



**Environmental
Protection**

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

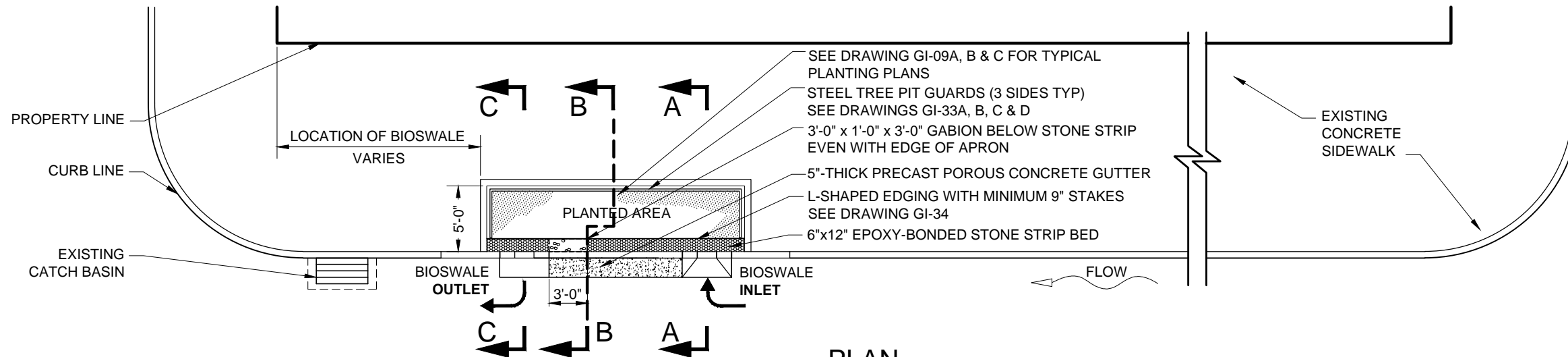
STANDARDS FOR GREEN INFRASTRUCTURE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

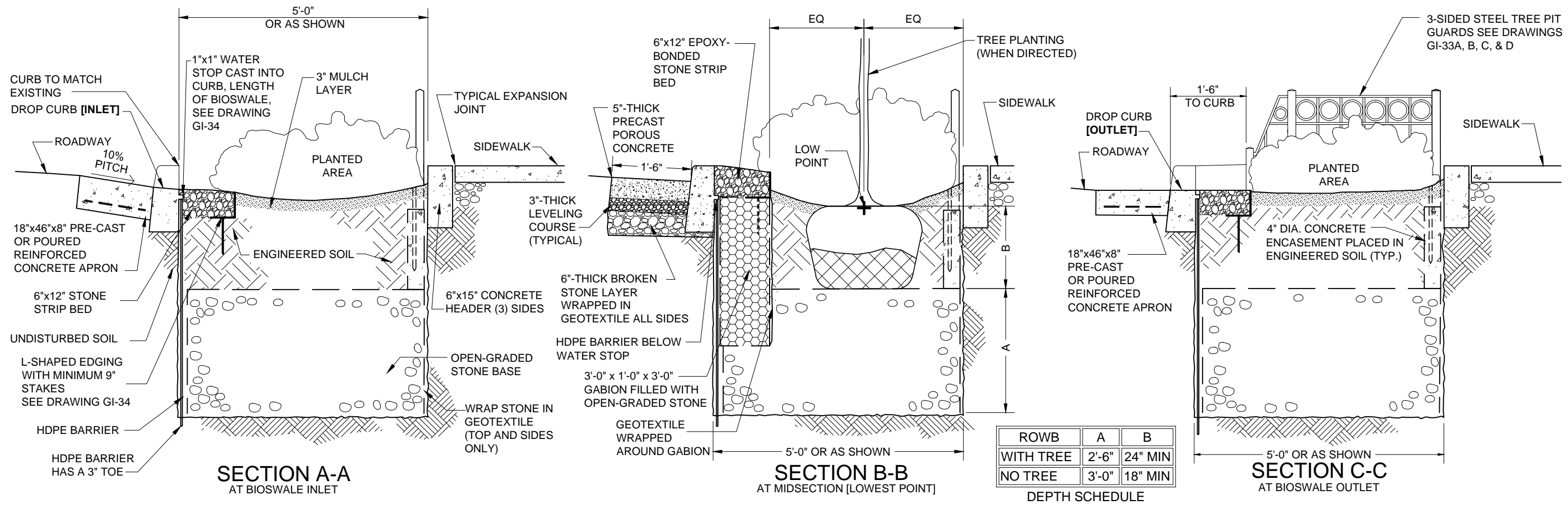
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CITY OF NEW YORK
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 20'x5' R.O.W. BIOSWALE TYPE 1
 - NO CONNECTION TO SEWERS



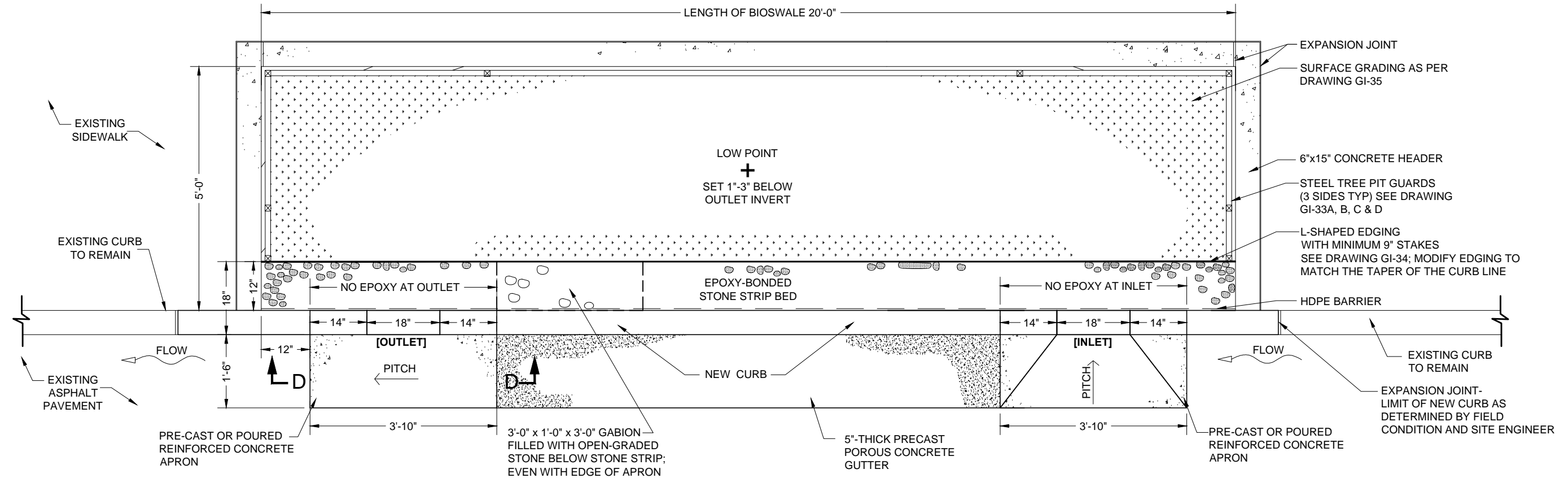
PLAN



Magedi Farouk
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7-16-13
 DATE

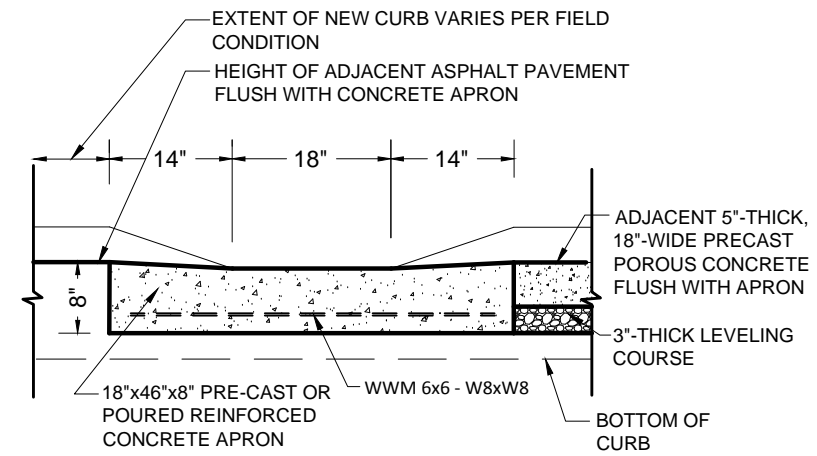
CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 20'x5' R.O.W. BIOSWALE TYPE 1
- NO CONNECTION TO SEWERS



PLAN

NOTES:

1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY, UNLESS OTHERWISE NOTED IN THE CONTRACT SPECIFICATIONS.
2. INCLUDED IN THE COST OF THE BIOSWALE IS THE REMOVAL AND RESTORATION OF TWO (2') FOOT WIDTH OF THE WEARING COURSE AND ONE (1') 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 DETAIL H-1046. 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 SECTION 4.16 OF STANDARD HIGHWAY SPECIFICATIONS.
9. STONE STRIP BED TO BE BONDED WITH EPOXY TO KEEP STONES IN PLACE. STONES IN FRONT OF INLETS AND OUTLETS ARE TO BE LEFT LOOSE TO ACCOMMODATE CLEANING AND MAINTENANCE.



SECTION D-D

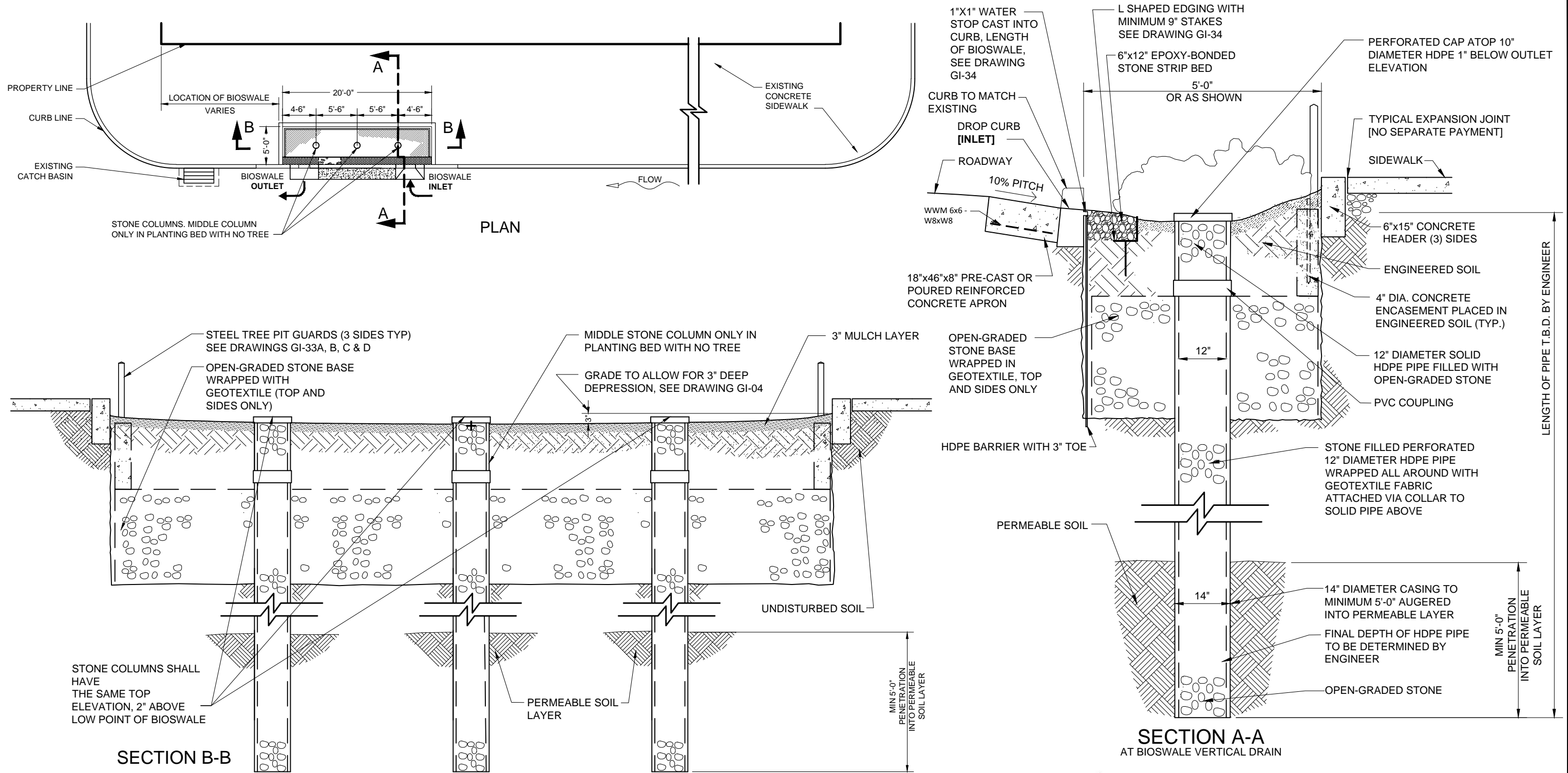
Magdi Farag
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DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

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

- NO CONNECTION TO SEWERS



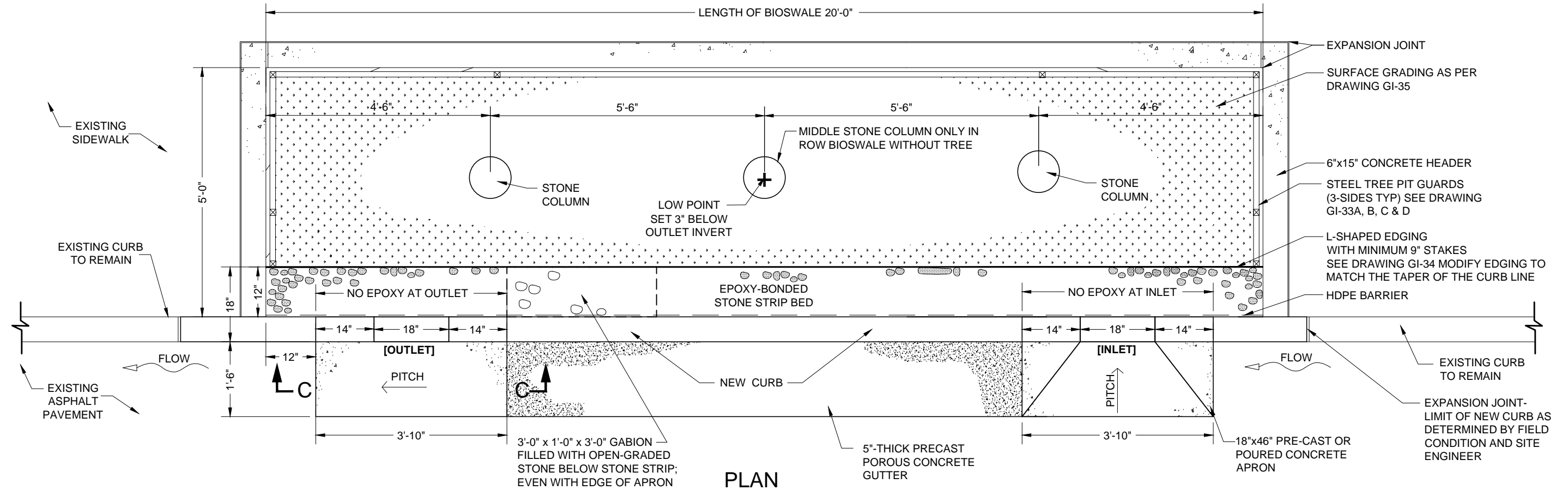
Maadi Farouk
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DEPARTMENT OF ENVIRONMENTAL PROTECTION

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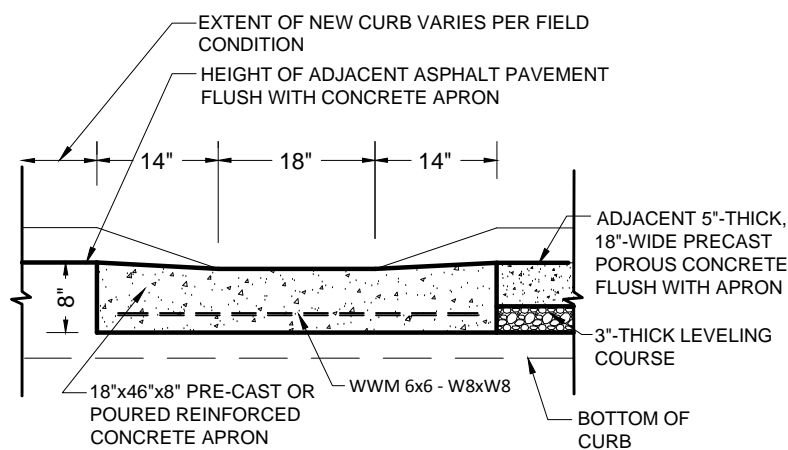
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PLAN

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5. TREES SHALL BE STAKED AS PER DOT STANDARD DETAIL H-1046. 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.
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10. 14" DIAMETER CASING TO BE AUGERED TO DEPTH AS PER ENGINEER. 12" DIAMETER HDPE PIPE WRAPPED ALL AROUND WITH GEOTEXTILE FABRIC INSERTED IN THE 12" CASING.



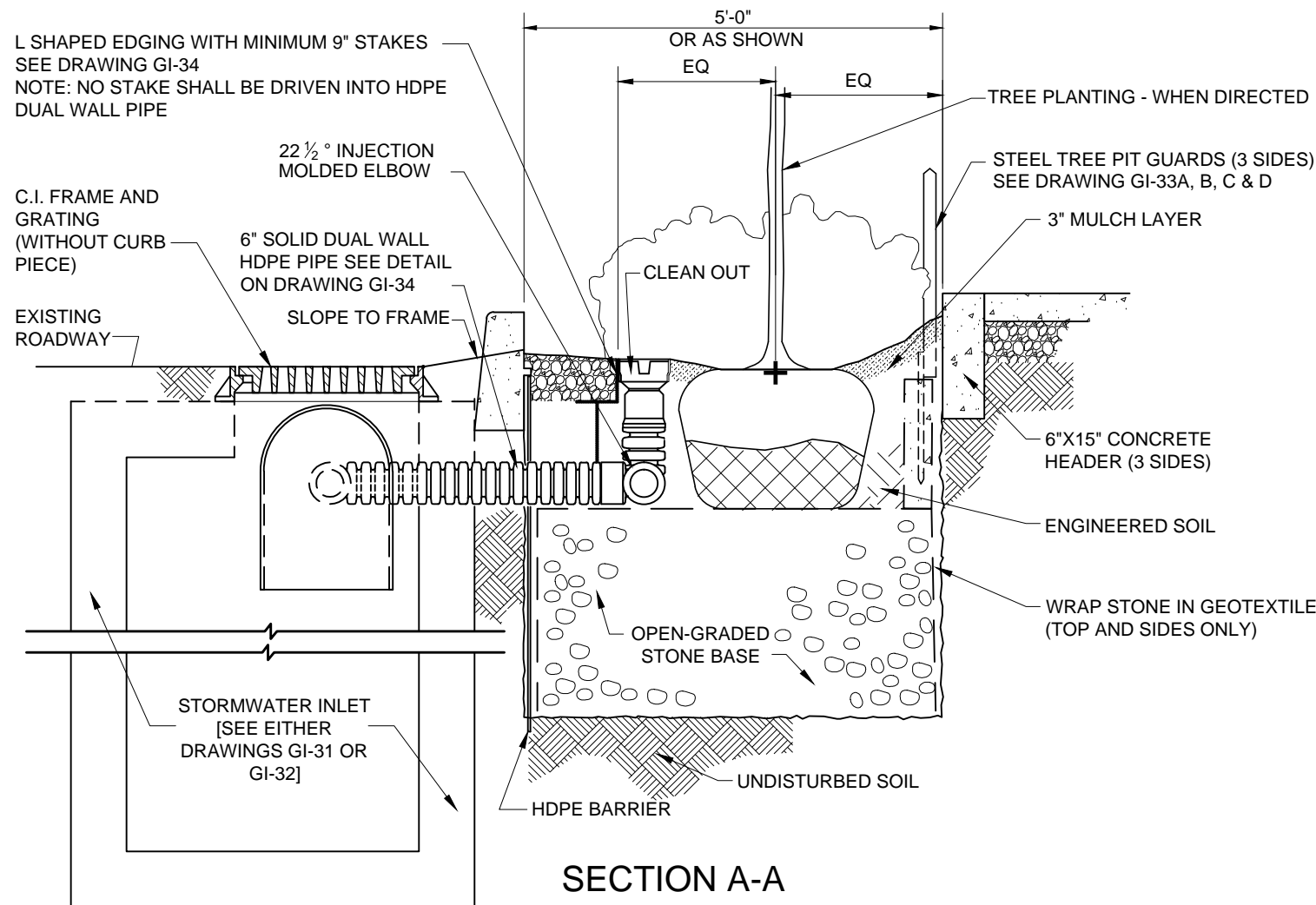
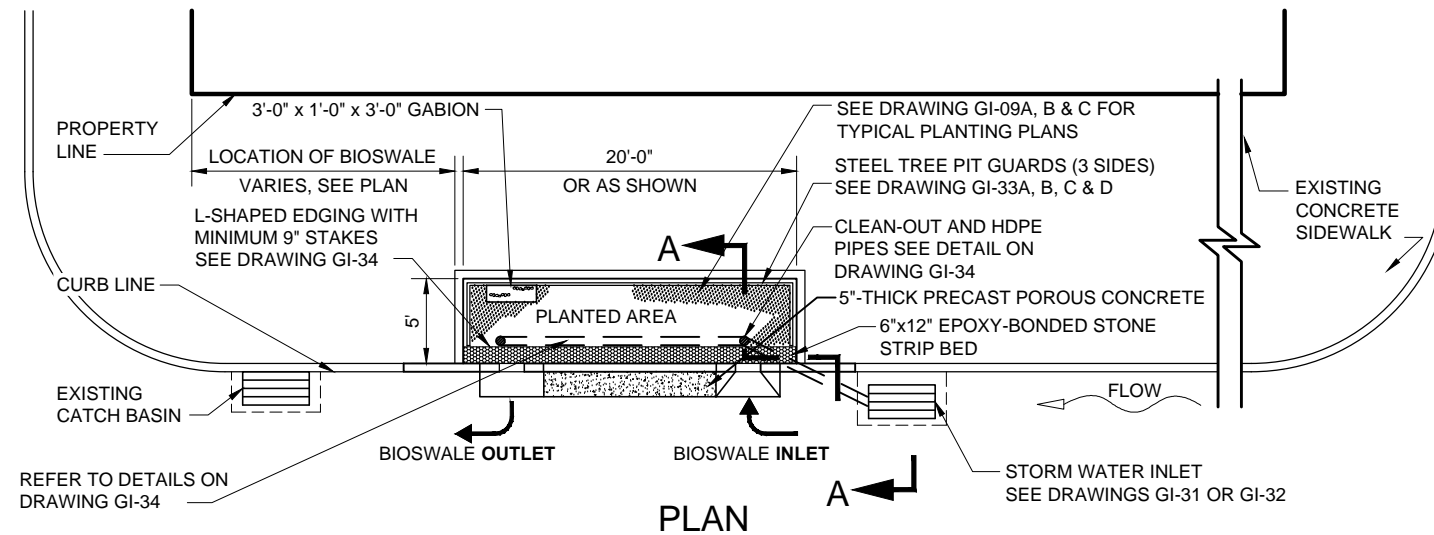
SECTION C-C

