

Project: Scanlon Creek Nature Centre  
2450 Line9  
Bradford, ON

PMA Landscape Architects Ltd.  
1A Howard Park Avenue,  
Toronto, ON, M6R 1V3

## 1. LANDSCAPE DRAWING REVISIONS

### **Drawing L-110 & Landscape Plan North**

- a. **Update** layout of stone

### **Drawings L-130 & L-140 Planting Plans**

- b. **Update** Planting Notes

### **Drawing L-202 Landscape Details**

- c. **Add** note to detail 2 (Limestone Screenings with Stone Curb)

## 2. SPECIFICATION REVISIONS

### **32 93 10 Trees Shrubs Groundcover Planting**

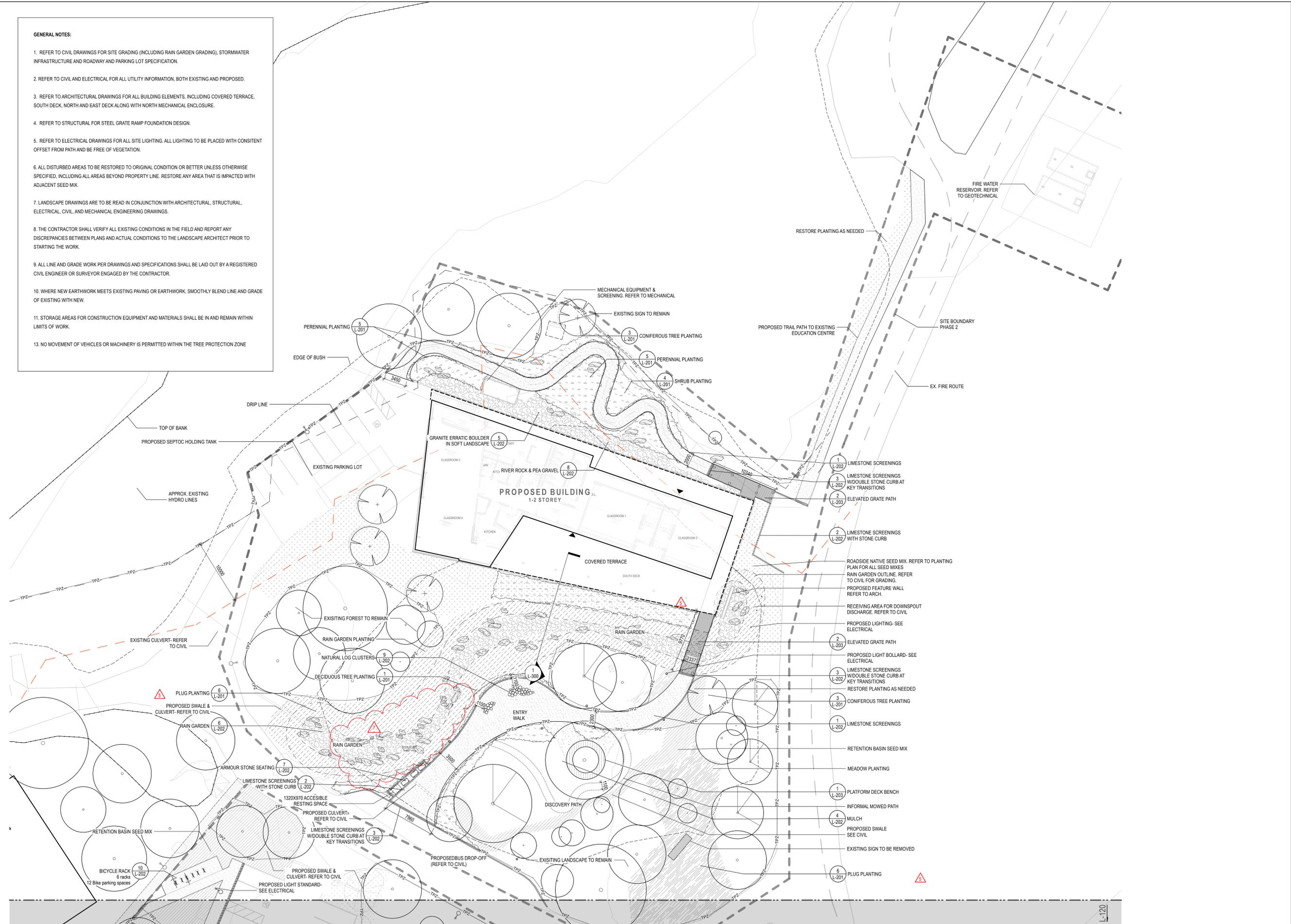
- a. **Revise** Invasive specie Control Plan
- b. **Remove** Water Bag Section
- c. **Revise** Excavation and Preparation of Planting Beds for Meadow planting and Rain Garden Areas
- d. **Add** Planting time section for plug planting
- e. **Add** Planting notes for plug planting
- f. **Add** Watering notes for plug planting
- g. **Revise** Maintenance During Establishment Period section

### **04 43 16 01 Quarried Stone**

- a. **Revise** appearance of Armour Stone Seating

**GENERAL NOTES:**

- REFER TO CIVIL DRAWINGS FOR SITE GRADING (INCLUDING RAIN GARDEN GRADING), STORMWATER INFRASTRUCTURE AND ROADWAY AND PARKING LOT SPECIFICATION.
- REFER TO CIVIL AND ELECTRICAL FOR ALL UTILITY INFORMATION, BOTH EXISTING AND PROPOSED.
- REFER TO ARCHITECTURAL DRAWINGS FOR ALL BUILDING ELEMENTS, INCLUDING COVERED TERRACE, SOUTH DECK, NORTH AND EAST DECK ALONG WITH NORTH MECHANICAL ENCLOSURE.
- REFER TO STRUCTURAL FOR STEEL GRATE RAMP FOUNDATION DESIGN.
- REFER TO ELECTRICAL DRAWINGS FOR ALL SITE LIGHTING. ALL LIGHTING TO BE PLACED WITH CONSISTENT OFFSET FROM PATH AND BE FREE OF VEGETATION.
- ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED, INCLUDING ALL AREAS BEYOND PROPERTY LINE. RESTORE ANY AREA THAT IS IMPACTED WITH ADJACENT SEED MIX.
- LANDSCAPE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, STRUCTURAL, ELECTRICAL, CIVIL, AND MECHANICAL ENGINEERING DRAWINGS.
- THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND REPORT ANY DISCREPANCIES BETWEEN PLANS AND ACTUAL CONDITIONS TO THE LANDSCAPE ARCHITECT PRIOR TO STARTING THE WORK.
- ALL LINE AND GRADE WORK PER DRAWINGS AND SPECIFICATIONS SHALL BE LAID OUT BY A REGISTERED CIVIL ENGINEER OR SURVEYOR ENGAGED BY THE CONTRACTOR.
- WHERE NEW EARTHWORK MEETS EXISTING PAVING OR EARTHWORK, SMOOTHLY BLEND LINE AND GRADE OF EXISTING WITH NEW.
- STORAGE AREAS FOR CONSTRUCTION EQUIPMENT AND MATERIALS SHALL BE IN AND REMAIN WITHIN LIMITS OF WORK.
- NO MOVEMENT OF VEHICLES OR MACHINERY IS PERMITTED WITHIN THE TREE PROTECTION ZONE



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**Legend**

- SITE BOUNDARY/LIMIT OF DISTURBANCE
- TOP OF BANK
- EDGE OF BUSH
- 10m OFFSET FROM DRIP LINE
- DRIP LINE
- BUILDING ENTRANCES

**PLANTING + SOFTSCAPE**

- EXISTING TREES W/ TPZ
- PROPOSED DECIDUOUS TREES
- PROPOSED CONIFEROUS TREES
- PROPOSED SMALL MULTI-STEM TREES
- MEADOW PLANTING WITH SHRUB, PERENNIAL & GRASS PLANTINGS
- ROADSIDE NATIVE SEED MIX
- RETENTION BASIN SEED MIX
- RAIN GARDEN PLANTING
- SPECIAL PLANTING

**HARDSCAPE + SURFACING**

- LIMESTONE SCREENINGS
- MULCH
- RIVER STONE & PEA GRAVEL
- STEEL GRATE

**FURNITURE AND LIGHTING**

- LIGHTING
- STONE SEATING

REVISIONS / ISSUED FOR

| No. | Description                         | Date       | By |
|-----|-------------------------------------|------------|----|
| 7   | ISSUED FOR ADDENDUM                 | 2024-10-25 | AM |
| 6   | ISSUED FOR SPA                      | 2024-10-23 | AM |
| 5   | ISSUED FOR ADDENDUM                 | 2024-10-17 | AM |
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| 3   | ISSUED FOR SPA                      | 2024-08-02 | AM |
| 2   | ISSUED FOR SPA/30% TECHNICAL REVIEW | 2024-04-12 | AM |
| 1   | ISSUED FOR DD PROGRESS              | 2024-02-06 | AM |

