MEMORANDUM

To: Jennifer Cass
Vice President & Chief of Staff, Capital Program
NYC Economic Development Corporation
One Liberty Plaza
New York, NY 10006

From: Pinar Balci, PhD
Assistant Commissioner
Bureau of Environmental Planning & Analysis

Re: Contract Amendments and Clarifications
Date: September 9, 2019 Revised 11/25/2019

The following contract amendments will be applied to Jamaica Bay Contract:
(revisions shown in red)

1. A. Right-of-way Bioswales, Rain Gardens, and Greenstrips
   1. Precast Concrete Taper strip to be installed at all Right-of-way Bioswales, Right-of-way Rain Gardens, and Right-of-way Greenstrips inlets and outlets
      i. Precast Concrete Taper, which follows tapered curb line, to be installed behind curb cut opening in lieu of Concrete Sediment Pad
      ii. Contractor is not to order/use any Concrete Sediment Pads or Steel Plate Curb Cover for Inlet Curb Cuts for this contract
      iii. All type 1,2, and 3 inlets will have the same dimensions as a type 1 Right-of-way Bioswale
      iv. All type 1,2, and 3 outlets will have the same dimensions. The new dimensions will be a 10” outlet invert with 12” taper on either side
      v. Contractor shall refer to Figure 1 attached.
   2. Hydraulically Connected Right-of-way Bioswales
      i. All require a gabion wall
      ii. See attached Figure 1.A.
   3. Concrete aprons
      i. See attached Figure 1 for modified dimensions and pitch
   4. Sediment Control Device
      i. Must be used at all type 1,2, and 3 inlets
      ii. 30” HDPE double-wall corrugated pipe to be used along 8” landscaping stakes
      iii. See attached Figure 1.B.

*All concrete can either be precast or cast in place. Impermeable membrane required under cast in place concrete.
2. **Revised 11/25/19**: Design changes for all Right-of-way Infiltration Basins (ROWIBs) see Figure 2:
   1. **ROWIB Inlet Detail**
      i. All ROWIBs will have Steel Face Inlet Openings 28” wide, regardless of ROWIB size (contract documents have DEP Standards showing 18” for Type 1, and 14” wide openings for Type 2 and Type 3 ROWIBs);
      ii. Outlet openings will be 12” wide regardless of ROWIB size, where applicable.
      iii. ROWIB Steel Face Inlet/Outlet Openings are to include horizontal Welded Steel Bar. Bar to be painted with same coating material as steel face curb cover; see revised Figure 2, attached for reference
      iv. Inlet Apron is shown on the DEP GI Standards as 10% cross-slope. This is meant as a minimum; the design benefits from higher pitch; see associated schedule for direction on apron pitch, Figure 1, therefore, variance of up to 1%, i.e. slope between 10-11%, is acceptable.
   2. **Perforated Covers for Inlet Pipe – Debris Screen**
      i. Perforated Covers for half-perforated 8” diameter HDPE inlet pipe will no longer be used; newly fabricated Perforated Pipe Covers to be installed instead at all IB locations; shop drawing attached as Figure 3.
   3. **Inlet/Outlet Grate and Locking Mechanism**
      i. G-Clip Grating Fastener to be used to secure Metal Grate & Frame(s) as shown on GI-207 of the Standards for Green Infrastructure, see Figure 4 for reference
      ii. Contractor to furnish Metal Grate & Frame for Inlets (and Outlets, where applicable) with two 1-1/2” diameter circular openings near the grate edges to function as lifting points for lifting hooks, and 1 ½ x 5 ½” x 1/8” metal plate with NYC DEP logo, shop drawing to be provided. (Figure 5 updated 11/25/2019)
      iii. Contractor to procure lifting hooks for lifting metal grate as well as G-Clip wrench to be used for inlet maintenance activities. Purchased lifting hooks and G-Clip wrench to be handed over to DEP at the end of the contract.
   4. **Inlet Screen Box (Filter Basket)**
      i. Metal filter baskets, referred to as Inlet Screen Box, to be placed in all ROWIB inlet chambers; shop drawings attached as Figure 6
   5. **Clean Out Covers**
      i. For all ROWIBs, Contractor shall furnish cast iron clean out covers (and frame) for access to the vertical 8” HDPE pipe risers to function as clean out access; contractor must verify that these covers can be removed by hand without the use of available tools. See Figure 7 for reference
      ii. Contractor to adjust clean-out elevation of the cleanout cover and frame such that the top of the solid clean out cover is flush
with the elevation of the adjacent surface – whether concrete or grass top.

6. Precast Concrete Chambers at Outlet – removed, no longer included in revised IB design as of 11/25/19
   i. ROWIBs will no longer have Outlet Precast Concrete Chambers at locations planned on roadways of ≤3% longitudinal slope
   ii. Engineer will investigate contract drawings for the number of ROWIBs impacted.
   iii. There shall be no Steel Face Opening at the locations where Outlet Precast Chambers are not installed; curb shall continue per DOT Standards.

7. Observation Wells
   i. Observation wells to be furnished and installed, Figure 8 attached
   ii. DEP will use these wells to verify ROWIB performance prior to acceptance of ROWIB

3. ROWIB maintenance and substantial completion
   1. In order to minimize maintenance requirements during construction, contractors to close all the inlet/outlet chamber openings with Styrofoam
   2. Contractor shall provide an impermeable barrier cut to size and placed directly under metal grates immediately after construction. This will ensure that no debris, trash, or sediment can enter the ROWIB during construction activities.
   3. Once all ROWIBs in the contract are constructed and are ready for substantial completion inspections, contractor to flood-test ROWIBs, as well as show all ROWIB components to be accessible/removable in the presence of DEP staff.
   4. After DEP staff has approved flood-test results, contractor to clean ROWIBs prior to turning over to DEP. Note that DEP will schedule substantial completion inspection and testing dates for ROWIBs separately from inspections for other ROW GI types within the contract.

4. Final Type D Design
   1. Type D to be constructed per final design (Figure 9) in lieu of draft design included in the contract documents.

5. Revised Planting Palettes
   1. Revised planting palettes will be used in lieu of planting palettes in contract documents as per the updated Planting Plans (Figure 10) and corresponding Planting Plan Updates memo. (Updated 11/25/2019)

6. Clarifications to July 2017 Standards
   1. Figure 11 is a list of clarifications and modifications to the "NYCDEP BEDC-GI Standard Designs and Guidelines for Green Infrastructure Practices" released on July 19th, 2017 (Updated 11/25/2019)

7. Water Service Detail
1. See Figure 12 for updates to Water Service Detail. Updates include:
   i. Materials: Split PVC, solid PVC, Expanding foam sealant, Survey Marker, HDPE Barrier
   ii. Split PVC will be used for sleeving the existing water service
   iii. Solid PVC will be used as a “spare” water service sleeve for future use
   iv. Watertight expanding foam sealant will be used throughout entire sleeve length of existing water service.
   v. Survey Marker delineating the location of the water service to be installed within the concrete header.
   vi. HDPE barrier to be used at all locations with utility crossings

2. Contractor to provide a list of locations that will require sleeving and indicate if the material is potential lead before construction starts. The map is available for reference under https://nycdep.maps.arcgis.com/apps/View/index.html?appid=fe8c7a4dd6d24959ac765660ba3a7c1a
   i. CM to reference all construction locations on the attached map, and review all tap card information
      1. If potential lead line and valve within footprint of GI, the location must be submitted as an RFI for review by design consultant and DEP.
         a. Design consultant to shift/shorten/convert the asset to avoid the water valve and line
      2. If potential lead line without valve, Contractor may proceed with construction and sleeve line per Figure 12.
         a. It is unacceptable to perform any partial repair on lead lines
   3. Contractor to provide a list of locations where spare water service is installed. This should be at every location with an existing water service.

8. Utility Detail
   1. See Figure 13
   2. HDPE Barrier to be used at all locations with utility crossings

9. There should be a minimum 10’ clearance from guy wires to GI

Attachments:
Figure 1: Sketch for Concrete Strip and Concrete Aprons
Figure 1A: Hydraulically Connected Right-of-way Bioswales
Figure 1B: Sediment Control Device
Figure 2: Updated Infiltration Basin Design and Updated Welded Steel Bar Design
Figure 3: Shop Drawing for Perforated Pipe Covers
Figure 4: Sketch for Grating Fastener
Figure 5: Sketch for Metal Grate & Frame Lift Hook Openings
Figure 6: Shop Drawing for Inlet Screen Box (Filter Basket)
Figure 7: Photo for Cast Iron Cover/Frame
Figure 8: Sketch for Observation Well Details
Figure 9: Final Type D Design
Figure 10: Updated Planting Plans
Figure 11: Clarifications to July 2017 Standards
Figure 12: Water Service Detail
Figure 13: Utility Detail

DEP cc: M. Walker
        A. Kocovic
        F. Reyes
        S. Drago
        R. Staton
        S. Drago
        J. Landecker
        J. Liu
EXISTING ASPHALT PAVEMENT

EXISTING CURB TO REMAIN

CONCRETE APRON

STANDARD FOR 20'x5' R.O.W. BIOSWALE TYPE 1
- NO CONNECTION TO SEWERS

SECTION D-D

LOW POINT + SET 1'-3" BELOW OUTLET INVERT

NEW CURB TO MATCH CONTRACT PLANS

OUTLET INVERT

LOW POINT

5'-0" OR AS SHOWN

EXPANSION JOINT AT MID-SPAN

EXPANSION JOINT (TYP.)

SURFACE GRADING AS PER DRAWING G1-124

CONCRETE HEADER

STEEL TREE PIT GUARDS (3-SIDES TYP.) SEE DRAWING G1-601A, B, C, D & G1-602A

L-SHAPED EDGING WITH MINIMUM 9" STAKES SEE DRAWING G1-204

LIMIT OF NEW CURB TO EXTEND BEYOND THE ROWB AS DETERMINED BY FIELD CONDITIONS AND SITE ENGINEER

LIMIT OF NEW CURB TO EXTEND BEYOND THE ROWB AS DETERMINED BY FIELD CONDITIONS AND SITE ENGINEER

SECTION D-D

NOTES:

1. THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE ALL EXISTING FULL SIDEWALK FLAGS ADJACENT TO THE GI PRACTICE WITH A MINIMUM WIDTH OF 36". ANY ADDITIONAL FLAGS DISTURBED BY THIS REPLACEMENT SHALL ALSO BE REPLACED. THE CONTRACTOR SHALL REPLACE THE SIDEWALK IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF THE STANDARD HIGHWAY SPECIFICATIONS.

2. THE CONTRACTOR SHALL REMOVE AND RESTORE ONE-AND-A-HALF (1 1/2') FOOT WIDTH OF THE WEARING COURSE AND ONE-AND-A-HALF (1 1/2') FOOT WIDTH OF ROADWAY CONCRETE PAVEMENT BASE ALONG THE CURB LINE AND ADJACENT TO THE CONCRETE APRONS, WHERE REQUIRED. ALL WORK MUST BE COMPLETED IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF THE STANDARD HIGHWAY SPECIFICATIONS.

3. THE CONTRACTOR SHALL OBTAIN THE NECESSARY TREE PLANTING PERMIT FROM THE NYC DEPARTMENT OF PARKS AND RECREATION (DPR) PRIOR TO THE START OF WORK. ALL NECESSARY TREE PLANTING SHALL BE SUPERVISED BY CERTIFIED ARBORISTS.

