A.0 GEOMETRY & LAYOUT

- Minimum footprint based on size of drainage area. Impervious contributing area to treatment facility area ratio should be 5:1 to 15:1.
- Ensure that the surface of the bioretention facility is level.

A.1 PRETREATMENT

- Pre-treatment area varies based on site context. Options include enhanced grass swales, bioswales and mechanical pre-treatment devices.

A.2 FILTER MEDIA

- Pre-mixed from an approved vendor;
- Filter media composition (by weight):
  - Sand - 75 to 85%
  - Fines - 2 to 5%
  - Organic Matter - 8 to 10%
  - P-Index value 12 to 30 ppm
  - Soluble Salts <2.0mmhos/cm
  - Cationic exchange capacity >5 meq/100 g
  - pH - 5.5 to 7.5
  - Infiltration rate > 120 mm/hr, max. 300mm/hr
- Materials testing by an independent testing lab is required to confirm filter media composition. Sample to be collected at supply site by a Geotechnical engineer using standard protocols. If issues arise with the performance of an installation, then samples should be collected from the constructed facility for further testing;
- Depth varies - Minimum recommended depth 1.0 - 1.25m for enhanced pollutant removal;
- Bioretention with trees - minimum depth 1.0m. Total volume 30m³/tree or 20m³/tree for trees sharing soil.
- Capacity - Volumetric computation should be based on surface area and depth.
- Refer to TS 5.10 - Construction Specification for Growing Media

A.3 GRAVEL STORAGE

- Depth - Min. 300 mm;
- Material - 50 mm dia. washed clear stone;
- Capacity - Volumetric computation based on depth;
- Choker Layer: 100 mm pea gravel layer between filter media and gravel storage layers.

A.4 MULCH

- Depth - 75 mm;
- Material - Shredded hardwood bark mulch.

A.5 OVERFLOW

- Sized to convey larger storm events;
- PVC Overflow Pipe invert should be set at a maximum of 250mm above the filter bed surface;
- Cap - metal beehive cap or approved equal.

A.6 MONITORING WELL

- Vertical PVC perforated stand pipe (100-150mm dia.) with lockable cap;
- Extend to the bottom of the bioretention facility.

A.7 UNDERDRAIN (OPTIONAL)

- Required where native soil infiltration rates are <15mm/hr or adjacent to structures;
- Min. 200mm dia. perforated pipe installed 100mm above the bottom of the gravel storage layer;
- Capped at upstream end and connected to storm sewer;
- Connected to monitoring well for clean out;
- Refer to OPSS 405 - Construction Specification for Subdrain Pipe.

A.8 GEOTEXTILE

- Material - Woven monofilament or non-woven needle punched fabrics;
- Refer to OPSS 1860 Material Specification for Geotextiles.

A.9 PLANTING

Plant material selection and arrangement considerations:

- Plant material selection and arrangement should consider the site context;
- Native plant material should be selected wherever possible;
- Plant materials should be selected for their tolerance of salt and urban conditions. Shade should also be considered for herbaceous material planted under trees or in other ultra-urban shaded areas;
- Planting design should provide variety in seasonal colour and winter interest;
- Plant material should be arranged in groupings by relative height texture and aesthetic attributes;
- Refer to the GSTG Vegetation Selection Tool for an appropriate palette;
- Refer to Construction Specification for Planting (TS 5.30).

