Sustainable Building and Development Guidelines Checklist Report

For the King Paving Asphalt Plant Relocation to 291 North Service Road



August 30, 2024

1. Introduction

This Sustainable Building and Development Checklist report is submitted in support of King Paving's Official Plan Amendment, rezoning, and site plan applications affecting a brownfield site at 291 North Service Road. This report demonstrates how King Paving will achieve the triple bottom line inherent in the Sustainable Development model.

2. Halton Landfill Site Location

King Paving proposes to relocate its innovative technology asphalt plant from its current location in the Aldershot Major Transit Station Area (MTSA) to the southerly portion of the closed Halton Landfill site at 291 North Service Road. The proposed relocation will assist Halton and Burlington in achieving its sustainable city building goals by facilitating high intensity, transit-oriented development in the South Aldershot MTSA.

Proposed Asphalt Plant Location 291 North Service Road

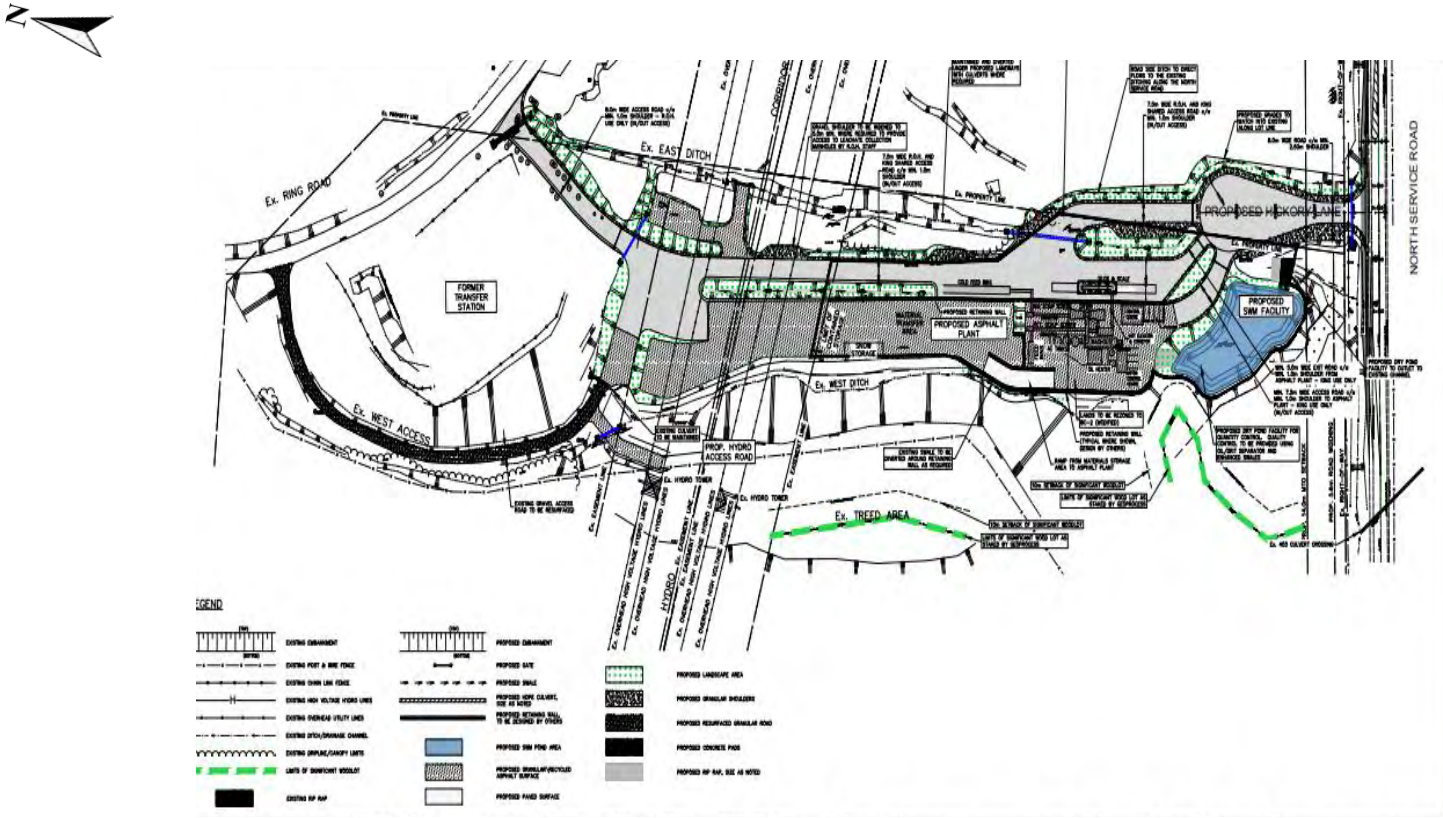


The proposed asphalt plant involves the surface lease of a portion of a rock filled portion of the former Halton landfill site which is ideally located from a transportation and environmental points of view. The King operation will reuse brownfield lands that have very few options for reuse. King has committed to the owner, Halton Region to return the site in its current condition after the surface lease expires in 20-40 years' time.