4. NO TREE SHALL BE REMOVED BY THE CONTRACTOR UNTIL SPECIFICALLY ORDERED IN WRITING TO DO SO BY THE ENGINEER AND WITH APPROVAL FROM DPR.

5. TREES SHALL BE STAKED AS PER DOT STANDARD DETAILS OF CONSTRUCTION. TREE STAKES ARE TO BE REMOVED BY THE CONTRACTOR NOT LESS THAN ONE YEAR AFTER PLANTING.

6. THE CONTRACTOR SHALL NOT BE PERMITTED TO OPERATE AUXILIARY EQUIPMENT WHICH GENERATES EXHAUST OR OTHER HEAT UPWARD (E.G., GENERATORS AND COMPRESSORS), UNDER THE BRANCHES OF TREES WHERE THE BRANCHES ARE LESS THAN 25' ABOVE THE GROUND, UNLESS APPROVED BY THE ENGINEER IN CONSULTATION WITH THE CERTIFIED ARBORIST.

7. THE CONTRACTOR SHALL NOT BE PERMITTED TO STORE, STOCKPILE, OR LAY DOWN, ANY CONSTRUCTION MATERIAL INCLUDING, BUT NOT LIMITED TO, LUMBER, FUEL, AND OIL CONTAINERS, PIPES, AND/OR PIPE FITTINGS, BARRICADES, HAND TOOLS, HOSES, RECEPTACLES, AND ASPHALT WITHIN ANY EXISTING TREE PIT OR R.O.W. BIOSWALE.

8. REPLACEMENT TREES SHALL BE PLANTED WITHIN THE PROJECT AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH STANDARD HIGHWAY SPECIFICATIONS.

9. FOR R.O.W. GI PRACTICES WITH DIMENSIONS THAT DEVIATE FROM THE GI STANDARDS AS SHOWN ON CONTRACT PLANS DUE TO FIELD CONDITIONS, REFER TO THE DIMENSION SCHEDULE ON G1-122 AND SPECIFICATIONS.
EXISTING CONCRETE APRON PITCH SCHEDULE

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<tr>
<th>LONGITUDINAL STREET SLOPE</th>
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<td>10% - 12%</td>
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<tr>
<td>&gt; 5%</td>
<td>13% - 15%</td>
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FIGURE 1 - PAGE 3 OF 3

REVISED 11/25/2019
NOTE: USE SMALLER SIZE STORMWATER CHAMBER AS SHOWN ON GI-204 WHEN REQUIRED
PLAN

LOCATION OF BIOSWALE VARIES

OUTLET INLET

EXISTING CATCH BASIN

ROWB

ROWB

CONCRETE PATH FOOTER

CLEAR SPACE

5'-0"

PROPERTY LINE

CURB LINE

EXISTING

CONE dti

CONCRETE

STRIP TO FOLLOW CURB TAPER

5'-0"

TOP OF CURB

PITCH

DROP CURB

[INLET]

TOP O CURB

SECTION A-A

AT BIOSWALE INLET

JUTE MESH

1/2" EXPANSION JOINT

AND FILLER PER NYC DOT HIGHWAY SPEC.

SECTION 2.15 (TYP.)

SIDEWALK

1'-6" TO CURB

PLANTED AREA

CONCRETE HEADER (3) SIDES

ENGINEERED SOIL

OPEN-GRADED STONE BASE

12" WIDE GABION WALL FILLED WITH OPEN GRADED STONE

WRAP STONES IN GEOTEXTILE (TOP AND SIDES ONLY)

CONCRETE STRIP TO FOLLOW CURB TAPER OR AS SHOWN ON CONTRACT PLANS

FIGURE 1A - PAGE 2 OF 2

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF ENVIRONMENTAL PLANNING & ANALYSIS - GREEN INFRASTRUCTURE DESIGN & CONSTRUCTION

STANDARD FOR HYDRAULICALLY CONNECTED R.O.W.B. - PERFORATED PIPE

- NO CONNECTION TO SEWERS

5'-0" DEPTH ENTIRE BIOSWALE

OPEN-GRADED STONE BASE WRAPPED IN GEOTEXTILE (TOP AND SIDES ONLY) 6" DIA. SLOTTED P.E. CORRUGATED PIPE WRAPPED IN GEOTEXTILE, CAPPED AT BOTH ENDS CLEAN OUT

6" DIA. SLOTTED P.E. CORRUGATED PIPE WRAPPED IN GEOTEXTILE, CAPPED AT BOTH ENDS CLEAN OUT

5'-0" OR AS SHOWN

5'-0" OR AS SHOWN

3"-THICK LEVELING COURSE

ROADWAY

8" REINFORCED CONCRETE GUTTER

OPEN-GRADED STONE BASE WRAPPED IN GEOTEXTILE (TOP AND SIDES ONLY)

WRAP STONES IN GEOTEXTILE (TOP AND SIDES ONLY)

5'-0" THICK PRECAST CONCRETE WALKWAY

EXPANSION JOINT (TYP.) SIDEWALK

DROP CURB (OUTLET)

ROADWAY

5'-0" OR AS SHOWN

12" WIDE GABION WALL FILLED WITH OPEN GRADED STONE

WRAP GABION WALL IN GEOTEXTILE (TOP AND SIDES ONLY)

18"x46"x8" PRECAST OR POURED REINFORCED CONCRETE APRON

WRAP GABION WALL IN GEOTEXTILE (TOP AND SIDES ONLY)

18"x46"x8" PRECAST OR POURED REINFORCED CONCRETE APRON

WRAP GABION WALL IN GEOTEXTILE (TOP AND SIDES ONLY)

HOPPE BARRIER TO BE INSTALLED ONLY WHEN REQUIRED, SEE GI-204

12" WIDE GABION WALL FILLED WITH OPEN GRADED STONE

WRAP GABION WALL IN GEOTEXTILE (TOP AND SIDES ONLY)

3-SIDED STEEL TREE PIT GUARD SEE DRAWINGS

GI-601A, B, C, D & 602A

SIDEWALK

ENGINEERED SOIL

OPEN-GRADED STONE BASE

12"x5" PRECAST CONCRETE

18"x46"x8" PRECAST OR POURED REINFORCED CONCRETE APRON

HOPE BARRIER TO BE INSTALLED ONLY WHEN REQUIRED, SEE GI-204

5'-0" OR AS SHOWN

12" WIDE GABION WALL FILLED WITH OPEN GRADED STONE

WRAP GABION WALL IN GEOTEXTILE (TOP AND SIDES ONLY)

3-SIDED STEEL TREE PIT GUARD SEE DRAWINGS

GI-601A, B, C, D & 602A

SIDEWALK

ENGINEERED SOIL

OPEN-GRADED STONE BASE

12"x5" PRECAST CONCRETE

18"x46"x8" PRECAST OR POURED REINFORCED CONCRETE APRON

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5'-0" OR AS SHOWN

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3-SIDED STEEL TREE PIT GUARD SEE DRAWINGS

GI-601A, B, C, D & 602A

SIDEWALK

ENGINEERED SOIL

OPEN-GRADED STONE BASE

12"x5" PRECAST CONCRETE

18"x46"x8" PRECAST OR POURED REINFORCED CONCRETE APRON

HOPE BARRIER TO BE INSTALLED ONLY WHEN REQUIRED, SEE GI-204

5'-0" OR AS SHOWN

12" WIDE GABION WALL FILLED WITH OPEN GRADED STONE

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3-SIDED STEEL TREE PIT GUARD SEE DRAWINGS

GI-601A, B, C, D & 602A

SIDEWALK

ENGINEERED SOIL

OPEN-GRADED STONE BASE

12"x5" PRECAST CONCRETE

18"x46"x8" PRECAST OR POURED REINFORCED CONCRETE APRON

HOPE BARRIER TO BE INSTALLED ONLY WHEN REQUIRED, SEE GI-204
**Figure 2 - Page 2 of 3**

**City of New York**

**Department of Environmental Protection**

**Bureau of Environmental Planning & Analysis - Green Infrastructure Design & Construction**

**Standard for 20'x5' R.O.W. Infiltration Basin with Concrete Top Type 1**

- No Connection to Sewers

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**Notes:**

1. The contractor shall be required to remove and replace all existing full sidewalk flags adjacent to the GI practice with a minimum width of 36”. Any additional flags disturbed by this replacement shall also be replaced. The contractor shall replace the sidewalk in full compliance with the applicable sections of the standard highway specifications.

2. The contractor shall remove and restore one-and-a-half (1 1/2’) foot width of the wearing course and one-and-a-half (1 1/2’) foot width of roadway concrete pavement base along the curb line and adjacent to the concrete aprons, where required. All work must be completed in full compliance with the applicable sections of the standard highway specifications.

3. No tree shall be removed by the contractor until specifically ordered in writing to do so by the engineer and with approval from DPR.

4. The contractor shall not be permitted to operate auxiliary equipment which generates exhaust or other heat upward (e.g., generators and compressors) under the branches of trees where the branches are less than 25’ above the ground, unless approved by the engineer in consultation with the certified arborist.

5. The contractor shall not be permitted to store, stockpile, or lay down, any construction material including, but not limited to, lumber, fuel, and oil containers, pipes, and/or pipe fittings, barricades, hand tools, hoses, receptacles, and asphalt within any existing tree pit or R.O.W. GI practice.

6. The contractor shall hand-compact 1’-0” in depth of open graded stone starting at the base of the infiltration basin prior to adding additional open graded stone.

7. The contractor shall cast in place concrete top requires an impermeable membrane. See specifications for impermeable membrane requirements.

8. For R.O.W. GI practices with dimensions that deviate from the GI standards as shown on contract plans due to field conditions, refer to the dimension schedule on GI-108 and specifications.

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**Concrete Apron Pitch Schedule**

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<th>Curvature (Inches)</th>
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<td>2.5 TO &lt; 3</td>
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<td>3 TO &lt; 3.5</td>
<td>17% TO 2 14%</td>
</tr>
<tr>
<td>3.5 TO &lt; 4</td>
<td>14% TO 2 11%</td>
</tr>
<tr>
<td>4 TO 4.5</td>
<td>11% TO 2 10%</td>
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<tr>
<td>&gt; 4.5</td>
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**Street Slope**

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<th>Slope (')</th>
<th>Minimum</th>
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<tr>
<td>5%</td>
<td>10% MIN</td>
</tr>
<tr>
<td>&gt; 5%</td>
<td>12% MIN</td>
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</tbody>
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**Section E-E**

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**Revision 11/25/2019**
FIGURE 2 - PAGE 3 OF 3

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING & ANALYSIS – GREEN INFRASTRUCTURE DESIGN & CONSTRUCTION
DIMENSION SCHEDULE FOR VARIABLE SIZE R.O.W. INFILTRATION BASINS

- NO CONNECTION TO SEWERS

NOTES:
1. STANDARD CROSS-SECTIONAL DETAILS AND NOTES AS PER THE R.O.W. INFILTRATION BASIN TYPE SPECIFIED.
2. #4 REBAR TO BE TREATED WITH THE SAME COATING MATERIAL AS THE STEEL FACE CURB.