PLAN NORTH

CLIENT

Scanlon Creek Nature Centre

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Scanlon Creek Nature Centre

2450 Line 9, Bradford, ON

**LANDSCAPE PLAN - NORTH**

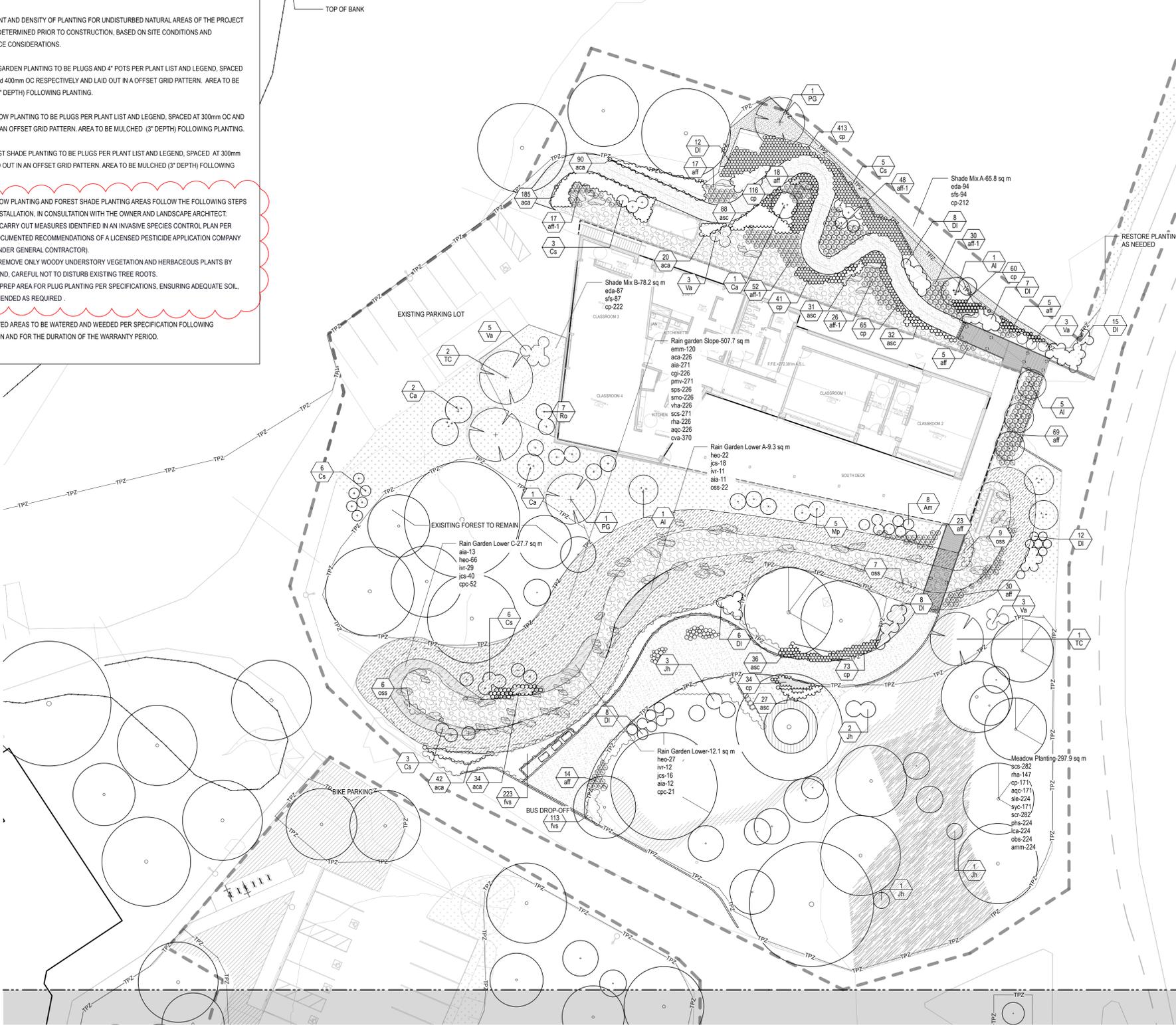
| SCALE   | As Noted   | PROJECT NO. |
|---------|------------|-------------|
| DRAWN   | AM         | 21022       |
| CHECKED | MM         | DRAWING NO. |
| DATE    | 2024-10-25 | L-110       |
| SPA No. | [SPA #]    |             |



MATCH LINE

**PLANTING NOTES:**

- ALL DISTURBED EXISTING LANDSCAPE TO BE MADE GOOD AND RESTORED TO ORIGINAL CONDITION. EXTENTS SHOWN ARE APPROXIMATE ONLY.
- CONTRACTOR TO ENSURE EXISTING SOD NOT SCHEDULED TO BE REMOVED IS MOWED TO A HEIGHT OF 2" THROUGHOUT CONSTRUCTION PERIOD.
- EXISTING SOD AND TREES NOT SCHEDULED FOR REMOVAL, BUT ADJACENT CONSTRUCTION, TO BE WATERED ON WEEKLY BASIS THROUGHOUT GROWING SEASON TO MAINTAIN GOOD HEALTH.
- THE EXTENT AND DENSITY OF PLANTING FOR UNDISTURBED NATURAL AREAS OF THE PROJECT SITE TO BE DETERMINED PRIOR TO CONSTRUCTION, BASED ON SITE CONDITIONS AND MAINTENANCE CONSIDERATIONS.
- ALL RAIN GARDEN PLANTING TO BE PLUGS AND 4" POTS PER PLANT LIST AND LEGEND, SPACED AT 300mm AND 400mm OC RESPECTIVELY AND LAID OUT IN AN OFFSET GRID PATTERN. AREA TO BE MULCHED (3" DEPTH) FOLLOWING PLANTING.
- ALL MEADOW PLANTING TO BE PLUGS PER PLANT LIST AND LEGEND, SPACED AT 300mm OC AND LAID OUT IN AN OFFSET GRID PATTERN. AREA TO BE MULCHED (3" DEPTH) FOLLOWING PLANTING.
- ALL FOREST SHADE PLANTING TO BE PLUGS PER PLANT LIST AND LEGEND, SPACED AT 300mm OC AND LAID OUT IN AN OFFSET GRID PATTERN. AREA TO BE MULCHED (3" DEPTH) FOLLOWING PLANTING.
- OR MEADOW PLANTING AND FOREST SHADE PLANTING AREAS FOLLOW THE FOLLOWING STEPS PRIOR TO INSTALLATION, IN CONSULTATION WITH THE OWNER AND LANDSCAPE ARCHITECT:
  - CARRY OUT MEASURES IDENTIFIED IN AN INVASIVE SPECIES CONTROL PLAN PER DOCUMENTED RECOMMENDATIONS OF A LICENSED PESTICIDE APPLICATION COMPANY (UNDER GENERAL CONTRACTOR).
  - REMOVE ONLY WOODY UNDERSTORY VEGETATION AND HERBACEOUS PLANTS BY HAND, CAREFUL NOT TO DISTURB EXISTING TREE ROOTS.
  - PREP AREA FOR PLUG PLANTING PER SPECIFICATIONS, ENSURING ADEQUATE SOIL, AMENDED AS REQUIRED.
- ALL PLANTED AREAS TO BE WATERED AND WEEDED PER SPECIFICATION FOLLOWING INSTALLATION AND FOR THE DURATION OF THE WARRANTY PERIOD.



**PLANT LIST**

| ID                               | Qty  | Botanical Name                      | Common Name                | Size      | Native? | Notes             |
|----------------------------------|------|-------------------------------------|----------------------------|-----------|---------|-------------------|
| <b>TREES:</b>                    |      |                                     |                            |           |         |                   |
| PG                               | 2    | <i>Picea glauca</i>                 | White Spruce               | 1800mm(H) | Y       |                   |
| TO                               | 1    | <i>Thuja occidentalis</i>           | Eastern white cedar        | 1800mm(H) | Y       |                   |
| TC                               | 3    | <i>Tsuga canadensis</i>             | Eastern Hemlock            | 1800mm(H) | Y       |                   |
| <b>SHRUBS:</b>                   |      |                                     |                            |           |         |                   |
| AI                               | 10   | <i>Amelanchier leavis</i>           | Serviceberry               | 1800mm(H) | Y       | Multistem         |
| Am                               | 8    | <i>Aronia melanocarpa</i>           | Black Chokeberry           | 2 gal     | Y       |                   |
| Ca                               | 4    | <i>Cornus alternifolia</i>          | Pagoda Dogwood             | 150cm(H)  | Y       |                   |
| Cs                               | 34   | <i>Cornus sericea</i>               | Red Osier Dogwood          | 65cm(H)   | Y       |                   |
| DI                               | 76   | <i>Diervilla lonicera</i>           | Northern Bush Honeysuckle  | 50cm (H)  | Y       |                   |
| Jh                               | 7    | <i>Juniperus horizontalis</i>       | Creeping Juniper           | 2 gal     | Y       |                   |
| Mp                               | 5    | <i>Myrica pensylvanica</i>          | Bayberry                   | 2 gal     | Y       |                   |
| Ro                               | 7    | <i>Rubus odoratus</i>               | Purple Flowering raspberry | 2 gal     | Y       |                   |
| Va                               | 14   | <i>Viburnum acerifolium</i>         | Maple-leaved Viburnum      | 65cm(H)   | Y       |                   |
| <b>PERENNIALS &amp; GRASSES:</b> |      |                                     |                            |           |         |                   |
| aca                              | 597  | <i>Anemone canadensis</i>           | Canada Anemone             | 4" pot    | Y       |                   |
| aqc                              | 226  | <i>Aquilegia canadensis</i>         | Wild Columbine             | (plug)    | Y       |                   |
| asc                              | 214  | <i>Asarum canadense</i>             | Canadian Wild Ginger       | 4" pot    | Y       |                   |
| aia                              | 307  | <i>Asclepias incarnata</i>          | Swamp milkweed             | (plug)    | Y       |                   |
| aff-1                            | 173  | <i>Athyrium filix-femina</i>        | Lady Fern                  | 4" pot    | Y       |                   |
| aff                              | 181  | <i>Athyrium filix-femina (pot)</i>  | Lady Fern                  | 1 gal     | Y       |                   |
| cgi                              | 226  | <i>Carex grayi</i>                  | Gray's Sedge               | (plug)    | Y       |                   |
| cp                               | 1236 | <i>Carex pennsylvanica</i>          | Pennsylvania sedge         | (plug)    | Y       |                   |
| cpc                              | 73   | <i>Carex pseudo-cyperus</i>         | Cyperus-like Sedge         | (plug)    | Y       |                   |
| cva                              | 370  | <i>Carex vulpinoidea</i>            | Fox Sedge                  | (plug)    | Y       |                   |
| emm                              | 120  | <i>Eupatorium maculatum</i>         | Spotted Joe-Pye weed       | 4" pot    | Y       |                   |
| eda                              | 181  | <i>Eurybia divaricata</i>           | White wood aster           | (plug)    | Y       |                   |
| fs                               | 336  | <i>Fragaria virginiana</i>          | Wild Strawberry            | 4" pot    | Y       |                   |
| heo                              | 115  | <i>Hierochloa odorata</i>           | Sweet grass                | (plug)    | Y       |                   |
| ivr                              | 52   | <i>Iris versicolor</i>              | Northern blue flag         | 4" pot    | Y       |                   |
| jcs                              | 74   | <i>Juncus canadensis</i>            | Canada rush                | (plug)    | Y       |                   |
| oss                              | 44   | <i>Oncoclea sensibilis</i>          | Sensitive fern             | 1 gal     | Y       |                   |
| pmv                              | 271  | <i>Pycnanthemum virginianum</i>     | Virginia mountain mint     | (plug)    | Y       |                   |
| rha                              | 226  | <i>Rudbeckia hirta</i>              | Black-Eyed susan           | (plug)    | Y       | Upper slopes only |
| scs                              | 271  | <i>Schizachyrium scoparium</i>      | Little Bluestem            | (plug)    | Y       | Upper slopes only |
| sfs                              | 181  | <i>Solidago flexicaulis</i>         | Zigzag Goldenrod           | (plug)    | Y       |                   |
| sps                              | 226  | <i>Stachys palustris</i>            | Marsh hedge nettle         | (plug)    | Y       |                   |
| smo                              | 226  | <i>Symphotrichum oolentangiense</i> | Sky blue aster             | (plug)    | Y       | Upper slopes only |
| vha                              | 226  | <i>Verbena hastata</i>              | Blue vervain               | (plug)    | Y       |                   |