3. King Paving's Commitment to Sustainability

The current King operation on Howard Road occupies about 10 ha of land. The proposed innovative technology continuous feed plant, in combination with just in time delivery of aggregate materials, allows King to shrink its footprint to under three hectares which results in an over 60% more efficient use of valuable urban land, thus helping to reduce pressure for sprawl. King Paving's innovative technology plant allows King Paving to minimize the use of expensive utilities as well as reducing truck wait and idling times associated with the former batching process.

King Paving Site Plan – Includes Replacement Hickory Lane Landfill Access



4. Analysis of the Consistency with King Paving's Official Plan Amendment, Rezoning, and Site Plan Applications' Consistency with the City of Burlington's Sustainable Building and Development Guidelines

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
1.1	Required	**Augment Topsoil:** Maintain a minimum 15 cm/6" quality topsoil.	**Rationale:** Appropriate topsoil levels absorbs runoff and helps to ensure plants survive and thrive.	King's Site Plan includes over 100 native tree and shrub plantings. The planting instructions call for copious topsoil to ensure plant survival.
1.2	Required	**Snow Management:** For sites with surface parking, identify a designated snow storage area in an area that will reduce salt and contaminant impacts to vegetation, groundwater and surface water. Appropriate on-site snow storage is preferable to off-site snow removal.	**Rationale:** Road salt poses risk to plants, animals, birds, fish, lake and stream ecosystems and groundwater. Appropriate snow storage areas can help manage and mitigate the risks associated with road salt. **Resources:** City of Burlington Site Plan Guidelines [PDF]: https://www.burlington.ca/en/services-for-	King's Site Plan does not include snow storage at the plant site because the asphalt plant will be closed all winter months. The Region of Halton may require occasional plowing of the new Hickory Lane to facilitate access to both the closed landfill and the Hydro One powerlines. Windrows resulting from Halton's winter plowing of new Hickory Lane are not expected to contain salt. Region winter traffic levels will be no different from current Hickory Lane.
1.3	Voluntary	**Augment Topsoil, Enhanced:** Maintain a minimum 30 cm/12" quality topsoil, protect areas from disturbance and/or decompact subsoil in landscaped areas/non hardscape areas.	**Rationale:** Enhanced topsoil levels absorbs runoff and helps to ensure plants survive and thrive. Protecting areas from disturbance and decompacting soil in disturbed areas further ensures the health of planted material. **Resource:** Preserving and Restoring Healthy Soil: Best Practices for Urban Construction (TRCA June 2012) https://sustainabletechnologies.ca/app/up	King's Site Plan will include significant tree and shrub plantings in non-rockfill areas. A minimum of 30 cm of quality topsoil will be used to plant the new native plant materials.

Sustainable Building and Development Guidelines - Section 1: SITE DESIGN

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
1.4	Voluntary	**Snow Management, Enhanced:** Achieve the Smart About Salt Site Certification.	**Rationale:** The Smart About Salt Site Certification ensures that design and management best practices are in place to mitigate the impacts of road salt. **Resource:** www.smartaboutsalt.com **Incentive:** Sustainable Building Award	Salt is not expected to be used at the King asphalt plant because it will be closed during all winter months.
1.5	Voluntary	**Reuse Topsoil:** Retain and reuse uncontaminated on-site topsoil in areas not covered by the building and parking/hard surface areas. Proper storage of topsoil to retain soil health and quality.	**Rationale:** Reusing soil promotes responsible use of a natural resource and minimizes the need to truck soil to and from the site. **Resource:** Preserving and Restoring Healthy Soil: Best Practices for Urban Construction. TRCA June 2012 https://sustainabletechnologies.ca/app/up	King's Site Plan will retain and reuse any topsoil that may be remaining on this highly disturbed, brownfield former landfill site.
1.6	Voluntary	**Site Disturbance:** On greenfield sites, limit site disturbance including earthwork and clearing of vegetation to 12 metres beyond the building perimeter, 1.5 m beyond primary roadway curbs, walkways, and main utility branch trenches, and 7.5 m beyond constructed areas with permeable surfaces (such as pervious paving areas) that require additional staging areas in order to limit compaction in the constructed area. Or on previously developed sites, restore a minimum of 50% of the site area (excluding the building footprint) by replacing impervious surfaces with native or adapted vegetation.	**Rationale:** Maintains the local landscape and helps to ensure soils and vegetation remain undisturbed. **Resource:** LEED ND: https://www.usgbc.org/leed/rating-systems/neighborhood-development **Incentive:** Sustainable Building Award	The subject lands are a brownfield site and thus are highly disturbed owing to past landfill activities. Much of the site will remain in rock fill condition. Use of asphalt will be minimized in all non-high traffic locations. Care will be taken during the construction of the stormwater pond to minimize natural area disturbance.