REVISED 11/25/2019
FIGURE 3 - Page 1 of 1

NOTES:
1. WEIGHT: 600 LBS MAX.
2. MATERIALS:
   1. FRAME & HANDLE: ALUMINUM ALLOY, 5000 SERIES
   2. DRAIN SCREEN: ALUMINUM ALLOY, 3000 SERIES
   3. RUBBER FEET: Natural Rubber, 40A hardness
   4. HARDWARE: STAINLESS STEEL RIVET
3. PERFORMANCE CHARACTERISTICS:
   1. DRAIN SCREEN: Diameter: 125 mm (5"
   2. FILTER CAPACITY: 255 gpm (426 CPF)
   3. FOR USE WITH 8" CORRUGATED DRAIN PIPE
4. TYPICAL INSTALLATION:
   PUSH SPRING TUBE INSIDE DRAIN PIPE UNTIL UNIT IS FLUSH
   WITH DRAIN PIPE WALL; SOME RESISTANCE IS EXPECTED.
   ONCE INSTALLED, FRICTION BETWEEN RUBBER FEET AND
   PIPE INNER WALL WILL KEEP UNIT IN PLACE. VERIFY A TIGHT FIT.

REFERENCE VIEW

TYPICAL SCREEN CONFIGURATION
FIGURE 6 - Page 1 of 1

NOTED:
1. WEIGHT (LBS): 25 LBS
2. MATERIAL: WELDED ALUMINUM CONSTRUCTION
3. MOUNTING HARDWARE PROVIDED BY FABCO
4. PERFORMANCE CHARACTERISTICS (Typ)
   1. DUCT CAPACITY: 600 CFM
   2. FILTERED FLOW RATE: 770 CFM (127 CFU)
   3. Bypass Flow Rate: 365 CFM (62 CFU)
5. TYPICAL INSTALLATION
   INSTALLATION SHOULD BE PERFORMED BY QUALIFIED PERSONNEL ONLY. CAREFULLY REMOVE THE STORM GRATE, THEN USE THE INSTALLATION TEMPLATE PROVIDED BY FABCO TO LOCATE AND MARK THE HOLES FOR EACH SUPPORT BRACKET. Secure the left and right support brackets using the provided anchors. Lower the inlet screen box onto the brackets as shown and trim the rear hinged panel face against the vault wall.

REFERENCE VIEW

TYPICAL SCREEN CONFIGURATION
EXISTING ASPHALT PAVEMENT

EXISTING CURB TO REMAIN

PLAN

5"-THICK PRECAST OR CAST IN PLACE CONCRETE TOP IMPERMEABLE MEMBRANE
3"-THICK LEVELING COURSE (TYP.)

NEW CURB TYPE PER THE CONTRACT PLANS ROADWAY

8" REINFORCED CONCRETE GUTTER
UNDISTURBED SOIL

BOTTOM HALF OF PIPE TO BE SOLID

WRAP STONE IN GEOTEXTILE (TOP AND SIDES ONLY)

SECTION E-E

OBSERVATION WELL
N.T.S

5'-0" OR AS SHOWN

DUCTILE IRON BOLTED OBSERVATION COVER WITH GRAY IRON FRAME SIDEWALK

8" DIAMETER SLOTTED HDPE

BENTONITE/CEMENT SEAL WITH WELL COVER

PVC CAP

4" PVC SLOTTED WELL SCREEN 0.01 SLOT SIZE WITH PVC CAP

PVC CAP WITH PRIMER AND SOLVENT CEMENT

EXISTING CURB TO REMAIN

FLOOR

FLOOR

OBSERVATION WELL FLUSH WITH THE SURFACE

OBSERVATION WELL - NO CONNECTION TO SEWERS

FLUSH WITH THE SURFACE

5"-THICK CAST IN PLACE OR PRECAST CONCRETE SURFACE

E
STANDARD DESIGNS FOR GREEN INFRASTRUCTURE PRACTICES -TYPE D -
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<td>STANDARD PLANTING PLANS FOR R.O.W. BIOSWALE TYPE 1D</td>
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<td>STANDARD PLANTING PLANS FOR R.O.W. BIOSWALE TYPE 1D</td>
</tr>
<tr>
<td>GI-15</td>
<td>STANDARD PLANTING PLANS FOR R.O.W. BIOSWALE TYPE 2D</td>
</tr>
<tr>
<td>GI-16</td>
<td>STANDARD PLANTING PLANS FOR R.O.W. BIOSWALE TYPE 2D</td>
</tr>
<tr>
<td>GI-17</td>
<td>STANDARD PLANTING PLANS FOR R.O.W. BIOSWALE TYPE 3D</td>
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<tr>
<td>GI-18</td>
<td>STANDARD PLANTING PLANS FOR R.O.W. BIOSWALE TYPE 3D</td>
</tr>
<tr>
<td>GI-19</td>
<td>STORMWATER INLET SECTIONS &amp; DETAILS</td>
</tr>
<tr>
<td>GI-20</td>
<td>STANDARD TYPE D SECTIONS &amp; DETAILS</td>
</tr>
</tbody>
</table>
NOTES:

1. The contractor shall be required to remove and replace all existing full sidewalk flags adjacent to the GI practice with a minimum width of 36". Any additional flags disturbed by this replacement shall also be replaced. The contractor shall replace the sidewalk in full compliance with the applicable sections of the standard highway specifications.

2. The contractor shall obtain the necessary tree planting permit from the NYC Department of Parks and Recreation (DPR) prior to the start of work. All necessary tree planting shall be supervised by certified arborists.

3. No tree shall be removed by the contractor until specifically ordered in writing to do so by the engineer and with approval from DPR.

4. Trees shall be staked as per DOT standard details of construction. Tree stakes are to be removed by the contractor not less than one year after planting.

5. The contractor shall not be permitted to operate auxiliary equipment which generates exhaust or other heat upward (e.g., generators and compressors), under the branches of trees where the branches are less than 25' above the ground, unless approved by the engineer in consultation with the certified arborist.

6. The contractor shall not be permitted to store, stockpile, or lay down any construction material including, but not limited to, lumber, fuel, and oil containers, pipes, and/or pipe fittings, barricades, hand tools, hoses, receptacles, and asphalt within any existing tree pit or R.O.W. bioswale.

7. Replacement trees shall be planted within the project as directed by the engineer in accordance with standard highway specifications.

8. Stone Columns (if applicable)
   a. 14" diameter casing to be augered to depth as directed by engineer. 12" diameter perforated PVC pipe wrapped all around with geotextile fabric inserted in the 14" casing.
**CITY OF NEW YORK**

**DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE**

**STANDARD FOR 20'x5' R.O.W. BIOSWALE TYPE 1D**

- NO CONNECTION TO SEWERS

---

**SECTION A-A**

- **Property Line**
- **Location of Bioswale**
- **Curb Line**
- **Existing Catch Basin**
- **Clean-out and HDPE Pipe**
- **Topsoil**
- **12" Precast Concrete Strip**
- **Brick Base**
- **3" Thick Leveling Course (Typ.)**
- **Roadway**
- **Section B-B**

---

**SECTION B-B**

- **Topsoil**
- **12" Precast Concrete Strip**
- **3" Thick Leveling Course (Typ.)**
- **Roadway Curb**
- **Undisturbed Soil**
- **L-Shaped Edging with Minimum 9" Stakes**
- **Steel Pipe in 4" Dia. Concrete Encasement**
- **8" Diameter HDPE Pipe with Class II Perforations**
- **Open-Graded Stone Base Wrapped in Geotextile, Top and Sides Only**

---

**DEPTH SCHEDULE**

<table>
<thead>
<tr>
<th>Depth</th>
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<th>No Tree</th>
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<tbody>
<tr>
<td>8&quot;</td>
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<tr>
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<td>1'-6&quot;</td>
<td>3'-0&quot;</td>
</tr>
<tr>
<td>9&quot;</td>
<td>5'-2&quot;</td>
<td>8&quot;</td>
</tr>
<tr>
<td>5'-0&quot;</td>
<td>5'-0&quot;</td>
<td>5'-2&quot;</td>
</tr>
<tr>
<td>6&quot;</td>
<td>6&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>5'-0&quot;</td>
<td>5'-0&quot;</td>
<td>5'-0&quot;</td>
</tr>
</tbody>
</table>

**DATE**
07-31-2019
EXISTING ASPHALT PAVEMENT

SIDEWALK 5'-0" OR AS SHOWN

EXISTING CURB
TO REMAIN

NEW CURB TYPE TO MATCH CONTRACT PLANS

PLACE EXPANSION
JOINT AT MID-SPAN

EXPANSION JOINT (TYP.)

OBSERVATION WELL

CONCRETE HEADER

STEEL TREE PIT GUARDS
(3-SIDES TYP.) SEE GI-601A, B, C, D & GI-602A OF THE GREEN INFRASTRUCTURE STANDARDS

EXPANSION JOINT

LIMIT OF NEW CURB TO EXTEND BEYOND THE ROWB AS DETERMINED BY FIELD CONDITIONS AND SITE ENGINEER

STORMWATER INLET SEE GI-19

1'-6" 8" DIAMETER PIPE WITH CLASS II PERFORATIONS

12"x5" PRECAST CONCRETE STRIP

PLAN

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE
STANDARD FOR 20'x5' R.O.W. BIOSWALE TYPE 1D
- NO CONNECTION TO SEWERS

20'-0" OR AS SHOWN

P.E. 07-31-2019
DIRECTOR, ON SITE GREEN INFRASTRUCTURE DESIGN AND CONSTRUCTION
DEPARTMENT OF ENVIRONMENTAL PROTECTION
EXISTING ASPHALT PAVEMENT

EXISTING CURB TO REMAIN

NEW CURB TYPE TO MATCH CONTRACT PLANS

8" DIAMETER PIPE WITH CLASS II PERFORATIONS

PLACE EXPANSION JOINT AT MID-SPAN

1'-6"

12"x5" PRECAST CONCRETE STRIP

STORMWATER INLET SEE GI-19

COLLECT STORMWATER

FLOW

CONCRETE HEADER

EXPANSION JOINT (TYP.)

OBSERVATION WELL

CONCRETE HEADER

EXPANSION JOINT

STEEL TREE PIT GUARDS (3-SIDES TYP.) SEE GI-601A, B, C, D & GI-602A OF THE GREEN INFRASTRUCTURE STANDARDS

LIMIT OF NEW CURB TO EXTEND BEYOND THE ROWS AS DETERMINED BY FIELD CONDITIONS AND SITE ENGINEER

P.E. 07-31-2019

DIRECTOR, ON SITE GREEN INFRASTRUCTURE DESIGN AND CONSTRUCTION

DEPARTMENT OF ENVIRONMENTAL PROTECTION

STANDARD FOR 20'X5' R.O.W. BIOSWALE TYPE 1DA - WITH STONE COLUMNS

- NO CONNECTION TO SEWERS

DIRECTOR, ON SITE GREEN INFRASTRUCTURE DESIGN AND CONSTRUCTION

DEPARTMENT OF ENVIRONMENTAL PROTECTION
EXISTING ASPHALT PAVEMENT

EXISTING CURB TO REMAIN

NEW CURB TYPE TO MATCH CONTRACT PLANS

12"x5" PRECAST CONCRETE STRIP

8" DIAMETER PIPE WITH CLASS II PERFORATIONS

STORMWATER INLET SEE GI-19

EXPANSION JOINT

OBSERVATION WELL

CONCRETE HEADER

STEEL TREE PIT GUARDS (3-SIDES TYP.) SEE GI-601A, B, C, D & GI-602A OF THE GREEN INFRASTRUCTURE STANDARDS

PLAN

EXPANSION JOINT AT MID-SPAN

CLEAN OUT: REFER TO DETAILS GI-20

FLOW

LIMIT OF NEW CURB TO EXTEND BEYOND THE ROWB AS DETERMINED BY FIELD CONDITIONS AND SITE ENGINEER

DIRECTOR, ON SITE GREEN INFRASTRUCTURE DESIGN AND CONSTRUCTION

DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.E. 07-31-2019

DATE

07-31-2019
STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2DA - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