|  |  |   |
|--|--|---|
|  | <p><b>Meadow Planting List</b><br/>                     Sizes: plugs<br/>                     Area: 300sqm<br/>                     Plugs spaced at 300mm OC</p>   | <ul style="list-style-type: none"> <li>Achillea millefolium (Common Yarrow)</li> <li>Aquilegia canadensis L. (Wild Columbine)</li> <li>Carex pennsylvanica (Pennsylvania sedge)</li> <li>Lespedeza capitata (Bush-clover)</li> <li>Oenothera biennis (Common Evening-primrose)</li> <li>Pentstemon hirsutus (Hoary Beard-tongue)</li> <li>Rudbeckia hirta (Black-eyed Susan)</li> <li>Schizachyrium scoparium (Little Bluestem)</li> <li>Sporobolus cryptandrus (Gray Sand Drowsseed)</li> <li>Symphotrichum laeve (Smooth Aster)</li> <li>Symphotrichum cordifolium (Heart-leaved Aster)</li> </ul>  |
|  | <p><b>Rain Garden (Slope) List</b><br/>                     Sizes: plugs &amp; 4cm pots<br/>                     Area: 508sqm<br/>                     Plugs spaced at 300mm OC<br/>                     4cm pots spaced at 400mm OC</p> | <ul style="list-style-type: none"> <li>Aquilegia canadensis L. (Wild Columbine)</li> <li>Asclepias incarnata (Swamp Milkweed)</li> <li>Symphotrichum oolentangiense (Sky-blue Aster)</li> <li>Carex grayi (Gray's Sedge)</li> <li>Carex vulpinoidea Michx. (Fox Sedge)</li> <li>Eupatorium maculatum (Spotted Joe-pye-weed)</li> <li>Hierochloa odorata (Sweet Grass)</li> <li>Juncus canadensis (Canada Rush)</li> <li>Pycnanthemum virginianum (Virginia Mountain-mint)</li> <li>Rudbeckia hirta (Black-eyed Susan)</li> <li>Schizachyrium scoparium (Little Bluestem)</li> <li>Stachys palustris (Marsh Hedge-nettle)</li> <li>Verbena hastata (Blue Vervain)</li> </ul> |
|  | <p><b>Rain Garden (Lower) List</b><br/>                     Sizes: plugs &amp; 4cm pots<br/>                     Area: 49sqm<br/>                     Plugs spaced at 300mm OC<br/>                     4cm pots spaced at 400mm OC</p>  | <ul style="list-style-type: none"> <li>Asclepias incarnata (Swamp Milkweed)</li> <li>Carex pseudo-cyperus (Cyperus-like Sedge)</li> <li>Hierochloa odorata (Sweet Grass)</li> <li>Iris versicolor (Blue Flag Iris)</li> <li>Juncus canadensis (Canada Rush)</li> </ul>  |
|  | <p><b>North Forest Edge Plug mix.</b><br/>                     Sizes: plugs<br/>                     Area: 144sqm<br/>                     Plugs spaced at 300mm OC</p>  | <ul style="list-style-type: none"> <li>Carex pennsylvanica (Pennsylvania sedge)-cp 60%</li> <li>Eurybia divaricata (White wood aster)-eda 20%</li> <li>Solidago flexicaulis (Zig-zag goldenrod)-sfs 20%</li> </ul>  |
|  | <p><b>Rural Ontario Roadside Native Seed Mixture</b><br/>                     8145 by OSC or approved equal.<br/>                     Area: 830sqm<br/>                     Seeding rate - 500g / 180m<sup>2</sup> or 25kg / ha</p>      | <ul style="list-style-type: none"> <li>Black Eyed Susan (Rudbeckia hirta)</li> <li>Canada Goldenrod (Solidago canadensis)</li> <li>Canada Wild Rye (Elymus canadensis) (nurse crop)</li> <li>Hoary Vervain (Verbena stricta)</li> <li>Little Bluestem (Schizachyrium scoparium)</li> <li>New England Aster (Aster novae-angliae)</li> <li>Showy Tick Trefl (Desmodium canadense)</li> <li>White/Silver Goldenrod (Solidago bicolor)</li> <li>Wild Bergamot (Monarda fistulosa)</li> </ul>   |
|  | <p><b>Low Maintenance Retention Basin Native Seed Mixture 8220 by OSC or approved equal.</b><br/>                     Area: 1140sqm<br/>                     Seeding rate - 500g / 180m<sup>2</sup> or 25kg / ha</p>                     | <ul style="list-style-type: none"> <li>Virginia Wild Rye (Elymus virginicus)</li> <li>Tickgrass (Agrasias scabra)</li> <li>Fox Sedge (Carex vulpinoidea)</li> <li>Fowl Bluegrass (poa palustris)</li> </ul>   |

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Do not scale drawings.

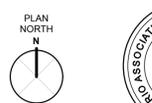


**LEGEND**

**REVISONS / ISSUED FOR**

| No. | Description                         | Date       | By |
|-----|-------------------------------------|------------|----|
| 7   | ISSUED FOR ADDENDUM                 | 2024-10-25 | AM |
| 6   | ISSUED FOR SPA                      | 2024-10-23 | AM |
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| 2   | ISSUED FOR SPA/30% TECHNICAL REVIEW | 2024-04-12 | AM |
| 1   | ISSUED FOR DD PROGRESS              | 2024-02-06 | AM |

No. Description Date By



CLIENT

Scanlon Creek Nature Centre

Scanlon Creek Nature Centre

2450 Line 9, Bradford, ON

**PLANTING PLAN-NORTH**

|         |            |             |  |
|---------|------------|-------------|--|
| SCALE   | As Noted   | PROJECT NO. |  |
| DRAWN   | AM         | 21022       |  |
| CHECKED | MM         | DRAWING NO. |  |
| DATE    | 2024-10-25 |             |  |
| SPA No. | [SPA #]    |             |  |

**L-130**



MATCH LINE

**PLANTING NOTES:**

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**PMA** Landscape Architects  
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LEGEND