Sustainable Building and Development Guidelines - Section 1: SITE DESIGN

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
1.7	Voluntary	**Adaptive Reuse:** Development includes adaptive reuse or rehabilitation of any non-designated heritage buildings with cultural heritage value or potential.	**Rationale:** The City's Official Plan contains policy to encourage adaptive re-use of built heritage resources where appropriate. Adaptive reuse integrates cultural heritage resources or their key attributes into a new development and makes use of existing building stock. **Resource:** N/A **Incentive:** Sustainable Building Award	No buildings exist on this brownfield site. King is reusing a former landfill site.
1.8	Voluntary (see exception	**Accessible Units:** In ground oriented residential developments such as townhomes, 15% of units are constructed as visitable housing. Features include: one zero-step entrance, wider doorways and clear passage on the main floor, a main floor bathroom or powder room. **NOTE:** Currently required for multi-unit apartment and condo buildings under the Ontario Building Code.	**Rationale:** Visitable housing is the concept of designing and building homes with basic accessibility. Visitable homes provide a welcoming environment for visitors of all ages and mobility. It also helps a person of any age who develops a temporary or permanent mobility disability stay in their home without having to undergo extensive renovations. **Resources:** Visitable Housing Canada: www.visitablehousingcanada.com CMHC Accessible Housing by Design: www.cmhc-schl.gc.ca/en/co/acho/acho_002.cfm **Incentives:** Sustainable Building Award; Burlington Accessibility Award; David C. Onley Award for Leadership in Accessibility	Not applicable because no housing units proposed.

Sustainable Building and Development Guidelines - Section 2: TRANSPORTATION

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
2.1	Required	**Site Connections:** Provide pedestrian and cycling connections from on-site buildings to off-site public sidewalks, pedestrian paths, trails, open space, active transportation pathways, transit stops and adjacent buildings and sites in accordance with Official Plan policies.	**Rationale:** Encourages active transportation and transit use to reduce the dependence on the automobile. **Resource:** N/A	The existing low density King industrial operation on Howard Road will be replaced by intensive urban development that will be highly pedestrian and transit service oriented. The proposed new location is accessible by cyclists from the North Service Road and future transit. Proposed plant will not prevent future trail development in the North Aldershot area.
2.2	Required	**Accessibility:** Design on-site sidewalks, crosswalks and walkways to be continuous, universally accessible, barrier-free and clearly delineated in accordance with Official Plan Policies, Accessibility for Ontarians with Disabilities Act & City of Burlington Accessibility Design Standards.	**Rationale:** Promotes walking by all age groups and abilities and provides access for those with limited mobility. **Resources:** The City of Burlington Accessibility	King Site Plan will show staff access and pathways. Public will not be permitted in the plant area. Site Plan will include a safe paved entrance and gravel access laneway suitable for light and heavy vehicles and bicycles.
2.3	Required	**Bicycle Storage:** Provide bicycle parking spaces in accordance with the Zoning By-law and Official Plan Policies.	**Rationale:** Cycling reduces greenhouse gas emissions, reduces traffic congestion and improves health. Convenient bicycle parking encourages the use of active transportation.	King Site Plan will include secure bicycle parking.

2.4	Voluntary (see exception)	**Transportation Demand Management:** Provision and implementation of a Transportation Demand Management Plan. Required for parking reductions and required in Primary, Secondary and Employment Growth areas as per Official Plan policy.	**Rationale:** Transportation Demand Management Plans are plans that encourage sustainable modes of transportation. TDM plans evaluate building transportation needs comprehensively and may consider measures such as the provision of transit passes, flexible work hours, unbundled parking, on site transit facilities, priority parking for carpooling and autoshare programs, etc. **Resource:** Smart Commute Halton: https://www.smartcommute.ca/Public/Home.aspx **Incentive:** Sustainable Building Award	King OPA/ZBLA and Site Plan applications are supported by a comprehensive transportation study. The public will not be allowed to access the plant site. A turning lane will be constructed on the North Service Road to accommodate truck turning movements without impinging on public safety and the smooth flow of North Service Road. Minimal parking will be provided for the 5 to ten staff members who will operate the plant during peak season. Note that the asphalt plant will be closed for the winter months.

Sustainable Building and Development Guidelines - Section 2: TRANSPORTATION

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
2.5	Voluntary	**Bicycle Storage (Occupants):** Locate occupant/employee bicycle parking near the main entrance or easy to identify area, in a weather protected area with controlled access or secure enclosures, at no extra charge to the occupant/employee.	**Rationale:** Applicants are encouraged improve upon the required bicycle parking requirements in the Zoning By-law to further encourage cycling as a viable transportation option. **Resource:** Toronto's Guidelines for the Design and Management of Bicycle Parking Facilities: https://www.toronto.ca/wp-content/uploads/2017/12/8c1a-Cycling-Guidelines-for-the-Design-and- Management-of-Bicycle-Parking-Facilities.pdf	King Site Plan will include secure staff bicycle parking free of charge.
2.6	Voluntary	**Bicycle Storage (Visitor):** Provision of bicycle parking spaces in a weather protected area at grade near the main entrance or easy to identify area.	**Rationale:** Applicants are encouraged improve upon the required bicycle parking requirements in the Zoning By-law to further encourage cycling as a viable transportation option. **Resource:** Toronto's Guidelines for the Design and Management of Bicycle Parking Facilities: https://www.toronto.ca/wp-content/uploads/2017/12/8c1a-Cycling-Guidelines-for-the-Design-and- Management-of-Bicycle-Parking-Facilities.pdf **Incentive:** Sustainable Building Award	The King Site Plan will include staff bicycle spaces. No visitors or public will be attending the asphalt plant site.
2.7	Voluntary	**End of Trip Facilities:** In workplaces provide a minimum of 1 shower and change facility with lockers. Provide an additional shower and change facility for every 30 bicycle parking spaces.	**Rationale:** In order to facilitate growth in bicycle commute trips, end of trip infrastructure is essential to ensure that cycling is a viable transportation option. **Resource:** Toronto's Guidelines for the Design and Management of Bicycle Parking Facilities: https://www.toronto.ca/wp-content/uploads/2017/12/8c1a-Cycling-Guidelines-for-the-Design-and- Management-of-Bicycle-Parking-Facilities.pdf **Incentive:** Sustainable Building Award	King operation building will include a washroom and shower.