Maedi Faraj
P.E.
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
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CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

STANDARD FOR 20'X5' R.O.W. BIOSWALE TYPE 1B - WITH STORMWATER INLET
- NO CONNECTION TO SEWERS



NOTES:

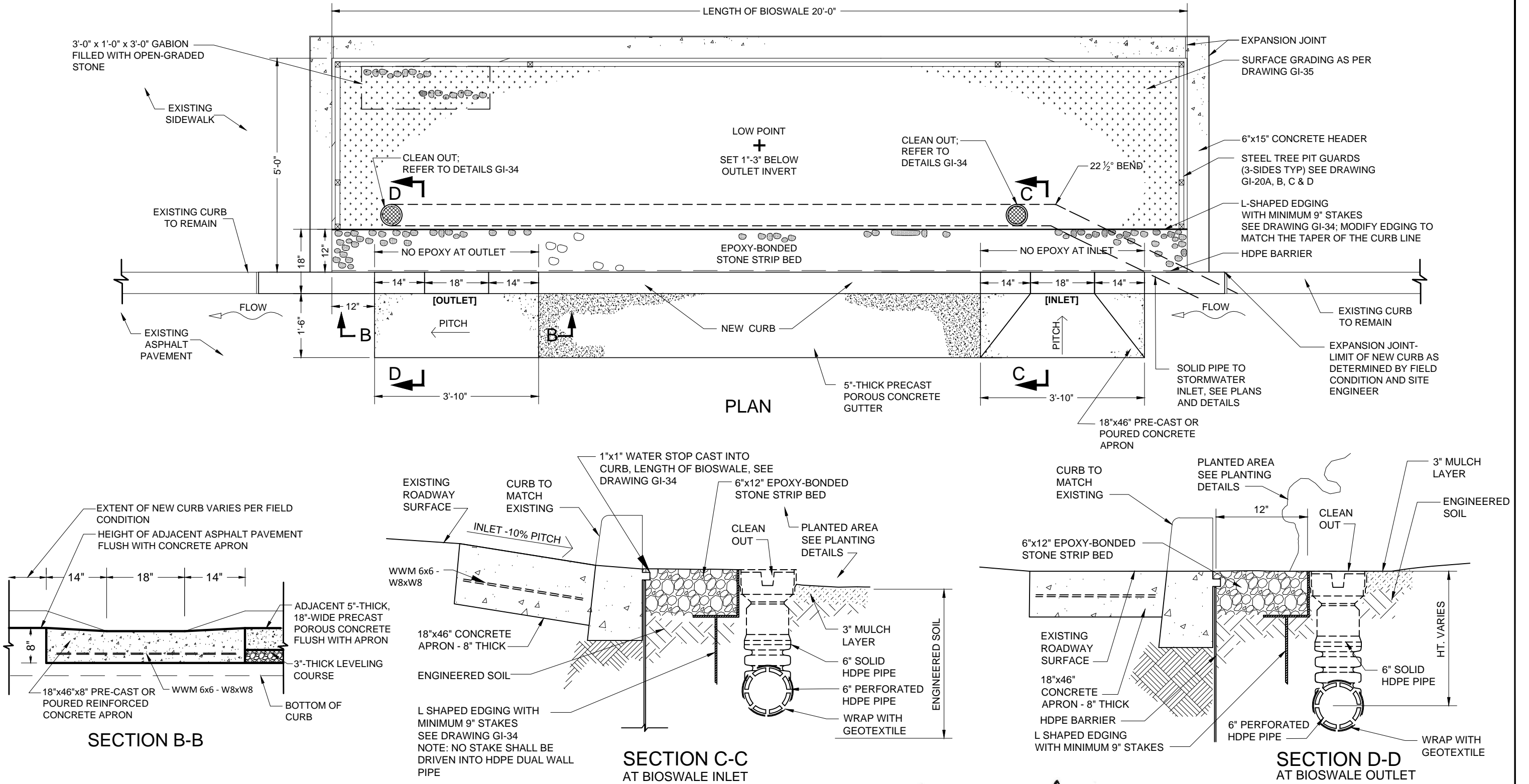
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Maedi Farah
P.E.
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

STANDARD FOR 20'X5' R.O.W. BIOSWALE TYPE 1B - WITH STORMWATER INLET
- NO CONNECTION TO SEWERS



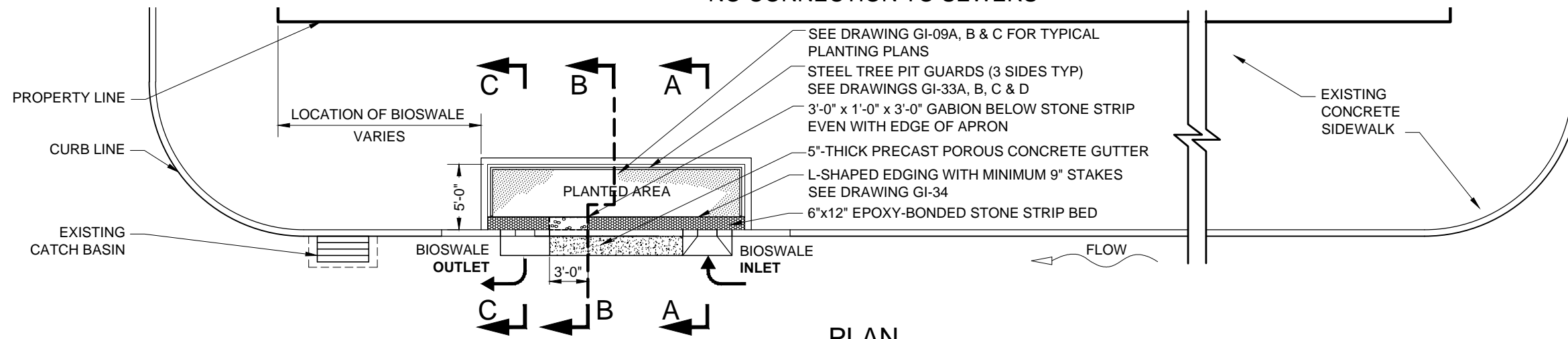
Maadi Faraj
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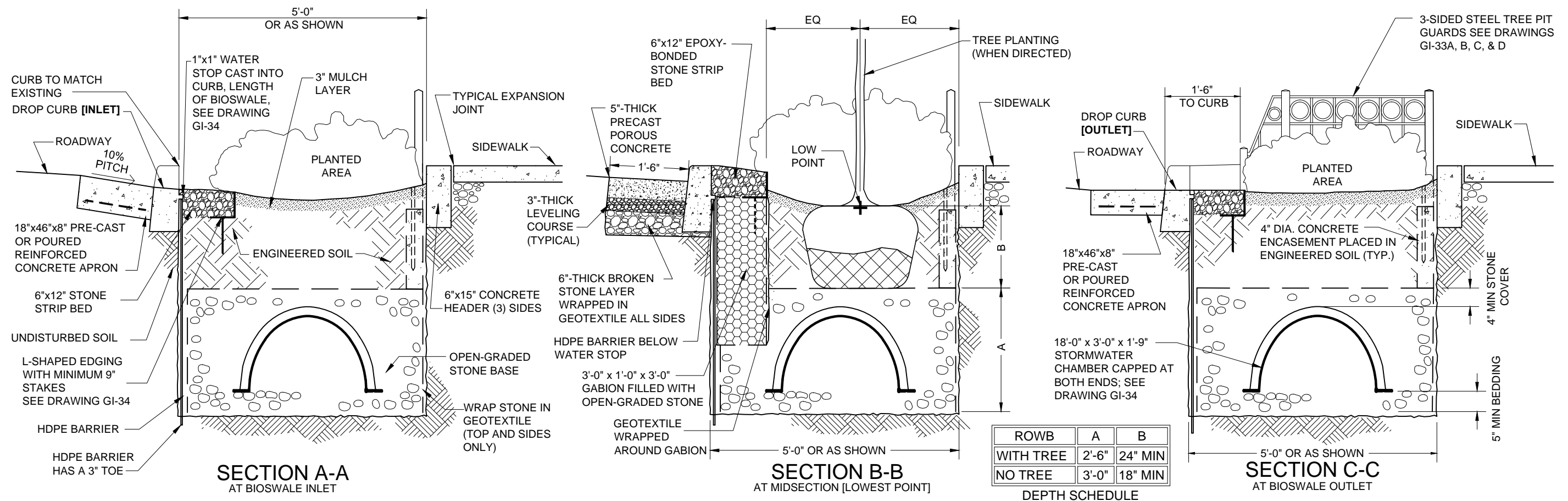
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OFFICE OF GREEN INFRASTRUCTURE

STANDARD FOR 20'x5' R.O.W. BIOSWALE TYPE 1C - WITH STORMWATER CHAMBER

- NO CONNECTION TO SEWERS



PLAN



SECTION A-A
AT BIOSWALE INLET

SECTION B-B
AT MIDSECTION [LOWEST POINT]

SECTION C-C
AT BIOSWALE OUTLET

DEPTH SCHEDULE

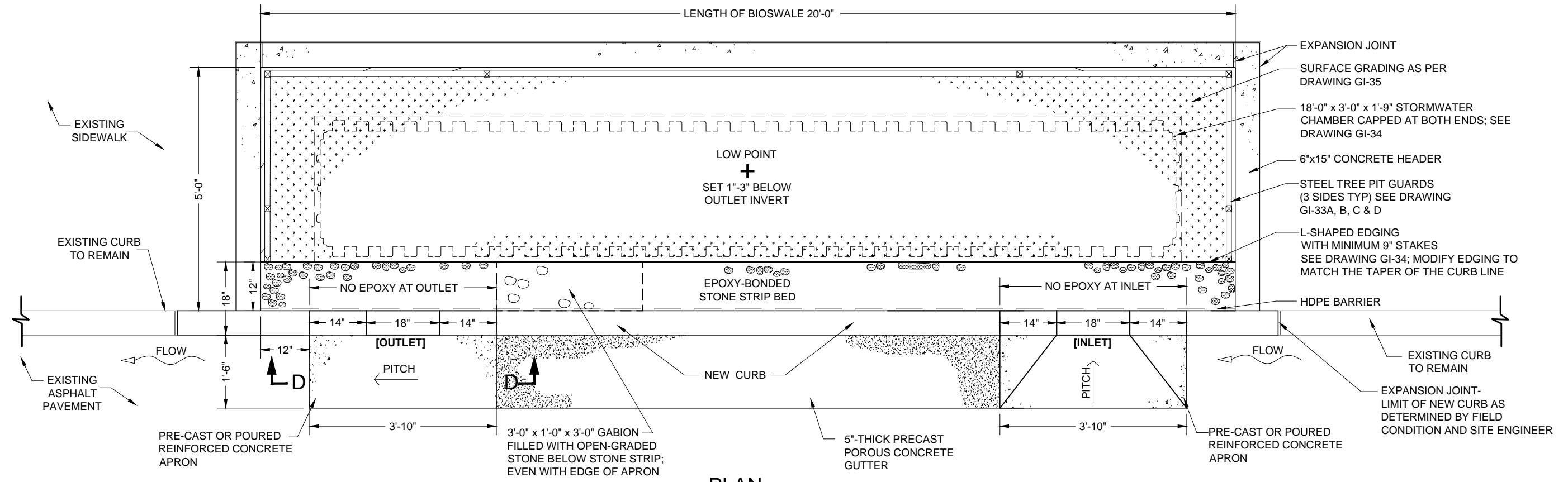
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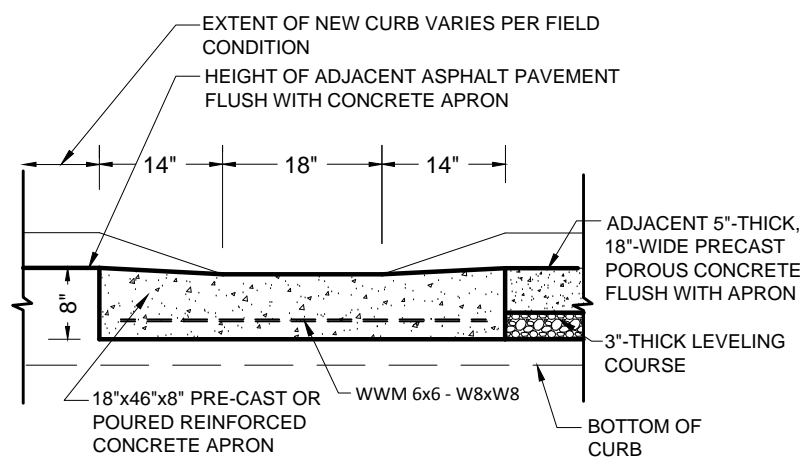
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SECTION D-D

Maedi Faruq
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ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

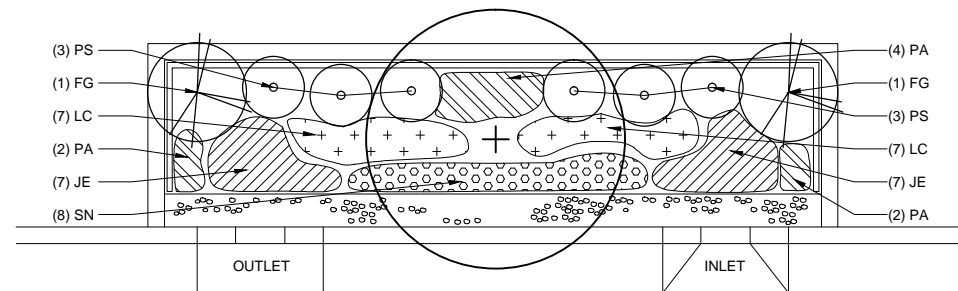
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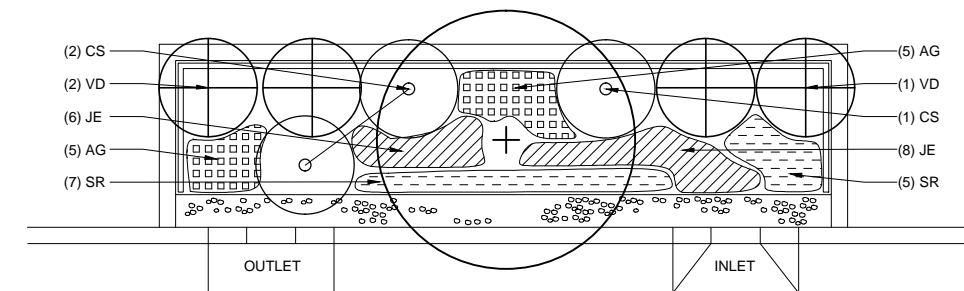
STANDARD PLANTING PLANS FOR TYPE 1 R.O.W. BIOSWALES (TYPICAL)

| RESIDENTIAL PLAN 1 PLANT SCHEDULE | | | | | |
|-----------------------------------|-----|------------------------------------|----------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 2 | FG | FOTHERGILLA GARDENII | MOUNT AIRY DWARF FORSYTHIA | #3 CONTAINER | 3' O.C. |
| 6 | PS | POTENTILLA FRUTICOSA | SHRUBBY CINQUEFOIL | #3 CONT. | 2' O.C. |
| PERENNIALS | | | | | |
| 14 | LC | LOBELIA CARDINALIS | CARDINAL FLOWER | #2 CONT. | 12" O.C. |
| 8 | SN | SYMPHYOTRICHUM NOVAE-ANGLIA | NEW ENGLAND ASTER | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 14 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |
| 8 | PA | PENNISSETUM ALOPECUROIDES 'HAMELN' | HAMELN FOUNTAIN GRASS | #2 CONT. | 18" O.C. |

| RESIDENTIAL PLAN 2 PLANT SCHEDULE | | | | | |
|-----------------------------------|-----|---------------------------------|-------------------------------|-----------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 3 | CS | CORNUS SERICEA 'CARDINAL' | CARDINAL RED TWIG DOGWOOD | #3 CONTAINER | 3' O.C. |
| 3 | VD | VIBURNUM DENTATUM 'BLUE MUFFIN' | BLUE MUFFIN ARROWWOD VIBURNUM | #5 CONT. OR B&B | 3' O.C. |
| PERENNIALS | | | | | |
| 10 | AG | AGASTACHE 'BLUE FORTUNE' | BLUE FORTUNE GIANT HYSSOP | #2 CONT. | 12" O.C. |
| 12 | SR | SOLIDAGO RUGOSA 'FIREWORKS' | FIREWORKS GOLDENROD | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 14 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



RESIDENTIAL PLAN 1
ROWBS IN RESIDENTIAL NEIGHBORHOODS WITH LOW VOLUME CIRCULATION



RESIDENTIAL PLAN 2
ROWBS IN RESIDENTIAL NEIGHBORHOODS WITH LOW VOLUME CIRCULATION

NOTES:


- EACH TYPE 1 ROWB WILL INCLUDE THE FOLLOWING ADDITIONAL BULB PLANTINGS: NARCISSUS (20 COUNT), CROCUS (20 COUNT), TULIPA SPP. (20 COUNT), AND ALLIUM (20 COUNT). THEY SHALL BE DISTRIBUTED RANDOMLY THROUGHOUT BIOSWALE IN GROUPS OF 8-10, SPACED 6" APART.
- PLANTING LOCATIONS ARE SPECIFIC TO THE INLET AND OUTLET ORIENTATION SHOWN. IF THE INLET AND OUTLET ORIENTATION IS REVERSED, THE PLANTING LOCATIONS MUST BE MIRRORED.
- TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPR.
- THE AREA DIRECTLY ABOVE THE TREE ROOTBALL IS NOT TO BE PLANTED WITH SHRUBS, PERENNIALS, OR GRASSES.
- PLANTING PLANS FOR VARIABLE SIZE ROWB ARE DETERMINED AS PER THE SCHEDULE ON GI-28.



DIRECTOR OF GREEN INFRASTRUCTURE
DEPARTMENT OF PARKS AND RECREATION

R.L.A.

DATE



ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

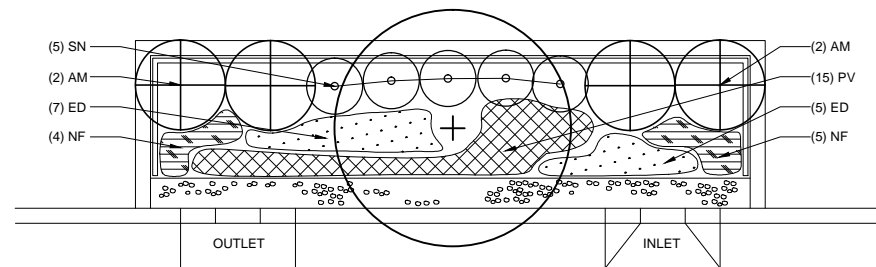
P.E.

7-16-13
DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

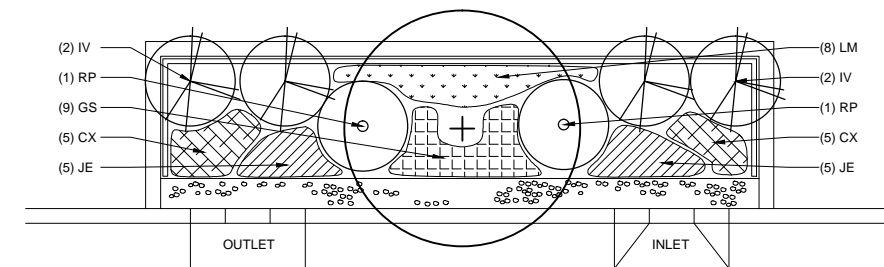
STANDARD PLANTING PLANS FOR TYPE 1 R.O.W. BIOSWALES (TYPICAL)

| URBAN PLAN 1 PLANT SCHEDULE | | | | | |
|-----------------------------|-----|---------------------------------|---------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 4 | AM | ARONIA MELANOCARPA | BLACK CHOKEBERRY | #3 CONTAINER | 3' O.C. |
| 5 | SN | SPIRAEA NIPPONICA 'SNOWMOUND' | SNOW MOUND NIPPON SPIRAEA | #3 CONT. | 2' O.C. |
| PERENNIALS | | | | | |
| 12 | ED | EUPATORIUM DUBIUM 'BABY JOE' | BABY JOE JOE PYE WEED | #2 CONT. | 12" O.C. |
| 9 | NF | NEPETA FAASSENII 'WALKER'S LOW' | WALKER'S LOW CATMINT | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 15 | PV | PANICUM VIRGATUM 'HEAVY METAL' | HEAVY METAL SWITCHGRASS | #2 CONT. | 18" O.C. |



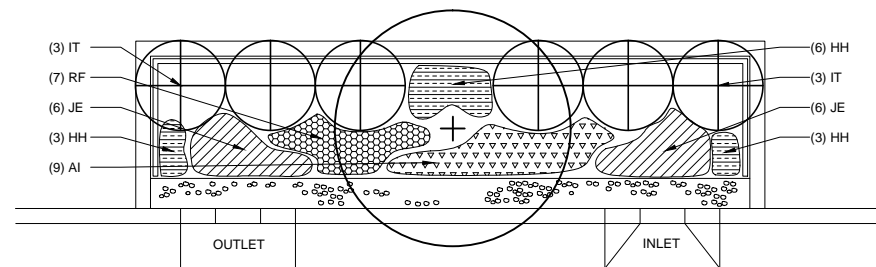
URBAN PLAN 1
ROWBS IN COMMERCIAL AND INDUSTRIAL AREAS WITH HIGHER VOLUME CIRCULATION

| URBAN PLAN 2 PLANT SCHEDULE | | | | | |
|-----------------------------|-----|---|----------------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 4 | IV | ILEX VERTICILLATA 'JIM DANDY' (M), 'RED SPRITE' (F) | WINTERBERRY | #3 CONTAINER | 3' O.C. |
| 2 | RP | ROSA PALUSTRIS | SWAMP ROSE | #3 CONT. | 3' O.C. |
| PERENNIALS | | | | | |
| 9 | GS | GERANIUM SANGUINEUM 'ALBUM' | ALBUM BLOODY CRANESBILL | #2 CONT. | 12" O.C. |
| 8 | LM | LIRIOPE MUSCARI 'BIG BLUE' | BIG BLUE LILY TURF | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 10 | CX | CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' | KARL FOERSTER FEATHER REED GRASS | #2 CONT. | 18" O.C. |
| 10 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



URBAN PLAN 2
ROWBS IN COMMERCIAL AND INDUSTRIAL AREAS WITH HIGHER VOLUME CIRCULATION

| URBAN PLAN 3 PLANT SCHEDULE | | | | | |
|-----------------------------|-----|---------------------------------|----------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 6 | IT | ITEA VIRGINICA 'HENRY'S GARNET' | HENRY'S GARNET SWEETSPIRE | #3 CONTAINER | 3' O.C. |
| PERENNIALS | | | | | |
| 9 | AI | ASCLEPIAS INCARNATA | SWAMP MILKWEED | #2 CONT. | 12" O.C. |
| 12 | HH | HEMEROCALLIS 'PRAIRIE WILDFIRE' | PRAIRIE WILDFIRE DAYLILY | #2 CONT. | 12" O.C. |
| 7 | RF | RUDBECKIA FULGIDA 'GOLDSTURM' | GOLDSTURM BLACK EYED SUSAN | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 12 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



URBAN PLAN 3
ROWBS IN COMMERCIAL AND INDUSTRIAL AREAS WITH HIGHER VOLUME CIRCULATION

NOTES:

- EACH TYPE 1 ROWB WILL INCLUDE THE FOLLOWING ADDITIONAL BULB PLANTINGS: NARCISSUS (20 COUNT), CROCUS (20 COUNT), TULIPA SPP. (20 COUNT), AND ALLIUM (20 COUNT). THEY SHALL BE DISTRIBUTED RANDOMLY THROUGHOUT BIOSWALE IN GROUPS OF 8-10, SPACED 6" APART.
- PLANTING LOCATIONS ARE SPECIFIC TO THE INLET AND OUTLET ORIENTATION SHOWN. IF THE INLET AND OUTLET ORIENTATION IS REVERSED, THE PLANTING LOCATIONS MUST BE MIRRORED.
- TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPR.
- THE AREA DIRECTLY ABOVE THE TREE ROOTBALL IS NOT TO BE PLANTED WITH SHRUBS, PERENNIALS, OR GRASSES.
- PLANTING PLANS FOR VARIABLE SIZE ROWB ARE DETERMINED AS PER THE SCHEDULE ON GI-28.