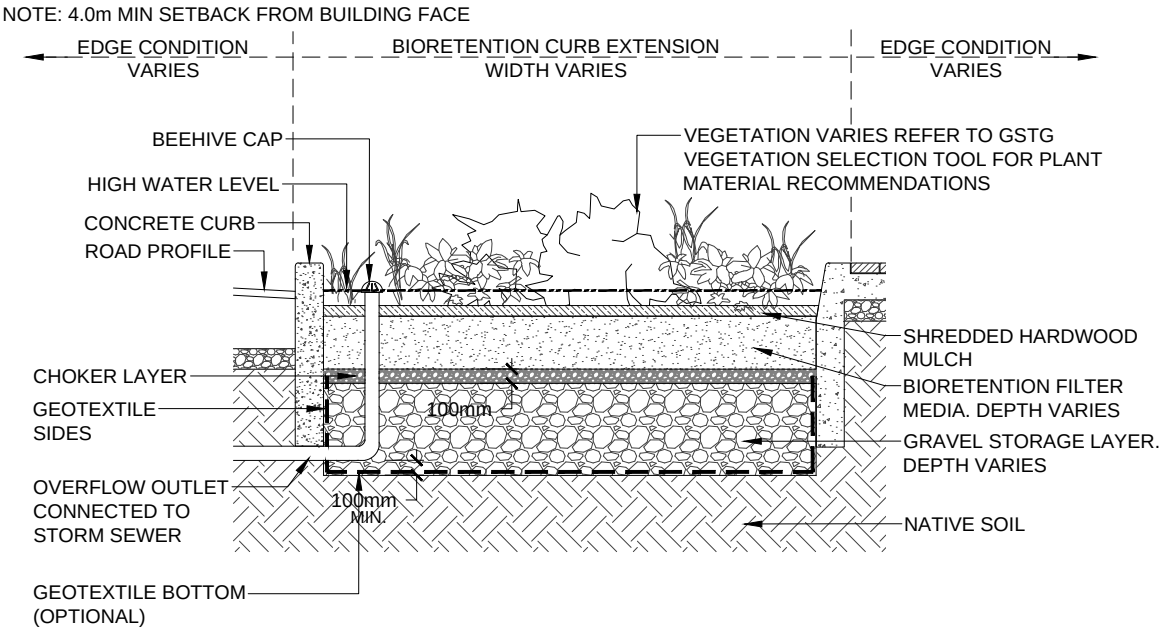
A.10 IDENTIFICATION MEDALLION

- To be installed on curb. Refer to guideline drawing G-1.

BIORETENTION CURB EXTENSION WITHOUT UNDERDRAIN

For sites with subsoil permeability >15mm/hr, water table depth > 1.0m

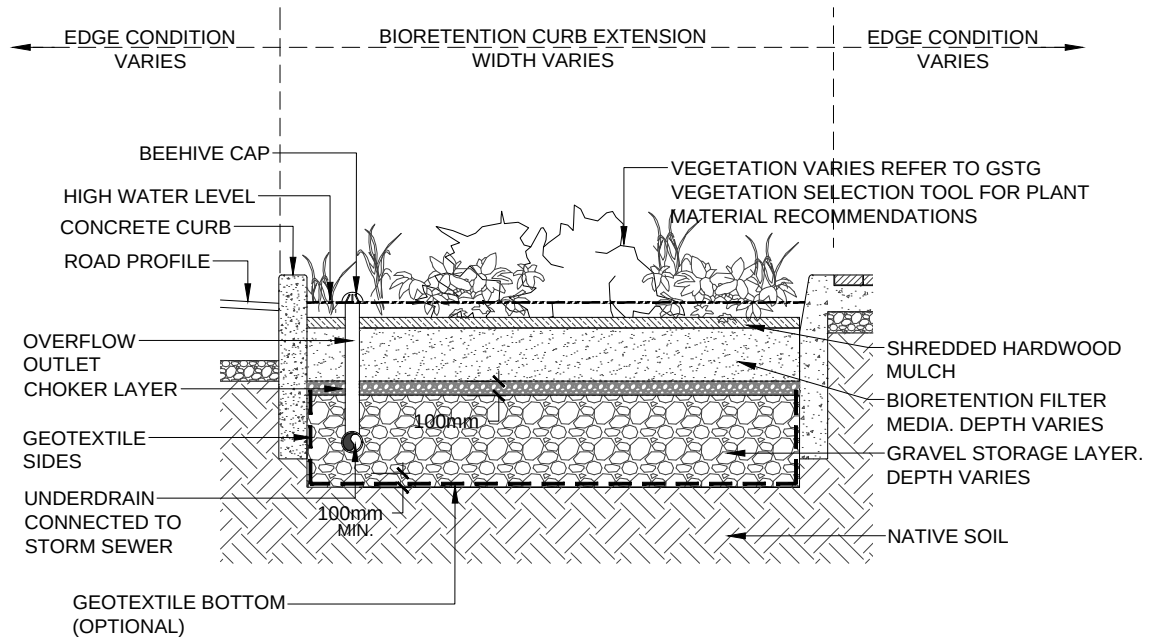
NOTE: 4.0m MIN SETBACK FROM BUILDING FACE



