: Site Plan agreement

			Criteria	Points	Rationale	Implementation
	☐	3	**Incorporate on-site renewable sources of power generation (e.g. solar) to meet 15% or more of the energy needs of all buildings or take part in the Feed-In Tariff Program. Include consideration of required roof loads, as appropriate.**	**7.0**	On-site energy reduces the demand on the electrical grid and the demand for electrical generation which can be a source of greenhouse gas emissions. The Feed-In Tariff Program allows the generation of clean energy from renewable sources.	Demonstrated at time of: Building Permit Secured by: Site Plan agreement
	☐	4	**Construct each building to be solar ready (i.e. conduit installed from roof to mechanical room/ electrical box and appropriate electrical systems installed). Include consideration of required roof loads, as appropriate.**	**3.0**	This eliminates the cost of retrofitting buildings thereby encouraging future installations.	Demonstrated at time of: Building Permit Secured by: Site Plan agreement
	☐	5	**Identify opportunities for maximizing solar gain through site layout and building orientation in an Energy Efficiency Report.**	**3.0**	Passive solar gain reduces the need for heating and lighting at no cost to the occupants.	Demonstrated at time of: Site Plan approval Secured by: Site Plan Agreement
	Maximum Possible Points in Energy Conservation			**27.0**		

			Criteria	Points	Rationale	Implementation
Water Conservation & Quality						
Water Conservation & Quality	☐	1	**Employ opportunities within the site design to reduce impermeable surfaces and stormwater runoff through the use of Low Impact Development (LID) techniques.**	**4.0**	Low Impact Development (LID) is an alternative approach to conventional stormwater management. The overall objective of LID is to address stormwater at the source rather than collecting stormwater in traditional stormwater management ponds. This assists with pollution control and reduces runoff. LID techniques include bioretention, use of permeable pavers, tree box planters and disconnected downspouts.	Demonstrated at time of: Subdivision or Site Plan approval Secured by: Approved drawings attached to subdivision or Site Plan agreements
	☐	2	**Retain at least 7 mm from each rainfall through rainwater reuse, on-site infiltration, and evapotranspiration** **OR** **Ensure that the maximum allowable annual runoff volume from the development site is no more than 50% of the total average annual rainfall depth.**	**5.0**	Helps to recharge the groundwater, encourages landscaping options on site that will green the site and reduces the need for large off-site stormwater retention facilities which consume additional land thereby decreasing densities.	Demonstrated at time of: Subdivision or Site Plan approval Secured by: Approved drawings attached to subdivision or Site Plan agreements

			Criteria	Points	Rationale	Implementation
	☐	3	**Remove 85% of total suspended solids (TSS) on annual loading basis from all runoff leaving the site based on the post-development level of imperviousness.**	**4.0**	Reducing suspended solids cleans the stormwater that leaves the site thereby assisting in protecting water quality of receiving water bodies	Demonstrated at time of: Subdivision or Site Plan approval Secured by: Subdivision or Site Plan agreements
	Maximum Possible Points In Water Conservation			**13.0**		

			Criteria	Points	Rationale	Implementation
Transportation						
Transportation	☐	1	**Provide 5% of parking spaces or a minimum of 1 space with plug-ins for electric vehicles.**	**2.0**	Encouraging vehicles that utilize alternative fuel sources can reduce greenhouse gas emissions.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	2	**Minimize surface parking by providing 50% of parking underground or in parking structures.**	**2.0**	Decreasing surface parking will reduce the amount of impermeable surfaces and the heat island effect.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	3	**In workplaces provide 1 shower and change facility. Where the number of bicycle parking spaces exceeds 30, provide 1 additional facility for every 30 spaces or part thereof.**	**2.0**	Cycling promotes active transportation and improves health. Allowing employees to shower and change after riding to work encourages cycling to the site thereby reducing dependence on automobile travel.	Demonstrated at time of: Building Permit Secured by: Site Plan agreement