Sustainable Building and Development Guidelines - Section 2: TRANSPORTATION

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
2.8	Voluntary (see exception)	**Electric Vehicles:** A minimum of 3% of parking spaces provide charging stations to accommodate electric vehicles and design additional areas to be EV conversion ready. **NOTE:** Effective January 2019, the Building Code requires EV charging in 20 per cent of parking spaces and "rough-ins" in the remaining spaces in new multi-unit residential buildings where parking is provided within the building.	**Rationale:** The demand for electric vehicles and related infrastructure is growing in Canada, and encouraging electric vehicles reduces greenhouse gas emissions and air pollution. **Resource:** www.plugndrive.ca - Level 1 charging stations are appropriate for most residential and employment/office buildings. Level 2 charging stations are recommended for commercial/public use. Ministry of Transportation information on electric vehicle charging: http://www.mto.gov.on.ca/english/vehicles/electric/charging-electric- vehicle.shtml Guide to Electric Vehicle Charging in Multi-Unit Residential Buildings (Pollution Probe): https://www.pollutionprobe.org/transportation/guide-to-ev-	Site Plan will include roughed in EV charging station wiring. EV charging will be implemented based on staff and company vehicle requirements.
2.9	Voluntary	**Transit Pass:** For residential developments, each unit receives a one-year Burlington Transit pass at no cost to resident.	**Rationale:** Growth in Burlington is directed towards intensification areas, all serviced by local transit. The City encourages transit-supportive development and measures to encourage transit ridership. **Resource:** N/A	No residential units are proposed.
2.10	Voluntary	**Bike Share:** Provision of an on-site bike share available for owners/tenants to use.	**Rationale:** Encourages cycling as a transportation choice. **Resource:** N/A **Incentive:** Sustainable Building Award	No bike share is proposed for the King industrial operation.

2.11	Voluntary	**Car Share:** Provision of an on-site car share service available to owners/tenants and the public.	**Rationale:** Providing space for a car share service reduces the need for private automobile ownership. **Resource:** N/A **Incentive:** Sustainable Building Award	No car share is proposed for the King industrial operation.

Sustainable Building and Development Guidelines - Section 3: NATURAL ENVIRONMENT

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
3.1	Required	**Light Pollution:** Minimization of light pollution in accordance with the city's Guidelines for Outdoor Lighting and Official Plan Policies.	**Rationale:** Reducing light pollution reduces night sky glow which is beneficial for wildlife and improves nighttime visibility. All exterior lights must include cut-off shields in accordance with the City's guidelines. **Resource:** *For guidance on outdoor lighting, see resources provided by the International Dark-Sky Association:* https://www.darksky.org/our- work/lighting/ Burlington City Council Approved Guidelines for Outdoor Lighting: https://www.burlington.ca/uploads/92/635575154693976963.pdf	The King Site Plan will demonstrate minimal, security night lighting. The asphalt plant will be closed during all winter months.
3.2	Required	**Native Species (NHS):** As per Official Plan policy, use native, non-invasive species within the Natural Heritage System and related buffers, and use non-invasive species in all other areas.	**Rationale:** Planting native and non-invasive species protects and enhances the Natural Heritage System and biodiversity, and are resilient to the local climate. **Resource:** For a list of native species, please refer to Conservation Halton's Landscaping and Tree Preservation Guidelines:	The King Site Plan includes proposals to remove invasive species and replace them with native species. Over 100 trees and shrubs will be planted.
3.3	Voluntary	**Native Species (Enhanced, outside NHS and buffers):** Use native, non-invasive species that are suitable to site conditions for a minimum of 75% of all landscaped areas.	**Rationale:** Additional native plantings outside of natural areas are encouraged to promote biodiversity and resiliency. **Resource:** See above **Incentive:** Sustainable Building Award	The King Site Plan includes proposals to remove invasive species and replace them with native species. Over 100 trees and shrubs will be planted.