R.L.A.
DIRECTOR OF GREEN INFRASTRUCTURE
DEPARTMENT OF PARKS AND RECREATION

DATE

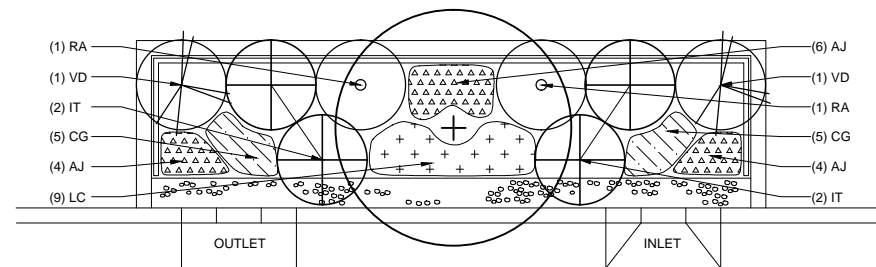
Maedi Farah
P.E.
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

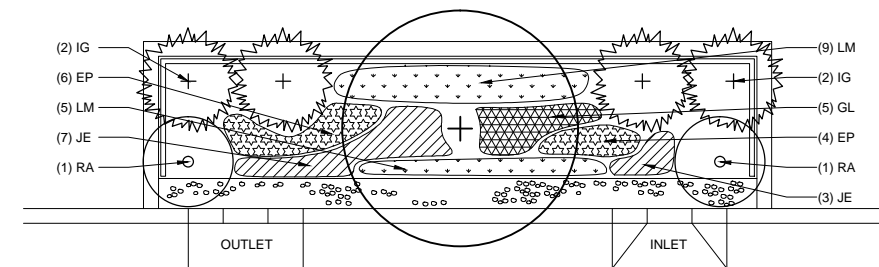
STANDARD PLANTING PLANS FOR TYPE 1 R.O.W. BIOSWALES (TYPICAL)

| ESPECIALLY SHADY PLAN PLANT SCHEDULE | | | | | |
|--------------------------------------|-----|---------------------------------|-------------------------------|-----------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 4 | IT | ITEA VIRGINICA 'HENRY'S GARNET' | HENRY'S GARNET SWEETSPIRE | #3 CONTAINER | 3' O.C. |
| 2 | RA | RHUS AROMATICA 'GRO LO' | GRO LO FRAGRANT SUMAC | #3 CONT. | 3' O.C. |
| 2 | VD | VIBURNUM DENTATUM 'BLUE MUFFIN' | BLUE MUFFIN ARROWWOD VIBURNUM | #5 CONT. OR B&B | 3' O.C. |
| PERENNIALS | | | | | |
| 14 | AJ | ASTILBE JAPONICA 'DEUTSCHLAND' | DEUTSCHLAND ASTILBE | #2 CONT. | 12" O.C. |
| 9 | LC | LOBELIA CARDINALIS | CARDINAL FLOWER | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 10 | CG | CAREX GLAUCA 'BLUE ZINGER' | BLUE ZINGER BLUE SEDGE | #2 CONT. | 12" O.C. |



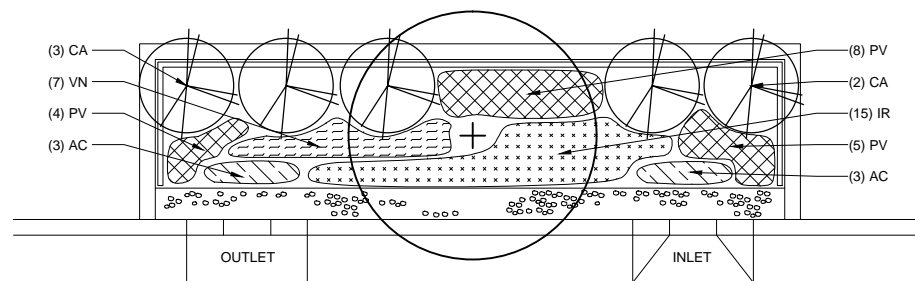
ESPECIALLY SHADY PLAN
ROWBS WITH PARTLY SUNNY OR SHADY LIGHT CONDITIONS

| ESPECIALLY DRY PLAN PLANT SCHEDULE | | | | | |
|------------------------------------|-----|--|----------------------------------|---------------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 4 | IG | ILEX GLABRA 'COMPACTA' | COMPACTA INKBERRY HOLLY | #5 CONTAINER OR B&B | 3' O.C. |
| 2 | RA | RHUS AROMATICA 'GRO LO' | GRO LO FRAGRANT SUMAC | #3 CONT. | 2' O.C. |
| PERENNIALS | | | | | |
| 10 | EP | ECHINACEA PURPUREA 'KIM'S KNEE HIGH' | KIM'S KNEE HIGH CONEFLOWER | #2 CONT. | 12" O.C. |
| 5 | GL | GAURA LINDHEIMERI 'WHIRLING BUTTERFLIES' | WHIRLING BUTTERFLIES WAND FLOWER | #2 CONT. | 12" O.C. |
| 14 | LM | LIRIOPE MUSCARI 'BIG BLUE' | BIG BLUE LILYTURF | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 10 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



ESPECIALLY DRY PLAN
ROWBS WITH LESS THAN 15% STORMWATER RUNOFF MANAGED

| ESPECIALLY WET PLAN PLANT SCHEDULE | | | | | |
|------------------------------------|-----|----------------------------------|-------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 5 | CA | CLETHERA ALNIFOLIA 'HUMMINGBIRD' | HUMMINGBIRD CLETHRA | #3 CONTAINER | 3' O.C. |
| PERENNIALS | | | | | |
| 15 | IR | IRIS VERSICOLOR | NORTHERN BLUE FLAG | #2 CONT. | 12" O.C. |
| 7 | VN | VERNONIA NOVEBORACENSIS | NEW YORK IRONWEED | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 6 | AC | ACORUS CALAMUS 'VARIEGATUS' | VARIEGATED SWEET FLAG | #2 CONT. | 12" O.C. |
| 17 | PV | PANICUM VIRGATUM 'HEAVY METAL' | HEAVY METAL SWITCHGRASS | #2 CONT. | 18" O.C. |



ESPECIALLY WET PLAN
ROWBS WITH GREATER THAN 30% STORMWATER RUNOFF MANAGED

NOTES:

1. EACH TYPE 1 ROWB WILL INCLUDE THE FOLLOWING ADDITIONAL BULB PLANTINGS: NARCISSUS (20 COUNT), CROCUS (20 COUNT), TULIPA SPP. (20 COUNT), AND ALLIUM (20 COUNT). THEY SHALL BE DISTRIBUTED RANDOMLY THROUGHOUT BIOSWALE IN GROUPS OF 8-10, SPACED 6" APART.
2. PLANTING LOCATIONS ARE SPECIFIC TO THE INLET AND OUTLET ORIENTATION SHOWN. IF THE INLET AND OUTLET ORIENTATION IS REVERSED, THE PLANTING LOCATIONS MUST BE MIRRORED.
3. TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPR.
4. THE AREA DIRECTLY ABOVE THE TREE ROOTBALL IS NOT TO BE PLANTED WITH SHRUBS, PERENNIALS, OR GRASSES.
5. PLANTING PLANS FOR VARIABLE SIZE ROWB ARE DETERMINED AS PER THE SCHEDULE ON GI-28.

DIRECTOR OF GREEN INFRASTRUCTURE
DEPARTMENT OF PARKS AND RECREATION

R.L.A.

DATE

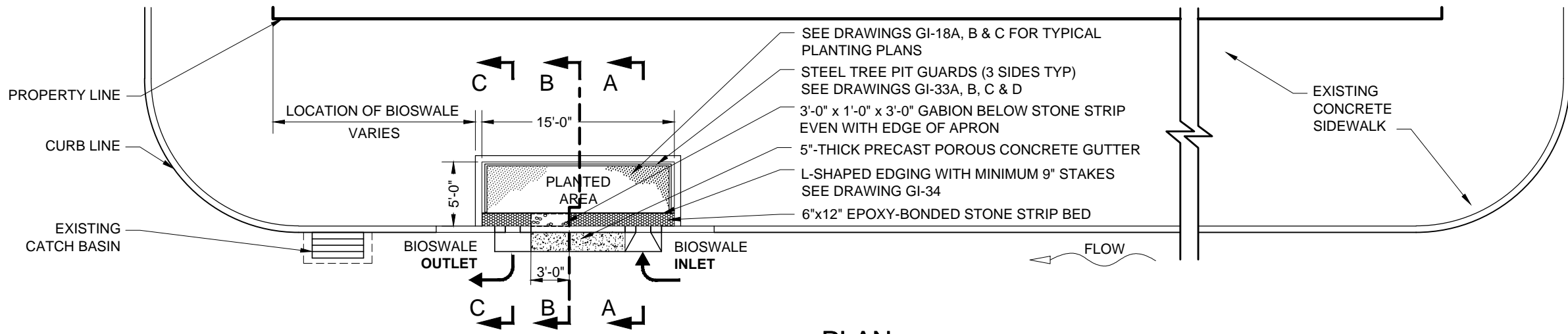
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.E.

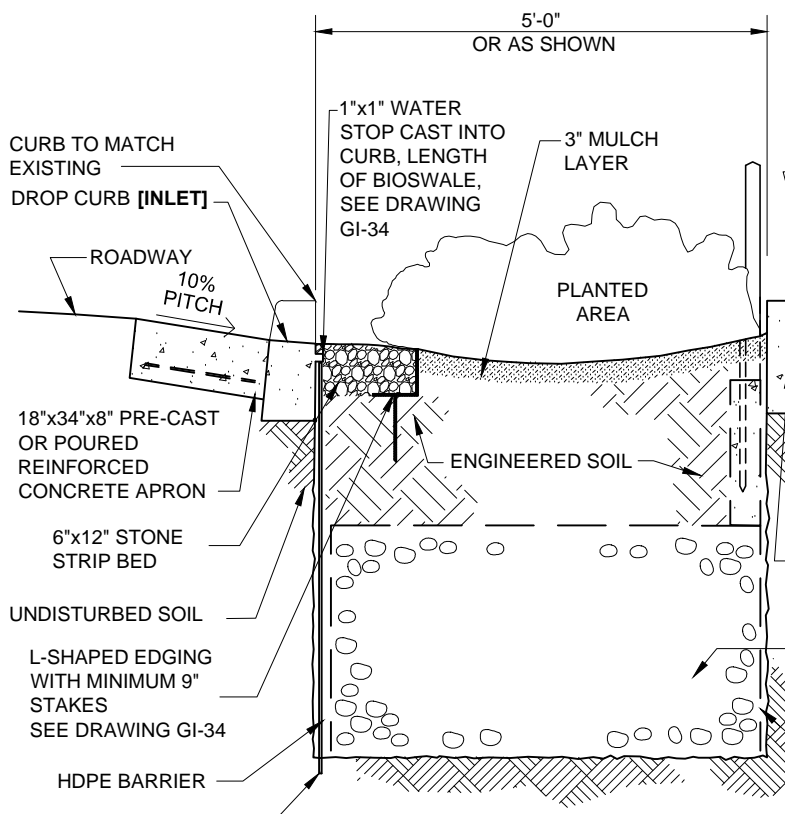
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DATE

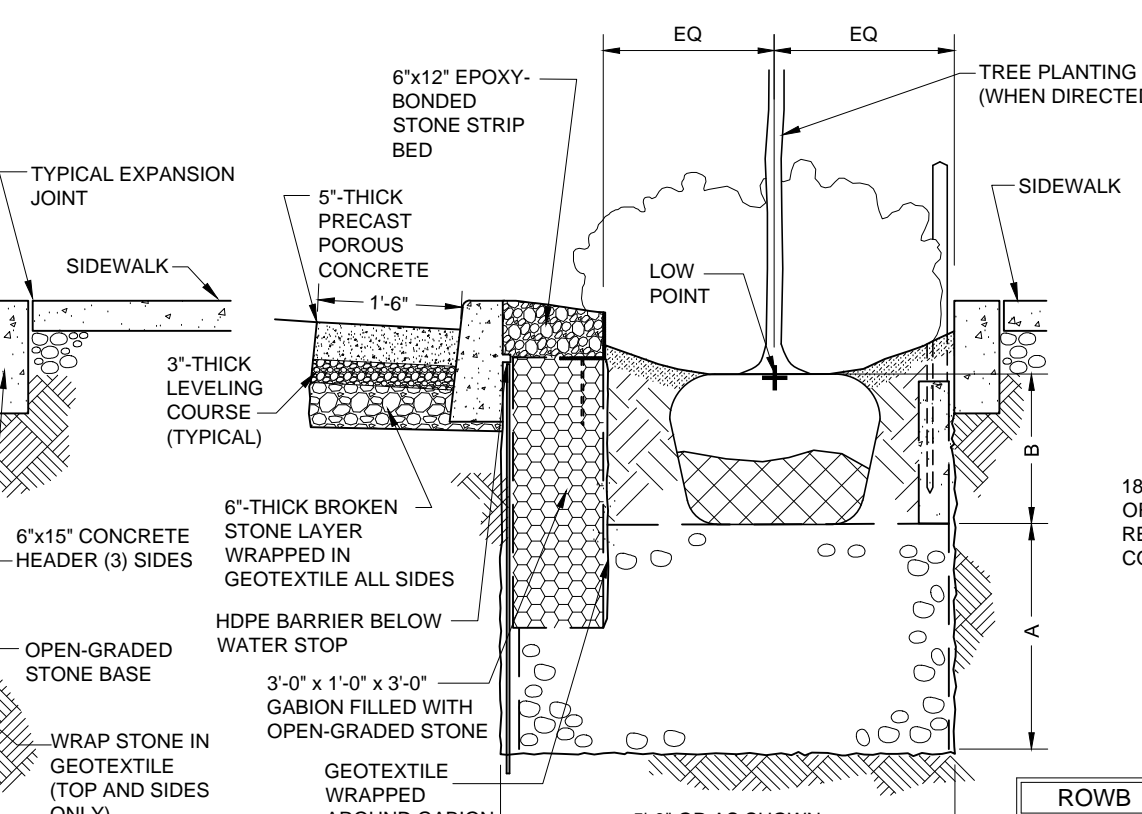
CITY OF NEW YORK
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2
 - NO CONNECTION TO SEWERS



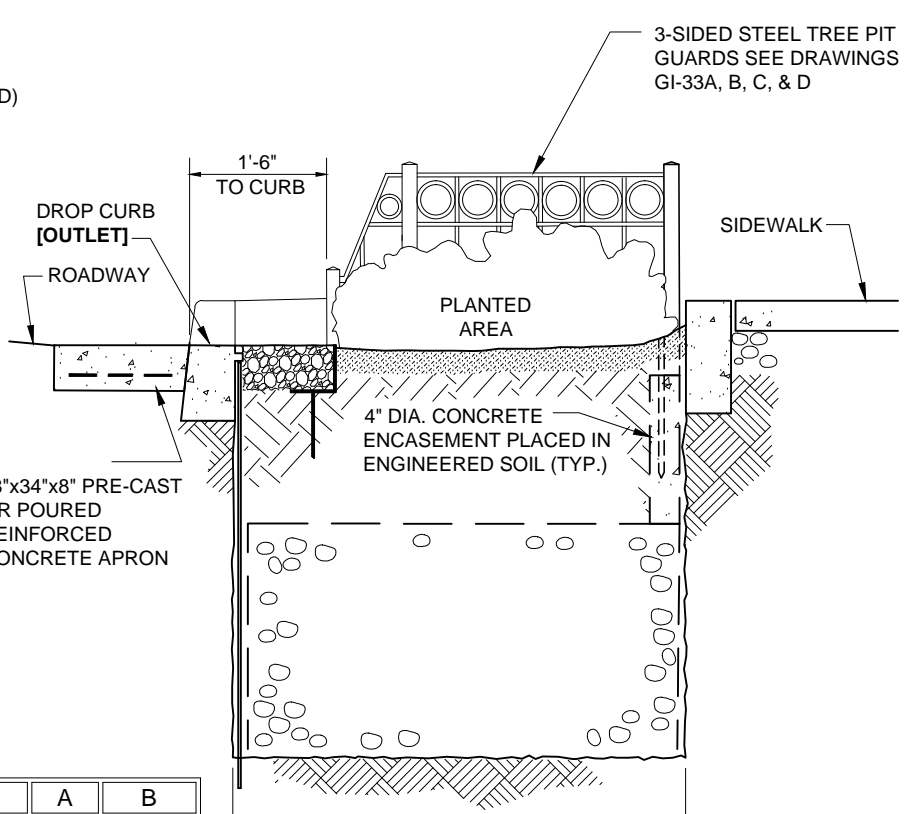
PLAN



SECTION A-A
AT BIOSWALE INLET



SECTION B-B
AT MIDSECTION [LOWEST POINT]



SECTION C-C
AT BIOSWALE OUTLET

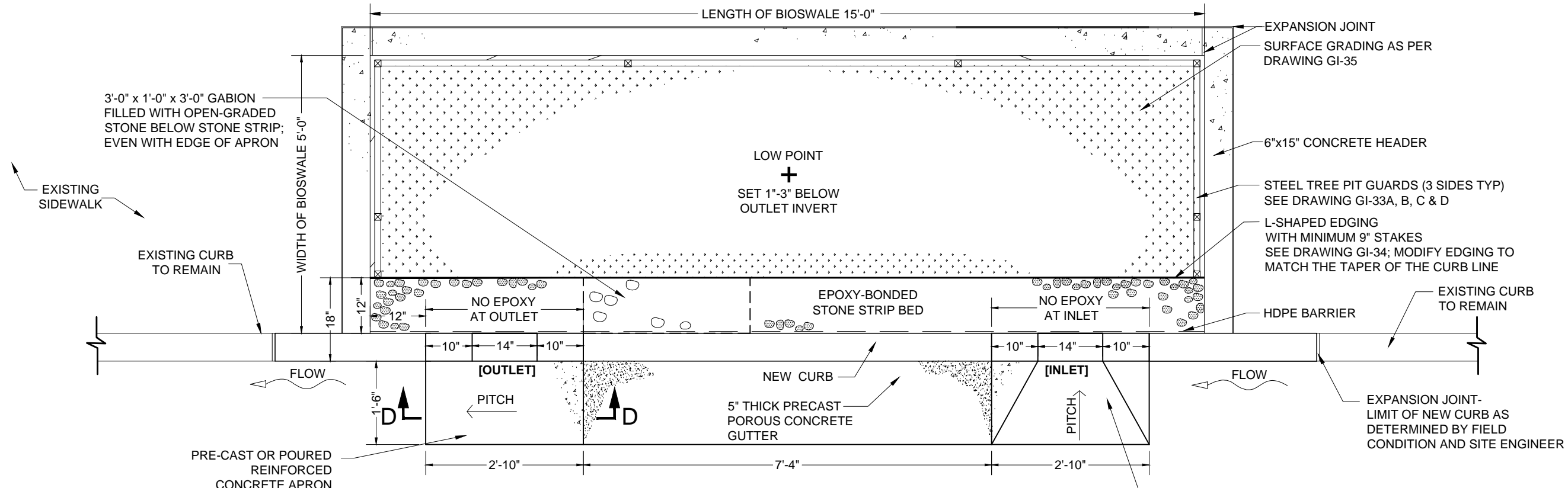
| ROWB | A | B |
|-----------|-------|---------|
| WITH TREE | 2'-6" | 24" MIN |
| NO TREE | 3'-0" | 18" MIN |

DEPTH SCHEDULE

Maadi Farag
 P.E.
 ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
 DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
 DATE

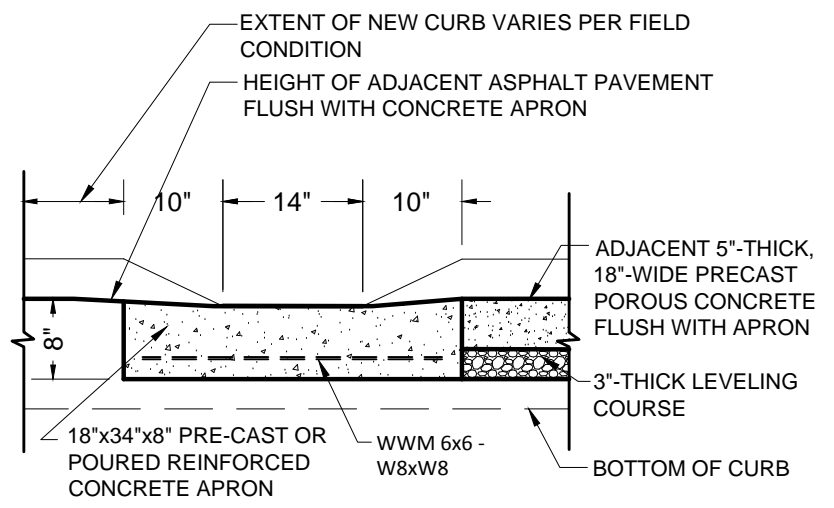
CITY OF NEW YORK
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2
 - NO CONNECTION TO SEWERS



PLAN

NOTES:

1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY, UNLESS OTHERWISE NOTED IN THE CONTRACT SPECIFICATIONS.
2. INCLUDED IN THE COST OF THE BIOSWALE IS THE REMOVAL AND RESTORATION OF TWO (2') FOOT WIDTH OF THE WEARING COURSE AND ONE (1') 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 DETAIL H-1046. 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 SECTION 4.16 OF STANDARD HIGHWAY SPECIFICATIONS.
9. STONE STRIP BED TO BE BONDED WITH EPOXY TO KEEP STONES IN PLACE. STONES IN FRONT OF INLETS AND OUTLETS ARE TO BE LEFT LOOSE TO ACCOMMODATE CLEANING AND MAINTENANCE.