BIORETENTION CURB EXTENSION WITH UNDERDRAIN

For sites with subsoil permeability <15mm/hr, water table depth > 1.0m

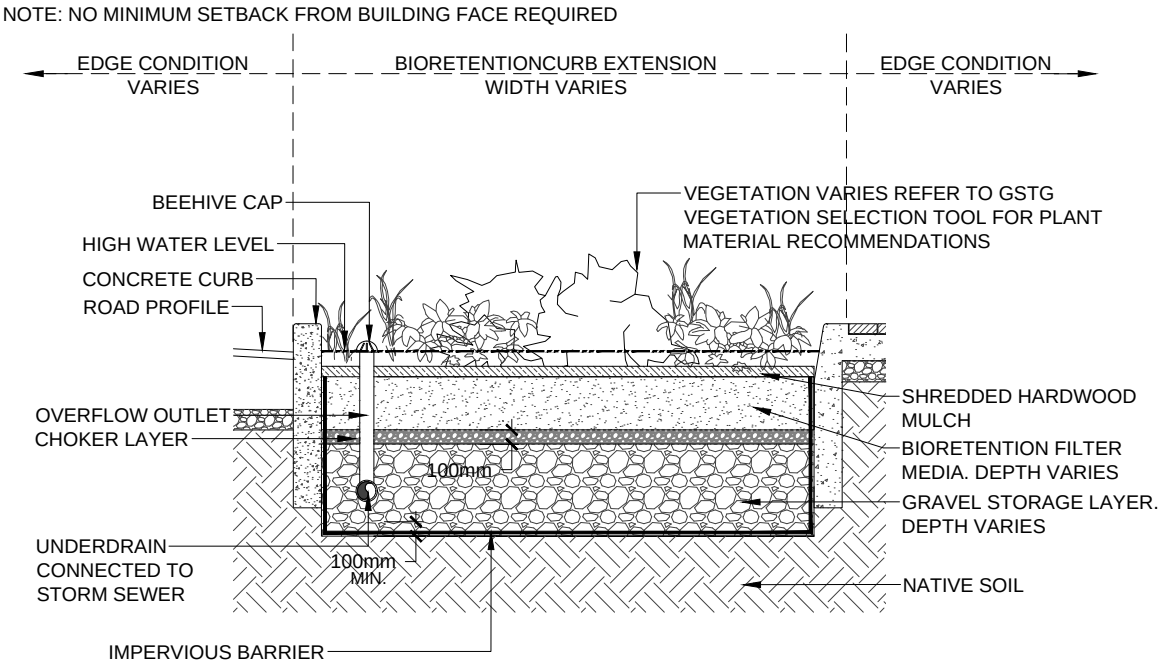
NOTE: 4.0m MIN SETBACK FROM BUILDING FACE



BIORETENTION CURB EXTENSION WITH UNDERDRAIN & IMPERVIOUS LINER

For sites with contaminated subsoil or high water table (within 1.0m)

NOTE: NO MINIMUM SETBACK FROM BUILDING FACE REQUIRED



NOTE: SCARIFY BASE OF EXCAVATION

All dimensions are in millimetres unless otherwise shown.