			Criteria	Points	Rationale	Implementation
	☐	4	**Locate occupant bicycle parking in a weather protected, secure area with controlled access; or secure individual enclosures.** **OR** **Locate employee bicycle parking in a weather protected, secure area with controlled access; or secure individual enclosures.**	**2.0**	Providing secure weather protected bicycle storage encourages people to acquire and utilize bicycles	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	5	**Locate visitor bicycle parking in a highly visible and easily accessible location at grade.**	**1.0**	Providing bicycle parking encourages employees and visitors to access the site by bicycle and reduces the greenhouse gas emissions caused by motorized modes of transportation	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	6	**Connect buildings on the site to off-site pedestrian paths and parking areas (car and bike) and require a pedestrian entrances to have linkages to transit stops (e.g. GO Transit) if they are located within walking distance of the site**	**1.0**	Encourages walking and where applicable, transit use thereby reducing dependence on the automobile usage	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement

			Criteria	Points	Rationale	Implementation
	☐	7	**Design on-site sidewalks, crosswalks and walkways to be continuous, universally accessible, barrier-free and clearly designated.**	**1.0**	This promotes walking by all age groups and abilities and provides access for those with limited mobility.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	8	**Outdoor waiting areas located on the site must offer protection from the weather.**	**1.0**	Outdoor waiting areas include the primary entrance to the building or any entrance off a lobby and should provide opaque canopies or awnings to offer better comfort for pedestrians	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	9	**Development includes streetscape amenities such as benches, street trees, and waste receptacles.**	**1.0**	This is consistent with Official Plan policies and encourages pedestrian activity by creating a more attractive environment in which to walk.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	10	**Plan includes lanes or private driveways into mixed use or retail areas at the rear of street related retail for service and loading.**	**1.0**	This helps to separate pedestrians and trucks to improve safety and enhance the street level experience	Demonstrated at time of: Subdivision or Site Plan approval Secured by: Subdivision or Site Plan agreement
	Maximum Possible Points in Transportation			**14.0**		

			Criteria	Points	Rationale	Implementation
Air Quality						
Air Quality	☐	1	**For 50% of the site's non-roof hardscapes:** **Use high-albedo surface materials.** **OR** **Use open grid pavement.** **OR** **Use a combination of high-albedo surface materials, and open grid pavement.**	**5.0**	This reduces the ambient surface temperatures to limit the heat island effect at grade and increase shade for human comfort and health. High albedo materials include white or grey concrete, light coloured asphalt, selected interlocking concrete paver and other light coloured pavers and must have an initial reflectance of at least 0.3 or Solar Reflective Index of 29.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	2	**Provide additional street trees at least 10% above the minimum number required by the Town's Development Standards either within the street right of way and/or in nearby public open spaces.**	**1.0**	This helps to reduce the heat island effect along the street, improves air quality with the increase of tree cover and enhances the pedestrian experience along the street thereby encouraging walking.	Demonstrated at time of: Subdivision approval Secured by: Subdivision agreement
	☐	3	**If surface parking is provided, plant shade trees native to Halton Region at a minimum ratio of 1 tree for every 5 parking spaces supplied.**	**2.0**	This will require the introduction of additional high branching deciduous shade trees on site.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement

			Criteria	Points	Rationale	Implementation
	☐	4	**Do one of the following for Available Roof Space:** **Install a Green Roof with 50% minimum coverage** **OR** **Use cool roofing materials for 100% of the available roof space** **OR** **Use a combination of green roof and cool roof materials for a minimum of 75% of the roof.**	**5.0**	This reduces the ambient surface temperature of the roof thereby reducing the heat island effect and reduces cooling requirements within the building. Available roof space is the total roof area for the building, excluding areas designated for renewable energy devices and private terraces	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	5	**Use low or no VOC paints and finishes (e.g. adhesives, sealants, paints, carpet) on the interior of the building.**	**1.0**	Using paints and finishes that are rated as having no or being low-VOC (volatile organic compounds) helps improve indoor air pollution as these products eliminate or reduce the amount of contaminants released by these products into the air.	Demonstrated at time of: Building Permit Secured by: Site Plan agreement
	Maximum Possible Points In Air Quality			**14.0**		