Sustainable Building and Development Guidelines - Section 3: NATURAL ENVIRONMENT

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
3.4	Voluntary (see exception)	**Bird Friendly Design:** Incorporate bird friendly design measures. Required for glass buildings and buildings adjacent to the Natural Heritage System and the Lake Ontario shoreline, as per Official Plan Policy.	**Rationale:** Bird Collisions with windows is a leading cause of bird death across North America. **Resource:** For assistance identifying bird friendly design measures please consult with FLAP Canada (www.flap.org) or the following Bird Friendly Design Guidelines: City of Toronto: https://www.toronto.ca/city-government/planning- development/official-plan-guidelines/design-guidelines/bird-friendly- guidelines/ Markham: https://www.markham.ca/wps/portal/home/business/planning/plann ing-documents-and-studies/studies/bird-friendly-guidelines	The King Site Plan will include an operations building that minimizes fenestration. Bird-friendly windows and doors will be provided.
3.5	Voluntary	**Low Maintenance Landscaping:** All landscaping is low maintenance and drought resistant (i.e. *self-sustaining vegetation*) that does not require a permanent potable water-based irrigation system (except for initial watering to establish plants).	**Rationale:** The use of low maintenance and drought-resistant planting reduces the amount of watering needed and produces a resilient landscape. **Resource:** N/A **Incentive:** Sustainable Building Award	The King Site Plan includes low maintenance, natural plantings that do not require ongoing watering.

3.6	Voluntary	**Tree Planting (quantity):** Submit a Canopy Cover Plan that demonstrates 20% canopy cover of non-building hard surfaces at two thirds mature size.	**Rationale:** Planting trees provides numerous benefits and services, including the reduction of air pollution, water attenuation, moderation of the urban heat island effect, carbon sequestration, shade, habitat for urban adapted wildlife, neighbourhood character and mental health benefits. **Resource:** For assistance preparing a Canopy Cover Plan, please see the Town of Oakville's Guideline and Calculator: https://www.oakville.ca/assets/2011%20planning/CanopyCoverPlan.pdf	The King Site Plan includes a plant design that minimizes tree removals given that the plant sits atop considerable rock fill where tree planting is not possible. King agrees to plant over 100 trees and shrubs beyond the former landfill site's rock fill area.

Sustainable Building and Development Guidelines - Section 3: NATURAL ENVIRONMENT

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
3.7	Voluntary	**Tree Planting (soil):** Provide a soil volume of 30 m3 per tree and a minimum depth of 1 metre of high-quality soil OR in hard surface situations install a soil cell product with high quality soil and provide the required soil volume.	**Rationale:** The use of high quality soil at an appropriate quantity helps ensure trees survive and thrive. A soil cell type product helps ensure trees survive in urban hardscape environments. 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. **Resource:** City of Burlington webpages on tree planting and care: https://www.burlington.ca/en/services-for-you/tree-planting-and-care.asp	The King Site Plan includes a landscape design that minimizes tree removals given that the plant sits atop considerable rock fill where tree planting is impossible. King agrees to plant over 100 trees and shrubs beyond the rock fill area.
3.8	Voluntary (see exception)	**Enhanced Tree Preservation:** Maintain existing on-site trees that are 30 cm or more DBH (diameter at breast height) OR Maintain 75% of healthy mature trees greater than 20 cm DBH. **Note:** Tree preservation requirements will be determined by Official Plan urban forestry policies.	**Rationale:** Preserving trees provides numerous benefits and services, including the reduction of air pollution, water attenuation, moderation of the urban heat island effect, carbon sequestration, shade, habitat for urban adapted wildlife, neighbourhood character and mental health benefits. ***Resource:*** *City of Burlington webpages on tree planting and care:* https://www.burlington.ca/en/services-for-you/tree-planting-and-care.asp	The King OPA/ZBLA and Site Plan applications are accompanied by a comprehensive tree inventory report and tree saving plan prepared by a professional ecologist that considers the circumstances of this brownfield former landfill site.
3.9	Voluntary (see exception)	**Restoration and Enhancement:** Complete and implement a restoration and/or enhancement plan that demonstrates net gain for Natural Heritage System areas, including a management and monitoring plan. May be required as a result of Environmental Impact Assessment recommendations.	**Rationale:** The restoration and enhancement of Natural Heritage System areas can aid in the improvement of degraded areas, and can enhance ecosystem function. Long term management and monitoring ensures the success of the restoration project over the long term. **Resource:** N/A **Incentive:** Sustainable Building Award	The King Site Plan includes a plant design that minimizes tree removals given that the plant sits atop considerable rock fill where tree planting is not possible. King agrees to plant over 100 trees and shrubs beyond the former landfill site's rock fill area. King has voluntarily agreed to remove invasives and plant native