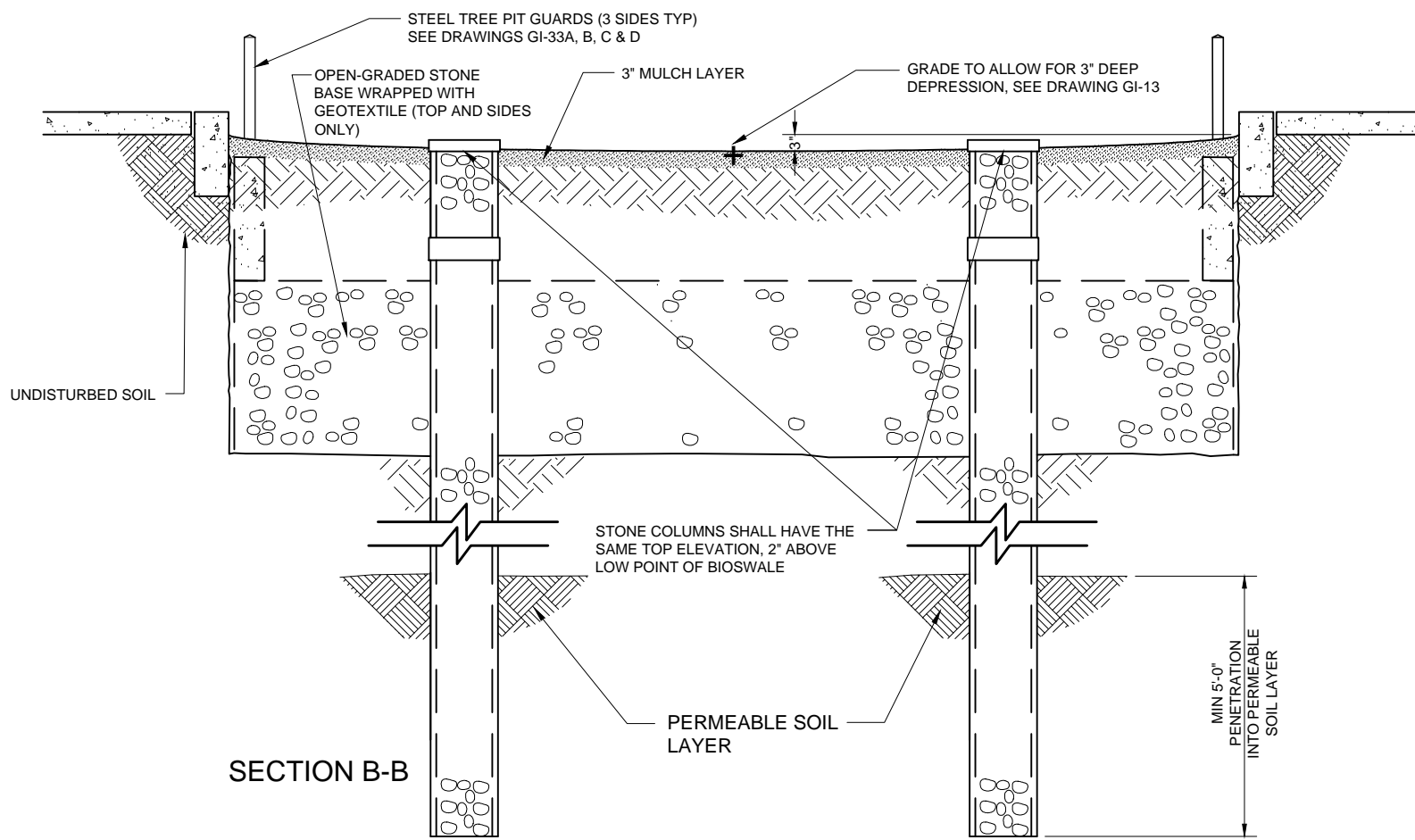
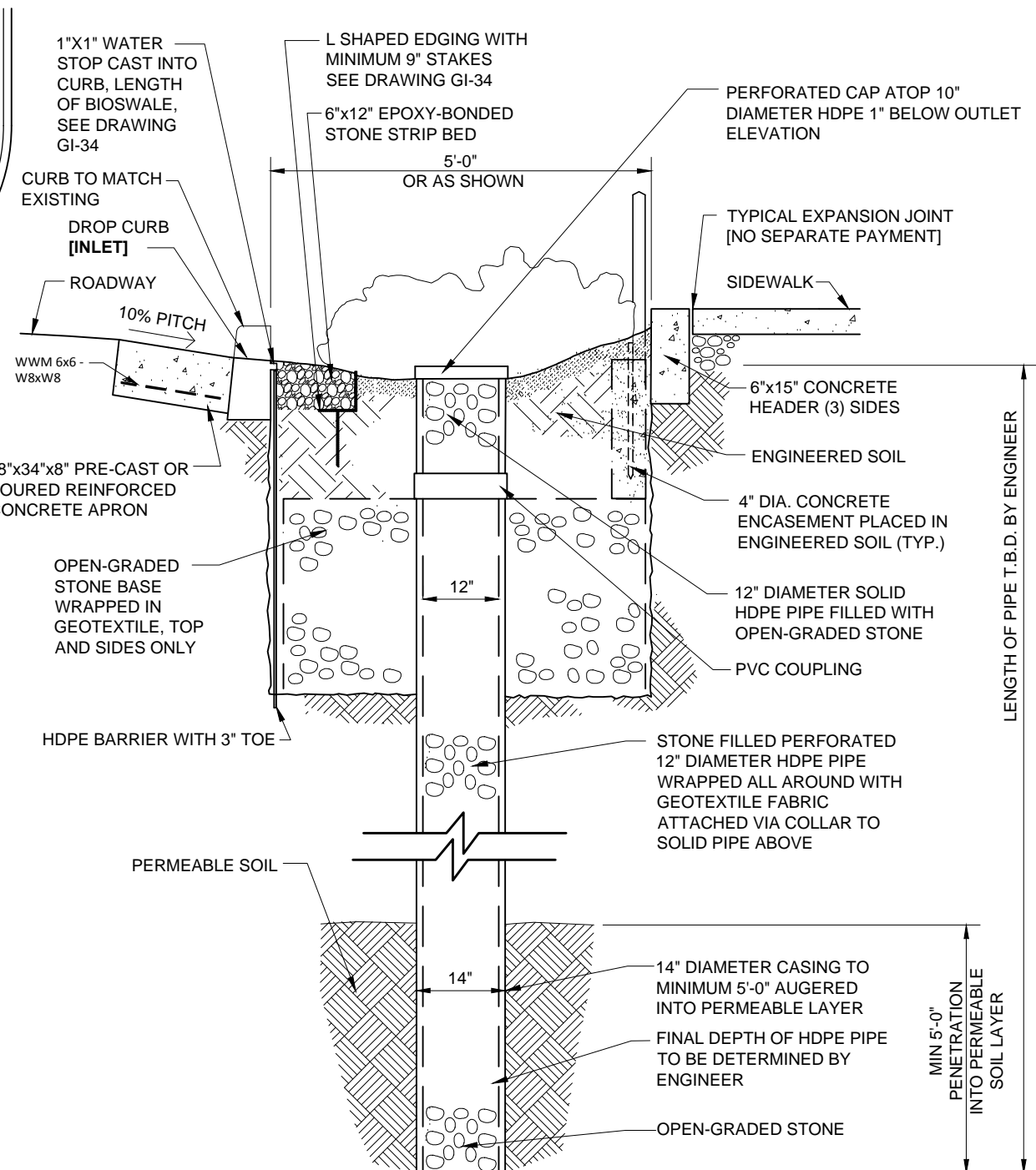
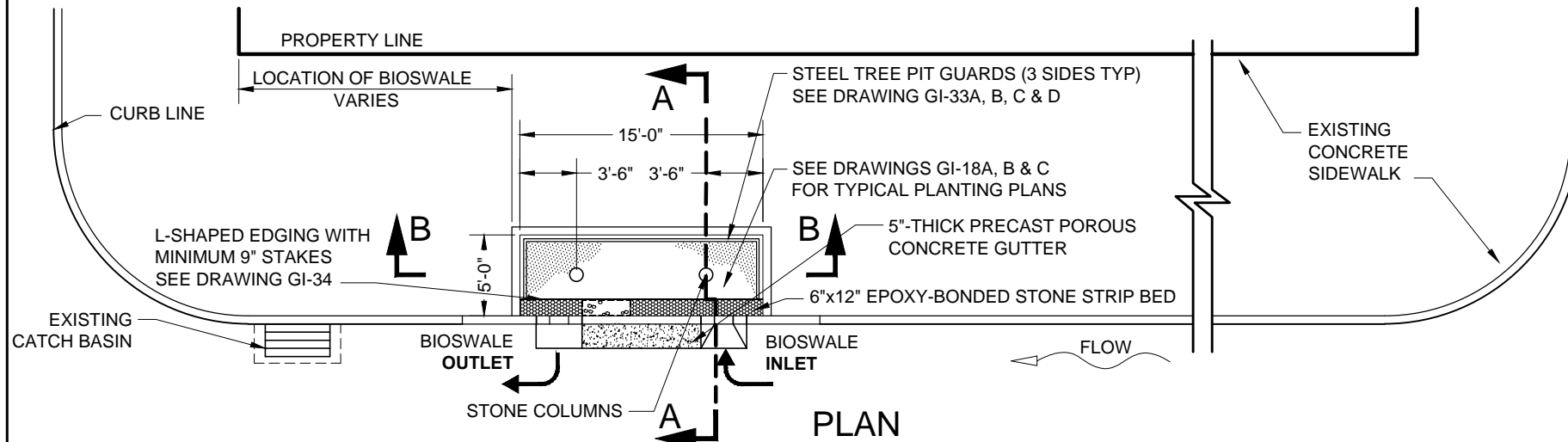


SECTION D-D

Maedi Farooq
 P.E.
 ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
 DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
 DATE

CITY OF NEW YORK
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 15'X5' R.O.W. BIOSWALE TYPE 2A - WITH STONE COLUMNS
 - NO CONNECTION TO SEWERS

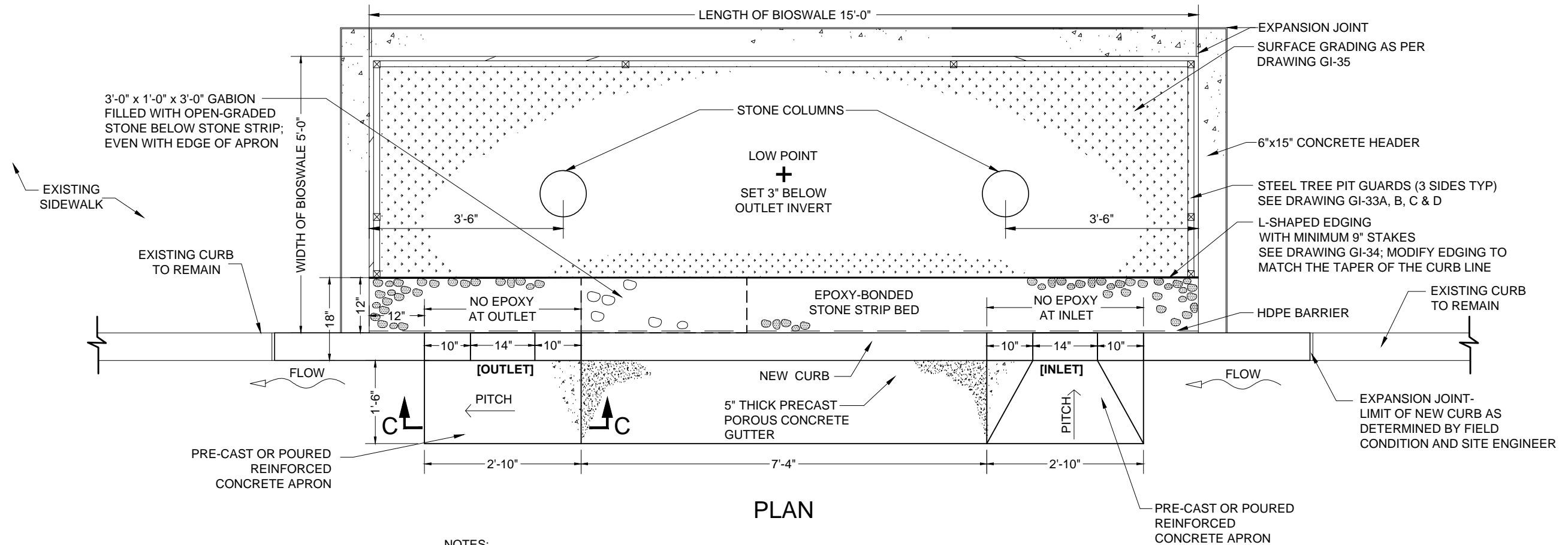


Maadi Faraj
 P.E.
 ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
 DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
 DATE

CITY OF NEW YORK
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 15'X5' R.O.W. BIOSWALE TYPE 2A - WITH STONE COLUMNS
 - NO CONNECTION TO SEWERS

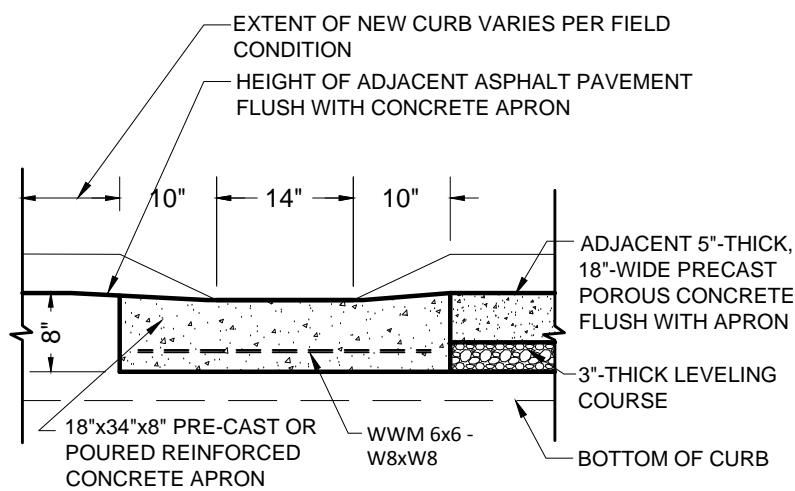
STANDARD FOR 15'X5' R.O.W. BIOSWALE TYPE 2A - WITH STONE COLUMNS



PLAN

NOTES:

1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY, UNLESS OTHERWISE NOTED IN THE CONTRACT SPECIFICATIONS.
2. INCLUDED IN THE COST OF THE BIOSWALE IS THE REMOVAL AND RESTORATION OF TWO (2) FOOT WIDTH OF THE WEARING COURSE AND ONE (1) 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 DETAIL H-1046. 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 SECTION 4.16 OF STANDARD HIGHWAY SPECIFICATIONS.
9. STONE STRIP BED TO BE BONDED WITH EPOXY TO KEEP STONES IN PLACE. STONES IN FRONT OF INLETS AND OUTLETS ARE TO BE LEFT LOOSE TO ACCOMMODATE CLEANING AND MAINTENANCE.
10. 14" DIAMETER CASING TO BE AUGERED TO DEPTH AS PER ENGINEER. 12" DIAMETER HDPE PIPE WRAPPED ALL AROUND WITH GEOTEXTILE FABRIC INSERTED IN THE 12" CASING.



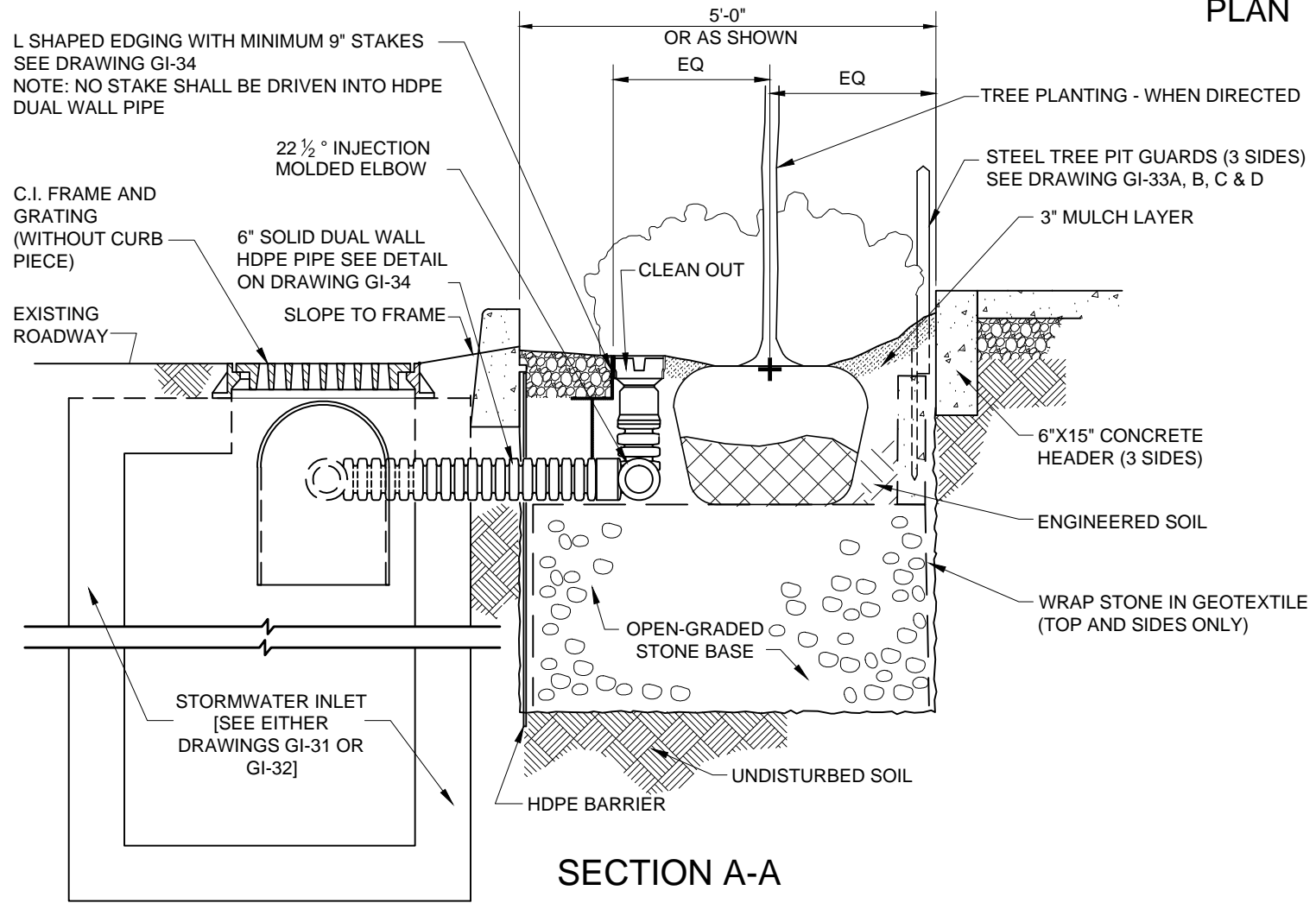
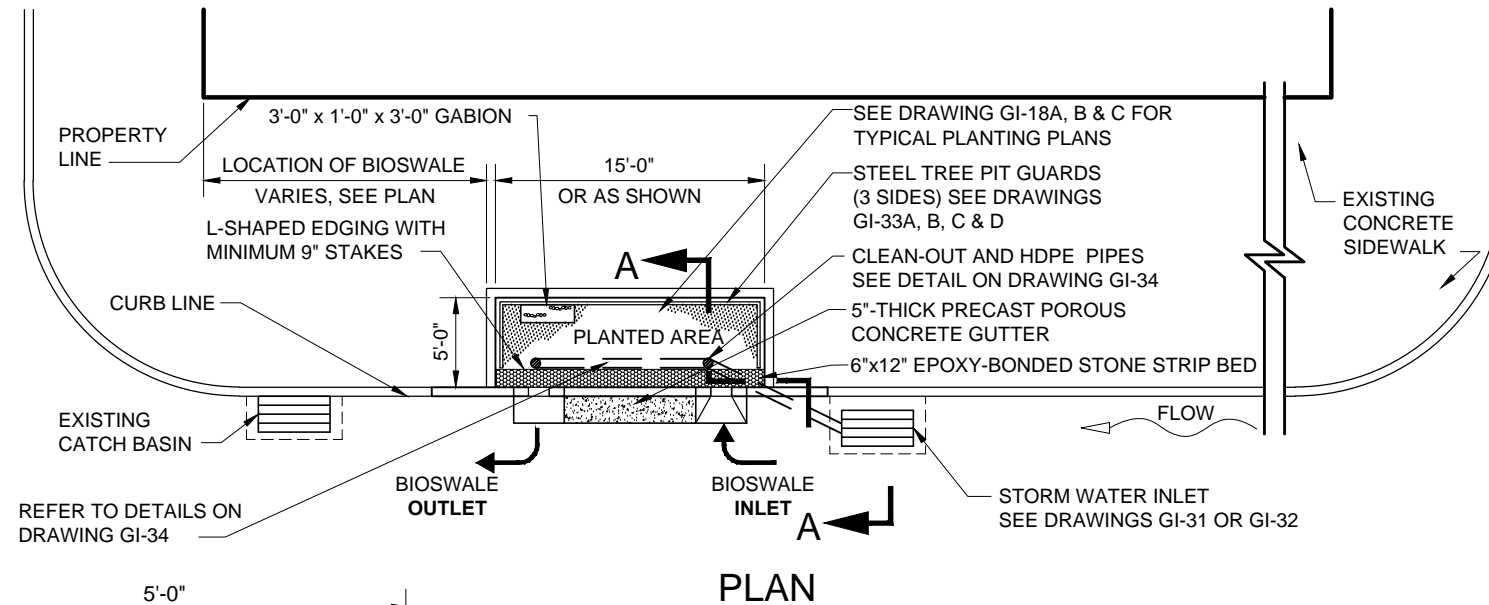
SECTION C-C

Maedi Farah
 P.E.
 ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
 DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
 DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

STANDARD FOR 15'X5' R.O.W. BIOSWALE TYPE 2B - WITH STORMWATER INLET
- NO CONNECTION TO SEWERS



NOTES:

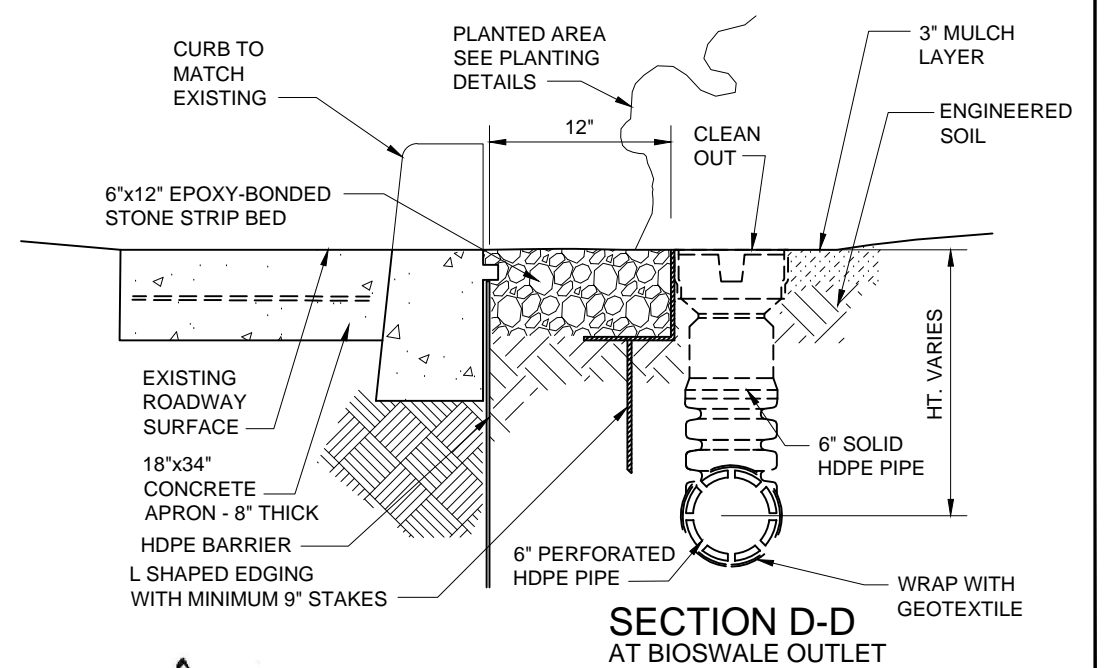
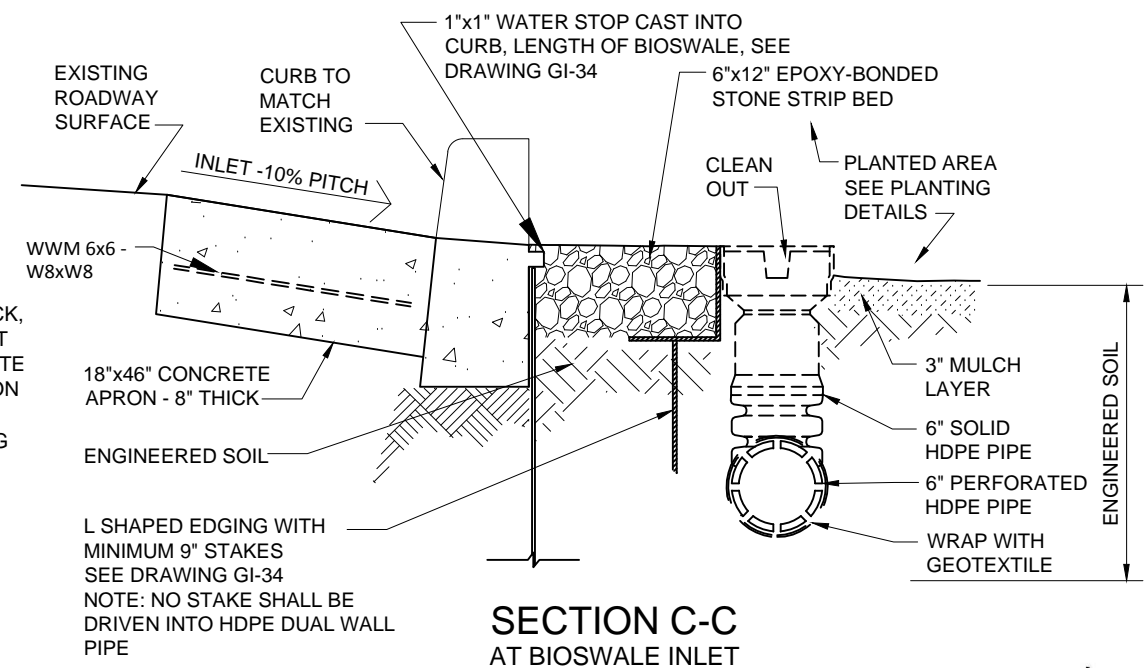
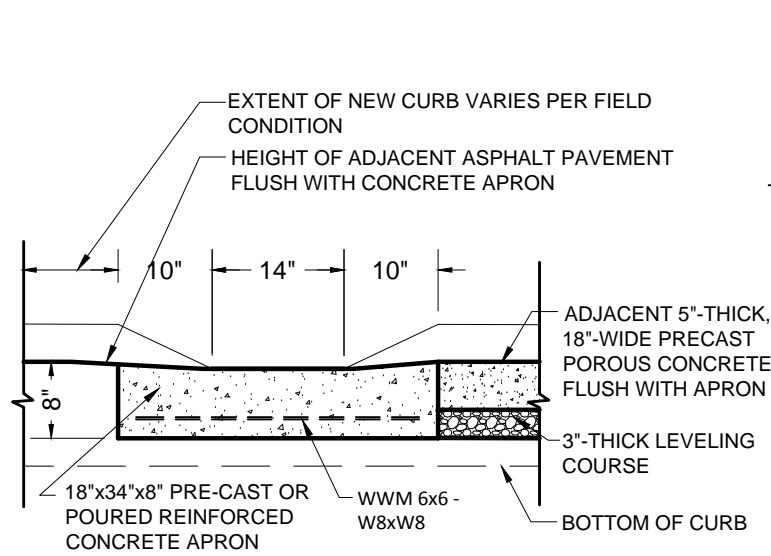
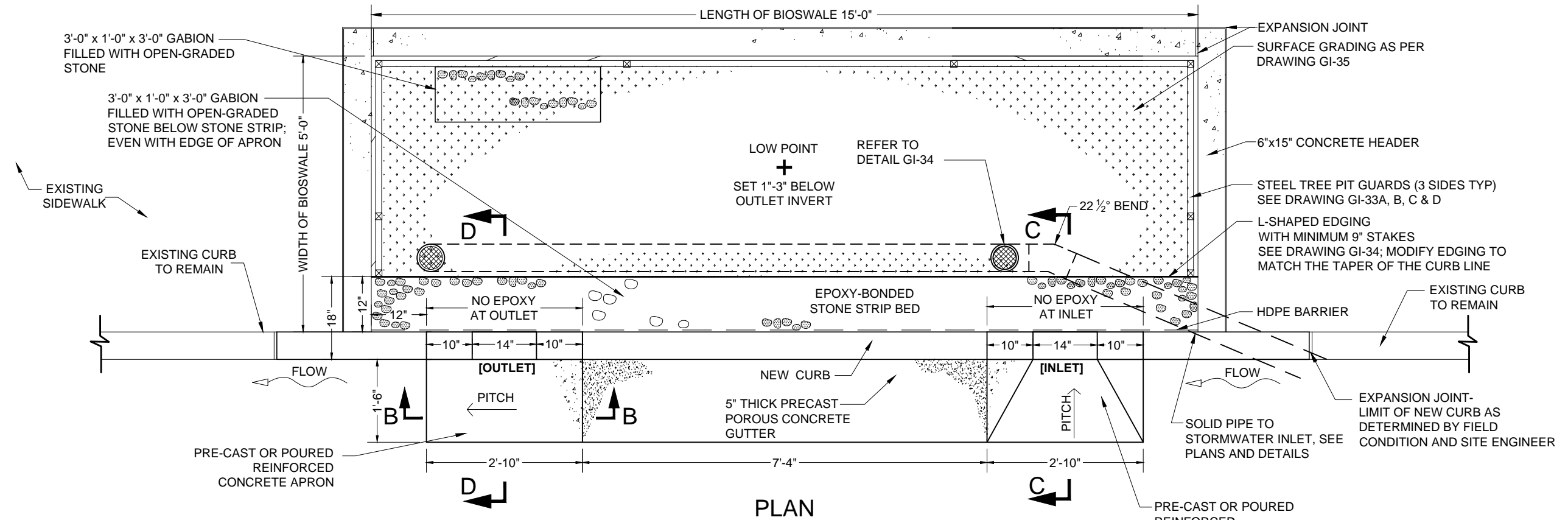
1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY, UNLESS OTHERWISE NOTED IN THE CONTRACT SPECIFICATIONS.
2. INCLUDED IN THE COST OF THE BIOSWALE IS THE REMOVAL AND RESTORATION OF (2') FOOT WIDTH OF THE WEARING COURSE AND ONE (1') 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 DETAIL H-1046. 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 SECTION 4.16 OF STANDARD HIGHWAY SPECIFICATIONS.
9. STONE STRIP BED TO BE BONDED WITH EPOXY TO KEEP STONES IN PLACE. STONES IN FRONT OF INLETS AND OUTLETS ARE TO BE LEFT LOOSE TO ACCOMMODATE CLEANING AND MAINTENANCE.

Maedi Faruq
P.E.
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

STANDARD FOR 15'X5' R.O.W. BIOSWALE TYPE 2B - WITH STORMWATER INLET
- NO CONNECTION TO SEWERS



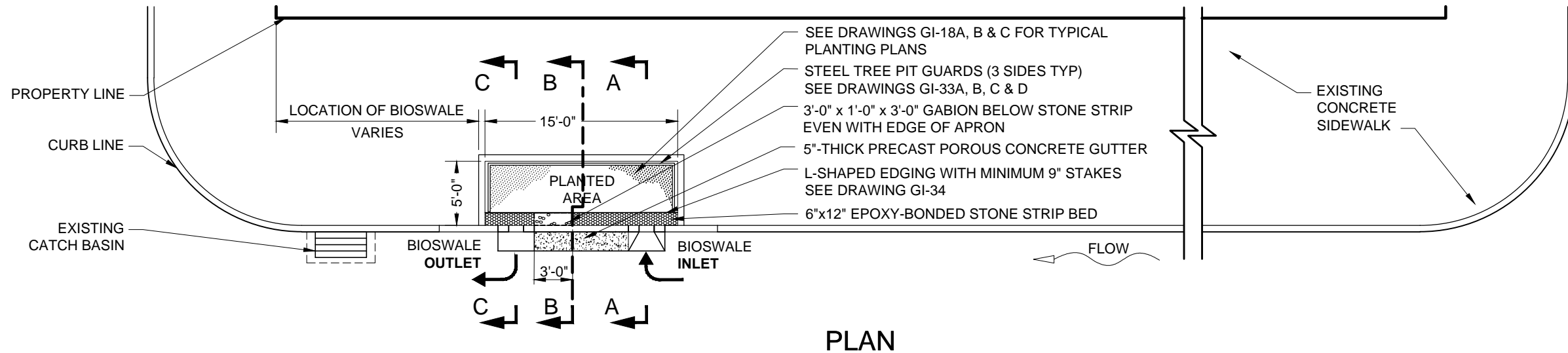
Maadi Faraj
P.E.
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
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7-16-13
DATE

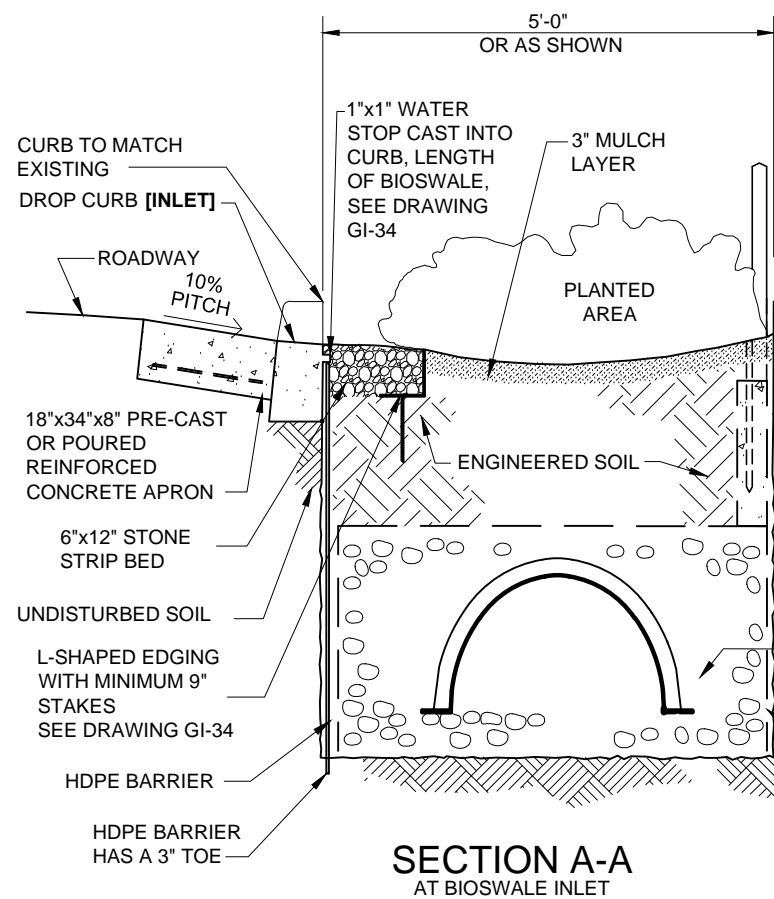
CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2C - WITH STORMWATER CHAMBER

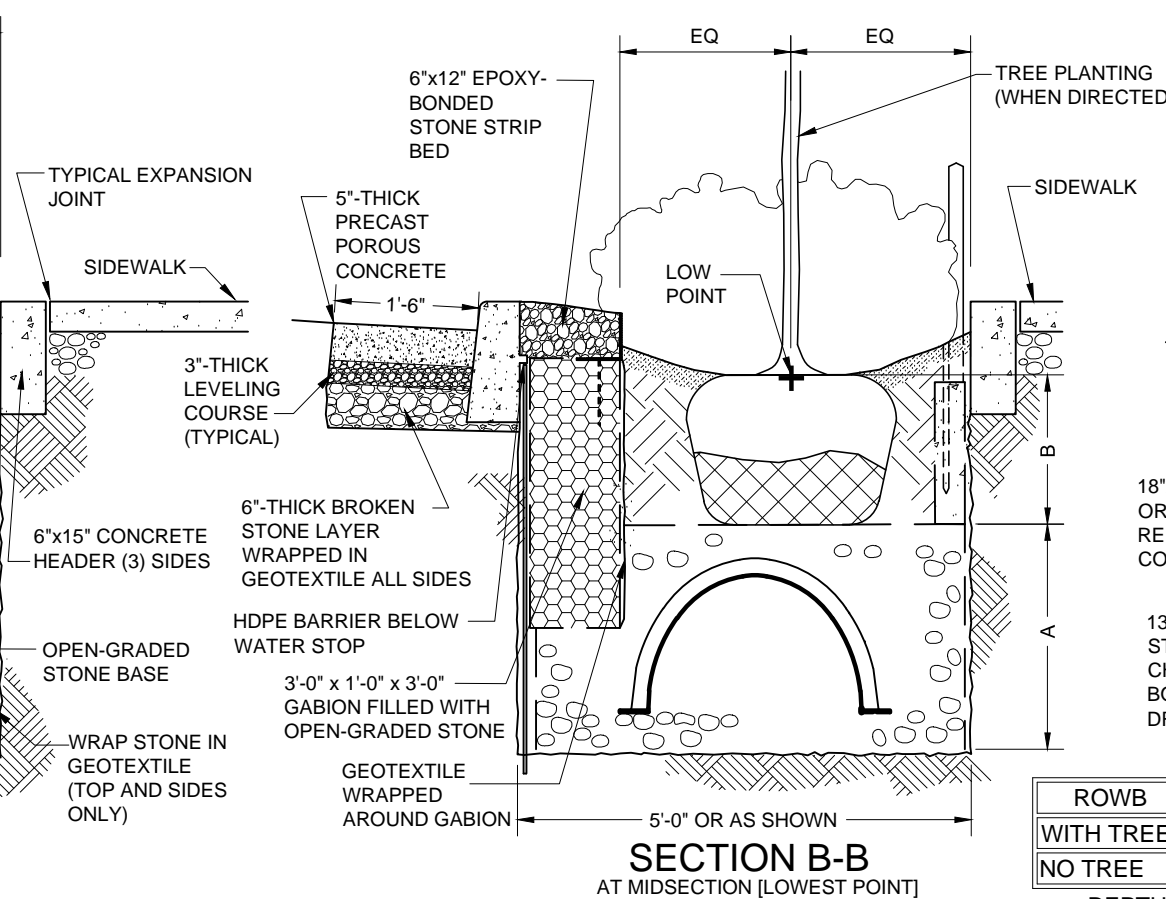
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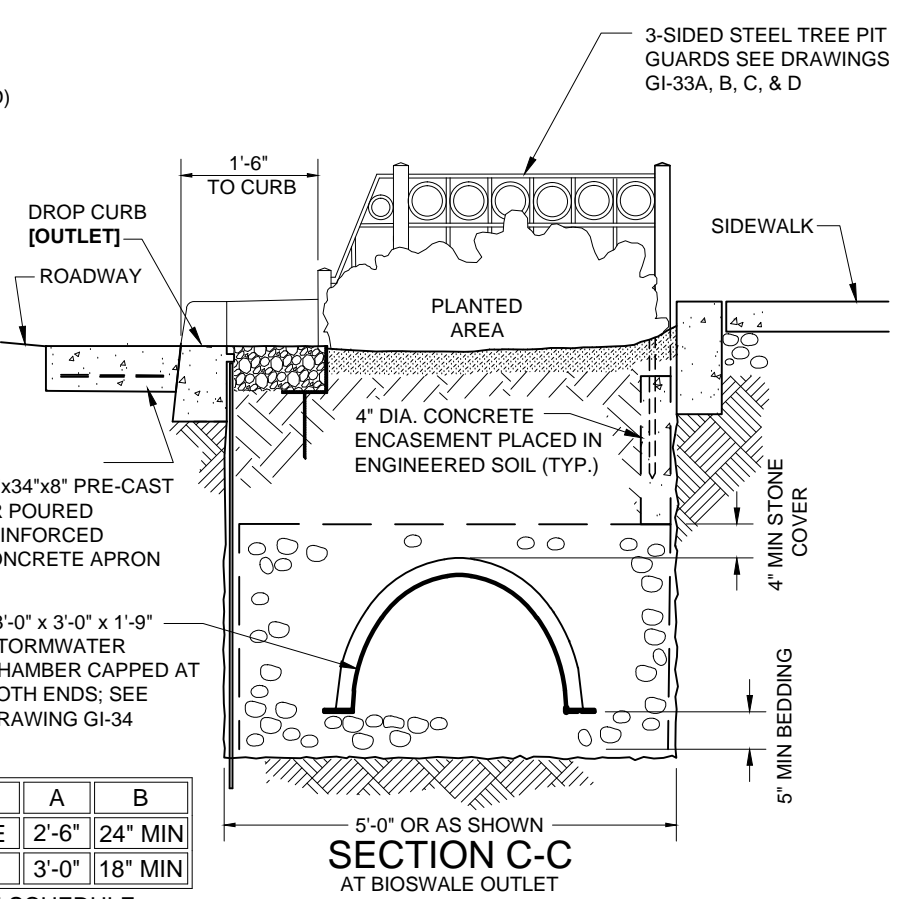
PLAN



SECTION A-A
AT BIOSWALE INLET



SECTION B-B
AT MIDSECTION [LOWEST POINT]



SECTION C-C
AT BIOSWALE OUTLET

| ROWB | A | B |
|-----------|-------|---------|
| WITH TREE | 2'-6" | 24" MIN |
| NO TREE | 3'-0" | 18" MIN |

DEPTH SCHEDULE

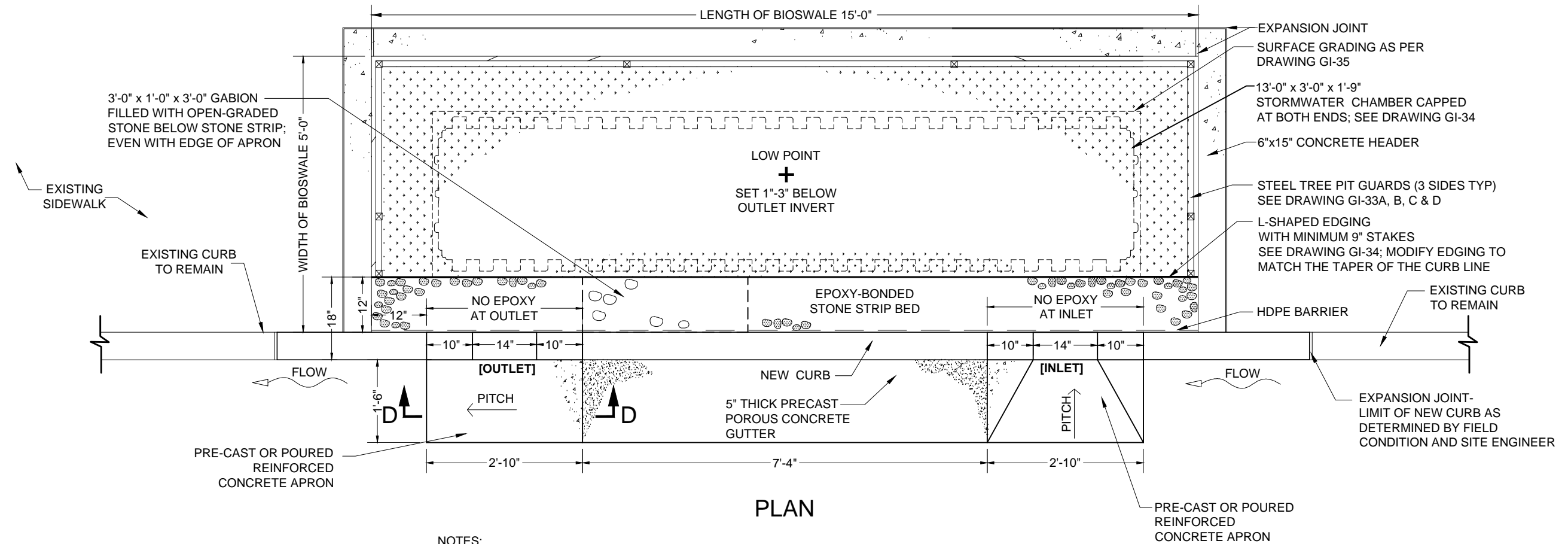
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CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
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STANDARD FOR 15'x5' R.O.W. BIOSWALE TYPE 2C - WITH STORMWATER CHAMBER

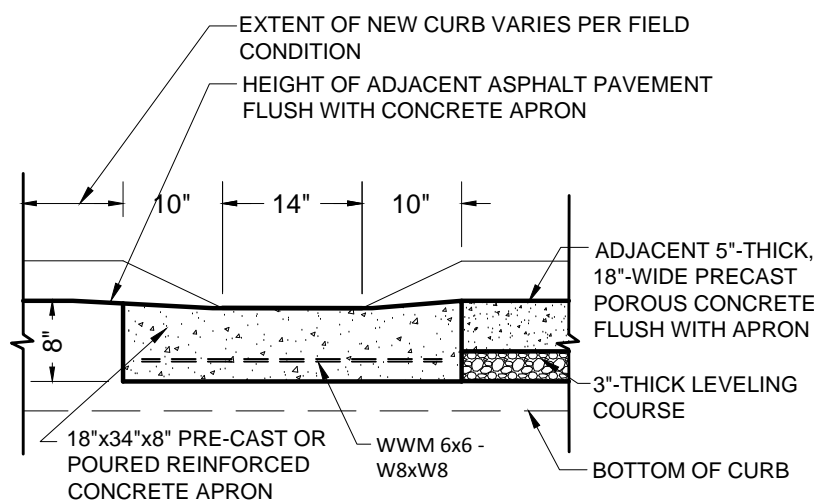
- NO CONNECTION TO SEWERS



PLAN

NOTES:

1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY, UNLESS OTHERWISE NOTED IN THE CONTRACT SPECIFICATIONS.
2. INCLUDED IN THE COST OF THE BIOSWALE IS THE REMOVAL AND RESTORATION OF TWO (2) FOOT WIDTH OF THE WEARING COURSE AND ONE (1) 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.
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5. TREES SHALL BE STAKED AS PER DOT STANDARD DETAIL H-1046. TREE STAKES ARE TO BE REMOVED BY THE CONTRACTOR NOT LESS THAN ONE YEAR AFTER PLANTING.
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SECTION D-D

Moadi Faruq
P.E.
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

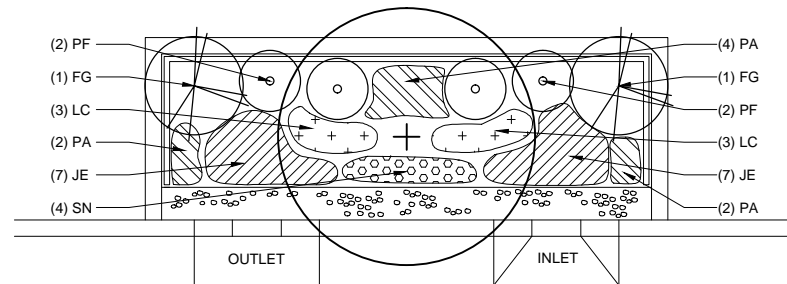
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CITY OF NEW YORK
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OFFICE OF GREEN INFRASTRUCTURE

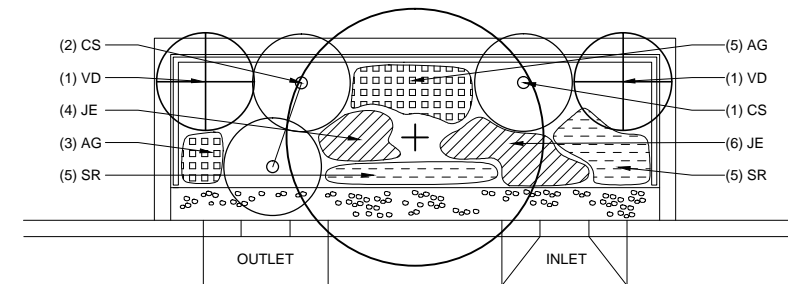
STANDARD PLANTING PLANS FOR TYPE 2 R.O.W. BIOSWALES (TYPICAL)

| RESIDENTIAL PLAN 1 PLANT SCHEDULE | | | | | |
|-----------------------------------|-----|-----------------------------------|----------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 2 | FG | FOTHERGILLA GARDENII | MOUNT AIRY DWARF FORSYTHIA | #3 CONTAINER | 3' O.C. |
| 4 | PF | POTENTILLA FRUTICOSA | SHRUBBY CINQUEFOIL | #3 CONT. | 2' O.C. |
| PERENNIALS | | | | | |
| 6 | LC | LOBELIA CARDINALIS | CARDINAL FLOWER | #2 CONT. | 12" O.C. |
| 4 | SN | SYMPHYOTRICHUM NOVAE-ANGLIA | NEW ENGLAND ASTER | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 14 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |
| 8 | PA | PENNISETUM ALOPECUROIDES 'HAMELN' | HAMELN FOUNTAIN GRASS | #2 CONT. | 18" O.C. |

| RESIDENTIAL PLAN 2 PLANT SCHEDULE | | | | | |
|-----------------------------------|-----|---------------------------------|-------------------------------|-----------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 3 | CS | CORNUS SERICEA 'CARDINAL' | CARDINAL RED TWIG DOGWOOD | #3 CONTAINER | 3' O.C. |
| 2 | VD | VIBURNUM DENTATUM 'BLUE MUFFIN' | BLUE MUFFIN ARROWWOD VIBURNUM | #5 CONT. OR B&B | 3' O.C. |
| PERENNIALS | | | | | |
| 8 | AG | AGASTACHE 'BLUE FORTUNE' | BLUE FORTUNE GIANT HYSSOP | #2 CONT. | 12" O.C. |
| 10 | SR | SOLIDAGO RUGOSA 'FIREWORKS' | FIREWORKS GOLDENROD | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 10 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



RESIDENTIAL PLAN 1
ROWBS IN RESIDENTIAL NEIGHBORHOODS WITH LOW VOLUME CIRCULATION



RESIDENTIAL PLAN 2
ROWBS IN RESIDENTIAL NEIGHBORHOODS WITH LOW VOLUME CIRCULATION

NOTES:


- EACH TYPE 2 ROWB WILL INCLUDE THE FOLLOWING ADDITIONAL BULB PLANTINGS: NARCISSUS (15 COUNT), CROCUS (15 COUNT), TULIPA SPP. (15 COUNT), AND ALLIUM (15 COUNT). THEY SHALL BE DISTRIBUTED RANDOMLY THROUGHOUT BIOSWALE IN GROUPS OF 8-10, SPACED 6" APART.
- PLANTING LOCATIONS ARE SPECIFIC TO THE INLET AND OUTLET ORIENTATION SHOWN. IF THE INLET AND OUTLET ORIENTATION IS REVERSED, THE PLANTING LOCATIONS MUST BE MIRRORED.
- TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPR.
- THE AREA DIRECTLY ABOVE THE TREE ROOTBALL IS NOT TO BE PLANTED WITH SHRUBS, PERENNIALS, OR GRASSES.
- PLANTING PLANS FOR VARIABLE SIZE ROWB ARE DETERMINED AS PER THE SCHEDULE ON GI-28.



DIRECTOR OF GREEN INFRASTRUCTURE
DEPARTMENT OF PARKS AND RECREATION

R.L.A.

DATE



ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.E.

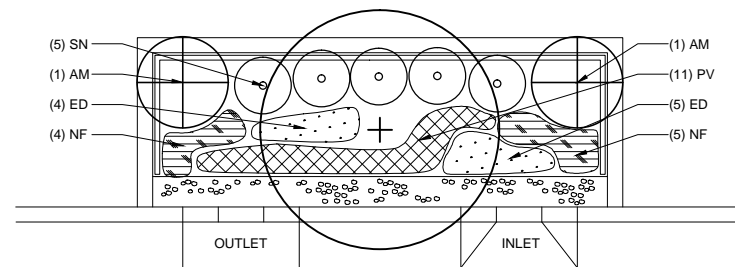
7-16-13

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CITY OF NEW YORK
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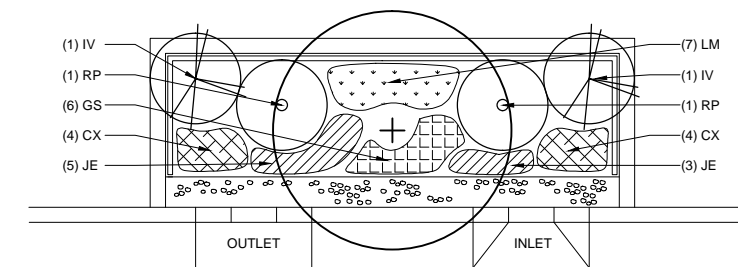
STANDARD PLANTING PLANS FOR TYPE 2 R.O.W. BIOSWALES (TYPICAL)

| URBAN PLAN 1 PLANT SCHEDULE | | | | | |
|-----------------------------|-----|---------------------------------|---------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 2 | AM | ARONIA MELANOCARPA | BLACK CHOKEBERRY | #3 CONTAINER | 3' O.C. |
| 5 | SN | SPIRAEA NIPPONICA 'SNOWMOUND' | SNOW MOUND NIPPON SPIRAEA | #3 CONT. | 2' O.C. |
| PERENNIALS | | | | | |
| 9 | ED | EUPATORIUM DUBIUM 'BABY JOE' | BABY JOE JOE PYE WEED | #2 CONT. | 12" O.C. |
| 9 | NF | NEPETA FAASSENII 'WALKER'S LOW' | WALKER'S LOW CATMINT | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 11 | PV | PANICUM VIRGATUM 'HEAVY METAL' | HEAVY METAL SWITCHGRASS | #2 CONT. | 18" O.C. |



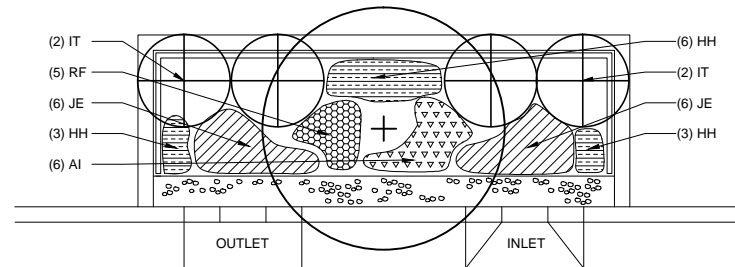
URBAN PLAN 1
ROWBS IN COMMERCIAL AND INDUSTRIAL AREAS WITH HIGHER VOLUME CIRCULATION

| URBAN PLAN 2 PLANT SCHEDULE | | | | | |
|-----------------------------|-----|---|----------------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 2 | IV | ILEX VERTICILLATA 'JIM DANDY' (M), 'RED SPRITE' (F) | WINTERBERRY | #3 CONTAINER | 3' O.C. |
| 2 | RP | ROSA PALUSTRIS | SWAMP ROSE | #3 CONT. | 3' O.C. |
| PERENNIALS | | | | | |
| 6 | GS | GERANIUM SANGUINEUM 'ALBUM' | ALBUM BLOODY CRANESBILL | #2 CONT. | 12" O.C. |
| 7 | LM | LIRIOPE MUSCARI 'BIG BLUE' | BIG BLUE LILY TURF | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 8 | CX | CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' | KARL FOERSTER FEATHER REED GRASS | #2 CONT. | 18" O.C. |
| 8 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



URBAN PLAN 2
ROWBS IN COMMERCIAL AND INDUSTRIAL AREAS WITH HIGHER VOLUME CIRCULATION

| URBAN PLAN 3 PLANT SCHEDULE | | | | | |
|-----------------------------|-----|---------------------------------|----------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 4 | IT | ITEA VIRGINICA 'HENRY'S GARNET' | HENRY'S GARNET SWEETSPIRE | #3 CONTAINER | 3' O.C. |
| PERENNIALS | | | | | |
| 6 | AI | ASCLEPIAS INCARNATA | SWAMP MILKWEED | #2 CONT. | 12" O.C. |
| 12 | HH | HEMEROCALLIS 'PRAIRIE WILDFIRE' | PRAIRIE WILDFIRE DAYLILY | #2 CONT. | 12" O.C. |
| 5 | RF | RUDBECKIA FULGIDA 'GOLDSTURM' | GOLDSTURM BLACK EYED SUSAN | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 12 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



URBAN PLAN 3
ROWBS IN COMMERCIAL AND INDUSTRIAL AREAS WITH HIGHER VOLUME CIRCULATION

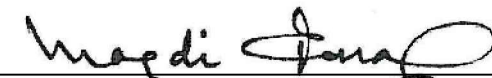
NOTES:

- EACH TYPE 2 ROWB WILL INCLUDE THE FOLLOWING ADDITIONAL BULB PLANTINGS: NARCISSUS (15 COUNT), CROCUS (15 COUNT), TULIPA SPP. (15 COUNT), AND ALLIUM (15 COUNT). THEY SHALL BE DISTRIBUTED RANDOMLY THROUGHOUT BIOSWALE IN GROUPS OF 8-10, SPACED 6" APART.
- PLANTING LOCATIONS ARE SPECIFIC TO THE INLET AND OUTLET ORIENTATION SHOWN. IF THE INLET AND OUTLET ORIENTATION IS REVERSED, THE PLANTING LOCATIONS MUST BE MIRRORED.
- TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPR.
- THE AREA DIRECTLY ABOVE THE TREE ROOTBALL IS NOT TO BE PLANTED WITH SHRUBS, PERENNIALS, OR GRASSES.
- PLANTING PLANS FOR VARIABLE SIZE ROWB ARE DETERMINED AS PER THE SCHEDULE ON GI-28.


DIRECTOR OF GREEN INFRASTRUCTURE
DEPARTMENT OF PARKS AND RECREATION

R.L.A.

DATE


ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.E.

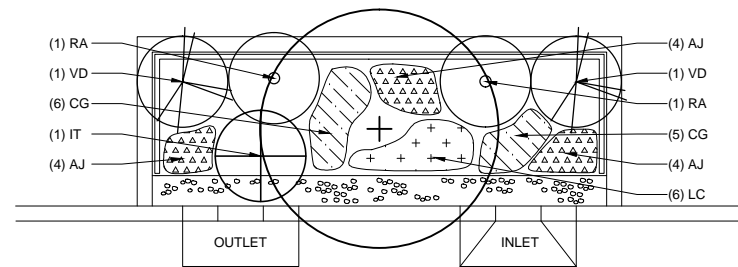
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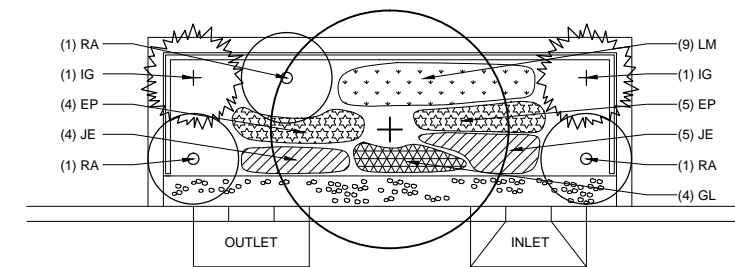
STANDARD PLANTING PLANS FOR TYPE 2 R.O.W. BIOSWALES (TYPICAL)

| ESPECIALLY SHADY PLAN PLANT SCHEDULE | | | | | |
|--------------------------------------|-----|---------------------------------|-------------------------------|-----------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 1 | IT | ITEA VIRGINICA 'HENRY'S GARNET' | HENRY'S GARNET SWEETSPIRE | #3 CONTAINER | 3' O.C. |
| 2 | RA | RHUS AROMATICA 'GRO LO' | GRO LO FRAGRANT SUMAC | #3 CONT. | 3' O.C. |
| 2 | VD | VIBURNUM DENTATUM 'BLUE MUFFIN' | BLUE MUFFIN ARROWWOD VIBURNUM | #5 CONT. OR B&B | 3' O.C. |
| PERENNIALS | | | | | |
| 12 | AJ | ASTILBE JAPONICA 'DEUTSCHLAND' | DEUTSCHLAND ASTILBE | #2 CONT. | 12" O.C. |
| 6 | LC | LOBELIA CARDINALIS | CARDINAL FLOWER | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 11 | CG | CAREX GLAUCA 'BLUE ZINGER' | BLUE ZINGER BLUE SEDGE | #2 CONT. | 12" O.C. |



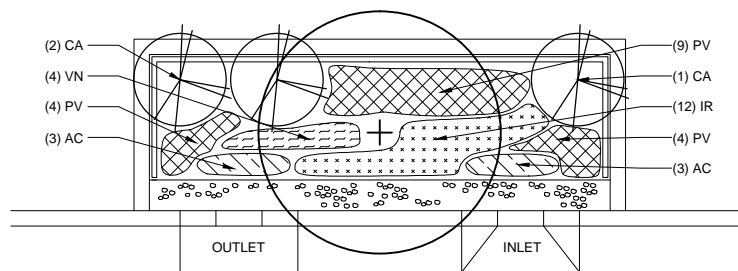
ESPECIALLY SHADY PLAN
ROWBS WITH PARTLY SUNNY OR SHADY LIGHT CONDITIONS

| ESPECIALLY DRY PLAN PLANT SCHEDULE | | | | | |
|------------------------------------|-----|--|----------------------------------|---------------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 2 | IG | ILEX GLABRA 'COMPACTA' | COMPACTA INKBERRY HOLLY | #5 CONTAINER OR B&B | 3' O.C. |
| 3 | RA | RHUS AROMATICA 'GRO LO' | GRO LO FRAGRANT SUMAC | #3 CONT. | 2' O.C. |
| PERENNIALS | | | | | |
| 9 | EP | ECHINACEA PURPUREA 'KIM'S KNEE HIGH' | KIM'S KNEE HIGH CONEFLOWER | #2 CONT. | 12" O.C. |
| 4 | GL | GAURA LINDHEIMERI 'WHIRLING BUTTERFLIES' | WHIRLING BUTTERFLIES WAND FLOWER | #2 CONT. | 12" O.C. |
| 9 | LM | LIRIOPE MUSCARI 'BIG BLUE' | BIG BLUE LILYTURF | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 9 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



ESPECIALLY DRY PLAN
ROWBS WITH LESS THAN 15% STORMWATER RUNOFF MANAGED

| ESPECIALLY WET PLANT SCHEDULE | | | | | |
|-------------------------------|-----|----------------------------------|-------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS | | | | | |
| 3 | CA | CLETHERA ALNIFOLIA 'HUMMINGBIRD' | HUMMINGBIRD CLETHRA | #3 CONTAINER | 3' O.C. |
| PERENNIALS | | | | | |
| 12 | IR | IRIS VERSICOLOR | NORTHERN BLUE FLAG | #2 CONT. | 12" O.C. |
| 4 | VN | VERNONIA NOVEBORACENSIS | NEW YORK IRONWEED | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 6 | AC | ACORUS CALAMUS 'VARIEGATUS' | VARIEGATED SWEET FLAG | #2 CONT. | 12" O.C. |
| 17 | PV | PANICUM VIRGATUM 'HEAVY METAL' | HEAVY METAL SWITCHGRASS | #2 CONT. | 18" O.C. |



ESPECIALLY WET PLAN
ROWBS WITH GREATER THAN 30% STORMWATER RUNOFF MANAGED

NOTES:

1. EACH TYPE 2 ROWB WILL INCLUDE THE FOLLOWING ADDITIONAL BULB PLANTINGS: NARCISSUS (15 COUNT), CROCUS (15 COUNT), TULIPA SPP. (15 COUNT), AND ALLIUM (15 COUNT). THEY SHALL BE DISTRIBUTED RANDOMLY THROUGHOUT BIOSWALE IN GROUPS OF 8-10, SPACED 6" APART.
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DIRECTOR OF GREEN INFRASTRUCTURE
DEPARTMENT OF PARKS AND RECREATION

R.L.A.

DATE

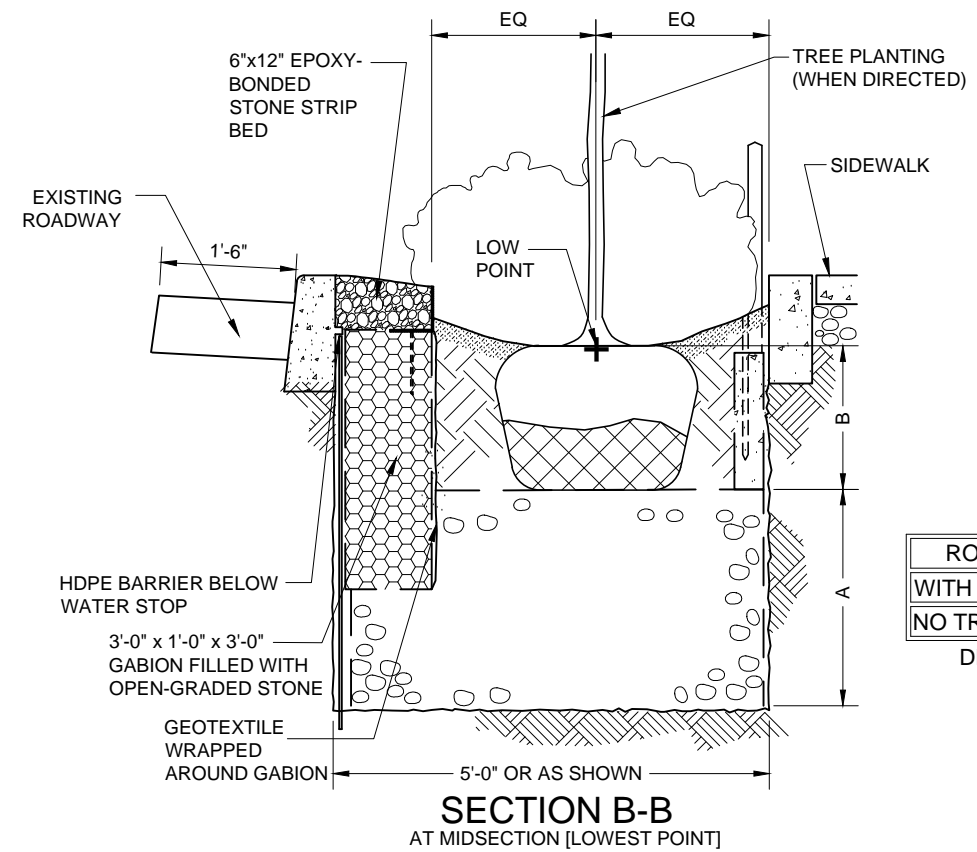
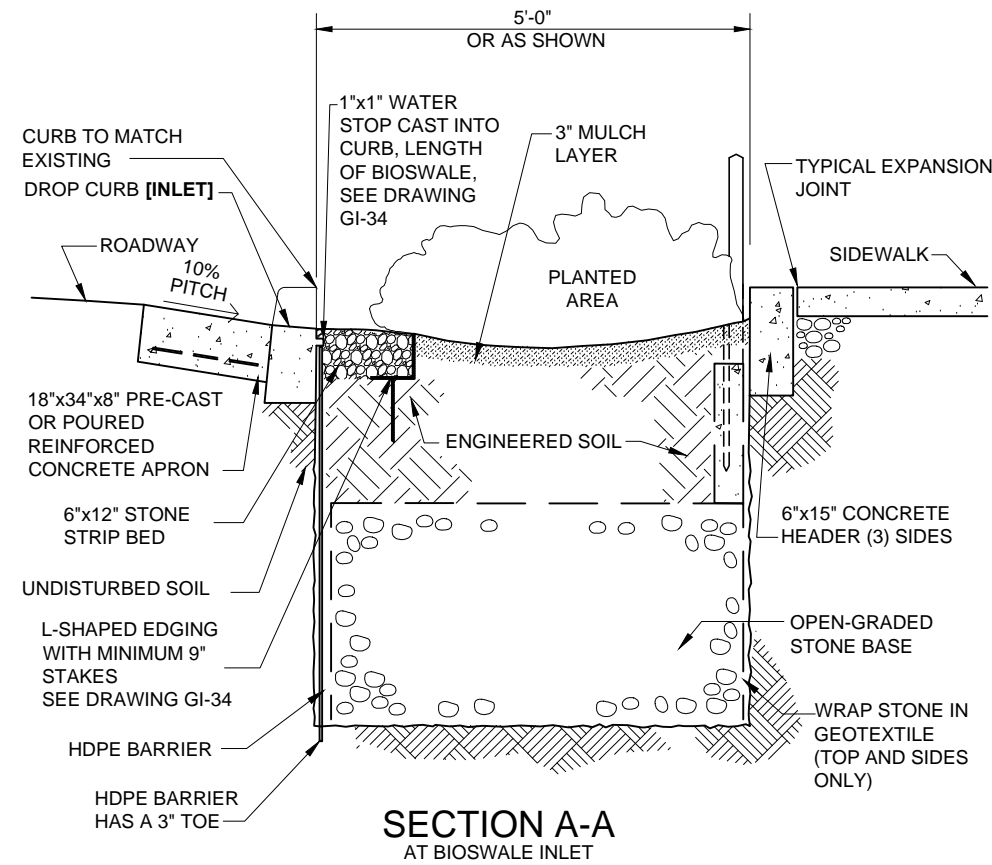
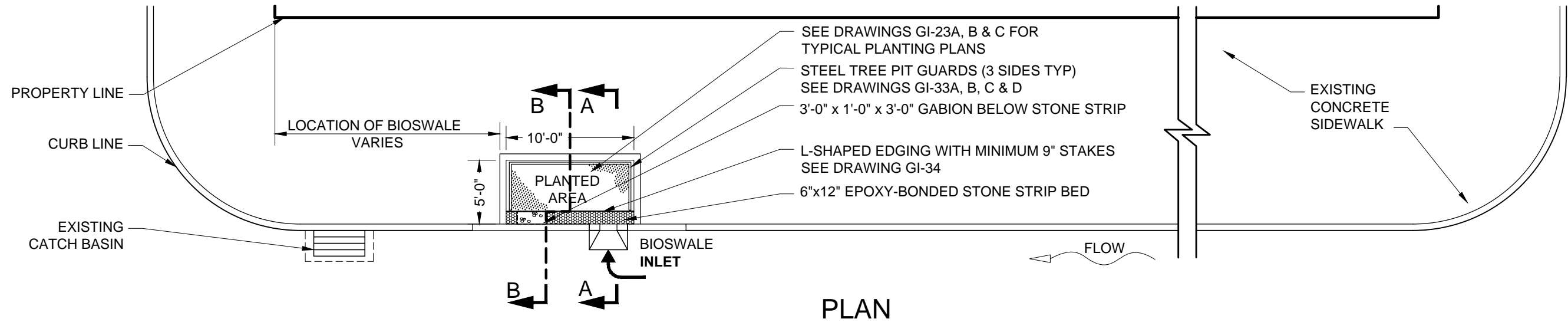
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.E.