CITY OF TORONTO GUIDELINE DRAWING

BIORETENTION CURB EXTENSION

SECTIONS

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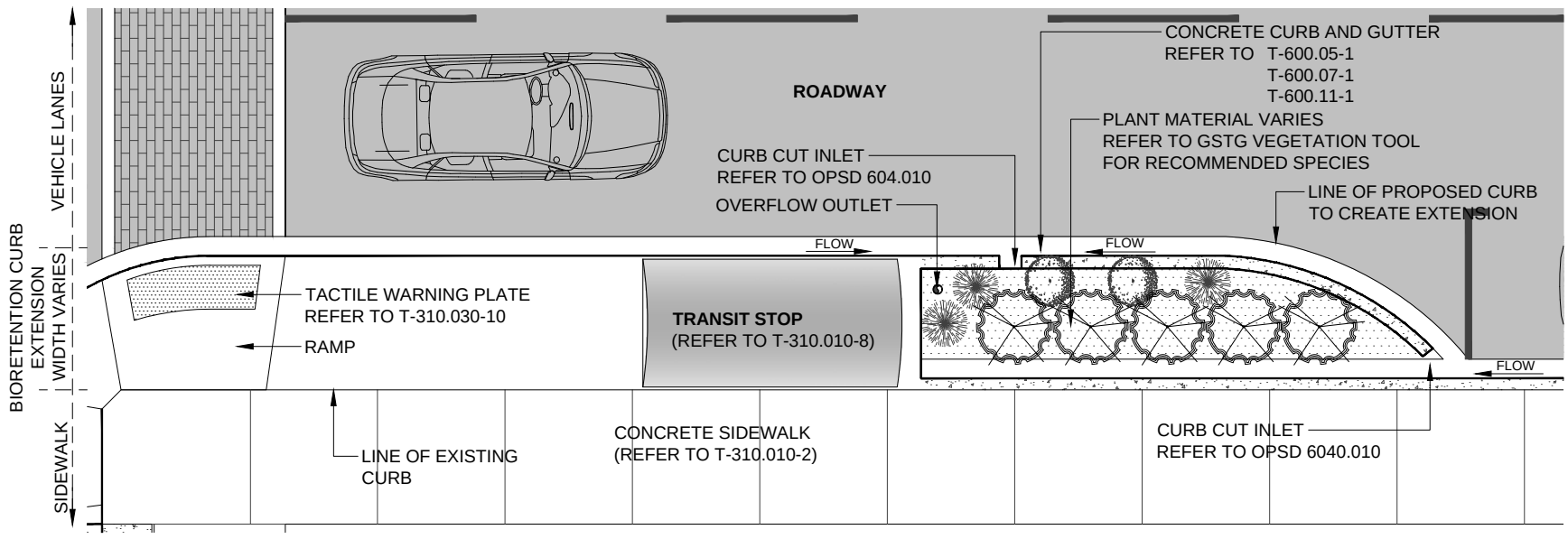
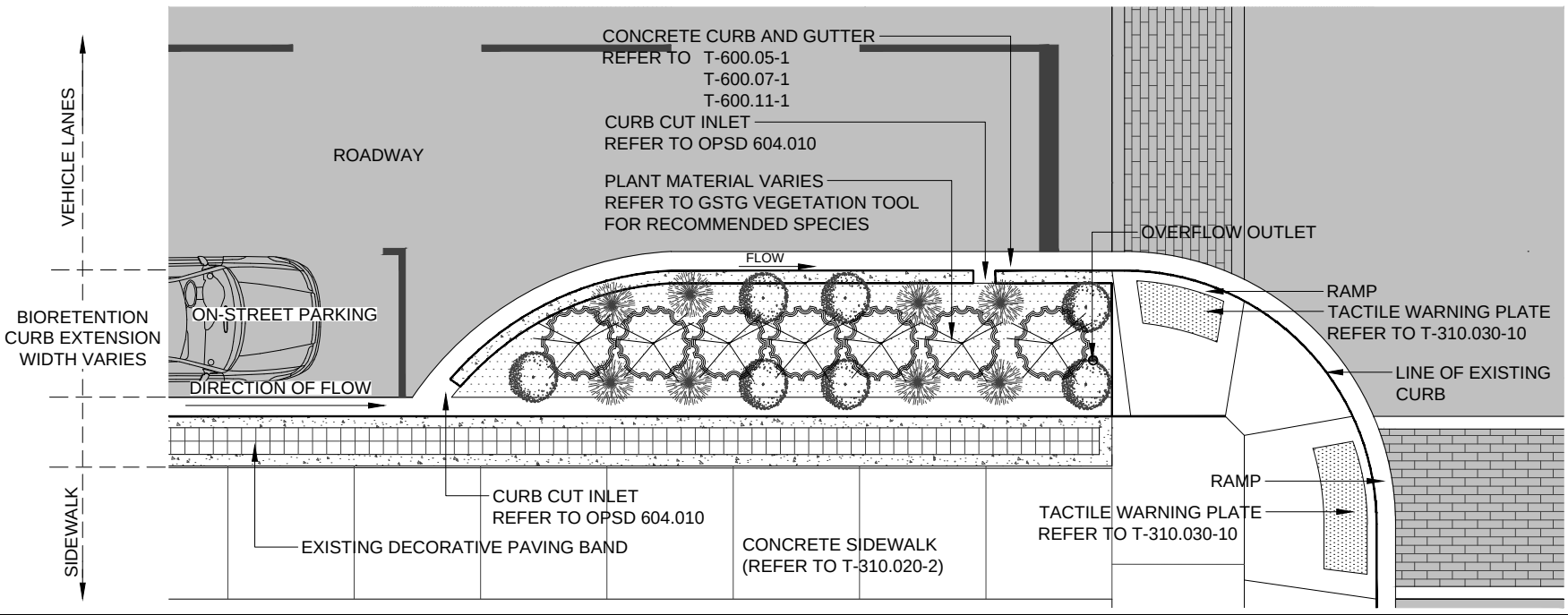
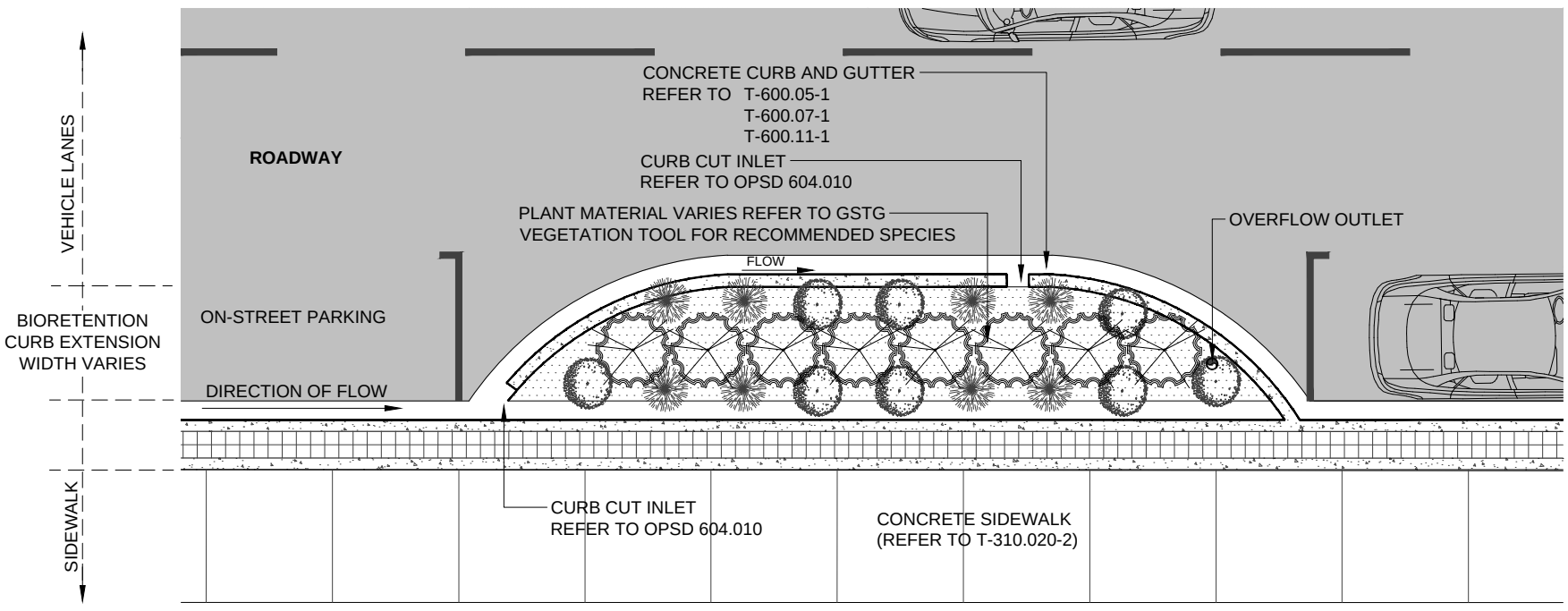
BIORETENTION CURB EXTENSION - TRANSIT STOP



BIORETENTION CURB EXTENSION - INTERSECTION



BIORETENTION CURB EXTENSION - MIDBLOCK



NOTES:
- CURB CUT INLET THROAT SIZED ACCORDING TO INLET FLOW RATE

PLANTING:
- PLANT SPECIES SHOULD BE LOW GROWING IN ORDER FOR VIEWS TO REMAIN UNOBSTRUCTED
- REFER TO THE GSTG VEGETATION SELECTION TOOL FOR PREFERRED SPECIES

All dimensions are in millimetres unless otherwise shown.

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	BIORETENTION CURB EXTENSION LAYOUT	WQ-3.1b	
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