Sustainable Building and Development Guidelines - Section 3: NATURAL ENVIRONMENT

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
3.10	Voluntary	**Community Gardens:** For development containing residential units, provide community garden plots for residents in a common amenity area.	**Rationale:** Community gardens encourage sustainable local food production, increase access to healthy food, provide opportunities for community building and create local green space. **Resource:** Burlington Green Community Gardens in Multi Unit Residential Buildings (MURBs) guidance: https://www.burlingtongreen.org/wp-content/uploads/2021/04/community-gardens-murbs-community-2020-_min.pdf	No residential units are planned. The public is not allowed on this industrial site
3.11	Voluntary	**Green Roofs:** For residential and mixed use developments, install green roofs, consisting of a layer of growing medium soil with vegetation material on top of a conventional flat or sloped roof. Definition as set out in the Municipal Act 2001 Section 97.1 (4): "green roof" means a roof surface that supports the growth of vegetation over a substantial portion of its area for the purpose of water conservation or energy conservation.	**Rational:** Green roofs provide multi-functional benefits including improving energy efficiency in buildings, stormwater absorption and quality, reducing urban heat island effects, create green space for passive recreation, and to enhance roof aesthetics. **Resource:** Green Roofs for Healthy Cities works to develop standards in support of green roofs: https://greenroofs.org/design-standards **Incentive:** Sustainable Building Award	No residential units are planned. Site Plan

Sustainable Building and Development Guidelines - Section 4: WATER CONSERVATION AND QUALITY

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
4.1	Required	**Stormwater Quality:** Achievement of a level one/enhanced stormwater treatment for all	**Rationale:** Stormwater quality treatment reduces the total suspended solids in runoff to ensure the protection of receiving watercourses and Lake Ontario.	King's OPA/ZBLA and Site Plan applications include a stormwater pond that achieves a high level of polishing of the captured runoff before being discharges into the Falcon Creek watershed.
4.2	Voluntary	**Water Conservation Systems:** implementation of systems to retain and reuse water, such as grey water recycling, rainwater harvesting systems, cisterns and rain barrels.	**Rationale:** Cisterns, rain barrels and rainwater harvesting systems allow rainwater to be captured and reused on site. Grey water systems allow the reuse of water internal to the building, for example allowing the reuse of water from bathing and/or laundry to be used for flushing toilets or irrigation.	King Site Plan and Building Permit will require connection to municipal water and wastewater systems. Rainwater will be collected and retained in a natural storm water retention pond.
4.3	Voluntary	**Pervious Surfaces:** minimization of impervious surfaces and stormwater runoff through the use of Low Impact Development (LID) measures, such as: • permeable pavement; • bioswales; • infiltration trenches/bioretenti on areas; • rain gardens;	**Rationale:** Low Impact Development strategies mitigate the impacts of increased urban runoff and stormwater pollution by managing it as close to its source as possible. It comprises a set of site design approaches and small scale stormwater management practices that promote the use of natural systems for infiltration and evapotranspiration, and rainwater harvesting. **Resources:** Guidance, case studies and	The King OPA, ZBLA and Site Plan applications are supported by studies and plans that demonstrate that the creation of new impervious surfaces will be minimized, and rainwater will be directed, where possible, to pervious areas. A vegetated stormwater pond is proposed south of the proposed plant site.
4.4	Voluntary	**Efficient Fixtures:** All newly installed toilets, urinals, private lavatory faucets, and showerheads that are eligible for labeling must be	**Rationale:** Efficient water fixtures reduce the use of potable water. **Resources:** EPA Watersense - www.epa.gov/watersense/watersense-label	The staff and operations building will contain efficient fixtures at the Building Permit stage.

Sustainable Building and Development Guidelines - Section 5: ENERGY AND EMISSIONS

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
5.1	Required	**Urban Heat Island:** Provide vegetated landscape areas in hard surface areas as per the Zoning By-law.	**Rationale:** Vegetation can reduce the urban heat island effect to improve human comfort and energy efficiency in the surrounding areas.	King's OPA/ZBLA and Site Plan occupy a significant rock fill area. A stormwater management pond and areas adjoining the rock fill area will be vegetated.
5.2	Voluntary	**Urban Heat Island (non-roof):** efforts to reduce urban heat island effect using light coloured materials/white paving and/or enhanced landscaped parking for at least 50% of non-roof hardscape.	**Rationale:** Light coloured materials and vegetation can reduce the urban heat island effect to improve human comfort and health and improve energy efficiency in the surrounding area. 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	The King Site Plan maintains light coloured rock fill surface area. The use of asphalt surfaces will be limited to only high traffic areas such as weigh scales and truck loading areas.
5.3	Voluntary	**Urban Heat Island (roof):** Use Cool roofing materials for 75% of the roof area OR Install a Green Roof with 50% minimum coverage OR use a combination of green roof and cool roof material for a minimum of 75% of the roof.	**Rationale:** Light coloured roofing materials reduces the heat island effect and contributes to building energy efficiency. Light coloured roofs should generally have a Solar Reflectance Index of 82 for a low sloped roof, and 39 for a high sloped roof. In addition to reducing the heat island effect, green roofs can be used to manage stormwater, improve local air quality, provide amenity space and grow produce. **Resources:** LEED standards provide additional guidance for calculating reflectance. www.cagbc.org **Incentive:** Sustainable Building Award	The King Site Plan will require the installation of light-coloured roof material for the process control building.