7-16-13

DATE

CITY OF NEW YORK
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 10'x5' R.O.W. BIOSWALE TYPE 3
 - NO CONNECTION TO SEWERS



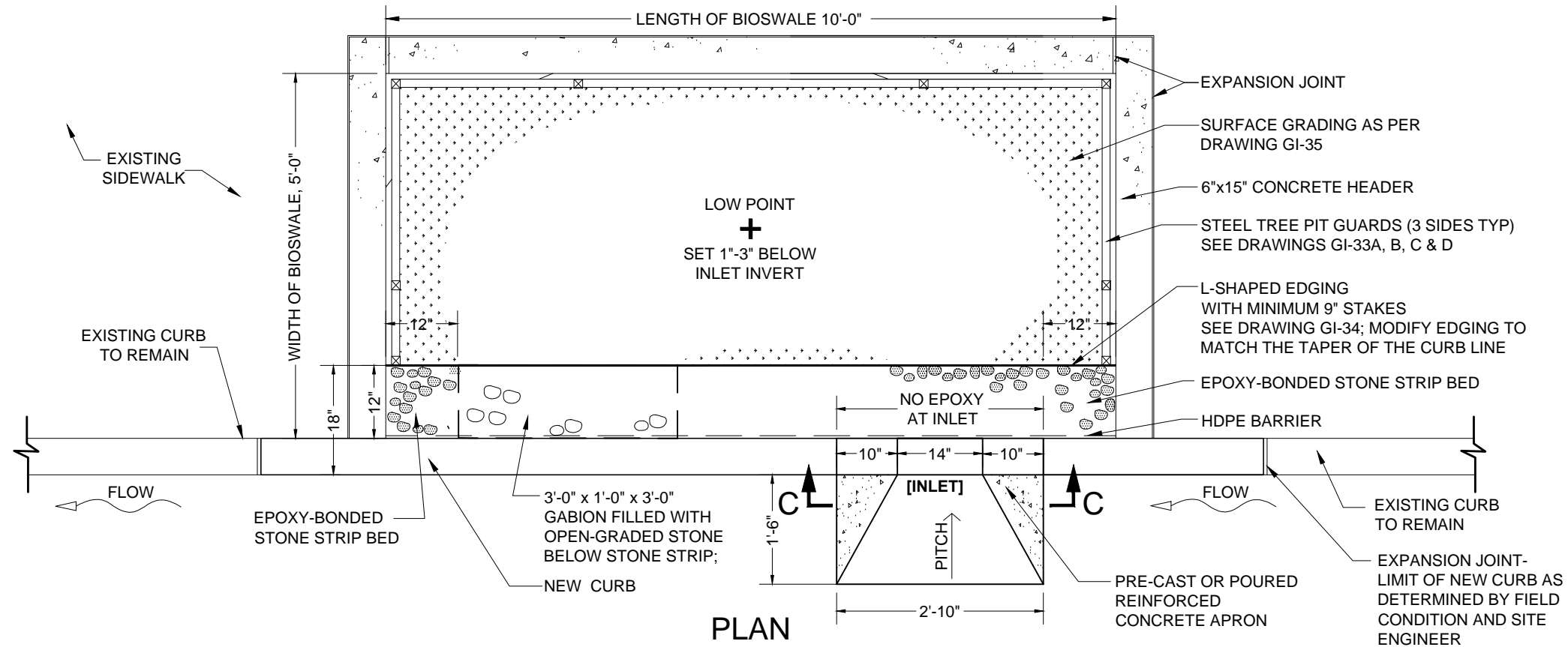
| ROWB | A | B |
|-----------|-------|---------|
| WITH TREE | 2'-6" | 24" MIN |
| NO TREE | 3'-0" | 18" MIN |

DEPTH SCHEDULE

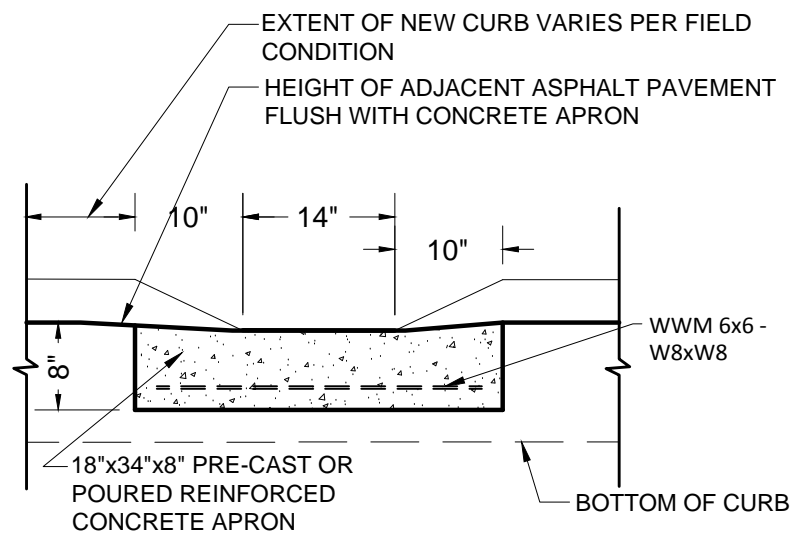
Maedi Farah
 P.E.
 ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
 DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
 DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 10'x5' R.O.W. BIOSWALE TYPE 3
- NO CONNECTION TO SEWERS



PLAN



SECTION C-C

NOTES:

1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY, UNLESS OTHERWISE NOTED IN THE CONTRACT SPECIFICATIONS.
2. INCLUDED IN THE COST OF THE BIOSWALE IS THE REMOVAL AND RESTORATION OF TWO (2') FOOT WIDTH OF THE WEARING COURSE AND ONE (1') 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 DETAIL H-1046. 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 SECTION 4.16 OF STANDARD HIGHWAY SPECIFICATIONS.
9. STONE STRIP BED TO BE BONDED WITH EPOXY TO KEEP STONES IN PLACE. STONES IN FRONT OF INLETS AND OUTLETS ARE TO BE LEFT LOOSE TO ACCOMMODATE CLEANING AND MAINTENANCE.

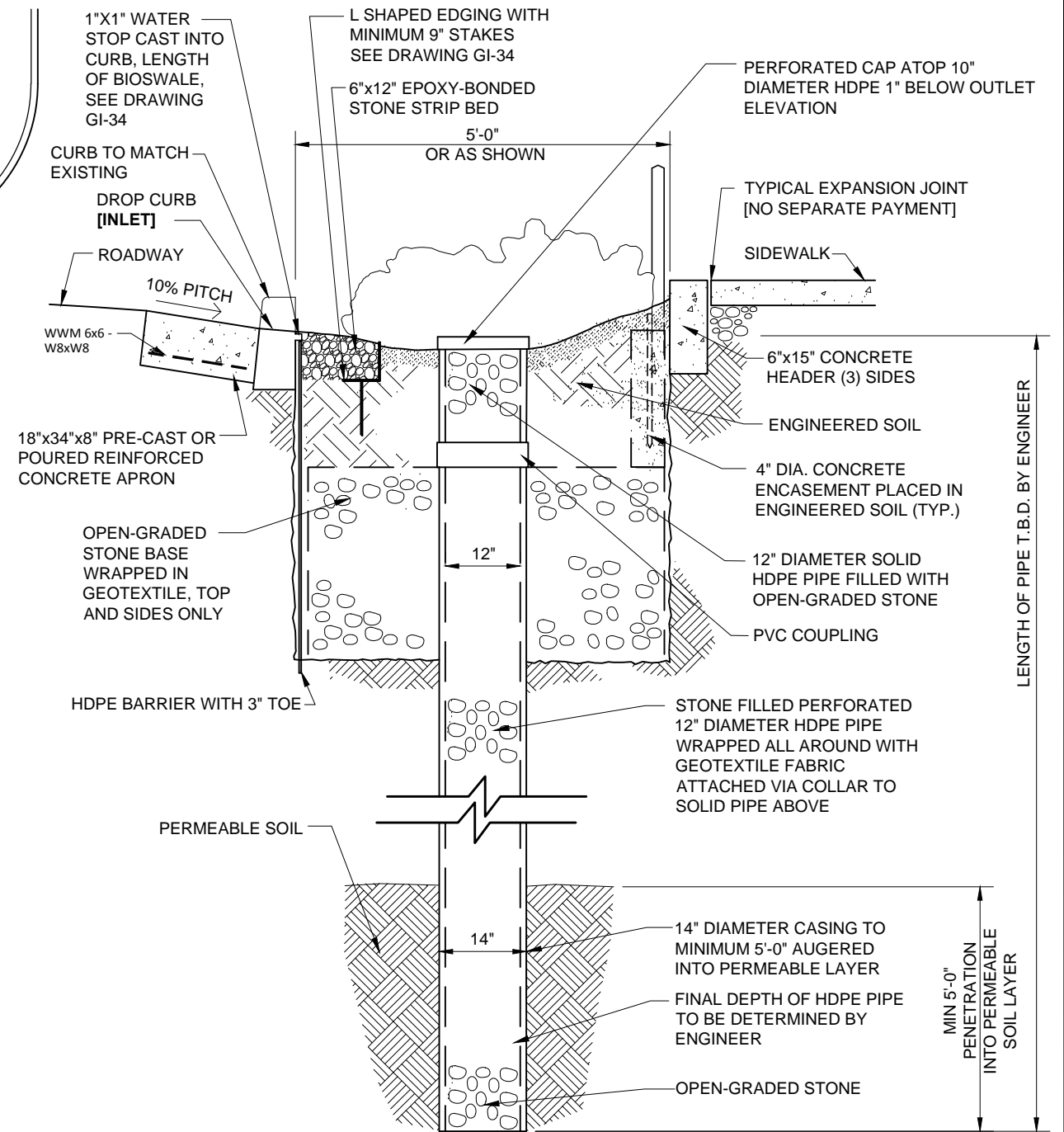
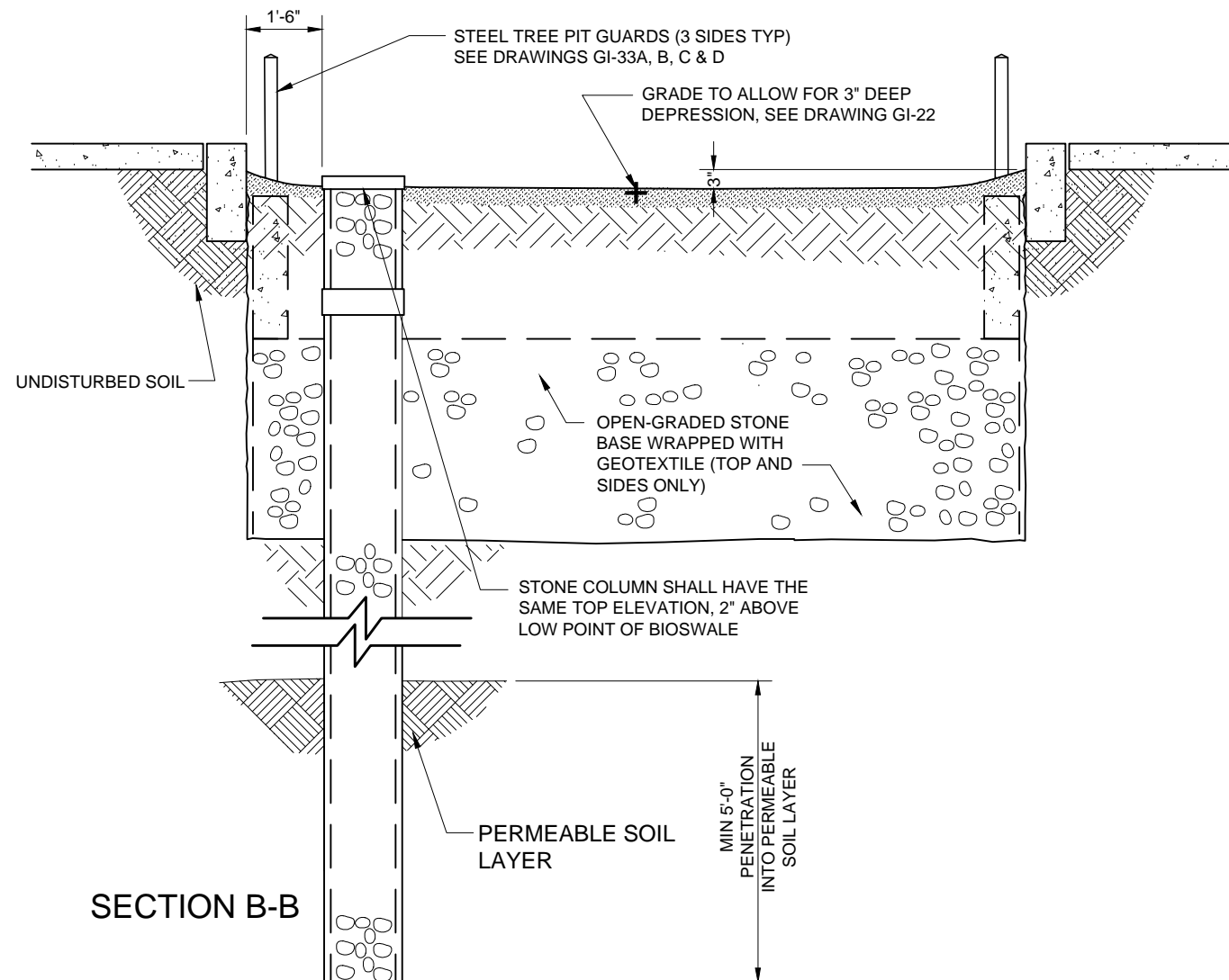
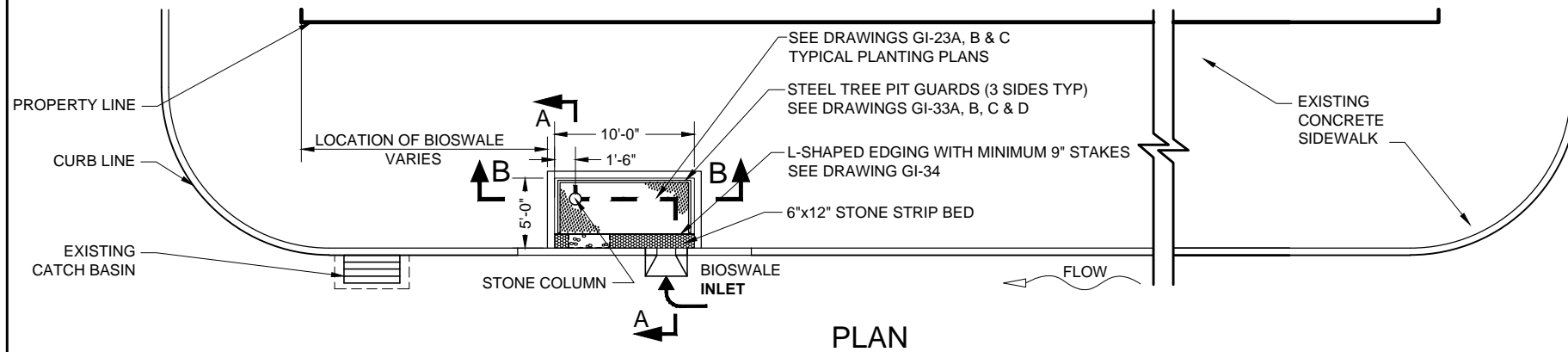
Maedi Farah
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7-16-13
DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

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

- NO CONNECTION TO SEWERS



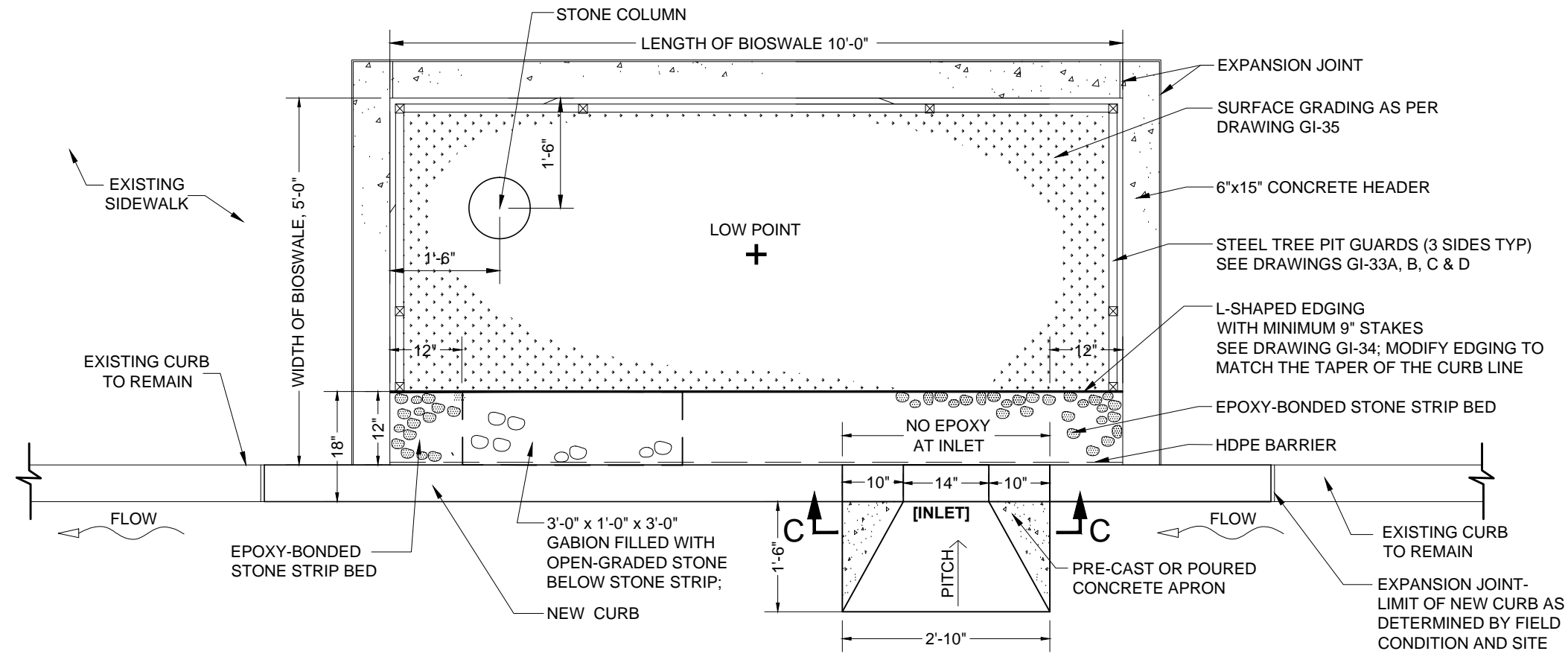
SECTION A-A
AT BIOSWALE VERTICAL DRAIN

Maadi Farah
P.E.
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 OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 10'X5' R.O.W. BIOSWALE TYPE 3A - WITH STONE COLUMNS
 - NO CONNECTION TO SEWERS

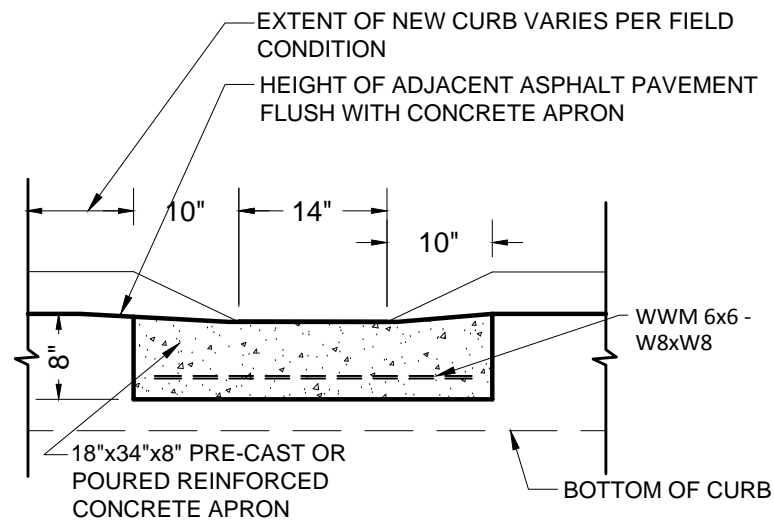
STANDARD FOR 10'X5' R.O.W. BIOSWALE TYPE 3A - WITH STONE COLUMNS



PLAN

NOTES:

1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY, UNLESS OTHERWISE NOTED IN THE CONTRACT SPECIFICATIONS.
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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 DETAIL H-1046. 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.
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8. REPLACEMENT TREES SHALL BE PLANTED WITHIN THE PROJECT AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH SECTION 4.16 OF STANDARD HIGHWAY SPECIFICATIONS.
9. STONE STRIP BED TO BE BONDED WITH EPOXY TO KEEP STONES IN PLACE. STONES IN FRONT OF INLETS AND OUTLETS ARE TO BE LEFT LOOSE TO ACCOMMODATE CLEANING AND MAINTENANCE.
10. 14" DIAMETER CASING TO BE AUGERED TO DEPTH AS PER ENGINEER. 12" DIAMETER HDPE PIPE WRAPPED ALL AROUND WITH GEOTEXTILE FABRIC INSERTED IN THE 12" CASING.