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CLIENT

Scanlon Creek Nature Centre

Scanlon Creek Nature Centre

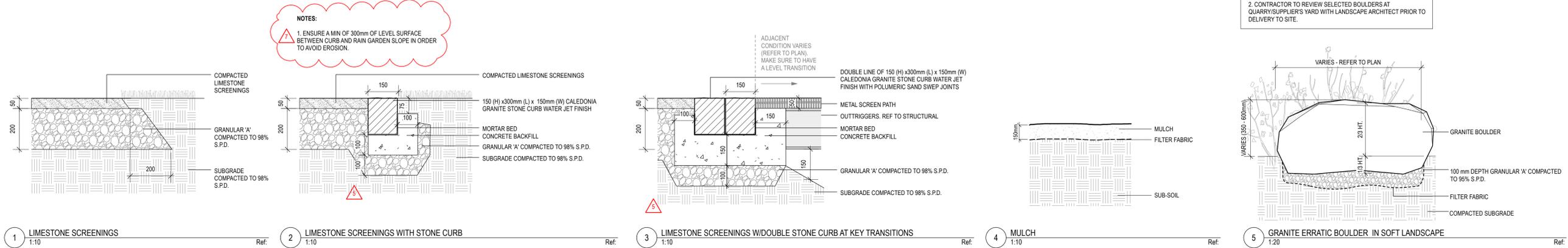
2450 Line 9, Bradford, ON

**PLANTING PLAN- SOUTH**

1 LANDSCAPE PLAN SOUTH  
1:250

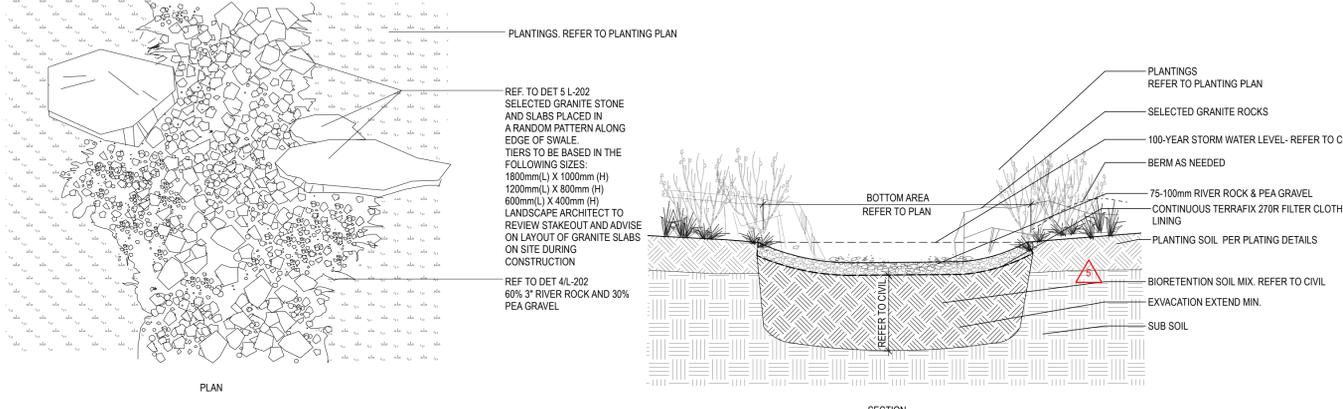


| SCALE   | As Noted   | PROJECT NO.  |
|---------|------------|--------------|
| DRAWN   | AM         | 21022        |
| CHECKED | MM         | DRAWING NO.  |
| DATE    | 2024-10-25 |              |
| SPA No. | [SPA #]    | <b>L-140</b> |



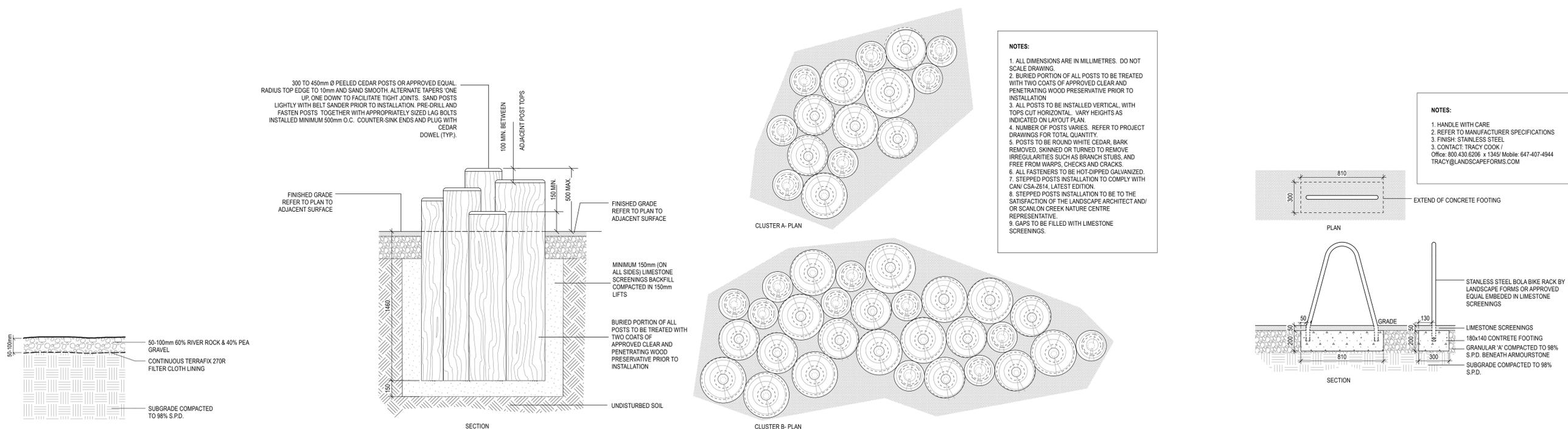
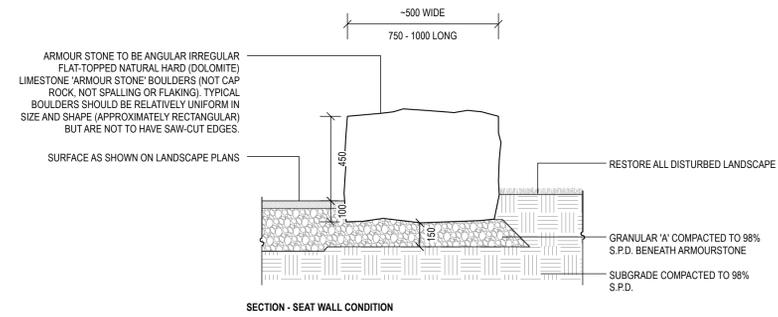
1 LIMESTONE SCREENINGS 1:10 Ref. 2 LIMESTONE SCREENINGS WITH STONE CURB 1:10 Ref. 3 LIMESTONE SCREENINGS W/DOUBLE STONE CURB AT KEY TRANSITIONS 1:10 Ref. 4 MULCH 1:10 Ref. 5 GRANITE ERRATIC BOULDER IN SOFT LANDSCAPE 1:20 Ref.

- NOTES:**
- REFER TO CIVIL FOR RAIN GARDEN DEPTH AND GRADING.
  - SLOPE SWALE 0.5% - 3.0% LONGITUDINALLY.
  - PERMEABLE SOIL INFILTRATION RATE IS TO BE MINIMUM 15mm/hr.
  - REFER TO GRADING PLAN FOR ADDITIONAL INFORMATION.
  - PRIOR TO CONSTRUCTION A QUALIFIED GEOTECHNICAL ENGINEER IS TO CONFIRM SOIL PERMEABILITY IN THE LOCATION OF THE BIO-SWALE.
  - A QUALIFIED GEOTECHNICAL ENGINEER IS TO BE ON SITE DURING CONSTRUCTION OF THE BIO-SWALE TO TEST THE FILTER MEDIA BACKFILL AND ENSURE ITS PERMEABILITY AS PER SPECIFICATIONS.
  - INSTALL EROSION AND SEDIMENT CONTROLS PRIOR TO ANY GRADING WORKS.
  - SET BACK MATERIAL STOCKPILES A MINIMUM 15m FROM SWALES AND WATERCOURSES.
  - PROVIDE PERIMETER SILT FENCING AND INSTALL ACCORDING TO OPSD 219.30. INSTALL AND MAINTAIN THROUGH COURSE OF CONSTRUCTION AND REMOVE ONCE SITE HAS STABILIZED. CONSERVATION AUTHORITY TO DETERMINE SITE STABILIZATION.
  - COMPLETE ALL SWALE WORKS DURING DRY WEATHER.
  - THE BIORETENTION FILTER BED SOIL TO BE BROUGHT TO THE SITE PREMIXED FROM A SUPPLIER.



6 RAIN GARDEN 1:20 Ref. 7 ARMOUR STONE SEATING 1:20 Ref.

- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES. DO NOT SCALE DRAWING.
  - SPECIFIED DEPTHS OF MULCH AND TOPSOIL ARE DEPTHS AFTER SETTLEMENT. SPECIFIED DEPTH OF GRANULAR BASE IS COMPACTED DEPTH.
  - ALL ARMOUR STONE BOULDERS TO BE SIZED AS INDICATED.
  - INSTALL ALL ARMOUR STONE WITH MINIMUM ONE-FIFTH BELOW FINISHED GRADE OF SURROUNDING MULCH AS SHOWN.
  - ENSURE THAT ALL ARMOUR STONE ARE STABLE AND FREE FROM ALL MOVEMENT AFTER INSTALLATION IS COMPLETE.
  - ENSURE THAT ANY SHARP CORNERS AND EDGES ON EXPOSED SIDES OF ARMOUR STONE ARE ROUNDED BY GRINDING OR OTHER MEANS TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT.
  - MINIMIZE GAPS BETWEEN ARMOUR STONE TO REDUCE DANGER OF ENTANGLEMENT OR ENTRAPMENT, TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT. GAPS ARE TO BE LESS THAN 25mm.
  - ENSURE THAT ALL ARMOUR STONE ARE INSTALLED WITH SEATING SURFACE LEVEL.
  - ARMOUR STONE INSTALLATION TO BE TO THE SATISFACTION OF THE LANDSCAPE ARCHITECT.



8 RIVER ROCK & PEA GRAVEL 1:10 Ref. 9 NATURAL LOG CLUSTERS 1:20 Ref. 10 BICYCLE RACK 1:20 Ref.

REVISIONS / ISSUED FOR

| No. | Description                         | Date       | By |
|-----|-------------------------------------|------------|----|
| 7   | ISSUED FOR ADDENDUM                 | 2024-10-25 | AM |
| 6   | ISSUED FOR SPA                      | 2024-10-23 | AM |
| 5   | ISSUED FOR ADDENDUM                 | 2024-10-17 | AM |
| 4   | ISSUED FOR TENDER                   | 2024-09-19 | AM |
| 3   | ISSUED FOR SPA                      | 2024-08-02 | AM |
| 2   | ISSUED FOR SPA/30% TECHNICAL REVIEW | 2024-04-12 | AM |
| 1   | ISSUED FOR DD PROGRESS              | 2024-02-06 | AM |

STAMP

PLAN NORTH

CLIENT

Scanlon Creek Nature Centre

2450 Line 9, Bradford, ON

**LANDSCAPE DETAILS**

SCALE As Noted PROJECT NO. 21022

DRAWN AM DRAWING NO.