SECTION A-A

SECTION B-B

DEPTH SCHEDULE

STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2DA - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

SECTION A-A

SECTION B-B

DEPTH SCHEDULE

STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2DA - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

SECTION A-A

SECTION B-B

DEPTH SCHEDULE

STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2DA - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

SECTION A-A

SECTION B-B

DEPTH SCHEDULE

STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2DA - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

SECTION A-A

SECTION B-B

DEPTH SCHEDULE

STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2DA - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

SECTION A-A

SECTION B-B

DEPTH SCHEDULE

STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2DA - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

SECTION A-A

SECTION B-B

DEPTH SCHEDULE

STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2DA - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

SECTION A-A

SECTION B-B

DEPTH SCHEDULE

STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2DA - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

SECTION A-A

SECTION B-B

DEPTH SCHEDULE

STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2DA - WITH STONE COLUMNS
- NO CONNECTION TO SEWERS

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

SECTION A-A

SECTION B-B

DEPTH SCHEDULE
EXISTING ASPHALT PAVEMENT

NEW CURB TYPE TO MATCH CONTRACT PLANS

EXISTING CURB TO REMAIN

SIDEWALK

FLOW

STORMWATER INLET SEE GI-19

8" DIAMETER PIPE WITH CLASS II PERFORATIONS

PLACE EXPANSION JOINT AT MID-SPAN

15'-0" OR AS SHOWN

1'-6"

STEEL TREE PIT GUARDS (3-SIDES TYP.) SEE GI-601A, B, C, D & GI-602A OF THE GREEN INFRASTRUCTURE STANDARDS

CONCRETE HEADER EXPANSION JOINT (TYP.)

OBSERVATION WELL

LIMIT OF NEW CURB TO EXTEND BEYOND THE ROW B AS DETERMINED BY FIELD CONDITIONS AND SITE ENGINEER

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIRECTOR, ON SITE GREEN INFRASTRUCTURE DESIGN AND CONSTRUCTION
07-31-2019

DATE

P.E.
EXISTING ASPHALT PAVEMENT

NEW CURB TYPE TO MATCH CONTRACT PLANS
EXISTING CURB TO REMAIN

10'-0" OR AS SHOWN

SIDEWALK

STORMWATER INLET SEE GI-23

8" DIAMETER PIPE WITH CLASS II PERFORATIONS

EXPANSION JOINT (TYP.)

STORAGE WELL

CONCRETE HEADER

STEEL TREE PIT GUARDS (3-SIDES TYP.) SEE DRAWING GI-601A, B, C, D & GI-602A OF THE GREEN INFRASTRUCTURE STANDARDS

LIMIT OF NEW CURB TO EXTEND BEYOND THE ROW AS DETERMINED BY FIELD CONDITIONS AND SITE ENGINEER

CLEAN OUT, REFER TO DETAILS GI-20

EXPANSION JOINT

PLAN

1'-0"

3'-0"

8" DIAMETER PIPE WITH CLASS II PERFORATIONS

8'-0" OR AS SHOWN

EXISTING CURB TO REMAIN

P.E. 07-31-2019

DIRECTOR, ON SITE GREEN INFRASTRUCTURE DESIGN AND CONSTRUCTION DEPARTMENT OF ENVIRONMENTAL PROTECTION
DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

STANDARD FOR 10'X5' R.O.W. BIOSWALE TYPE 3DA - WITH STONE COLUMN

- NO CONNECTION TO SEWERS

LOCATION OF BIOSWALE VARIES

18'-0" OR AS SHOWN

CURB LINE

EXISTING CONCRETE SIDEWALK

SECTION A-A

STONE FILLED PERFORATED 12" DIAMETER PVC PIPE WRAPPED ALL AROUND WITH GEOTEXTILE FABRIC (TYP.)

OPEN BOTTOM (TYP.)

UNDISTURBED PERMEABLE SOIL LAYER

SECTION B-B

DEPTH SCHEDULE

ROW B A B

WITH TREE 3'-0" 2'-0"

NO TREE 3'-0" 2'-0"

PERMEABLE SOIL LAYER

FINAL DEPTH OF PVC PIPE TO BE DETERMINED BY ENGINEER

OPEN-GRADED STONE BASE WRAPPED IN GEOTEXTILE (TOP AND SIDES ONLY)

PERFORATED HDPE PIPE 12" WIDE GABION WALL FILLED WITH OPEN-GRADED STONE

1/2" EXPANSION JOINT AND FILLER PER NYC DOT HIGHWAY SPEC. SECTION 2.15 (TYP.)

TOP LATER, 2'-3" MULCH CLEANOUT

STREET TREE PIT GUARDS (3 SIDES TYP.) SEE GI-601A, B, C, D & GI-602A OF THE GREEN INFRASTRUCTURE STANDARDS

UNDISTURBED SOIL

8" DIAMETER HDPE PIPE WITH CLASS II PERFORATIONS

4" PVC SLOTTED WELL SCREEN 0.01 SLOT SIZE WITH PVC CAP TOP LAYER, 2" MULCH

FLOW

CLEAROUT AND DRAIN PIPE SEE DETAIL ON DRAWING GI-20

OBSERVATION WELL

BUILDING PERMITS AND CONSTRUCTION

DIRECTOR, ON SITE GREEN INFRASTRUCTURE DESIGN AND CONSTRUCTION

DEPARTMENT OF ENVIRONMENTAL PROTECTION

07-31-2019

P.E.
EXISTING ASPHALT PAVEMENT

EXISTING CURB TO REMAIN

NEW CURB TYPE TO MATCH CONTRACT PLANS

EXPANSION JOINT (TYP.)

STORMWATER INLET
SEE GI-23

FLOW

LIMIT OF NEW CURB TO EXTEND BEYOND THE ROWB AS DETERMINED BY FIELD CONDITIONS AND SITE ENGINEER

CONCRETE HEADER

OBSERVATION WELL

STEEL TREE PIT GUARDS
(3-SIDES TYP.) SEE DRAWING GI-601A, B, C, D & GI-602A OF THE GREEN INFRASTRUCTURE STANDARDS

PLAN

STONE COLUMN

SIDEWALK

10'-0" OR AS SHOWN

1/4" OR AS SHOWN

STORMWATER INLET
SEE GI-23

CONCRETE HEADER

EXPANSION JOINT

EXISTING CURB
TO REMAIN

NEW CURB TYPE TO MATCH CONTRACT PLANS

LIMIT OF NEW CURB TO EXTEND BEYOND THE ROWB AS DETERMINED BY FIELD CONDITIONS AND SITE ENGINEER

12"x6" PRECAST CONCRETE STRIP

EXPANSION JOINT

P.E.

DATE

DIRECTOR, ON SITE GREEN INFRASTRUCTURE DESIGN AND CONSTRUCTION DEPARTMENT OF ENVIRONMENTAL PROTECTION

07-31-2019

STANDARD FOR 10'X5' R.O.W. BIOSWALE TYPE 3D - WITH STONE COLUMNS - NO CONNECTION TO SEWERS

DIRECTOR, ON SITE GREEN INFRASTRUCTURE DESIGN AND CONSTRUCTION DEPARTMENT OF ENVIRONMENTAL PROTECTION

07-31-2019
### INDUSTRIAL ROWBS IN COMMERCIAL AND INDUSTRIAL AREAS

#### INDUSTRIAL SUN - Type I

<table>
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<tr>
<th>QTY</th>
<th>KEY</th>
<th>SYMBOL</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>Enh</td>
<td>A</td>
<td>PERENNIAL</td>
<td>ECHINACEA 'CHEYENNE SPIRIT'</td>
<td>CONEFLOWER</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>10</td>
<td>AA</td>
<td>B</td>
<td>SHRUB</td>
<td>RUBUS ARCTOFOXIA 'BRELLA'</td>
<td>CRAB BERRY</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>12</td>
<td>Aer</td>
<td>D</td>
<td>GROUNDCOVER</td>
<td>NEPETA 'WALKERS LOW'</td>
<td>CATMINT</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
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<tr>
<td>9</td>
<td>No</td>
<td>B</td>
<td>PERENNIAL</td>
<td>NYAUXIS 'DUTCH MASTER'</td>
<td>TRUMPET CAMPION</td>
<td>BULB</td>
<td>Varies</td>
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</table>

Additional planting in Row Bioswale with no tree:

#### INDUSTRIAL MIXED SUN/SHADE - Type I

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<tr>
<th>QTY</th>
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<th>SIZE</th>
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<tbody>
<tr>
<td>12</td>
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<td>ASTER LATERIFLORUS 'LADY IN BLACK'</td>
<td>CAUCO ASTER</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>10</td>
<td>RA</td>
<td>B</td>
<td>SHRUB</td>
<td>RHUS OXYCARPA 'GRO LOW'</td>
<td>FRAGRANT SUMAC</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
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<tr>
<td>6</td>
<td>Te</td>
<td>C</td>
<td>GRASSES</td>
<td>TRITONIA FLAVUS</td>
<td>PURPLETOP</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
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<tr>
<td>12</td>
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<td>D</td>
<td>GROUNDCOVER</td>
<td>MEZIANIA CORDATA</td>
<td>CREEPING MINT</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
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<tr>
<td>9</td>
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<td>PERENNIAL</td>
<td>NYAUXIS 'DUTCH MASTER'</td>
<td>TRUMPET CAMPION</td>
<td>BULB</td>
<td>Varies</td>
</tr>
</tbody>
</table>

Additional planting in Row Bioswale with no tree:

#### INDUSTRIAL SHADE - Type I

<table>
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<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
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</thead>
<tbody>
<tr>
<td>12</td>
<td>Sea</td>
<td>A</td>
<td>GRASSES</td>
<td>CAREX APPALACHICA</td>
<td>APPALACHIAN SEDGE</td>
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<td>18&quot; O.C.</td>
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<tr>
<td>10</td>
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<td>B</td>
<td>SHRUB</td>
<td>ROSA VIRGINIANA</td>
<td>VIRGINIA ROSE</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>6</td>
<td>Cla</td>
<td>C</td>
<td>GRASSES</td>
<td>CHASMANTHIUM LATIFOLIUM</td>
<td>NORTHERN SEA OATS</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
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<tr>
<td>12</td>
<td>Cap</td>
<td>D</td>
<td>PERENNIAL</td>
<td>SOLIDAGO CAESIA</td>
<td>BLUE STEM GOLDENROD</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>19</td>
<td>Mal</td>
<td>E</td>
<td>PERENNIAL</td>
<td>NYAUXIS 'DUTCH MASTER'</td>
<td>TRUMPET CAMPION</td>
<td>BULB</td>
<td>Varies</td>
</tr>
</tbody>
</table>

Additional planting in Row Bioswale with no tree:

### PLANTING DETAIL

**NOT TO SCALE**

**PLANTS-HAVE-WATER-RETAINING-SOIL-PLACERS**

**PLANTING DETAIL**

**NOT TO SCALE**

**PLANTS HAVE WATER RETAINING SOIL SAUCERS**

**NOTES:**

1. PLANTING LOCATIONS ARE SPECIFIC TO THE ORIENTATION SHOWN. SPECIES AND PLANS PER DRAWINGS.

2. THE AREA DIRECTLY ABOVE THE TREE ROOTBALL (1.5' RADIUS) IS NOT TO BE PLANTED WITH SHRUBS, PERENNIALS, OR GRASSES.

3. ALL AREAS ARE TO RECEIVE 3" MULCH COVER UPON PLANTING. MULCH MUST NOT COME INTO CONTACT WITH WOODY STEMS OF PLANTS.

---

**DIRECTOR, ON SITE GREEN INFRASTRUCTURE DESIGN AND CONSTRUCTION**

**DATE**

**DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**P.E.**

**DIRECTOR, DEPARTMENT OF ENVIRONMENTAL PROTECTION**

**07-31-2019**
RESIDENTIAL ROWBS IN RESIDENTIAL AREAS

RESIDENTIAL SUN GARDEN - Type I

<table>
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<tr>
<th>QTY</th>
<th>KEY</th>
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<th>TYPE</th>
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<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
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<tbody>
<tr>
<td>14</td>
<td>Aer</td>
<td>A</td>
<td>GROUNDCOVER</td>
<td>ASTER EREIDES 'SNOW FLURRY'</td>
<td>HEATH ASTER</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>6</td>
<td>HC</td>
<td>B</td>
<td>SHRUB</td>
<td>HYPERICUM CALYCEUM</td>
<td>ST. JOHN'S WORT</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
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<tr>
<td>12</td>
<td>Ssc</td>
<td>C</td>
<td>GRASSES</td>
<td>SCHIZACHYRIUM SCOPARIUM</td>
<td>LITTLE BLUE STEM</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
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<tr>
<td>8</td>
<td>Atu</td>
<td>D</td>
<td>PERENNIAL</td>
<td>ASCLEPIAS TUBEROUS</td>
<td>BUTTERFLY MILKWEED</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
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<tr>
<td>17</td>
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<td>PERENNIAL</td>
<td>NARCISSUS 'DUTCH MASTER'</td>
<td>TRUMPET DAFFODIL</td>
<td>BULB</td>
<td>VARIES</td>
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ADDITIONAL PLANTING IN ROW BIOSWALE WITH NO TREE

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RESIDENTIAL SHADE GARDEN - Type I

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<tr>
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ADDITIONAL PLANTING IN ROW BIOSWALE WITH NO TREE

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RESIDENTIAL MIXED SUN/SHADE - Type I

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ADDITIONAL PLANTING IN ROW BIOSWALE WITH NO TREE

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1. PLANTING LOCATIONS ARE SPECIFIC TO THE ORIENTATION SHOWN. SPECIES AND PLANS PER DRAWINGS.
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3. ALL AREAS ARE TO RECEIVE 3" MULCH COVER UPON PLANTING. MULCH MUST NOT COME INTO CONTACT WITH WOODY STEMS OF PLANTS.

DATE: 07-31-2019

G. R. PAULINO, P.E.
DEPARTMENT OF ENVIRONMENTAL PROTECTION
INDUSTRIAL SUN - Type II

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ADDITIONAL PLANTING IN ROW BIOSWALE WITH NO TREE

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INDUSTRIAL SHADE - Type II

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<tr>
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INDUSTRIAL MIXED SUN/SHADE - Type II

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<tr>
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<td>18&quot; O.C.</td>
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### RESIDENTIAL SUN GARDEN - Type II

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</table>

**ADDITIONAL PLANTING IN ROW BIOSWALE WITH NO TREE**

| (4) | D | PERENNIAL | VERONICA SPICATA 'GLORY' | ROYAL CANDLES | 1-GALLON | 18" O.C. |

### RESIDENTIAL SHADE GARDEN - Type II

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<td>BLUESTAR</td>
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<td>Narcissus 'Dutch Master'</td>
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<td>VARIES</td>
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**ADDITIONAL PLANTING IN ROW BIOSWALE WITH NO TREE**

| (4) | E/F | PERENNIAL | VERONICA SPICATA 'GLORY' | ROYAL CANDLES | 1-GALLON | 18" O.C. |

### RESIDENTIAL MIXED SUN/SHADE - Type II

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<td>SHRUB</td>
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<td>CHOKEBERRY</td>
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<td>C</td>
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<td>AMSONIA 'BLUE ICE'</td>
<td>BLUESTAR</td>
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<tr>
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<td>D</td>
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<td>NARCISUS 'DUTC MASHER'</td>
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<td>VARIES</td>
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**ADDITIONAL PLANTING IN ROW BIOSWALE WITH NO TREE**

| (4) | E/F | PERENNIAL | VERONICA SPICATA 'GLORY' | ROYAL CANDLES | 1-GALLON | 18" O.C. |

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**PLANTING DETAIL**

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<th>COMPONENT</th>
<th>DETAILS</th>
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<td>TOP LAYER</td>
<td>3&quot; MULCH</td>
</tr>
<tr>
<td>MIDDLE LAYER</td>
<td>3&quot; MULCH</td>
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<tr>
<td>BOTTOM LAYER</td>
<td>3&quot; MULCH</td>
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</table>

**ENGINEERED SOIL**

- LOOSEN AND SCORE Roots OF ALL POTTED PLANTS BEFORE PLANTING
- ROOT FLARE OF TREE EXPOSED
- NO PLANTING ABOVE TREE ROOT BALL
- ALL PLANTS PLANTED AT OR ABOVE GRADE, NOT MOVABLE OR MOVING, WITHOUT MULCHED CUPS

**PLANTING PER DPR STANDARDS**

- ALL PLANTS PLANTED AT GRADE, NOT ABOVE OR BELOW, WITHOUT MOUNTED SOIL
- TREE PLANTING AS REQUIRED IN SPECIFICATIONS PER VRB2-D:
- OPEN- GRADED STONE

**UPDATES:**

- SEPTEMBER 10, 2019
### INDUSTRIAL SUN-Type III

<table>
<thead>
<tr>
<th>QTY</th>
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<tbody>
<tr>
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<td>A</td>
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<td>8</td>
<td>Ech</td>
<td>B</td>
<td>GRASSES</td>
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<td>SWITCHGRASS</td>
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<td>GROUNDCOVER</td>
<td>REPEETA 'WALKERS LOW'</td>
<td>CATMINT</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>12</td>
<td>Ndu</td>
<td>D</td>
<td>PERENNIAL</td>
<td>NARCISSUS 'DUTCH MASTER'</td>
<td>TRUMPET DAFFODIL</td>
<td>BULB</td>
<td>VARIES</td>
</tr>
<tr>
<td>3</td>
<td>Sne</td>
<td>E</td>
<td>PERENNIAL</td>
<td>SALVIA NEMOROSA 'CARADONNA'</td>
<td>GARDEN SAGE</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>3</td>
<td>MP</td>
<td>D/E</td>
<td>PERENNIAL</td>
<td>ASTER LATERIFLORUS 'LADY IN BLACK'</td>
<td>CAULIFLOWER ASTER</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
</tbody>
</table>

### INDUSTRIAL SHADE-Type III

<table>
<thead>
<tr>
<th>QTY</th>
<th>KEY</th>
<th>SYMBOL</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Tst</td>
<td>A</td>
<td>GRASSES</td>
<td>CAREX APPALACHICA</td>
<td>PENNSYLVANIA SEDGE</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>8</td>
<td>Cap</td>
<td>B</td>
<td>PERENNIAL</td>
<td>PYCNANTHEMUM MULTICOLOR</td>
<td>CLUSTERED MOUNTAIN MINT</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>6</td>
<td>Mic</td>
<td>C</td>
<td>GROUNDCOVER</td>
<td>MEHEANIA CORBATA</td>
<td>CREEPING MINT</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>12</td>
<td>Ndu</td>
<td>D</td>
<td>PERENNIAL</td>
<td>NARCISSUS 'DUTCH MASTER'</td>
<td>TRUMPET DAFFODIL</td>
<td>BULB</td>
<td>VARIES</td>
</tr>
<tr>
<td>6</td>
<td>Aco</td>
<td>D/E</td>
<td>PERENNIAL</td>
<td>ASTER CORDIFOLIUS</td>
<td>BLUE WOOD ASTER</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
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### INDUSTRIAL MIXED SUN/SHADE-Type III

<table>
<thead>
<tr>
<th>QTY</th>
<th>KEY</th>
<th>SYMBOL</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
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<td>GRASSES</td>
<td>CAREX PENNSYLVANICA</td>
<td>PENNSYLVANIA SEDGE</td>
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</tr>
<tr>
<td>8</td>
<td>Alc</td>
<td>B</td>
<td>PERENNIAL</td>
<td>ASTER LATERIFLORUS 'LADY IN BLACK'</td>
<td>CAULIFLOWER ASTER</td>
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<td>18&quot; O.C.</td>
</tr>
<tr>
<td>12</td>
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<td>D</td>
<td>PERENNIAL</td>
<td>NARCISSUS 'DUTCH MASTER'</td>
<td>TRUMPET DAFFODIL</td>
<td>BULB</td>
<td>VARIES</td>
</tr>
</tbody>
</table>

### PLANTING DETAIL

1. PLANTING LOCATIONS ARE SPECIFIC TO THE ORIENTATION SHOWN. SPECIES AND PLANS PER DRAWINGS.
2. THE AREA DIRECTLY ABOVE THE TREE ROOTBALL (1.5' RADIUS) IS NOT TO BE PLANTED WITH SHRUBS, PERENNIALS, OR GRASSES.
3. ALL AREAS ARE TO RECEIVE 3" MULCH COVER UPON PLANTING. MULCH MUST NOT COME INTO CONTACT WITH WOODY STEMS OF PLANTS.

**NOTES:**

- PLANTING LOCATIONS ARE SPECIFIC TO THE ORIENTATION SHOWN. SPECIES AND PLANS PER DRAWINGS.
- THE AREA DIRECTLY ABOVE THE TREE ROOTBALL (1.5' RADIUS) IS NOT TO BE PLANTED WITH SHRUBS, PERENNIALS, OR GRASSES.
- ALL AREAS ARE TO RECEIVE 3" MULCH COVER UPON PLANTING. MULCH MUST NOT COME INTO CONTACT WITH WOODY STEMS OF PLANTS.
### RESIDENTIAL SUN GARDEN - Type III

<table>
<thead>
<tr>
<th>QTY</th>
<th>KEY</th>
<th>SYMBOL</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Aer</td>
<td>A</td>
<td>GROUNDCOVER</td>
<td>ASTER ERICOIDES 'SNOW FLURRY'</td>
<td>HEATH ASTER</td>
<td>1-GALLON</td>
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</tr>
<tr>
<td>10</td>
<td>Ssc</td>
<td>B</td>
<td>GRASSES</td>
<td>SCHIZACHYRIUM SCOPARIUM</td>
<td>LITTLE BLUE STEM</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>8</td>
<td>Ami</td>
<td>C</td>
<td>PERENNIAL</td>
<td>ACHILLEA MILLEFOILIUM 'PAPRIKA'</td>
<td>YARROW</td>
<td>1-GALLON</td>
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</tr>
<tr>
<td>12</td>
<td>Ndu</td>
<td>⚫</td>
<td>PERENNIAL</td>
<td>NARCISSUS 'DUTCH MASTER'</td>
<td>TRUMPET DAFFODIL</td>
<td>BULB</td>
<td>VARIES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ADDITIONAL PLANTING IN ROW BIOSWALE WITH NO TREE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>MP</td>
<td>D</td>
<td>SHRUB</td>
<td>MORELLA PENSYLVANICA</td>
<td>BAYBERRY</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>2</td>
<td>Hhe</td>
<td>E</td>
<td>PERENNIAL</td>
<td>HELIOPSIS NEUANGIOIDES 'SUMMER NIGHTS'</td>
<td>SMOOTH OXYEYE</td>
<td>1-GALLON</td>
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### RESIDENTIAL SHADE GARDEN - Type III