Sustainable Building and Development Guidelines - Section 5: ENERGY AND EMISSIONS

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
5.4	Voluntary	**Energy Efficiency:** Achieve 10% or better energy efficiency improvements over ASHRAE 90.1-2010 as demonstrated by third party certification/energy modelling.	**Rationale:** 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 and air pollution and are more cost effective to operate. Efficiency can be achieved through a combination of measures including HVAC, insulation, building materials, windows, lighting, appliances, automation/controls, building orientation and other passive energy measures to achieve a low carbon building. **Resources:** N/A **Incentives:** Various incentives may be available for eligible projects. Applicants are encouraged to	King will strive to achieve control building energy efficiency as set out in the guidelines at the Building Permit stage. Additionally, King Paving's new technology, continuous feed asphalt plant minimizes energy use and avoids waste of feedstock ingredients and vehicle idle time.
5.5	Voluntary	**On-site Renewable Energy:** Generate a portion building energy needs using an on-site renewable energy supply (e.g. solar, wind, geothermal).	**Rationale:** Renewable energy can reduce pollution and greenhouse gas emissions and provide energy security. **Resources:** City of Burlington Renewable Energy Protocol: https://www.burlington.ca/en/live-and-play/resources/Environment/Energy/FIT/Burlington_Renewable_Energy_Council_Resolution_Protocol.pdf	King will explore the possibility of generating on-site renewable energy at the Site Plan and Building Permit stage. Note: Early in the application process, King considered using waste methane gas from the landfill, however there was insufficient quantities to run and asphalt plant.

5.6	Voluntary	**Net-Zero:** Demonstration via energy modelling of net-zero energy footprint.	**Rationale:** A combination of energy efficiency and on-site renewable measures can achieve a net-zero energy footprint. **Resources:** LEED Zero Carbon Building Standard: https://www.cagbc.org/CAGBC/Zero_Carbon/The_CaGBC_Zero_Carbon_Building_Program.aspx Toronto Zero Emissions Building	King will explore the possibility of generating on-site renewable energy at the Site Plan and Building Permit stage. Net zero is not feasible for an asphalt plant operation.
5.7	Voluntary	**District Energy:** Incorporate a district heating and/or cooling system, or ensure the building is retrofit ready for a future DE connection.	**Rationale:** District energy is technology for providing heating and/or cooling from a central plant to multiple users in a district. District energy can save money for users, conserve resources, reduce air emissions, and provide energy	The Halton landfill site is isolated and does not lend itself to a district energy system. Note: Early in the application process, King considered using waste methane gas from the landfill, however there was insufficient quantities to run and asphalt plant.
5.8	Voluntary	**Continuous Metering:** Provision of continuous metering of energy usage for each unit.	**Rationale:** Continuous energy metering is critical for accurate energy monitoring and management. **Resources:** N/A	King will continue to maintain detailed energy and emissions logs derived from continuous metering. Energy and process metering equipment will be demonstrated will be demonstrated at the Building Permit stage.
5.9	Voluntary	**Commissioning:** Third-party commissioning of building systems to ensure they function properly. Commissioning team should be part of an integrated design and construction team at project start.	**Rationale:** Commissioning of a building a process that documents and verifies that all of the facility's energy related systems perform interactively as per the design specifications and operational requirements for at least one year following construction. **Resources:** LEED-NC Energy & Atmosphere Prerequisite for Fundamental Building Systems Commissioning: www.cagbc.org or The Building Commissioning Guide:	Building and process control equipment will be commissioned by King Paving as part of the plant relocation process following the Building Permit stage.

Sustainable Building and Development Guidelines - Section 6: WASTE AND BUILDING MATERIALS

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
6.1	Required	**Waste Management Plan:** Provide and implement a waste management plan in accordance with Regional requirements.	**Rationale:** Recycling and composting treats waste as a resource and reduces the need for landfill expansion. **Resource:** Halton Region's Development Design Guidelines for Source Separation of Solid Waste:	King's comprehensive waste management plan has been submitted along with its OPA/ZBLA and Site Plan applications.
6.2	Voluntary	**Waste Management Facilities:** Provision of recycling, garbage and composting facilities (beyond those required by Halton Region) which are easily accessible for all occupants (in an attached building).	**Rationale:** Recycling and composting treats waste as a resource and reduces the need for landfill expansion. **Resources:** N/A	King's waste management plan has been submitted along with its OPA/ZBLA and Site Plan applications, addresses garbage handling and recycling.
6.3	Voluntary	**Recycled Materials:** Ensure that at least 15% of a project's construction materials (based on value) are comprised of refurbished/reused or recycled content.	**Rationale:** Reduces the demand for new materials and their associated environmental impacts. **Resources:** N/A **Incentives:** Sustainable Building Award	King will be relocating and transporting almost 100% of its existing asphalt from its current Howard Road location following Building Permit issuance.
6.4	Voluntary	**Locally Manufactured:** Ensure that at least 15% of a project's construction materials (based on value) are comprised of materials with locally manufactured content.	**Rationale:** Local materials support the local economy and reduce the environmental impacts associated with transportation. Products should be sourced within 160 km of development site. **Resource:** N/A **Incentives:** Sustainable Building Award	King is a long-standing local enterprise (approaching 100 years) that has solid business relationships with many locally and regionally based suppliers. King is a supplier to many local construction and paving companies.
6.5	Voluntary	**Sustainable Wood:** Where wood-based materials 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.	**Rationale:** The Forest Stewardship Council (FSC) is an international certification and labeling system dedicated to promoting responsible forest management, which includes sustainable harvesting and replanting practices. **Resources:** Forestry Stewardship Council: https://ca.fsc.org/en-ca	Most of the existing asphalt plant is comprised of metal. King undertakes to use a minimum of 25% FSC certified wood, should any wood be required. Compliance with this goal will be demonstrated at the Building Permit stage.