CHECKED MM DATE 2024-10-25

DATE 2024-10-25 L-202

SPA No. [SPA #]

## Quarried Stone

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### PART 1 - GENERAL

#### 1.1 Related Sections

- .1 Section 32 93 10 – Trees, Shrubs, and Groundcover Planting
- .2 Section 03 30 01 – Cast-in-Place Concrete – Landscape
- .3 Section 31 05 17 – Aggregate Materials

#### 1.2 Scope of Work

- .1 This work involves construction of granite erratic boulder features and granite stone curb.

### PART 2 - PRODUCTS

#### 2.1 Materials

- .1 Stone unit material shall be hard, durable non-friable, suitable for concrete aggregate, free from weak bedding planes, deep cracks and crevices. Slate or shale shall not be permitted in the works.
- .2 The Contractor shall submit samples of the stone material and quarry location to Landscape Architect to receive approval prior to stone order. Stone must be approved by the Landscape Architect before use and samples shall be submitted at the Contractor's expense for testing if required by the Landscape Architect.
- .3 Stone units delivered and placed into the works shall conform to the following standards and the approval by the Landscape Architect:
- .4 all conform to the following standards and the approval by the Landscape Architect:
- .5 Stone Features:
  - .1 Granite erratic boulders for Rain Garden and North of Building
    - .1 In accordance with drawings.
    - .2 Selected and approved at source by Contract Administrator prior to delivery and installation.
    - .3 **Stone Types:**
      - .1 **Western Black Granite** natural quarried boulders.
        - .1 Contact:
          - .2 MAR-CO Stone  
1-800-950-2555  
[sales@marcoclay.com](mailto:sales@marcoclay.com)  
R.R.3  
Bright, Ontario  
N0J 1B0
        - .3 Grand River Natural Stone

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**Quarried Stone**

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866-242-9142  
7791 2<sup>nd</sup> Line  
Elora, Ontario  
N0B 1S0

- .2 **Alexander Silver Granite** natural quarried boulders.
  - .1 Contact:
    - .2 Algonquin Granite  
519-883-7276  
[info@algonquingranite.ca](mailto:info@algonquingranite.ca)  
20 Erb St. West  
Waterloo, Ontario  
N2L 1T2
  - .4 Or approved equivalent stone in a grey tone with white veins.
  - .5 Provide samples/photographs for approval by Contract Administrator prior to delivery and installation.
    - .1 Description:
      - .1 Type: Quarried granite boulder
      - .2 Size of three (3) stones:
        - .3 Stone #1 (large)  
1800mm(L) x 1000mm(H)
        - .4 Stone #2 (medium)  
1200mm(L) x 800mm(H)
        - .5 Stone #3 (small)  
600mm(L) x 400mm(H)
      - .6 Quantity: As indicated on drawings
- .2 **Armour Stone Seating:**
  - .1 In accordance with drawings.
  - .2 Selected and approved at source by Contract Administrator prior to delivery and installation.
  - .3 Provide samples/photographs for approval by Contract Administrator prior to delivery and installation.
    - .1 Description:
      - .1 Type: Limestone
      - .2 Size: 750-1200 mm (L) x 500 mm (W) x 600mm (H) Maximum height must not exceed 450 mm from surface
    - .4 Quantity: As indicated on drawings.
    - .5 Shape: Rectangular

### Quarried Stone

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- .6 Colour: Buff/grey
  - .1 Appearance:
    - .1 Flat, weathered top, bottom surface and front face.
    - .2 **Guillotined on all sides.**
    - .3 **Sawn ends abutting sides.**
    - .4 Exposed faces and ends completely weathered and free of visible drill marks.
    - .5 Exposed ends of seat to be natural of split.
    - .6 Hard, durable and non-friable
    - .7 Free from weak bedding planes, deep cracks and crevices.
    - .8 Uniform thickness and approximately equal in size.
    - .9 Clean and free of cracks, sharp edges, mechanical abrasions and foreign materials. Damaged, scratched, or fractured stone will not be accepted.
- .3 Granite Stone Curb along the paths:
  - .1 In accordance with drawings.
  - .2 Selected and approved at source by Contract Administrator prior to delivery and installation.
  - .3 Provide samples/photographs for approval by Contract Administrator prior to delivery and installation.
    - .1 Description:
      - .1 Type: Granite stone curb
      - .2 Size: 150mm (H)x 1150mm (W)x 300mm(L)
    - .4 Sealant to fill gaps between poured concrete and boulder: Mortar Type "N" (1:1:6) premixed "Megamix" portland lime. Mortar as manufactured by B & B Megamix, Kitchener and "Betomix 1-1-6". Mix on site with sand, water and colour pigment. Mortar shall be coloured to match stone.
    - .5 Quantity: As indicated on drawings.
    - .6 **Stone Types:**
      - .1 **Caledonia Granite** with Water Jet finish
        - .1 Contact:
          - .2 Polycor Inc or Approved equal  
Vincent Roy Phone: 416-534-7177  
[sales@marcoclay.com](mailto:sales@marcoclay.com)  
R.R.3  
Bright, Ontario  
N0J 1B0

### Quarried Stone

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.6 Filter Cloth

- .1 Terrafix 270 R or Approved Equal.

.7 Granular fill material to following requirements:

- .1 Crushed pit run, screened stone, gravel or sand.  
.2 Gradations to be within limits specified when tested to current ASTM C136 and current ASTM C117. Sieve sizes to current CAN/CGSB-8.1.

| Sieve Designation | % Passing |
|-------------------|-----------|
| 100 mm            | 100       |
| 25 mm             | 55-100    |
| 4.75 mm           | 25-100    |
| 0.75 mm           | 0-8       |

.8 Graded stone filter material to following requirements:

- .1 Crushed stone.

- .1 Gradations to be within limits specified when tested to current ASTM C136 and current ASTM C117. Sieve sizes to current CAN/CGSB-8.1.

.2

| Sieve Designation | % Passing |
|-------------------|-----------|
| 150 mm            | 100       |
| 75 mm             | 40-100    |
| 50mm              | 20-60     |
| 19 mm             | 0-20      |
| 4.75mm            | 0-3       |

.9 Under layer stone:

- .1 Hard, durable, abrasion-resistant material which will not disintegrate under wave action or wet-dry, freeze-thaw cycles.  
.2 Angular in shape with ratio of maximum to minimum dimensions not exceeding 3, free of weak cleavage planes, hairline cracks or laminations.  
.3 Relative density 2.65 minimum when tested to current ASTM C127.  
.4 Absorption: 2.0% maximum when tested to current ASTM C127.  
.5 Gradation: size of under layer stone can vary up to size 'one man stone' size.

## 2.2 Samples

- .1 The contractor shall submit samples of the following to consultant to receive approval prior to stone order.
- .1 Stone wall material
- .1 Coursing stone
- .2 Engraved stone
- .2 Boulder

### Quarried Stone

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- .1 Natural finish
- .2 Saw cut and polished finish
- .3 Quarry location
- .2 Armour stone material shall be hard, durable non-friable, suitable for concrete aggregate, free from weak bedding planes, deep cracks and crevices. Slate or shale shall not be permitted in the works.
- .3 The Contractor shall submit samples of the stone wall material and quarry location to Consultant to receive approval prior to stone order. Stone must be approved by the Consultant before use and samples shall be submitted at the Contractor's expense for testing if required by the Consultant.
- .4 Quarry mock-up requirements:
  - .1 Not used.

## PART 3 - EXECUTION

### 3.1 Grading

- .1 Grade back slope to lines and grades indicated.
- .2 Excavated material to be used as fill requires approval before placing.
  - .1 Remove from site, material rejected for fill or surplus to fill requirements.
- .3 Place granular fill where required to bring surfaces to required levels.
- .4 Place fill in layers not exceeding 200 mm, loose thickness. Compact each layer to 95% of maximum dry density, current ASTM D698.
- .5 Fill to be placed only in unfrozen, dry, workable condition.

### 3.2 Geotextile

- .1 Place geotextile as indicated, free from wrinkles, with side overlap not less than 300mm, and end lap not less than 600mm.

### 3.3 Stone Filter

- .1 Place stone filter material over areas as indicated. Avoid segregation of material.

### 3.4 Base Course Stone

- .1 Do not disturb existing surface when placing base course stone. Do not end dump unless approved by unless approved by the Consultant.
- .2 Place to thickness as indicated.
- .3 Fill in voids and provide solid level surface for base course of revetment.

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**Quarried Stone**

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**3.5 Placement**

- .1 All stones shall be placed to the lines and grades indicated on the Contract Drawings and as directed by the Consultant. The stones shall be individually and carefully placed in a stable position. Crevices and openings between adjacent armour stone shall be small enough that any openings are < 50mm.
- .2 The special placement of the stone and the overall appearance of the placed stone is important and the Contractor may be required, at his own expense, to remove and/or reset stones to the satisfaction of the Consultant.
- .3 Stones that are damaged during installation or transportation, shall be disposed of as directed by the Consultant at the Contractors' expense.
- .4 Set each unit or stone individually. Do not end dump delivered units. Commence placement at toe of slope and proceed up slope in placing each unit. Place each unit so that it is stable, secure on grade and supported adequately below.