			Criteria	Points	Rationale	Implementation
Natural Environment						
Natural Environment	☐	1	**Use low-maintenance, drought resistant, non-invasive plant material native to Halton Region for a minimum of 50% of the landscaped areas (including vegetated roofs).**	**2.0**	Reduces the demand for potable water which can increase by as much as 50% during the summer months placing a strain on potable water systems. For a list of native species refer to Conservation Halton Landscaping and Tree Preservation Guide Appendix 1 found at http://www.conservationhalton.on.ca/ShowCategory.cfm?subCatID=898 or the Credit Valley Conservation Plant Selection Guideline Document found at: www.creditvalleyca.ca/wp-content/uploads/2013/04/Credit-Valley-Conservation-Plant-Selection-Guideline-FINAL-March-2013-_2_.pdf	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	2	**Plant a minimum of 1 tree native to Halton Region for every 30 sq metres of post development site area covered by soft landscaping or for a constrained site, plant some of the trees in nearby public open spaces.**	**2.0**	This enhances the urban forest which provides shade to reduce the heat island effect, cleans the air by filtering some air born pollutants, provides oxygen, and improves slope stability through their root base.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	3	**Provide triple the typical tree pit size of high quality soil per tree with a minimum depth of 0.8 m.**	**1.0**	This helps to ensure that planted trees survive and thrive which increases the tree canopy in order to improve the environment and the streetscape. High quality soil is well drained, un-compacted soil comprised of 5 to 15 % organic material with a pH level of 6.0 to 8.0.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement

			Criteria	Points	Rationale	Implementation
	☐	4	**Provide a watering program for trees for the first 2 years after planting and use non-potable water through rainwater harvesting.**	**2.0**	This ensures that trees become well established on site to facilitate their long-term survival and reduces the demand for potable water	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	5	**Do not plant non-native and invasive species adjacent to top of bank of valleys and ravines or natural areas.**	**Required**	This helps to protect and enhance the natural heritage system and increase biodiversity. For a list of native species refer to Conservation Halton Landscaping and Tree Preservation Guide Appendix 1 found at http://www.conservationhalton.on.ca/ShowCategory.cfm?subCatID=898 or the Credit Valley Conservation Plant Selection Guideline Document found at: www.creditvalleyca.ca/wp-content/uploads/2013/04/Credit-Valley-Conservation-Plant-Selection-Guideline-FINAL-March-2013-_2_.pdf	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	6	**Retain and reuse all uncontaminated on-site soil in areas not covered by the building and parking footprint or hard surfaces. OR Adjust or replace with soil of equal or better quality.**	**2.0**	This reduces the need to truck soil in or out of the site thereby reducing greenhouse gas emissions	Demonstrated at time of: Subdivision or Site Plan approval Secured by: Subdivision or Site Plan agreement
	☐	7	**Eliminate all spotlighting and Vanity lighting on the building.**	**1.0**	Vanity lighting wastes electricity.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	Maximum Possible Points in Natural Environment			**10.0**		

			Criteria	Points	Rationale	Implementation
Innovative Elements						
Innovative & Green Features	☐	1	**Innovative design or performance features not listed that receive prior approval from the Town have been provided.**	**Generally up to a total of 5.0 points**	Green development opportunities are constantly evolving and therefore this provides for new and emerging ideas and technology that may not have been contemplated in this checklist. Innovative design or construction that enhances the environmental performance of communities and buildings will be encouraged. Although these standards apply to new buildings, the retrofit and retention of existing buildings (including heritage buildings) on site which retains the embodied energy and reduces the need to extract and transport new resources will also be encouraged and can be given points under these criteria. Points can also be considered under this category for infill development and intensification which utilize existing infrastructure and promote more compact communities.	To be discussed in pre-consultation meetings
	Possible Points in Innovative Elements			**5.0**		