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<thead>
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<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
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<td>A</td>
<td>GRASSES</td>
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<td>PENNSYLVANIA SEDGE</td>
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<tr>
<td>10</td>
<td>Gma</td>
<td>B</td>
<td>GROUNDCOVER</td>
<td>GERANIUM MACULATUM</td>
<td>WILD GERANIUM</td>
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<td>18&quot; O.C.</td>
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<tr>
<td>8</td>
<td>Pmu</td>
<td>C</td>
<td>PERENNIAL</td>
<td>PTCNANTHEMUM MUTICUM</td>
<td>CLUSTERED MOUNTAIN MINT</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
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<tr>
<td>12</td>
<td>Ndu</td>
<td>⚫</td>
<td>PERENNIAL</td>
<td>NARCISSUS 'DUTCH MASTER'</td>
<td>TRUMPET DAFFODIL</td>
<td>BULB</td>
<td>VARIES</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ADDITIONAL PLANTING IN ROW BIOSWALE WITH NO TREE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>CA</td>
<td>D</td>
<td>SHRUB</td>
<td>AMSONIA 'BLUE ICE'</td>
<td>BLUESTAR</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>2</td>
<td>Gma</td>
<td>B</td>
<td>GROUNDCOVER</td>
<td>GERANIUM MACULATUM</td>
<td>WILD GERANIUM</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
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### RESIDENTIAL MIXED SUN/SHADE Type III

<table>
<thead>
<tr>
<th>QTY</th>
<th>KEY</th>
<th>SYMBOL</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
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</thead>
<tbody>
<tr>
<td>6</td>
<td>Chr</td>
<td>A</td>
<td>GRASSES</td>
<td>CAREX FLACCA 'BLUE ZINGER'</td>
<td>GLACIOUS SEDGE</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>10</td>
<td>Abi</td>
<td>B</td>
<td>PERENNIAL</td>
<td>AMSONIA 'BLUE ICE'</td>
<td>BLUESTAR</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>8</td>
<td>Pni</td>
<td>C</td>
<td>GRASSES</td>
<td>PANICUM VIRGATUM 'SCHNURBUCH'</td>
<td>SWITCHGRASS</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
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<tr>
<td>12</td>
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<td>⚫</td>
<td>PERENNIAL</td>
<td>NARCISSUS 'DUTCH MASTER'</td>
<td>TRUMPET DAFFODIL</td>
<td>BULB</td>
<td>VARIES</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td><strong>ADDITIONAL PLANTING IN ROW BIOSWALE WITH NO TREE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>AA</td>
<td>D</td>
<td>SHRUB</td>
<td>ARONIA ARBUTIFOLIA 'BRILLIANTIASSMA'</td>
<td>CHOROEBERRY</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
<tr>
<td>2</td>
<td>Chr</td>
<td>E</td>
<td>GRASSES</td>
<td>CAREX FLACCA 'BLUE ZINGER'</td>
<td>GLACIOUS SEDGE</td>
<td>1-GALLON</td>
<td>18&quot; O.C.</td>
</tr>
</tbody>
</table>

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3. **ALL AREAS ARE TO RECEIVE 3" MULCH COVER UPON PLANTING. MULCH MUST NOT COME INTO CONTACT WITH WOODY STEMS OF PLANTS.**
EXISTING ASPHALT PAVEMENT

EXISTING CURB TO REMAIN

NEW CURB TYPE TO MATCH CONTRACT PLANS EXISTING CURB TO REMAIN

6" DIA. PIPE WITH BRICK COURSE ABOVE SHOWN FOR CLARITY

LEVELING COURSE

OPEN-GRADED STONE BASE 5-#6@3" OC

STORMWATER INLET SECTIONS & DETAILS - NO CONNECTION TO SEWERS

CITY OF NEW YORK

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF ENVIRONMENTAL PLANNING AND ANALYSIS - GREEN INFRASTRUCTURE

STORMWATER INLET SECTIONS & DETAILS

- NO CONNECTION TO SEWERS

DIRECTOR, ON SITE GREEN INFRASTRUCTURE DESIGN AND CONSTRUCTION

DEPARTMENT OF ENVIRONMENTAL PROTECTION

07-31-2019

07-31-2019

P.E.

DATE
September 6, 2019

Jennifer Cass
Vice President & Chief of Staff, Capital Program
NYC Economic Development Corporation
One Liberty Plaza
New York, NY 10006

Subject: Planting Plan Updates for Construction Use

Dear Ms. Cass

DEP would like to distribute the latest updates to the Planting Plans. Please find attached, changes to the Planting Plans for ROW Bioswales and Greenstrips. (Revisions shown in red)

The following changes to the new plan include:

1. Container sizes are now all 1-gallon containers (were #1, #2, #3, and #5).
2. Quantities have been reduced and everything has the same spacing (18” O.C.).
3. Residential and Urban Palettes have been eliminated.
4. Palettes are based on more site analysis as they refer to:
   a. How wet or dry the asset is expected to be
   b. How sunny or shady the asset is expected to be.
5. Bulbs are added in clusters in the perimeter
6. Updates to the Planting Specifications
7. Plant quantities have been reduced at inlet to allow space for sediment control device.

To facilitate in the transition from the 2017 Plan to the 2019 Plan, consult the table below to make substitutions for planting plans already assigned to assets. When deciding between the two choices, where possible, consider which side of the street the asset is located on (North, South, East, West), location of tall buildings, and known information about flow direction, and proximity to catch basins (i.e. location in TDA).

<table>
<thead>
<tr>
<th>Standard ROW Bioswales:</th>
<th>2017 Plan</th>
<th>2019 Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Plan Version</td>
<td></td>
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<tr>
<td>Residential 1</td>
<td>A</td>
<td>Combination Wet/Dry - Mixed Sun and Shade</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Dry - Mixed Sun/Shade</td>
</tr>
<tr>
<td>Residential 2</td>
<td>A</td>
<td>Wet - Sunny*</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Wet - Mixed Sun/Shade*</td>
</tr>
<tr>
<td>Urban 1</td>
<td>A</td>
<td>Wet - Mixed Sun/Shade</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Wet - Sunny</td>
</tr>
<tr>
<td>Urban 2</td>
<td>A</td>
<td>Wet Shady*</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Combination Wet/Dry - Sunny</td>
</tr>
<tr>
<td>Urban 3</td>
<td>A</td>
<td>Dry - Mixed Sun/Shade</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Dry - Shady</td>
</tr>
<tr>
<td>Shady Plan</td>
<td>A</td>
<td>Combination Wet/Dry - Shady</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Combination Wet/Dry - Shady</td>
</tr>
<tr>
<td>Dry Plan</td>
<td>A</td>
<td>Dry - Mixed Sun/Shade</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Dry - Shady</td>
</tr>
</tbody>
</table>
**Wet Plan**

<table>
<thead>
<tr>
<th>Wet Plan</th>
<th>2017 Plan</th>
<th>2019 Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>Full Sun Plan 1</td>
<td>Dry- Sunny</td>
</tr>
<tr>
<td></td>
<td>Sun/Part Shade Plan 1</td>
<td>Combination Wet/Dry - Mixed Sun/Shade</td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>Full Sun Plan 2</td>
<td>Combination Wet/Dry - Sunny</td>
</tr>
<tr>
<td></td>
<td>Sun/Part Shade Plan 2</td>
<td>Wet- Shade</td>
</tr>
<tr>
<td></td>
<td>Residential Plan, Wet, Sun to Part Shade</td>
<td>Combination Wet/Dry - Sunny</td>
</tr>
<tr>
<td></td>
<td>Residential Plan, Sun and Dry- 1</td>
<td>Combination Wet/Dry - Sunny</td>
</tr>
<tr>
<td></td>
<td>Residential Plan Sun and Dry- 2</td>
<td>Wet- Mixed Sun/Shade</td>
</tr>
</tbody>
</table>

**Plants Schedule Expansion**

Unless otherwise directed by the Engineer in writing, the contractor shall perform actual planting only when weather and soil conditions are suitable for optimal benefit to the plant. Contractor is expected to secure plant material months in advance (6 months is ideal) to ensure availability at anticipated time of planting. No plant material shall be planted when the ground is frozen or in excessively moist condition. Contractor shall also provide water to the plants as necessary if conditions are expected to be dry and hot. Upon completion of installation, contractor shall install a silt sock, weighted sediment tube or approved equal in the inlet of the practice to protect plants during the establishment period.

Planting seasons are as follows:

**Spring**
- Evergreen: April 1 to May 15
- Deciduous: March 1 to May 15
- Herbaceous: April 15 to May 15

**Fall**
- Evergreen: September 1 to October 15
- Deciduous: September 15 to December 15
- Herbaceous: August 15 to October 1

*Note: Unless approval is obtained by DPR, the following is a list of trees considered unsuitable for fall planting due to the high risk of failure (aka. “Fall Dig Hazard Trees”). These trees may be planted in the fall but must be dug in the spring and held over:

<table>
<thead>
<tr>
<th>Scientific Name</th>
<th>Common Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acer rubrum</td>
<td>Red Maple</td>
</tr>
<tr>
<td>Betula sp.</td>
<td>Birches</td>
</tr>
<tr>
<td>Carpinus sp.</td>
<td>Hornbeams</td>
</tr>
<tr>
<td>Celtis sp.</td>
<td>Hackberries</td>
</tr>
<tr>
<td>Plant Name</td>
<td>Common Name</td>
</tr>
<tr>
<td>--------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Cercis sp.</td>
<td>Redbuds</td>
</tr>
<tr>
<td>Cornus sp.</td>
<td>Dogwoods</td>
</tr>
<tr>
<td>Crataegus sp.</td>
<td>Hawthornes</td>
</tr>
<tr>
<td>Halesia sp.</td>
<td>Silverbells</td>
</tr>
<tr>
<td>Koelreuteria paniculata</td>
<td>Golden raintree</td>
</tr>
<tr>
<td>Liquidambar styraciflua</td>
<td>Sweetgum</td>
</tr>
<tr>
<td>Malus sp.</td>
<td>Crabapples</td>
</tr>
<tr>
<td>Nyssa sylvatica</td>
<td>Black Gum</td>
</tr>
<tr>
<td>Ostrya virginiana</td>
<td>Hophornbeam</td>
</tr>
<tr>
<td>Prunus</td>
<td>All stone fruits: Plum, cherry etc.</td>
</tr>
<tr>
<td>Platanus sp.</td>
<td>Planetrees</td>
</tr>
<tr>
<td>Quercus sp.</td>
<td>Oaks</td>
</tr>
<tr>
<td>Taxodium distichum</td>
<td>Bald Cypress</td>
</tr>
<tr>
<td>Tilia tomentosa</td>
<td>Silver Linden</td>
</tr>
<tr>
<td>Ulmus parvifolia</td>
<td>Chinese Elm</td>
</tr>
<tr>
<td>Zelcova serrata</td>
<td>Zelcovas</td>
</tr>
</tbody>
</table>

Thank you for your assistance in the distribution of these new designs. Please reach out to Sarah Bray at 718-595-4426 or sbray@dep.nyc.gov with any questions.