**3.6 Protection**

- .1 Carry out revetment construction so that each phase of work is not left exposed for an undue period of time.
- .2 The City may order excavation to be stopped or may order placing of final protective stone layers to be advanced, depending on anticipated weather conditions.

**3.7 Cleanup**

- .1 In accordance with Section 01 74 00 - Cleaning.

**END OF SECTION**

## Trees, Shrubs, and Groundcover Planting

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### PART 1 – GENERAL

#### 1.1 Summary

- .1 Section Includes:
  - .1 Materials and installation for plant material, accessories, mulch, planting, tree support, mulching and maintenance.

#### 1.2 References

- .1 Agriculture and Agri-Food Canada (AAFC).
  - .1 Plant Hardiness Zones in Canada- 2012
- .2 Canadian Nursery Landscape Association (CNLA).
  - .1 Canadian Standards for Nursery Stock 8<sup>th</sup> Edition
- .3 Department of Justice Canada (Jus).
  - .1 Canadian Environmental Protection Act (CEPA), 1999, c. 33.
  - .2 Transportation of Dangerous Goods Act (TDGA), 1992, c.34.
- .4 Health Canada/Workplace Hazardous Materials Information System (WHMIS).
  - .1 Material Safety Data Sheets (MSDS).

#### 1.3 Definitions

- .1 Mycorrhiza: association between fungus and roots of plants. This symbiosis, enhances plant establishment in newly landscaped and imported soils.

#### 1.4 Submittals

- .1 Make submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit product data for:
  - .1 Fertilizer
  - .2 Mycorrhiza
  - .3 Anti-desiccant
  - .4 Guying assembly including clamps, collar, guying wire, anchors and wire tightener
  - .5 Mulch
- .3 Submit samples for:
  - .1 Mulch

## Trees, Shrubs, and Groundcover Planting

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### 1.5 Invasive species Control Plan:

- .1 Contractor to retain the services of a licensed company (as per Provincial regulations) to design and implement invasive species control plan for designated restoration areas of the site, providing all the necessary licenses and protocols for implementation.

### 1.6 Health and Safety:

- .1 Do construction occupational health and safety in accordance provincial and Municipal health and safety standards

### 1.7 Delivery, Storage And Protection

- .1 Supply and deliver Products such as fertilizers and mulches, in standard containers clearly indicating contents, weight, analysis and name of manufacturer. If Products are supplied in bulk, submit written statements indicating above information.
- .2 Protect plant material from frost, excessive heat, wind and sun during delivery.
- .3 Immediately store and protect plant material that will not be installed within 1 hour after arrival at site in storage location approved by Landscape Architect.
- .4 Protect plants and grassed areas from damage. Move heavy equipment and materials on planks or pontoons over grassed areas; replace damaged plants and grassed areas.
- .5 Protect plant material from damage during transportation:
  - .1 When delivery distance is less than 30 km and vehicle travels at speeds under 80 km/h, tie tarpaulins around plants or over vehicle box.
  - .2 When delivery distance exceeds 30 km or vehicle travels at speeds over 80 km/h, use enclosed vehicle where practical.
  - .3 Tie branches of trees securely and protect plant material against abrasion, exposure and extreme temperature change during transit. Avoid binding of plant stock with wire or wire that would damage bark, break branches or destroy natural shape of plant.
  - .4 Protect foliage and root balls using anti-desiccants and tarpaulins, where use of enclosed vehicle is impractical due to size and weight of plant material.
  - .5 Protect bare roots by means of dampened straw, peat moss, sawdust or other acceptable material to prevent loss of moisture during transit.
- .6 Protect stored plant material from frost, wind and sun and as follows:
  - .1 For bare root plant material, preserve moisture around roots by heeling-in or burying roots in sand or topsoil and watering to full depth of root zone.
  - .2 For pots and containers, maintain moisture level in containers.
  - .3 For balled and burlapped and wire basket root balls, place to protect branches from damage. Maintain moisture level in root zones.

### Trees, Shrubs, and Groundcover Planting

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- .7 Store and manage hazardous materials in accordance with Sustainable Construction Requirements.

#### 1.8 Waste Management and Disposal:

- .1 Separate waste materials for reuse and/or recycling
- .2 Remove from site and dispose of packaging materials at appropriate recycling facilities.
- .3 Collect and separate for disposal: paper, plastic, polystyrene and corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan (WMP).
- .4 Separate for reuse and/or recycling and place in designated containers for Steel, Metal, Plastic waste in accordance with Waste Management Plan.
- .5 Place materials defined as hazardous or toxic in designated containers.
- .6 Handle and dispose of hazardous materials in accordance with National, Provincial, Regional and Municipal regulations.
- .7 Divert unused metal materials from landfill to metal recycling facility as approved by Landscape Architect.
- .8 Fold up metal and plastic banding, flatten and place in designated area for recycling.
- .9 Divert discarded plastic plant containers materials from landfill to plastic recycling facility approved by Landscape Architect.
- .10 Dispose of unused fertilizer at official hazardous material collection site approved by Landscape Architect.
- .11 Dispose of unused anti-desiccant at official hazardous material collections site approved by Landscape Architect.
- .12 Divert unused wood and mulch materials from landfill to appropriate recycling or composting facility as approved by Landscape Architect.

#### 1.9 Scheduling

- .1 Obtain approval from Landscape Architect of schedule 7 days in advance of shipment of plant material.
- .2 Schedule to include:
  - .1 Quantity and type of plant material.
  - .2 Shipping dates.
  - .3 Arrival dates on site.
  - .4 Planting dates.

## Trees, Shrubs, and Groundcover Planting

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### PART 2 – PRODUCTS

#### 2.1 Plant Material

- .1 Type of root preparation, sizing, grading and quality: comply to Canadian Standards for Nursery Stock, 8<sup>th</sup> edition, 2006.
  - .1 Quality and source: comply with latest edition of Canadian Standards for Nursery Stock by referring to size and development of plant material and root ball. Measure plants when branches are in their natural position. Height and spread dimensions refer to main body of plant and not from branch tip to branch tip. Use trees and shrubs of No. 1 grade.
  - .2 Plant material obtained from areas with milder climatic conditions from those of site acceptable only when moved to site prior to the breaking of buds in their original location and heeled-in, in a protected area until conditions suitable for planting
- .2 Plant material obtained from areas with milder climatic conditions from those of site acceptable only when moved to site prior to the breaking of buds in their original location and heeled-in, in a protected area until conditions suitable for planting.
- .3 Freshly dug and in healthy, vigorous condition at arrival on site. Heeled-in plants or plants from cold storage will not be accepted. Whenever practical, supply plants from nurseries located within the same hardiness zone and having the same soil conditions and types of soils as area of site.
- .4 Sound, healthy, vigorous, well branched and densely foliated when in leaf, free of leaf, insect pests, eggs and larvae, having healthy well-developed root system.
- .5 Dig plant material and handle with reasonable care to prevent injuries to trunk, branches or roots.
- .6 Use trees and shrubs with strong fibrous root system free of disease, insects, defects or injuries and structurally sound. Use trees with straight trunks, well and characteristically branched for species. Plants must have been root pruned regularly, but not later than one growing season prior to arrival on site.
- .7 Large trees must have been half root pruned during each of two successive growing season prior to arrival on site.
- .8 Plant material that has come out of dormant stage and is too far advanced will not be acceptable unless prior obtained.
- .9 Trees: with straight trunks, well and characteristically branched for species except where specified otherwise.
- .10 Trees larger than 200 mm in caliper: half root pruned during each of two successive growing seasons, the latter at least one growing season prior to arrival on site.
- .11 Container-grown-stock: acceptable if containers large enough for root development. Trees and shrubs must have grown in container for minimum of one growing season but no longer than two. Root system must be able to "hold" soil when removed from container. Plants must have been fertilized with slow releasing fertilizer.

## Trees, Shrubs, and Groundcover Planting

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- .12 Balled and burlapped: coniferous and broad-leafed evergreens over 500mm tall must be dug with soil ball. Deciduous trees in excess of 3m height must have been dug with large firm ball. Root balls must include 75% of fibrous and feeder root system. Secure root balls with burlap, heavy twine and rope. For large trees: wrap ball in double layer of burlap and drum lace with minimum 10mm dia. Rope.
- .13 Tree spade dug material: dig plant material with mechanized digging equipment of hydraulic spade or clam-shell type. Root balls to satisfy CNTA standards. Take care not to injure trunk of trees with wire basket ties or rope
- .14 Bare root stock: nursery grown, in dormant stage, not balled and burlapped or container grown. Bare root stock to be minimum 2 year transplant in nursery.
- .15 Collected stock: maximum 40 mm in caliper, with well-developed crowns and characteristically branched; no more than 40% of overall height may be free of branches may only be used with the approval of the Landscape Architect.
- .16 Substitutions to plant material as indicated on planting plan not permitted unless written approval has been obtained from the Landscape Architect. Plant substitutions must be of similar species and of equal size as those originally specified.
- .17 All plant material shall be moist showing active green cambium when cut. Coniferous plants that are dry, brittle or showing a faded green not typical of the species will not be acceptable.

### 2.2 Growing Media

- .1 Refer to:
  - .1 Section 32 91 21 – Topsoil Placement and Finish Grading

### 2.3 Bone Meal

- .1 Commercial: raw bonemeal, finely ground and with minimum analysis of 2% nitrogen and 11% phosphoric acid.

### 2.4 Water

- .1 Free of impurities that would inhibit plant growth.
- .2 Gator Bags suited to tree size.