Sustainable Building and Development Guidelines - Section 6: WASTE AND BUILDING MATERIALS

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
6.6	Voluntary	**Air Pollutants in Materials:** Minimization of air pollutants in interior materials by using low or no VOC paints, carpets,	**Rationale:** The use of low VOC (volatile organic compounds) paint and finishes improve indoor air quality. **Resource:** N/A **Incentives:** Sustainable Building Award	Asphalt Plants are required to meet maximum blue flame (VOC) emissions and dust containment standards pursuant to a Certificate of Approval Ministry of Environment and Climate Change. Annual compliance reports are required. King's new technology plant includes emission and dust capture technology and operates well below maximum permissible emissions.
6.7	Voluntary	**Construction Waste Management:** Develop and implement a waste management plan to recycle and/or salvage construction, demolition and land clearing waste.	**Rationale:** Reduces construction and demolition waste disposed of in landfills, and to treat recycled and salvaged materials as a resource. **Resource:** N/A **Incentive:** Sustainable Building Award	King's waste management plan has been submitted along with OPA/ZBLA and Site Plan applications that includes all kinds of waste. Construction waste will be negligible given that King will be relocating and transporting almost 100% of its existing asphalt plant from its current Howard Road location.

Sustainable Building and Development Guidelines - Section 7: MAINTENANCE, MONITORING AND COMMUNICATION

#	Required or	Guideline	Rationale, Incentives and Resources	King Paving Implementation
7.1	Voluntary	**Maintenance Plan:** provision of a building maintenance plan that provides instructions, training requirements and schedules for maintaining sustainability features of the	**Rationale:** A maintenance plan will ensure sustainability features remain implemented on the site and continue to function at optimal levels. **Resource:** N/A **Incentives:** Sustainable Building Award	King will be operating the plant and maintaining the site and low maintenance landscaping. Existing protocols are already in place for maintaining equipment and structures.
7.2	Voluntary	**Education:** provision of instructions for homeowners and occupants that explain the intent, benefits, use, and maintenance of green building features as part of the lease/sale agreement or condo declaration. Signage and other education materials are posted to educate building visitors of sustainability features.	**Rationale:** Communicating the building's green development features and familiarizing the owner(s) or occupants with these features will help to ensure their proper use and maintenance. **Resource:** N/A **Incentives:** Sustainable Building Award	No residential units are proposed.

Sustainable Building and Development Guidelines - Section 7: MAINTENANCE, MONITORING AND COMMUNICATION

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
7.3	Voluntary (see exception)	**Monitoring:** collection and monitoring of project performance data on energy, water and healthy living environments. **Note:** Ontario's Energy and Water Reporting and Benchmarking (EWRB) program has reporting requirements for commercial, multi unit residential and some industrial buildings over 50,000 square feet.	**Rationale:** Monitoring is critical to understand project performance and to undertake adaptive management measures, maintenance and training as required. **Resource:** Energy and Water Reporting and Benchmarking (EWRB) initiative: https://www.ontario.ca/page/report-energy-water-use-large- buildings **Incentives:** Sustainable Building Award	King maintains detailed energy use records. Domestic municipal water consumption for 5 employees and sanitary effluent are expected to remain very low throughout the lease period. Native tree and shrub plantings will not require irrigation once the plants are established.

Sustainable Building and Development Guidelines - Section 8: INNOVATION

#	Required or Voluntary	Guideline	Rationale, Incentives and Resources	King Paving Implementation
8.1	Voluntary	Innovative design or performance features not listed that receive approval from the City.	**Rationale:** The intent of this category is to encourage and recognize additional innovative approaches in design or performance that are not specifically addressed above. **Resource:** N/A **Incentive:** Sustainable Building Award	An asphalt plant is a specialized facility. King's new technology plant minimizes energy use, dust and air emissions while increasing asphalt output. Reuse of the closed landfill site is viewed as an excellent reuse of an urban brownfield site. King has agreed to help reduce area invasive species.

5. Conclusion

The King Paving Implementation measures identified in Section 4 above will contribute to achieving Burlington's sustainable building and development goals.

The Region of Halton and environmental agencies vetted King Paving's Official Plan Amendment, Rezoning, and preliminary site plan applications. The asphalt plant site design is based on findings of detailed environmental impact studies that contain recommendations to protect and enhance the natural environment including water resources, plants, birds, and wildlife.

King Paving is committed to implementing the various study recommendations to protect and enhance the local natural environment. In addition, King is proposing to remove invasive species and replace them with native species on adjoining Halton lands beyond its lease area.

Submitted by,

King Paving and Construction