Sincerely,

Adriana Kocovic, PMP, ENV SP
Director
ROW Green Infrastructure Design and Construction
Bureau of Environmental Planning and Analysis
NYC Environmental Protection

c. P. Balci
F. Reyes
A. Garcia
ROWB PLANTING PLAN LAYOUTS

TYPE I

A B C
Tree 14 10 6
No Tree 12 14 7

TYPE II

A B C
Tree 12 8 3
No Tree 14 10 5

NOTEs FOR CONSTRUCTION:
1. PLANTING LOCATIONS ARE SPECIFIC TO EACH TYPE SHOWN.
2. PLANTING PLANS ARE DETERMINED PER THE SCHEDULE ON PLANTING PLANS FOR
STANDARD ROWS PAGES.
3. TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPR, AND SHOULD
CONFORM TO DPR'S STREET TREE SIZE AND FORM.
4. THE AREA DIRECTLY ABOVE THE TREE ROOTTAIL (1.5' RADIUS) IS NOT TO BE PLANTED WITH
SHRUBS, PERENNIALS, OR GRASSES, IN ACCORDANCE WITH DPR REQUIREMENTS.
5. FIVE (5) TO SIX (6) ADDITIONAL PLANTS PLANTED AS SHOWN (IN GREY) ONLY IN ROWS WITH
NO TREES.
6. AREA DIRECTLY IN FRONT OF INLET SHALL REMAIN UNPLANTED AND RESERVED FOR
SEDIMENT CONTROL.

PLANTING DETAIL

NOT TO SCALE
### SUNNY (SOUTH-FACING) PLANTING PLAN FOR WET SITES

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SHRUB</td>
<td>CORYLUS VULGARIS 'KELSEY'S DWARF</td>
<td>RED-OSSIE DOGWOOD</td>
<td>1-GALLON</td>
<td>18&quot; O.C</td>
</tr>
<tr>
<td>B</td>
<td>GRASS</td>
<td>ACORUS AMERICANUS</td>
<td>AMERICAN SWEETFLAG</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>PERENNIAL</td>
<td>SOLIDAGO SEMPERVIRENS</td>
<td>SEASIDE GOLDENROD</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PERENNIAL</td>
<td>NARCISSUS 'DUTCH MASTER'</td>
<td>TRUMPET DAFFODIL</td>
<td>BULB</td>
<td>CLUSTER 2-3 A</td>
</tr>
</tbody>
</table>

### SHADY (NORTH-FACING) WET PLANTING PLAN FOR WET SITES

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SHRUB</td>
<td>LECN GLABRA 'SHAMROCK'</td>
<td>SHAMROCK INKBERRY</td>
<td>1-GALLON</td>
<td>18&quot; O.C</td>
</tr>
<tr>
<td>B</td>
<td>PERENNIAL</td>
<td>SYMPHYTICHROCH CORDIFOLIUM</td>
<td>BLUE WOOD ASTER</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>GRASS</td>
<td>CHASMANTRIUM LATIFOLIUM</td>
<td>NORTHERN SEA OATS</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PERENNIAL</td>
<td>NARCISSUS 'DUTCH MASTER'</td>
<td>TRUMPET DAFFODIL</td>
<td>BULB</td>
<td>CLUSTER 2-3 A</td>
</tr>
</tbody>
</table>

### MIXED SUN AND SHADE (EAST/WEST-FACING) PLANT SCHEDULE FOR WET SITES

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SHRUB</td>
<td>LECN GLABRA 'SHAMROCK'</td>
<td>SHAMROCK INKBERRY</td>
<td>1-GALLON</td>
<td>18&quot; O.C</td>
</tr>
<tr>
<td>B</td>
<td>PERENNIAL</td>
<td>IRIS VERSICOLOR</td>
<td>BLUE FLAG IRIS</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>GRASS</td>
<td>CAREX 'ICE DANCE'</td>
<td>SEDGE</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PERENNIAL</td>
<td>NARCISSUS 'DUTCH MASTER'</td>
<td>TRUMPET DAFFODIL</td>
<td>BULB</td>
<td>CLUSTER 2-3 A</td>
</tr>
</tbody>
</table>

### MIXED SUN AND SHADE (EAST/WEST-FACING) PLANTING PLAN FOR DRY SITES

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SHRUB</td>
<td>AROHIA ARBUTIFOLIA 'BRILLIANTISSIMA'</td>
<td>CHOKEBERRY</td>
<td>1-GALLON</td>
<td>18&quot; O.C</td>
</tr>
<tr>
<td>B</td>
<td>GRASS</td>
<td>CHASMANTRIUM LATIFOLIUM</td>
<td>NORTHERN SEA OATS</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>PERENNIAL</td>
<td>RUDECKIA LACINATA</td>
<td>CUTLEAF CONEFLOWER</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PERENNIAL</td>
<td>NARCISSUS 'DUTCH MASTER'</td>
<td>TRUMPET DAFFODIL</td>
<td>BULB</td>
<td>CLUSTER 2-3 A</td>
</tr>
</tbody>
</table>

### NOTES TO DESIGNER:

1. PLANTING PLANS ARE BASED ON AMOUNT OF SUN RECEIVED IN EACH LOCATION.
2. DIRECTIONAL ORIENTATION (NORTH/SOUTH/EAST/WEST) AND HEIGHT OF ADJACENT BUILDINGS SHOULD BE CONSIDERED. AS IT RELATES TO AMOUNT OF SUN RECEIVED BY EACH LOCATION.
3. PLANTING PLANS ARE BASED ON HYDROLOGIC REGIME (WET OR DRY ON AVERAGE).
4. TO DETERMINE WET-DRY, ON AVERAGE, SIZE OF TRIBUTARY DRAINAGE AREA AND NUMBER OF ADJACENT BOSWALVES SHOULD BE CONSIDERED. INDIVIDUAL HUBRATORY AREA PER BOSWALVE CAN BE ESTIMATED BY CONSULTING THE INTERIM GEOTECHNICAL REPORT SUMMARY FOR AVAILABLE UPSTREAM DISTANCE.
5. CHANGES TO PLANTING PLAN SHOULD BE CONSIDERED WITH THE CANCELLATION OF ASSETS DURING CONSTRUCTION.
6. ADAPTIVE DIRECTION, INCLUDING PALETTE CHANGES, MAY BE GIVEN TO CONTRACTORS FOR PLANT REPLACEMENT WITH AGENCY APPROVAL.
# COMBINATION WET/DRY SITES

## SUNNY (SOUTH-FACING) PLANTING PLAN FOR AVERAGE SITES

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SHRUB</td>
<td>Aronia arbutifolia 'Brilliantissima'</td>
<td>Chokeberry</td>
<td>1-GALLON</td>
<td>18” O.C</td>
</tr>
<tr>
<td>B</td>
<td>PERENNIAL</td>
<td>Asclepias incarnata</td>
<td>Swamp Milkweed</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>GRASS</td>
<td>Panicum virgatum 'Shenandoah'</td>
<td>Switch Grass</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PERENNIAL</td>
<td>Narcissus 'Dutch Master'</td>
<td>Trumpet Daffodil</td>
<td>BULB</td>
<td>CLUSTER 2-3 AT</td>
</tr>
</tbody>
</table>

## SHADY (NORTH-FACING) PLANTING PLAN FOR AVERAGE SITES

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SHRUB</td>
<td>Ilex glabra 'Shamrock'</td>
<td>Shamrock Inkberry</td>
<td>1-GALLON</td>
<td>18” O.C</td>
</tr>
<tr>
<td>B</td>
<td>PERENNIAL</td>
<td>Pyracantha mucicapitum</td>
<td>Short Toothed Mountain Mint</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>PERENNIAL</td>
<td>Symphyotrichum cordifolium</td>
<td>Blue Wood Aster</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PERENNIAL</td>
<td>Narcissus 'Dutch Master'</td>
<td>Trumpet Daffodil</td>
<td>BULB</td>
<td>CLUSTER 2-3 AT</td>
</tr>
</tbody>
</table>

## MIXED SUN AND SHADE (EAST/WEST-FACING) PLANTING PLAN FOR AVERAGE SITES

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>TYPE</th>
<th>BOTANICAL NAME</th>
<th>COMMON NAME</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>SHRUB</td>
<td>Cornus sericea 'Kelley's Dwarf'</td>
<td>Red-Osier Dogwood</td>
<td>1-GALLON</td>
<td>18” O.C</td>
</tr>
<tr>
<td>B</td>
<td>PERENNIAL</td>
<td>Eupatorium dubium 'Little Joe'</td>
<td>Joe Pye Weed</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>GRASS</td>
<td>Carex pensylvanica</td>
<td>Pennsylvania Sedge</td>
<td>1-GALLON</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PERENNIAL</td>
<td>Narcissus 'Dutch Master'</td>
<td>Trumpet Daffodil</td>
<td>BULB</td>
<td>CLUSTER 2-3 AT</td>
</tr>
</tbody>
</table>

### NOTES TO DESIGNER:

- **Planting Plan Selection Criteria:**
  1. Planting plans are based on amount of sun received in each location.
  2. Directional orientation (north-south-east-west) and height of adjacent buildings should be considered, as it relates to amount of sun received by each location.
  3. Planting plans are based on hydrologic regime (wet, dry, or average).
  4. To determine wet, dry, or average, size of tributary drainage area and number of adjacent bioswales should be considered. Individual tributary area per bioswale can be estimated by consulting the internal geotechnical report summary for available upstream distance and minimum required upstream distance.
  5. Changes to planting plan should be considered with the cancellation of assets during construction.
  6. Adaptive design, including palette changes, may be given to contractors for plant replacement with agency approval.
PLANTING PLANS FOR STANDARD ROWB

GREENSTRIPS

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>QTY-T1</th>
<th>QTY-T2</th>
<th>QTY-T3</th>
<th>SIZE</th>
<th>SPACING</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>12</td>
<td>9</td>
<td>6</td>
<td>1-GALLON</td>
<td>18&quot; O.C</td>
</tr>
<tr>
<td>B</td>
<td>11</td>
<td>8</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>18</td>
<td>14</td>
<td>10</td>
<td>BULB</td>
<td>CLUSTER 2-3 AT AS SHOWN</td>
</tr>
</tbody>
</table>

NOTES FOR CONSTRUCTION:
1. PLANTING LOCATIONS ARE SPECIFIC TO EACH PLANT TYPE SHOWN.
2. PLANTING PLANS ARE DETERMINED PER THE SCHEDULE ON PLANTING PLANS FOR STANDARD ROWB PAGES

NOTES TO DESIGNER:
PLANTING PLAN SELECTION CRITERIA:
1. PLANTING PLANS ARE BASED ON AMOUNT OF SUN RECEIVED IN EACH LOCATION.
2. DIRECTIONAL ORIENTATION (NORTH/SOUTH/EAST/WEST) AND HEIGHT OF ADJACENT BUILDINGS SHOULD BE CONSIDERED, AS IT RELATES TO AMOUNT OF SUN RECEIVED BY EACH LOCATION.
3. PLANTING PLANS ARE BASED ON HYDROLOGIC REGIME (WET, DRY OR AVERAGE).
4. TO DETERMINE WET, DRY, OR AVERAGE, SIZE OF TRIBUTARY DRAINAGE AREA AND NUMBER OF ADJACENT BOWSALSHE SHOULD BE CONSIDERED. INDIVIDUAL TRIBUTARY AREA PER BOWSALW CAN BE ESTIMATED BY CONSULTING THE INTERMEDIATE REPORT SUMMARY FOR AVAILABLE UPSTREAM DISTANCE AND MINIMUM REQUIRED UPSTREAM DISTANCE.
5. CHANGES TO PLANTING PLAN SHOULD BE CONSIDERED WITH THE CANCELLATION OF ASSETS DURING CONSTRUCTION.
6. ADAPTIVE DIRECTION, INCLUDING PALETTE CHANGES, MAY BE GIVEN TO CONTRACTORS FOR PLAN REPLACEMENT WITH AGENCY APPROVAL.
These modifications apply to the latest “NYCDEP BEDC-GI Standard Design and Guidelines for Green Infrastructure Practices” Released on July 19, 2017.