### 2.5 Stakes

- .1 Wood, pointed one end, 38 x 38 x 2300 mm.
- .2 T-bar steel stakes 40 x 40 x 5 x 2440mm.
- .3 Wooden Poles - 50mmø x 2440mm

### 2.6 Wire Tightener

- .1 Type 1: galvanized steel, stamped plate type, rod, triangular shape.

### **Trees, Shrubs, and Groundcover Planting**

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- .2 Type 2: turnbuckle, galvanized steel, 9.5 mm diameter with 270 mm open length.

#### **2.7 Guying Wire**

- .1 Tree Tie Webbing – Green – as supplied by Timm Enterprises.
- .2 Coco Rope – as supplied by Timm Enterprises.
- .3 Tree Strap with 12 ga. or 14. ga wire.

#### **2.8 Clamps**

- .1 U-bolt: galvanized, 13 mm diameter, c/w curved retaining bar and hex nuts.
- .2 Crimp type.

#### **2.9 Anchors**

- .1 Wood:
  - .1 Type 1: 38 x 38 x 460 mm.
  - .2 Type 2: 38 x 67 x 600 mm.
- .2 Drive-in type.
  - .1 Type 1: 13 mm diameter x 75 mm long, aluminum.
  - .2 Type 2: 18 mm diameter x 120 mm long, aluminum.
- .3 Screw-in type:
  - .1 Type 1: 100 mm diameter steel disc.

#### **2.10 Guying Collar**

- .1 As per guying system above.

#### **2.11 Trunk Protection**

- .1 Wire mesh: galvanized, electrically welded 1.4 mm wire with 25 x 25 mm mesh and fastener.
- .2 Plastic: perforated spiralled strip to be installed where rodent protection is required
- .3 Tar impregnated crepe paper and twine fastener.
- .4 Winter burlap tree protection to be installed by contractor during warranty period to prevent wind burn and dryness on Conifers.

#### **2.12 Mulch**

- .1 Planting Beds & Tree Pits
  - .1 Shredded pine mulch (SPM) or equivalent.
  - .2 All mulch as supplied by:

### Trees, Shrubs, and Groundcover Planting

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- .1 Gro-Bark Ont. Ltd. (519) 885-341
- .2 Grower's Choice Kitchener (519) 896 9459
- .3 All Treat Farms (519) 848 3145
- .2 Fertilizer
- .3 Synthetic commercial type as recommended by soil test report.

#### 2.13 Anti-Desiccant

- .1 Wax-like emulsion.

#### ~~2.14 Water Bags~~

- ~~.1 Install Tree Gator slow release bags at the trunk of each new tree, including in parking lot locations.~~
- ~~.2 Install single bag up to 80mm tree~~
- ~~.3 Install two bags on trees over 80mm.~~

#### 2.15 Flagging Tape

- .1 Fluorescent, orange colour.

#### 2.16 Plant Protection

- .1 Do not treat damaged or pruned branches with wound dressing

#### 2.17 Source Quality Control

- .1 Obtain review and approval from Landscape Architect of plant material at source prior to planting.
- .2 Imported plant material must be accompanied with necessary permits and import licenses. Conform to Federal, Provincial or Territorial regulations.
- .3 Do not substitute plants without submitting written proof that the specified plants or sizes are unobtainable.
- .4 Do not remove labels from plants until plants have been inspected and accepted by Landscape Architect

### PART 3 – EXECUTION

#### 3.1 Pre-Planting Preparation

- .1 Ensure plant material acceptable to Landscape Architect. It is recommended that Contractor - after plants are selected and tagged at Nursery prior to delivery – advise Landscape Architect to review and accept at source. This does not negate rejection of plant material on site that may be damaged or altered during delivery and handling.

### **Trees, Shrubs, and Groundcover Planting**

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- .2 Obtain Landscape Architect's acceptance of finished subgrade before placing topsoil for planting.
- .3 Remove damaged roots and branches from plant material.
- .4 Apply anti-desiccant to conifers and deciduous trees in leaf in accordance with manufacturer's instructions.

#### **3.2 Excavation And Preparation Of Planting Beds**

- .1 Establishment of sub-grade for planting beds is specified in Section 31 22 13 - Rough Grading.
- .2 Obtain survey of all underground service lines and protect from damage during excavation.
- .3 Preparation of planting beds is specified in Section 32 91 21 - Topsoil Placement and Finish Grading.
- .4 Stake out tree locations and planting beds and obtain Landscape Architect's acceptance before excavating.
- .5 Location of trees and planting areas shown on drawings are approximate only and may require adjustment due to site conditions.
- .6 Co-operate with Landscape Architect where minor adjustments to such locations are necessary.
- .7 For tree spade excavated material, dig tree pit with same mechanical equipment as used to dig plant material. Ensure hole dug is upright as possible.
- .8 For individual planting holes:
  - .1 Stake out location and obtain approval from Landscape Architect prior to excavating.
  - .2 Excavate to depth and width as indicated.
  - .3 Remove subsoil, rocks, roots, debris and toxic material from excavated material that will be used as planting soil for trees and individual shrubs. Dispose of excess material.
  - .4 Scarify sides and bottom of planting hole.
  - .5 Remove water which enters excavations prior to planting. Notify Landscape Architect if water source is ground water.
  - .6 Use hand spade to loosen soil 300mm outside of tree pit area around complete pit diameter.
  - .7 Provide drainage for planting holes in heavy soil, if natural drainage does not exist. Have method approved.
  - .8 Protect bottom of excavations against freezing.
  - .9 Landscape Architect to approve mock-up of tree pit planting on site before installation of planting, to confirm the above procedures.

### Trees, Shrubs, and Groundcover Planting

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- .9 For meadow planting and forest shade planting areas follow the following steps prior to installation all, in consultation with the owner and landscape architect:
  - .1 Carry out measures identified in an invasive species control plan per documented recommendations of a licensed pesticide application company.
  - .2 Remove woody understory vegetation and herbaceous plants by hand, careful not to disturb existing tree roots.
  - .3 Prep area for plug planting per details, ensuring adequate soil, amended as required.
- .10 For rain garden planting areas:
  - .1 Where rain garden interfaces with existing vegetation:
    - .1 carry out measures identified in an invasive species control plan per documented recommendations of a licensed pesticide application company.
    - .2 Remove woody understory vegetation and herbaceous plants by hand, careful not to disturb existing tree roots.
  - .2 Prep area for plug planting per specifications, ensuring adequate soil, amended as required

### 3.3 Planting Time

- .1 Plant deciduous plant material during dormant period before buds have broken. Plant material noted for spring planting only must be planted in dormant period.
- .2 Plant material imported from region with warmer climatic conditions may only be planted in the early spring.
- .3 When permission has been obtained to plant deciduous plant materials after buds have broken, spray plants with anti-desiccant to slow down transpiration prior to transplanting.
- .4 Plant evergreens in the spring before bud break. Planting of such stock with root balls may start after middle of August. Apply anti-desiccant to evergreens before digging.
- .5 When permission has been obtained, trees, shrubs and ground covers growing in containers may be planted throughout the growing season.
- .6 Plant only under conditions that are conducive to health and physical conditions of plants.
- .7 Provide planting schedule. Extended planting operations over long periods using limited crew will not be accepted.
- .8 For plug planting areas (rain garden, meadow and forest shade zone), planting should be undertaken in early spring (mid-April to mid-May)

### 3.4 Planting Beds

- .1 Backfill planting beds and tree pits with soil mixture consisting of 4 parts topsoil and 1 part peat.

### Trees, Shrubs, and Groundcover Planting

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- .2 Add bonemeal to soil at rate 0.6kg./m<sup>3</sup>.
- .3 Mix topsoil, soil mixture, peat moss and other additives thoroughly on site 2 days maximum before backfilling.
- .4 Backfill to height above finished grade sufficient to allow for normal, natural settlement.
- .5 Backfill soil mixture in layers not exceeding 150mm depth.
- .6 Tamp each layer firmly before placing subsequent layers.
- .7 Soak soil mixture with water when hole is half filled.
- .8 Fill hole completely, leaving

#### 3.5 Planting

- .1 For bare root stock, place 50 mm backfill soil in bottom of hole. Plant trees and shrubs with roots placed straight out in hole.
- .2 Loosen bottom of planting hole to depth of 150 to 200mm.
- .3 For jute burlapped root balls, cut away top one third of wrapping and wire basket without damaging root ball. Do not pull burlap or rope from under root ball.
- .4 Tree Spaded Material
  - .1 Dig tree pit with same mechanical equipment as used to dig plant material. Ensure hole dug is upright as possible. Place in hole mixture of 40 L of planting soil and fertilizer mixed with water to soupy consistence. This will be forced up sides of ball as root ball is placed in hole.
  - .2 In heavy clay soil, dig planting pit as specified for excavation of large trees. Pit preparation: Loosen bottom of planting hole to depth of 150 to 200mm
- .5 For container stock or root balls in non-degradable wrapping, remove entire container or wrapping without damaging root ball.
- .6 Plant vertically in locations as indicated. Orient plant material to give best appearance in relation to structure, roads and walks.
- .7 Planting Height. Consult with municipal requirements or Landscape Architect on plant height depth in heavy soils.
- .8 For trees and shrubs:
  - .1 Backfill soil in 150 mm lifts. Tamp each lift to eliminate air pockets. When two thirds of depth of planting pit has been backfilled, fill remaining space with water. After water has penetrated into soil, backfill to finish grade.
  - .2 Build topsoil saucer 100mm deep and 900 mm in diameter around base of tree, 600 to 900mm around base of specimen shrub, and of a suitable size and shape around shrub bed.
- .9 For ground covers, backfill soil evenly to finish grade and tamp to eliminate air pockets.
- .10 Where indicated on plan pour concrete support for tree grates. Install tree grates.