			Criteria	Points	Rationale	Implementation
Waste Management						
Waste Management	☐	1	**Provide a dedicated area or areas within or attached to the building for the collection and storage of recycling and organic waste that is equally as convenient as the garbage facility.**	**1.0**	Recycling lowers landfill tipping fees and the need for landfill expansion.	Demonstrated at time of: Site Plan or Building Permit Secured by: Site Plan agreement
	☐	2	**Ensure that a least 5% of a project's materials (based on value) comprise salvaged, refurbished or reused materials.**	**1.0**	This will decrease the amount of construction material generated and maximize the recycling of non-hazardous construction and demolition debris.	Demonstrated at time of: Building permit Secured by: Site Plan agreement
	☐	3	**Ensure that at least 15% of a project's construction materials (based on value) comprise recycled content.**	**1.0**	This reduces the demand for virgin materials and therefore the environmental impacts associated with their extraction, processing, manufacturing and transportation.	Demonstrated at time of: Building permit Secured by: Site Plan agreement

			Criteria	Points	Rationale	Implementation
	☐	4	**Where wood based materials and products are used, utilize a minimum of 25% that are certified in accordance with the Forest Stewardship Council's principles and criteria for wood building components.**	**2.0**	The Forest Stewardship Council ensures sustainable harvesting and replanting practices.	Demonstrated at time of: Building permit Secured by: Site Plan agreement
	Maximum Possible Points in Waste Management			**5.0**		

			Criteria	Points	Rationale	Implementation
Communication						
Communication	☐	1	**<u>Residential:</u> Familiarize the homeowner(s) with all of the dwelling's green development features as part of the Pre-Delivery Inspection.** **<u>Non- Residential:</u> Familiarize occupants with the building's green development features through provision of printed and/or digital material as part of the lease or sales agreement.**	**Required**	Communicating the building's green development features and familiarizing the homeowner(s) or occupants with these features will help to ensure their proper use and maintenance, as well as awareness of the practical benefits of the Green Development Standards.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement

			Criteria	Points	Rationale	Implementation
	☐	2	**<u>Residential:</u> Each homeowner(s) or renter shall be provided with a Homeowner's Information Package which outlines all of the dwelling unit's green building features, neighbourhood conveniences and information that promotes green lifestyle choices such as water conservation, recycling, green procurement, and renewable energy generation. The Package must also provide information on the proper use and maintenance of the unit's green features and will include a copy of the Town's Green Plan and Integrated Community Sustainability Strategy.**	**Required**	Communicating the dwelling's green building features and familiarizing the homeowner(s) with these features will help to ensure their proper use and maintenance.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement

Maximum Total Possible Points	**88**
Minimum Required Number of Points	**36**
Number of Points achieved	**_____**

Low Rise Non-Residential Green Development Standard Checklist

			Criteria	Points	Rationale	Implementation
Energy Conservation						
Energy Conservation	☐	1	**Achieve 10% or better energy efficiency improvements over ASHRAE 90.1-2010 as demonstrated by third party certification.**	**12.0**	By some estimates, 40% of energy use in North America can be attributed to the heating, cooling and maintenance of buildings. Building more energy efficient buildings reduces greenhouse gas emissions, reduces air pollution and lessens other environmental impacts such as climate change. Various energy conservation incentives may be available for eligible projects. Applicants are encouraged to investigate the availability of any such incentives, including contacting Halton Hills Hydro and the Ontario Power Authority regarding current incentive programs. Information is available on the SaveONenergy for high performance new construction that addresses energy efficiency. Approved projects are eligible in 1 of 3 programs: prescriptive; engineered; and custom. Information is available at: https://saveonenergy.ca/Business/Program-Overviews/New-Construction.aspx	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement
	☐	2	**Commission building systems to ensure they function properly.**	**2.0**	Commissioning of a building is a systematic process that documents and verifies that all the facility's energy related systems perform interactively as per the design specifications and operational requirements for at least one year following construction. See LEED-NC Energy & Atmosphere Prerequisite 1 – Fundamental Building Systems Commissioning or The Building Commissioning Guide at www.wbdg.org//ccb/GSAMAN/buildingcommissioningguide.pdf	Demonstrated at time of: Building Permit Secured by: Site Plan agreement