<table>
<thead>
<tr>
<th>REV NO.</th>
<th>SHEET NO.</th>
<th>EXISTING</th>
<th>MODIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>GI-101 thru GI-133</td>
<td>&quot;PRECAST CONCRETE&quot;</td>
<td>PRECAST OR Poured IN PLACE CONCRETE</td>
</tr>
<tr>
<td>3</td>
<td>GI-129</td>
<td>&quot;5&quot;-THICK PRECAST POROUS CONCRETE&quot;</td>
<td>5&quot;-THICK PRECAST CONCRETE</td>
</tr>
<tr>
<td>4</td>
<td>GI-133</td>
<td>&quot;POURED OR PRECAST CONCRETE WALKWAY&quot;</td>
<td>REINFORCED PRECAST CONCRETE CULVERT WITH COVER</td>
</tr>
<tr>
<td>5</td>
<td>GI-166</td>
<td>&quot;Standard for 10x5' ROW Infiltration Basin with Precast Concrete Top Type 3A&quot;</td>
<td>New Title: &quot;Standard for 10x5' ROW Infiltration Basin with Grass Top Type 3A&quot;</td>
</tr>
<tr>
<td>6</td>
<td>GI-169</td>
<td>&quot;54&quot;-60 MAX. DEPTH&quot;</td>
<td>60&quot; MAX. DEPTH</td>
</tr>
<tr>
<td>7</td>
<td>GI-125</td>
<td>Clarification needed to show where the Trapezoid Header ends and the Concrete Walkway Footers commence at the middle walkway</td>
<td>Sketch was provided, showing that the Walkway Footers support the two sides of the walkway</td>
</tr>
<tr>
<td>8</td>
<td>GI-103, 104, 111, 112, 119, 120, 138, 139, 144, 145, 150, 151, 154, 155, 160, 161, 166, 167</td>
<td>No dimension noted for the offset of the stone columns off of the back header.</td>
<td>The Stone Columns are centered between the Header &amp; the Gabion Wall</td>
</tr>
<tr>
<td>9</td>
<td>GI-148, 150</td>
<td>&quot;CONCRETE TRENCH COVER&quot;</td>
<td>Replace with: &quot;STEEL GRATE&quot;</td>
</tr>
<tr>
<td>10</td>
<td>GI-304</td>
<td>Overlapping text clarification</td>
<td>36&quot; L x 12&quot; W x 6&quot; H EPOXY BONDED STONE STRIP BED</td>
</tr>
<tr>
<td>11</td>
<td>GI-167, GI-170</td>
<td>Both 8-Inch Pipes shown in the Concrete Chamber are not full perforated</td>
<td>Pipe is NOT to be fully slotted</td>
</tr>
<tr>
<td>12</td>
<td>GI-202, 203</td>
<td>&quot;LOCATION AND ANGLE OF 8&quot; PVC OUTLET PIPE MAY BE VARIED TO SUIT FIELD CONDITIONS.&quot;</td>
<td>LOCATION AND ANGLE OF 8&quot; HDPE OUTLET PIPE MAY BE VARIED TO SUIT FIELD CONDITIONS.</td>
</tr>
</tbody>
</table>

Refer to Standard Detail GI-204, the use of the 80mil HDPE Barrier as shown on the Utility Crossing Detail is required only when noted on the Contract Drawing Plans or when directed by the Engineer.
BROKEN STONE BERM to be filled with 1 1/2” CLEAN OPEN GRADED STONE. Disregard the note about the 2” depth.

**Location:**
Plan; Section A-A; Section B-B;

**METAL BAR GRATE, FRAME AND PATHWAY DETAILS**

**GI- 136 thru 170 and 206, 207, 302, 306, 308, 312 SECTIONS & DETAILS**
The word "METAL" shall be replaced with "STEEL" in all notations regarding the Bars, Grates and Frames.

**GI- 204 L-SHAPED EDGING**
The allowable size of the L-shaped edging has been modified and drainage holes are optional, see sketch.

**GI- 302, 306, L-Shaped Edging Detail**
Replace the word "MULCH" Change to "Jute Mesh".

**Typical clarifications throughout "NYCDEP BEDC-GI Standard Design and Guidelines for Green Infrastructure Practices"**

<table>
<thead>
<tr>
<th>EXISTING</th>
<th>MODIFICATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Engineered Soil&quot;</td>
<td>&quot;Engineered Soil &amp; Sand&quot;</td>
</tr>
<tr>
<td>&quot;Curb type to match contract plans&quot;</td>
<td>&quot;Curb type to match contract plans and to be built as per NYC DOT Standard Details&quot;</td>
</tr>
<tr>
<td>&quot;Concrete Header&quot;</td>
<td>&quot;Trapezoid Concrete Header&quot;</td>
</tr>
<tr>
<td>&quot;PREFCAST CONCRETE TRENCH&quot;</td>
<td>&quot;PREFCAST CONCRETE CHAMBER&quot;</td>
</tr>
<tr>
<td>[W x H] Gabion Wall</td>
<td>&quot;12-inch wide Gabion Wall&quot;</td>
</tr>
<tr>
<td>&quot;Epoxy Bonded Stone Strip&quot;</td>
<td>&quot;&quot;</td>
</tr>
</tbody>
</table>

**General Notes & Comments**

1. Concrete curbs have a minimum depth of 18-inches. Whenever there is a drop/rise of curb, curb depth shall be maintained at a minimum of 18 inches. All new CURBS, shall have a minimum height of 4-inches, contractor to work with Engineer on how to taper to meet field conditions, whenever feasible.

2. Gabion Wall shall be extended to the base of the GI Practice except for Type C GI practices, which are restricted due to the stormwater chamber, as well as stormwater greenstreets. See standards for further clarification.

3. HDPE Barric - placed at the base of the GI Practice along the pedestrian pathway - will be required, as noted on the contract plans, if utilities not shown on the contract plans are encountered during construction or when directed by the engineer.

4. A sloping course beneath the Concrete Head is to be necessary, if not atop the undisturbed soil.

**GI- 204 STORMWATER CHAMBER**
The stormwater chamber does not need to be HDPE. Please refer to the updated Dimension Schedule. Note: The minimum acceptable storage volume within the stormwater chamber unit alone must be 2 cubic feet per linear foot.

**GI- 204 L-SHAPED EDGING**
The allowable size of the L-shaped edging has been modified and drainage holes are optional, see sketch.

**GI- 302, 306, L-Shaped Edging Detail**
Replace the word "MULCH" Change to "Jute Mesh".

**GI- 136 thru 170 and 206, 207, 302, 306, 308, 312 SECTIONS & DETAILS**
The word "METAL" shall be replaced with "STEEL" in all notations regarding the Bars, Grates and Frames.

**GI- 204 L-SHAPED EDGING**
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**Typical clarifications throughout "NYCDEP BEDC-GI Standard Design and Guidelines for Green Infrastructure Practices"**

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<tbody>
<tr>
<td>&quot;Engineered Soil&quot;</td>
<td>&quot;Engineered Soil &amp; Sand&quot;</td>
</tr>
<tr>
<td>&quot;Curb type to match contract plans&quot;</td>
<td>&quot;Curb type to match contract plans and to be built as per NYC DOT Standard Details&quot;</td>
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<tr>
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<td>&quot;Trapezoid Concrete Header&quot;</td>
</tr>
<tr>
<td>&quot;PREFCAST CONCRETE TRENCH&quot;</td>
<td>&quot;PREFCAST CONCRETE CHAMBER&quot;</td>
</tr>
<tr>
<td>[W x H] Gabion Wall</td>
<td>&quot;12-inch wide Gabion Wall&quot;</td>
</tr>
<tr>
<td>&quot;Epoxy Bonded Stone Strip&quot;</td>
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</tr>
</tbody>
</table>

**General Notes & Comments**

1. Concrete curbs have a minimum depth of 18-inches. Whenever there is a drop/rise of curb, curb depth shall be maintained at a minimum of 18 inches. All new CURBS, shall have a minimum height of 4-inches, contractor to work with Engineer on how to taper to meet field conditions, whenever feasible.

2. Gabion Wall shall be extended to the base of the GI Practice except for Type C GI practices, which are restricted due to the stormwater chamber, as well as stormwater greenstreets. See standards for further clarification.

3. HDPE Barric - placed at the base of the GI Practice along the pedestrian pathway - will be required, as noted on the contract plans, if utilities not shown on the contract plans are encountered during construction or when directed by the engineer.

4. A sloping course beneath the Concrete Head is to be necessary, if not atop the undisturbed soil.
2D + 6" HDPE BARRIER. SEE NOTES

80 MIL HDPE BARRIER; LENGTH OF GI PRACTICE WITH 12" TOE. SEE NOTES

INTERFACE BETWEEN COLLAR AND HDPE BARRIER TO BE SEALED WITH WATERPROOF SEALANT. SEE NOTES

WATERTIGHT EXPANDING FOAM SEALANT BETWEEN UTILITY AND HDPE SPLIT SLEEVE (THROUGH ENTIRE SLEEVE)

WATER UTILITY CROSSING DETAIL

NOTES:
1. HDPE BARRIER TO BE INSTALLED WHEN THERE IS A UTILITY CROSSING AND WHEN THERE IS LESS THAN 10' FROM THE ASSET TO THE BUILDING LINE.
2. ANY SEAMS IN THE HDPE BARRIER MUST HAVE A 1'-0" OVERLAP AND BE SEALED WITH WATERTIGHT SEALANT.
3. ADDITIONAL SLEEVE WITH PVC PIPE TO EXTEND 1'-6" OUTWARD OF BOTH SIDES OF GI PRACTICE.
4. SPLIT PVC PIPE SHALL BE USED TO SLEEVE THE EXISTING WATER SERVICE LINE AND SOLID PVC PIPE SHALL BE USED FOR THE SPARE SLEEVE.

NOTE: PROVIDE MANUFACTURER OR APPROVED EQUAL

WATER UTILITY DUCT

ONLY IF WATER SERVICE IS ENCOUNTERED: ADDITIONAL SLEEVE TO BE CONSTRUCTED FOR FUTURE WATER SERVICE. SOLID PVC PIPE TO BE CAPPED AT BOTH ENDS. LOCATION TO BE MARKED AT BOTH ENDS OF CONCRETE HEADER.

11-01-2019
NOTES:
1. HDPE BARRIER TO BE INSTALLED WHEN THERE IS A UTILITY CROSSING AND WHEN THERE IS LESS THAN 10' FROM THE ASSET TO THE BUILDING LINE.
2. ANY SEAMS IN THE HDPE BARRIER MUST HAVE A 1'-0" OVERLAP AND BE SEALED WITH WATERTIGHT SEALANT.