### Trees, Shrubs, and Groundcover Planting

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- .11 When planting is complete, mix fertilizer thoroughly with top layer of planting soil and water in well.
- .12 For plug planting, apply a starter fertilizer to minimize transplant shock as the plugs acclimate to the new location.
- .13 Fill hole completely, leaving shallow saucer directly over rootball, slightly smaller in diameter than excavation.
- .14 Water trees and planting beds immediately after planting until saturation of pit is achieved.
- .15 After soil settlement has occurred, fill with soil to finish grade. Fine grade with amended soil.
- .16 Dispose of burlap, wire and container material off site.

#### 3.6 Trunk Protection

- .1 Install trunk protection on deciduous trees as indicated.
- .2 Install trunk protection prior to installation of tree supports when used.

#### 3.7 Tree Supports

- .1 Guy and stake trees or tree guards as per details.
- .2 Use single stake tree support for deciduous trees less than 3 m and evergreens less than 2 m.
  - .1 Place stake on prevailing wind side and 300mm from trunk.
  - .2 Drive stake minimum 300mm into undisturbed soil beneath roots. Ensure stake is secure, vertical and unsplit.
  - .3 Install 300 mm long guying collar 1500 mm above grade.
  - .4 Thread guying wire through guying strap or tree strap. Twist tree strap to form collar and secure firmly to stake. Cut off excess strap or rope.
- .3 Use 3 guy wires and anchors for deciduous trees greater than 3 m and evergreens greater than 2 m.
  - .1 Use 12ga. guying with clamps for trees less than 75mm in diameter and 14ga. guying wire with clamps for trees greater than 75mm in diameter.
  - .2 Use Type 1 anchors for trees less than 75mm in diameter and Type 2 anchors for trees greater than 75mm in diameter.
  - .3 Install guying collars above branch to prevent slipping at approximately 2/3 height for evergreens and 1/2 height for deciduous trees. Collar mounting height is not to exceed 2.5 m above grade.
  - .4 Guying collars to be of sufficient length to encircle tree plus 50 mm space for trunk clearance. Thread guy wire through collar encircling tree trunk and secure to lead wire by clamp or multi-wraps; cut wire ends close to wrap. Spread lead wires equally proportioned about trunk at 120 degrees.

### Trees, Shrubs, and Groundcover Planting

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- .5 Install anchors at equal intervals about tree and away from trunk so that guy wire will form 45 degree angle with ground. Install anchor at angle to achieve maximum resistance for guy wire.
- .6 Attach guy wire to anchors. Tension wire and secure by [multi-wraps] [installing clamps].
- .7 Install wire tightener ensuring that guys are secure and leave room for slight movement of tree.
- .8 Saw tops off wooden anchors which extend in excess of 100 mm above grade or as directed by Landscape Architect.
- .9 Install flagging tape to guys as indicated.
- .4 After tree supports have been installed, remove broken branches with clean, sharp tools.
- .5 Pruning.
  - .1 Pruning may be undertaken to remove dead or broken branches and branches which rub causing damage to bark. Remove projecting stumps on trunks or main branches. Trim out crown of trees and shrubs without changing their natural shape. Do not damage lead branches or remove smaller twigs along main branches. Postpone pruning of those trees where heavy bleeding may occur until in full leaf. Otherwise do not prune the plant material.
  - .2 Employ clean sharp tools and make cuts flush with main branch, smooth and sloping as to prevent accumulation of water.

### 3.8 Watering

- .1 Keep plants well-watered from time of planting until acceptance.
- .2 Apply sufficient water to saturate root system, do not over-water
- .3 For plug planting areas (rain garden, meadow and forest shade zone), water plugs thoroughly twice per week supplemental to rainfall. Note that plugs and small container plants have limited root systems and need to be watered more frequently than larger plants.

### 3.9 Mulching

- .1 Obtain approval of planting before mulching material is applied. Loosen soil in planting beds and pits and remove debris and weeds. Spread mulch to thickness shown on drawings. Mulch material susceptible to blowing must be moistened and mixed with topsoil before applying. When mulching is placed in fall, place immediately after planting. When mulch is placed in spring, wait until soil has warmed up.

### 3.10 Cleaning

- .1 After planting remove debris and excess material from site.
- .2 Clean areas, contaminated as a result of planting operations, sweep affected pavement areas.

### **Trees, Shrubs, and Groundcover Planting**

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#### **3.11 Protection**

- .1 Protect and maintain planted areas until work has been completed, reviewed and accepted.
- .2 Clean areas, contaminated as a result of planting operations, sweep affected pavement areas.

#### **3.12 Replacement**

- .1 All plant material determined by the Landscape Architect to require replacement under the terms of the guarantee shall be replaced during the next planting season.
- .2 All replacements are subject to the Warranty as for the original planting.
- .3 Replacement Period:
  - .1 Plants accepted during period from January 1<sup>st</sup> to July 15<sup>th</sup>: up to July 15<sup>th</sup> the following year.
  - .2 Plants accepted during period from July 15<sup>th</sup> to December 31<sup>st</sup>; on year from date of acceptance.
- .4 Replacement trees and shrubs with identical species and growth. Replacement tree crown development, shape and tree health subject to Landscape Architect's review.
- .5 During replacement period, immediately remove from site, plant material that has dies or failed to grow to Landscape Architect's acceptance.
- .6 Replace plant material in next planting season.
- .7 Expend replacement period for replaced plant material for period equal to original replacement period.
- .8 Continue such replacement and replacement period until plant material is acceptable.
- .9 Notify Landscape Architect when replacements are to be planted. Plant replacements at a time that is in accordance with horticultural practice.
- .10 Tag, or mark, in permanently visible manner, replacement plants and notify Landscape Architect in writing, of date on which replacements were planted. Include drawing showing location of replaced plants.
- .11 Remove plants and accessories that require replacement on date acceptable to Landscape Architect.
- .12 Landscape Architect will conduct End-of-Replacement-Period inspection.

#### **3.13 Maintenance During Establishment Period**

- .1 From time of installation Substantial Completion, perform following maintenance operations.
  - .1 Water to maintain soil moisture conditions for optimum growth and health of plant material without causing erosion.
  - .2 Reform damaged watering saucers.

### Trees, Shrubs, and Groundcover Planting

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- .3 Cultivate and keep **restoration areas**, planting beds and tree saucers free of weeds. Remove debris and broken branches and maintain planting beds in neat condition. Water, when necessary, with sufficient amounts to saturate root system. Remove weeds monthly.
- .4 Replace or re-spread damaged, missing or disturbed mulch.
- .5 If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Landscape Architect prior to application.
- .6 Remove dead, broken or hazardous branches from plant material.
- .7 Keep trunk protection and tree supports in proper repair and adjustment.
- .8 Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.
- .9 At time of final inspection, ensure plants are free of diseases and insect infestations. Maintain tree guys taut, accessories in good condition as specified and planting beds and saucers freshly cultivated and free to weeds and debris.

#### 3.14 Maintenance During Warranty Period

- .1 From time of acceptance by Landscape Architect to end of 2-yr warranty period, perform following maintenance operations.
  - .1 Water to maintain soil moisture conditions for optimum growth and health of plant material without causing erosion. Water weekly during peak growing season months of June to August inclusive.
  - .2 For evergreen plant material, water thoroughly in late fall prior to freeze-up to saturate soil around root system.
  - .3 Reform damaged watering saucers.
  - .4 Cultivate and keep planting beds and tree saucers free of weeds. Remove debris and broken branches and maintain planting beds in neat condition. Water, when necessary, with sufficient amounts to saturate root system. Remove weeds monthly.
  - .5 Replace or re-spread damaged, missing or disturbed mulch.
  - .6 For non-mulched areas, cultivate monthly to keep top layer of soil friable.
  - .7 If required to control insects, fungus and disease, use appropriate control methods in accordance with Federal, Provincial and Municipal regulations. Obtain product approval from Landscape Architect prior to application.
  - .8 Apply fertilizer in early spring as indicated by soil test.
  - .9 Remove dead, broken or hazardous branches from plant material.
  - .10 Keep trunk protection and tree supports in proper repair and adjustment.
  - .11 Remove trunk protection, tree supports and level watering saucers at end of warranty period.

### **Trees, Shrubs, and Groundcover Planting**

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- .12 Remove and replace dead plants and plants not in healthy growing condition. Make replacements in same manner as specified for original plantings.
- .13 Submit monthly written reports to Landscape Architect indicating:
- .14 maintenance work carried out.
- .15 development and condition of plant material.
- .16 Preventative or corrective measures required which are outside Contractor's responsibility
- .17 Provide wind protection to evergreens during winter months to reduce wind burn and moisture loss.
- .18 At time of final acceptance, ensure plants are free of diseases and insect infestations. Maintain tree guys taut, accessories in good condition as specified and planting beds and saucers freshly cultivated and free to weeds and debris.

#### **3.15 Final Acceptance**

- .1 Planting areas will be accepted at final inspection provided that all plant material is in healthy conditions showing signs of new growth.
- .2 Planting after October 31 will be accepted in following spring one month after start of growing season provided all other acceptance conditions are fulfilled.
- .3 Final acceptance at end of two (2) year warranty period.
- .4 Final acceptance shall occur when the entire work of the contract is complete and a Final Acceptance Certificate has been issued by the OWNER and signed by the Approving Agency, where required.

**END OF SECTION**