			Criteria	Points	Rationale	Implementation
	☐	3	**Construct each building to be solar ready (i.e. conduit installed from roof to mechanical room and appropriate electrical systems installed). Include consideration of required roof loads, as appropriate.**	**2.0**	This eliminates the cost of retrofitting buildings thereby encouraging future installations	Demonstrated at time of: Building Permit Secured by: Site Plan agreement
	☐	4	**Incorporate on-site renewable sources of power generation (e.g. solar) to meet 15% or more of the energy needs of all buildings or take part in the Feed-In Tariff Program. Include consideration of required roof loads, as appropriate.**	**7.0**	On-site energy reduces the demand on the electrical grid and the demand for electrical generation which can be a source of greenhouse gas emissions. The Feed-In Tariff Program allows the generation of clean energy from renewable sources.	Demonstrated at time of: Building Permit Secured by: Site Plan agreement
	☐	5	**Identify opportunities for maximizing solar gain through site layout and building orientation in an Energy Efficiency Report.**	**1.0**	Passive solar gain reduces the need for heating and lighting at no cost to the occupants.	Demonstrated at time of: Site Plan approval Secured by: Site Plan Agreement
	Maximum Possible Points in Energy Conservation			**24.0**		

			Criteria	Points	Rationale	Implementation
Water Conservation and Quality						
Water Conservation & Quality	☐					
		1	**Employ opportunities within the subdivision and/or site design to reduce impermeable surfaces and stormwater runoff through the use of Low Impact Development (LID) techniques.**	**4.0**	Low Impact Development (LID) is an alternative approach to conventional stormwater management. The overall objective of LID is to address stormwater at the source rather than collecting stormwater in traditional stormwater management ponds. This assists with pollution control and reduces runoff. LID techniques include bioretention, use of permeable pavers, tree box planters and disconnected downspouts.	Demonstrated at time of: Subdivision or Site Plan approval Secured by: Approved drawings attached to subdivision or Site Plan agreements
	☐	2	**Retain 7 mm from each rainfall through rainwater re-use, on-site infiltration and evapo- transpiration** **OR** **Ensure that the maximum allowable annual runoff volume from the site is no more than 50% of the total average annual rainfall depth.**	**5.0**	Helps to recharge the groundwater, encourages landscaping options on site that will green the site and reduces the need for large off-site stormwater retention facilities which consume additional land thereby decreasing densities.	Demonstrated at time of: Subdivision or Site Plan approval Secured by: Approved drawings attached to subdivision or Site Plan agreements

			Criteria	Points	Rationale	Implementation
	☐	3	**Remove 85% of total suspended solids on an annual loading basis from all runoff leaving the site based on post-development level of imperviousness.**	**4.0**	Reducing suspended solids cleans the stormwater that leaves the site thereby assisting in protecting water quality of receiving water bodies	Demonstrated at time of: Subdivision or Site Plan approval Secured by: Subdivision or Site Plan agreements
	Maximum Possible Points in Water Conservation & Quality			**13.0**		

			Criteria	Points	Rationale	Implementation
Transportation						
Transportation	☐	1	**Provide 5% of parking spaces or a minimum of 1 space with plug ins for electric vehicles.**	**2.0**	Encouraging vehicles that utilize alternative fuel sources can reduce greenhouse gas emissions.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	2	**Minimize surface parking by providing 50% of parking spaces underground or in parking structures.**	**2.0**	Decreasing surface parking will reduce the amount of impermeable surfaces and the heat island effect.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	3	**In workplaces provide 1 shower and change facility. Where the number of bicycle parking spaces exceeds 30, provide 1 additional facility for every 30 spaces or part thereof.**	**2.0**	Cycling promotes active transportation and improves health. Allowing employees to shower and change after riding to work encourages cycling thereby reducing dependence on motorized travel modes.	Demonstrated at time of: Building Permit Secured by: Site Plan agreement
	☐	4	**Locate the visitor bicycle spaces in highly visible, easily accessible locations at grade.**	**1.0**	Providing bicycle parking encourages visitors to access the site by bicycle and reduces the greenhouse gas emissions caused by motorized modes of transportation.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	5	**Locate employee bicycle parking in a weather protected, secure area with controlled access; or secure individual enclosures.**	**2.0**	Providing secure weather protected bicycle storage encourages people to acquire and utilize bicycles	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement

			Criteria	Points	Rationale	Implementation
	☐	6	**Connect building(s) on the site to off-site pedestrian paths and parking areas and require pedestrian entrances to have linkages to transit stops (e.g. GO Transit) if they located within walking distance of the site.**	**1.0**	Encourages walking thereby reducing dependence on the automobile usage.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	7	**Design on-site sidewalks and walkways to be continuous, universally accessible, barrier-free and clearly designated.**	**1.0**	This promotes walking by all age groups and abilities and provides access for those with limited mobility.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	8	**Provide multi-storey, multi-use projects.**	**2.0**	This provides for more compact development, and has the potential to reduce vehicular trips and to promote walking.	Demonstrated at time of: Zoning or Site Plan approval Secured by: Site Plan agreement
	Maximum Possible Points in Transportation			**13.0**		

			Criteria	Points	Rationale	Implementation
Air Quality						
Air Quality	☐	1	**For 50% of the site's non-roof hardscapes:** **Use high-albedo surface materials.** **OR** **Use open grid pavement.** **OR** **Use a combination of high-albedo surface materials, and open grid pavement.**	**5.0**	This reduces the ambient surface temperatures to reduce the heat island effect at grade and increases shade for human comfort and health. High albedo materials include white or grey concrete, light coloured asphalt, selected interlocking concrete paver and other light coloured pavers and must have an initial reflectance of at least 0.3 or Solar Reflective Index of 29.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	2	**If surface parking is provided, plant shade trees native to Halton Region at a minimum ratio of 1 tree for every 5 parking spaces provided.**	**2.0**	This will require the introduction of additional high branching deciduous shade trees on site.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement

			Criteria	Points	Rationale	Implementation
	☐	3	**Do one of the following for Available Roof Space:** **Install a Green Roof with 50% minimum coverage.** **OR** **Use cool roofing materials for 100% of the available roof space.** **OR** **Use a combination of green roof and cool roof materials for a minimum 75 % of the available roof space.**	**5.0**	This reduces the ambient surface temperature of the roof thereby reducing the heat island effect and reduces cooling requirements within the building. Available roof space is the total roof area for the building excluding areas designated for renewable energy devises and terraces	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	4	**Use low or no VOC paints and finishes (e.g. adhesives, sealants, paints, carpet).**	**1.0**	Using paints and finishes that are rated as having no or being low-VOC (volatile organic compounds) helps improve indoor air pollution as these products eliminate or reduce the amount of contaminants released by these products into the air.	Demonstrated at time of: Building Permit Secured by: Subdivision or Site Plan agreement
	Maximum Possible Points in Air Quality			**13.0**		

			Criteria	Points	Rationale	Implementation
Natural Environment						
Natural Environment	☐	1	**Use low maintenance, drought resistant, non invasive plant material native to Halton Region for at least 50% of landscaped areas (including vegetated roofs).**	**2.0**	Reduces the demand for potable water which can increase by as much as 50% during the summer months placing a strain on potable water systems. For a list of native species refer to Conservation Halton Landscaping and Tree Preservation Guide Appendix 1 found at http://www.conservationhalton.on.ca/ShowCategory.cfm?subCatID=898 or the Credit Valley Conservation Plant Selection Guideline Document found at: www.creditvalleyca.ca/wp-content/uploads/2013/04/Credit-Valley-Conservation-Plant-Selection-Guideline-FINAL-March-2013-_2_.pdf	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	2	**Plant a minimum of 1 tree native to Halton Region for every 30 square metres of post development site area covered by soft landscaping or for a constrained site, plant some of the trees in nearby public open spaces.**	**2.0**	This enhances the urban forest which provides shade to reduce the heat island effect, cleans the air by filtering some air born pollutants, provides oxygen, and improves slope stability through their root base.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	3	**Provide triple the typical tree pit size of high quality soil per tree with a minimum depth of 0.8 m.**	**1.0**	This ensures that trees have sufficient soil to achieve reasonable growth in hard landscaping areas and to achieve maturity in soft landscaping areas. High quality soil is well drained, un-compacted soil comprised of 5 to 15 % organic material with a pH level of 6.0 to 8.0.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement

			Criteria	Points	Rationale	Implementation
	☐	4	**Provide a watering program for trees for the first 2 years and use non-potable water through rainwater harvesting.**	**2.0**	This ensures that trees become well established on site to facilitate their long-term survival and reduces the demand for potable water.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	5	**Do not plant non-native and invasive species adjacent to top of bank of valleys and ravines or natural areas.**	**Required**	This helps to protect and enhance the natural heritage system and increase biodiversity. For a list of native species refer to Conservation Halton Landscaping and Tree Preservation Guide Appendix 1 found at http://www.conservationhalton.on.ca/ShowCategory.cfm?subCatID=898 or the Credit Valley Conservation Plant Selection Guideline Document found at: www.creditvalleyca.ca/wp-content/uploads/2013/04/Credit-Valley-Conservation-Plant-Selection-Guideline-FINAL-March-2013-_2_.pdf	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	☐	6	**Eliminate all spotlighting and Vanity lighting on the building.**	**1.0**	Vanity lighting wastes electricity and can contribute to light pollution.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement
	Maximum Possible Points in Natural Environment			**8.0**		

			Criteria	Points	Rationale	Implementation
Waste Management						
Waste Management	☐	1	**Ensure that a least 5% of a project's materials (based on value) comprise salvaged, refurbished or reused materials.**	**1.0**	This will decrease the amount of construction material generated and maximize the recycling of non-hazardous construction and demolition debris.	Demonstrated at time of: Building permit Secured by: Site Plan agreement
	☐	2	**Ensure that at least 15% of a project's construction materials (based on value) comprise recycled content.**	**1.0**	This reduces the demand for virgin materials and therefore the environmental impacts associated with their extraction, processing, manufacturing and transportation.	Demonstrated at time of: Building permit Secured by: Site Plan agreement
	☐	3	**Where wood based materials and products are used, utilize a minimum of 25% that are certified in accordance with the Forest Stewardship Council's principles and criteria for wood building components.**	**2.0**	The Forest Stewardship's Council ensures sustainable harvesting and replanting practices.	Demonstrated at time of: Building permit Secured by: Site Plan agreement
	Maximum Possible Points In Waste Management			**4.0**		

			Criteria	Points	Rationale	Implementation
Innovative Elements						
Innovative & Green Features	☐	1	**Innovative design or performance features not listed that receive prior approval from the Town have been provided.**	**Generally up to a total of 5.0 points**	Green development opportunities are constantly evolving and therefore this provides for new and emerging ideas and technology that may not have been contemplated in this checklist. Innovative design or construction that enhances the environmental performance of communities and buildings will be encouraged. Although these standards apply to new buildings, the retrofit and retention of existing buildings (including heritage buildings) on site which retains the embodied energy and reduces the need to extract and transport new resources will also be encouraged and can be given points under these criteria. Points can also be considered under this category for infill development and intensification which utilize existing infrastructure and promote more compact communities.	To be discussed in pre-consultation meetings.
	Possible Points In Innovative Elements			**5.0**		

			Criteria	Points	Rationale	Implementation
Communication						
Communication	☐	1	**Familiarize occupants with the building's green development features through the provision of printed and/or digital material as part of the lease or sales agreement.**	**Required**	Communicating the building's green development features and familiarizing the occupants with these features will help to ensure their proper use and maintenance, as well as awareness of the practical benefits of the Green Development Standards.	Demonstrated at time of: Site Plan approval Secured by: Site Plan agreement

Maximum Total Possible Points	**80**
Minimum Required Number of Points	**32**
Number of Points achieved	**_____**