SECTION C-C

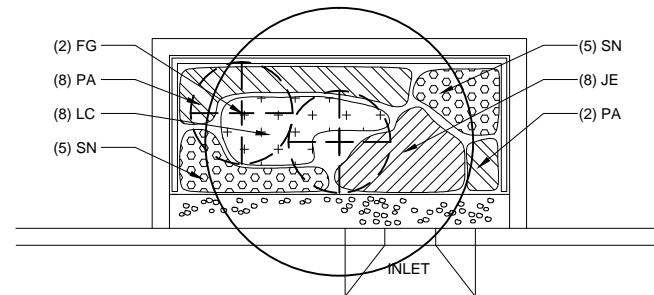
Maedi Farah
 P.E.
 ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
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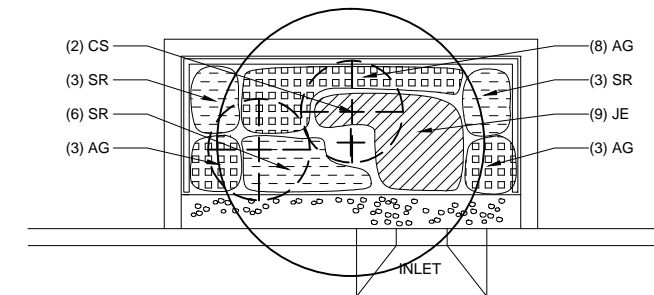
STANDARD PLANTING PLANS FOR TYPE 3 R.O.W. BIOSWALES (TYPICAL)

| RESIDENTIAL PLAN 1 PLANT SCHEDULE | | | | | |
|--|-----|-----------------------------------|----------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS (ONLY PLANTED IN ROWB WITH NO TREE) | | | | | |
| 2 | FG | FOTHERGILLA GARDENII | MOUNT AIRY DWARF FORSYTHIA | #3 CONTAINER | 3' O.C. |
| PERENNIALS | | | | | |
| 8 | LC | LOBELIA CARDINALIS | CARDINAL FLOWER | #2 CONT. | 12" O.C. |
| 10 | SN | SYMPHYOTRICHUM NOVAE-ANGLIA | NEW ENGLAND ASTER | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 8 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |
| 10 | PA | PENNISETUM ALOPECUROIDES 'HAMELN' | HAMELN FOUNTAIN GRASS | #2 CONT. | 18" O.C. |



RESIDENTIAL PLAN 1
ROWBS IN RESIDENTIAL NEIGHBORHOODS WITH LOW VOLUME CIRCULATION

| RESIDENTIAL PLAN 2 PLANT SCHEDULE | | | | | |
|--|-----|-----------------------------|---------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS (ONLY PLANTED IN ROWB WITH NO TREE) | | | | | |
| 2 | CS | CORNUS SERICEA 'CARDINAL' | CARDINAL RED TWIG DOGWOOD | #3 CONTAINER | 3' O.C. |
| PERENNIALS | | | | | |
| 14 | AG | AGASTACHE 'BLUE FORTUNE' | BLUE FORTUNE GIANT HYSSOP | #2 CONT. | 12" O.C. |
| 12 | SR | SOLIDAGO RUGOSA 'FIREWORKS' | FIREWORKS GOLDENROD | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 9 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



RESIDENTIAL PLAN 2
ROWBS IN RESIDENTIAL NEIGHBORHOODS WITH LOW VOLUME CIRCULATION

NOTES:


- EACH TYPE 3 ROWB WILL INCLUDE THE FOLLOWING ADDITIONAL BULB PLANTINGS: NARCISSUS (10 COUNT), CROCUS (10 COUNT), TULIPA SPP. (10 COUNT), AND ALLIUM (10 COUNT). THEY SHALL BE DISTRIBUTED RANDOMLY THROUGHOUT BIOSWALE IN GROUPS OF 8-10, SPACED 6" APART.
- PLANTING LOCATIONS ARE SPECIFIC TO THE INLET AND OUTLET ORIENTATION SHOWN. IF THE INLET AND OUTLET ORIENTATION IS REVERSED, THE PLANTING LOCATIONS MUST BE MIRRORED.
- TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPR.
- THE AREA DIRECTLY ABOVE THE TREE ROOTBALL IS NOT TO BE PLANTED WITH SHRUBS, PERENNIALS, OR GRASSES.
- PLANTING PLANS FOR VARIABLE SIZE ROWB ARE DETERMINED AS PER THE SCHEDULE ON GI-28.



DIRECTOR OF GREEN INFRASTRUCTURE
DEPARTMENT OF PARKS AND RECREATION

R.L.A.

DATE



ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

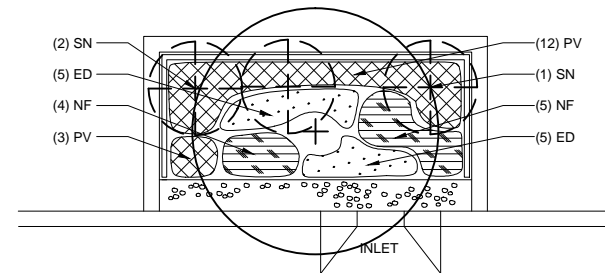
P.E.

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CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

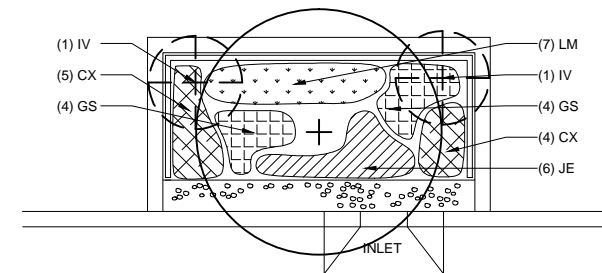
STANDARD PLANTING PLANS FOR TYPE 3 R.O.W. BIOSWALES (TYPICAL)

| URBAN PLAN 1 PLANT SCHEDULE | | | | | |
|--|-----|---------------------------------|---------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS (ONLY PLANTED IN ROWB WITH NO TREE) | | | | | |
| 3 | SN | SPIRAEA NIPPONICA 'SNOWMOUND' | SNOW MOUND NIPPON SPIRAEA | #3 CONTAINER | 2' O.C. |
| PERENNIALS | | | | | |
| 10 | ED | EUPATORIUM DUBIUM 'BABY JOE' | BABY JOE JOE PYE WEED | #2 CONT. | 12" O.C. |
| 9 | NF | NEPETA FAASSENII 'WALKER'S LOW' | WALKER'S LOW CATMINT | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 15 | PV | PANICUM VIRGATUM 'HEAVY METAL' | HEAVY METAL SWITCHGRASS | #2 CONT. | 18" O.C. |



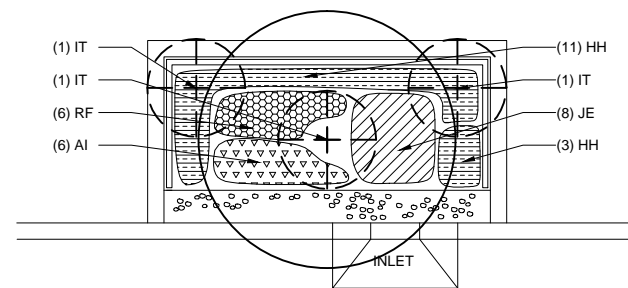
URBAN PLAN 1
ROWBS IN COMMERCIAL AND INDUSTRIAL AREAS WITH HIGHER VOLUME CIRCULATION

| URBAN PLAN 2 PLANT SCHEDULE | | | | | |
|--|-----|---|----------------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS (ONLY PLANTED IN ROWB WITH NO TREE) | | | | | |
| 2 | IV | ILEX VERTICILLATA 'JIM DANDY' (M), 'RED SPRITE' (F) | WINTERBERRY | #3 CONTAINER | 3' O.C. |
| PERENNIALS | | | | | |
| 8 | GS | GERANIUM SANGUINEUM 'ALBUM' | ALBUM BLOODY CRANESBILL | #2 CONT. | 12" O.C. |
| 7 | LM | LIRIOPE MUSCARI 'BIG BLUE' | BIG BLUE LILY TURF | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 9 | CX | CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' | KARL FOERSTER FEATHER REED GRASS | #2 CONT. | 18" O.C. |
| 6 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



URBAN PLAN 2
ROWBS IN COMMERCIAL AND INDUSTRIAL AREAS WITH HIGHER VOLUME CIRCULATION


| URBAN PLAN 3 PLANT SCHEDULE | | | | | |
|--|-----|---------------------------------|----------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS (ONLY PLANTED IN ROWB WITH NO TREE) | | | | | |
| 3 | IT | ITEA VIRGINICA 'HENRY'S GARNET' | HENRY'S GARNET SWEETSPIRE | #3 CONTAINER | 3' O.C. |
| PERENNIALS | | | | | |
| 6 | AI | ASCLEPIAS INCARNATA | SWAMP MILKWEED | #2 CONT. | 12" O.C. |
| 14 | HH | HEMEROCALLIS 'PRAIRIE WILDFIRE' | PRAIRIE WILDFIRE DAYLILY | #2 CONT. | 12" O.C. |
| 6 | RF | RUDBECKIA FULGIDA 'GOLDSTURM' | GOLDSTURM BLACK EYED SUSAN | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 8 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



URBAN PLAN 3
ROWBS IN COMMERCIAL AND INDUSTRIAL AREAS WITH HIGHER VOLUME CIRCULATION


NOTES:

- EACH TYPE 3 ROWB WILL INCLUDE THE FOLLOWING ADDITIONAL BULB PLANTINGS: NARCISSUS (10 COUNT), CROCUS (10 COUNT), TULIPA SPP. (10 COUNT), AND ALLIUM (10 COUNT). THEY SHALL BE DISTRIBUTED RANDOMLY THROUGHOUT BIOSWALE IN GROUPS OF 8-10, SPACED 6" APART.
- PLANTING LOCATIONS ARE SPECIFIC TO THE INLET AND OUTLET ORIENTATION SHOWN. IF THE INLET AND OUTLET ORIENTATION IS REVERSED, THE PLANTING LOCATIONS MUST BE MIRRORED.
- TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPR.
- THE AREA DIRECTLY ABOVE THE TREE ROOTBALL IS NOT TO BE PLANTED WITH SHRUBS, PERENNIALS, OR GRASSES.
- PLANTING PLANS FOR VARIABLE SIZE ROWB ARE DETERMINED AS PER THE SCHEDULE ON GI-28.


DIRECTOR OF GREEN INFRASTRUCTURE
DEPARTMENT OF PARKS AND RECREATION

R.L.A.

DATE


ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.E.

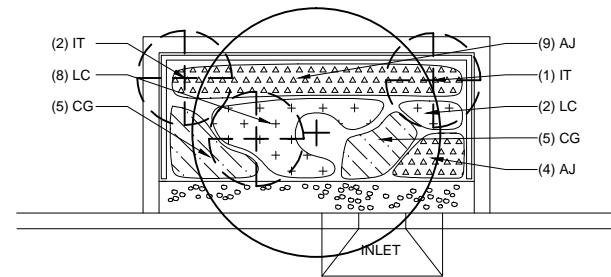
7-16-13

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CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
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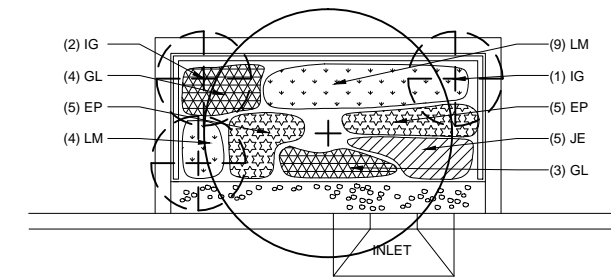
STANDARD PLANTING PLANS FOR TYPE 3 R.O.W. BIOSWALES (TYPICAL)

| ESPECIALLY SHADY PLAN PLANT SCHEDULE | | | | | |
|--|-----|---------------------------------|---------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS (ONLY PLANTED IN ROWB WITH NO TREE) | | | | | |
| 3 | IT | ITEA VIRGINICA 'HENRY'S GARNET' | HENRY'S GARNET SWEETSPIRE | #3 CONTAINER | 3' O.C. |
| PERENNIALS | | | | | |
| 13 | AJ | ASTILBE JAPONICA 'DEUTSCHLAND' | DEUTSCHLAND ASTILBE | #2 CONT. | 12" O.C. |
| 10 | LC | LOBELIA CARDINALIS | CARDINAL FLOWER | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 10 | CG | CAREX GLAUCA 'BLUE ZINGER' | BLUE ZINGER BLUE SEDGE | #2 CONT. | 12" O.C. |



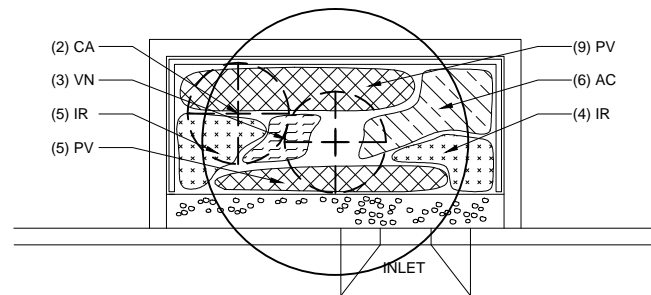
ESPECIALLY SHADY PLAN
ROWBS WITH PARTLY SUNNY OR SHADY LIGHT CONDITIONS

| ESPECIALLY DRY PLAN PLANT SCHEDULE | | | | | |
|--|-----|--|----------------------------------|---------------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS (ONLY PLANTED IN ROWB WITH NO TREE) | | | | | |
| 3 | IG | ILEX GLABRA 'COMPACTA' | COMPACTA INKBERRY HOLLY | #5 CONTAINER OR B&B | 3' O.C. |
| PERENNIALS | | | | | |
| 10 | EP | ECHINACEA PURPUREA 'KIM'S KNEE HIGH' | KIM'S KNEE HIGH CONEFLOWER | #2 CONT. | 12" O.C. |
| 7 | GL | GAURA LINDHEIMERI 'WHIRLING BUTTERFLIES' | WHIRLING BUTTERFLIES WAND FLOWER | #2 CONT. | 12" O.C. |
| 13 | LM | LIRIOPE MUSCARI 'BIG BLUE' | BIG BLUE LILYTURF | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 5 | JE | JUNCUS EFFUSUS | SOFT RUSH | #2 CONT. | 12" O.C. |



ESPECIALLY DRY PLAN
ROWBS WITH LESS THAN 15% STORMWATER RUNOFF MANAGED

| ESPECIALLY WET PLAN PLANT SCHEDULE | | | | | |
|--|-----|----------------------------------|-------------------------|--------------|----------|
| QUAN | KEY | BOTANICAL NAME | COMMON NAME | SIZE | SPACING |
| SHRUBS (ONLY PLANTED IN ROWB WITH NO TREE) | | | | | |
| 2 | CA | CLETHERA ALNIFOLIA 'HUMMINGBIRD' | HUMMINGBIRD CLETHRA | #3 CONTAINER | 3' O.C. |
| PERENNIALS | | | | | |
| 9 | IR | IRIS VERSICOLOR | NORTHERN BLUE FLAG | #2 CONT. | 12" O.C. |
| 3 | VN | VERNONIA NOVEBORACENSIS | NEW YORK IRONWEED | #2 CONT. | 12" O.C. |
| GRASSES | | | | | |
| 6 | AC | ACORUS CALAMUS 'VARIEGATUS' | VARIEGATED SWEET FLAG | #2 CONT. | 12" O.C. |
| 14 | PV | PANICUM VIRGATUM 'HEAVY METAL' | HEAVY METAL SWITCHGRASS | #2 CONT. | 18" O.C. |



ESPECIALLY WET PLAN
ROWBS WITH GREATER THAN 30% STORMWATER RUNOFF MANAGED

NOTES:

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- TREES TO BE INCLUDED IN PLANTING PLANS UPON DIRECTION OF DPR.
- THE AREA DIRECTLY ABOVE THE TREE ROOTBALL IS NOT TO BE PLANTED WITH SHRUBS, PERENNIALS, OR GRASSES.
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DIRECTOR OF GREEN INFRASTRUCTURE
DEPARTMENT OF PARKS AND RECREATION

R.L.A.

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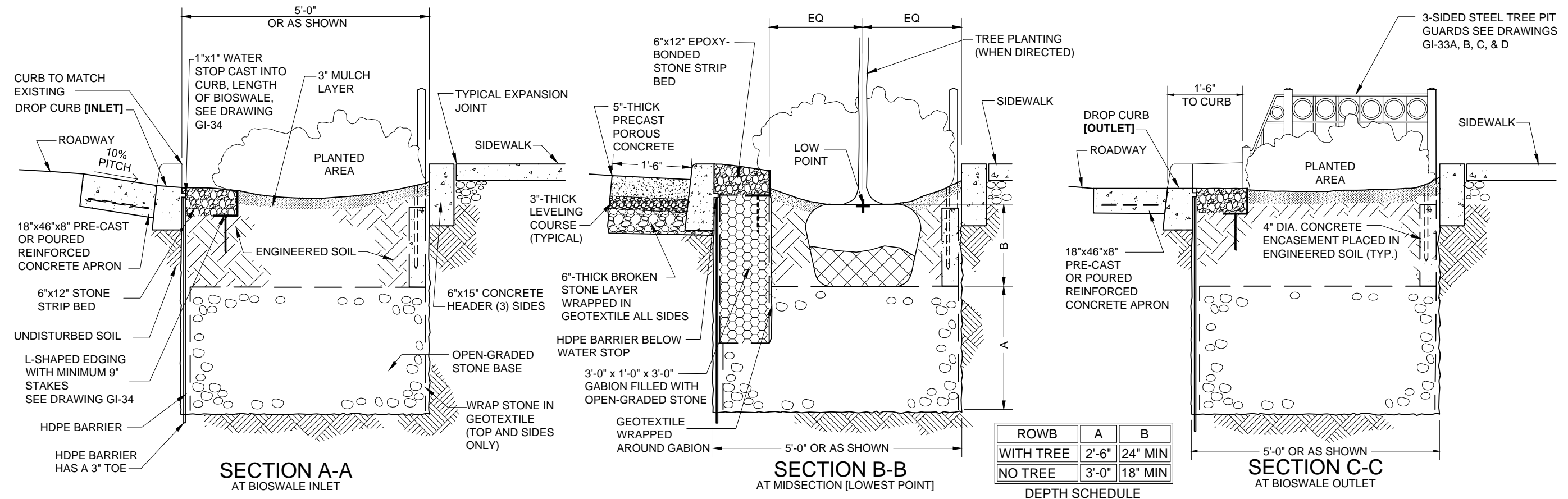
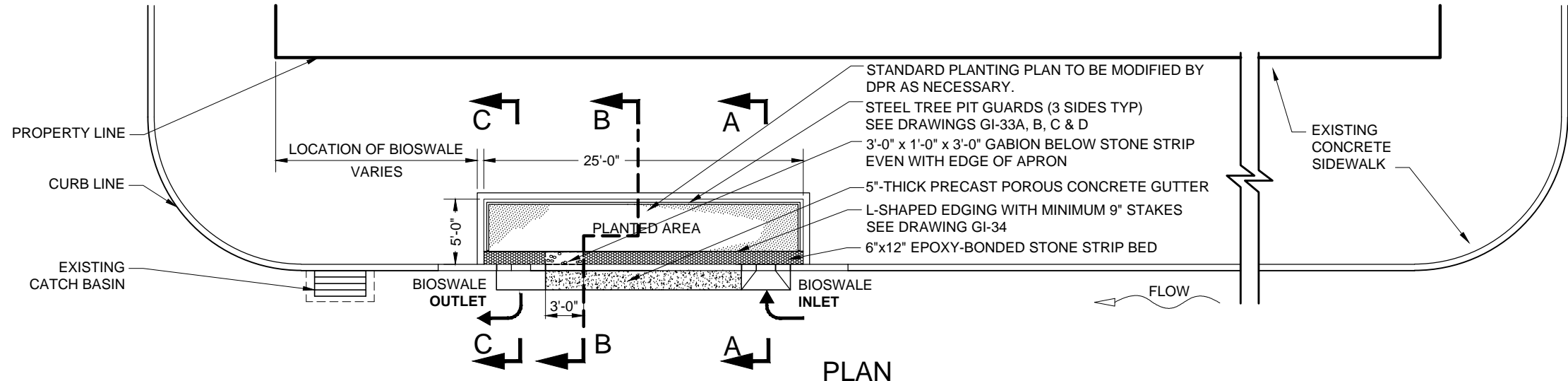
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

P.E.

7-16-13

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CITY OF NEW YORK
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 25'x5' R.O.W. BIOSWALE
 - NO CONNECTION TO SEWERS

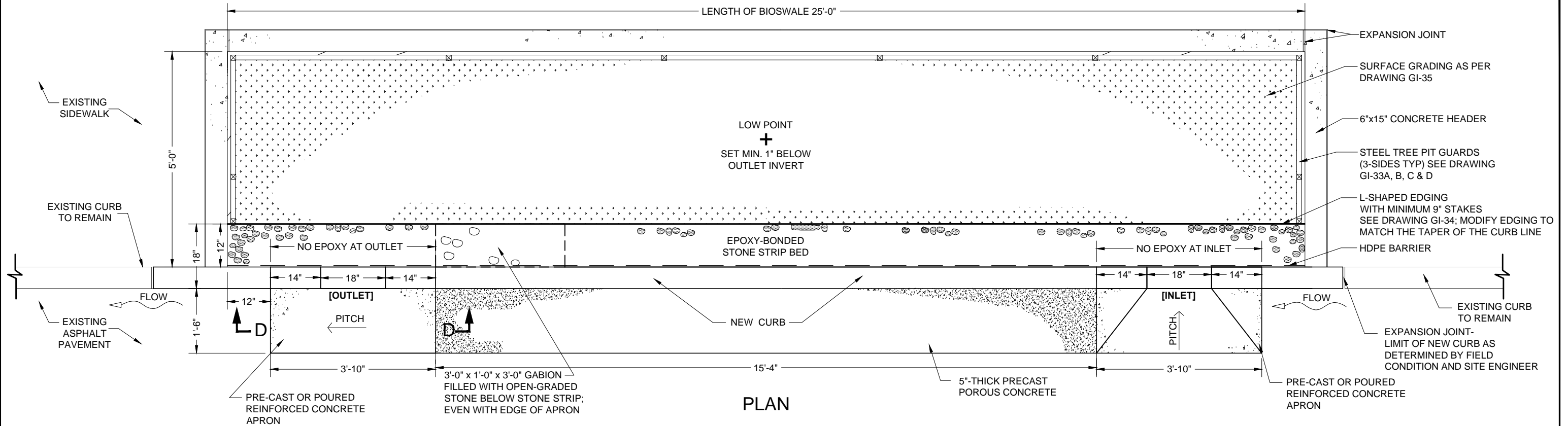


NOTE: CONSTRUCTION OF 25'x5' ROWB IS SUBJECT TO DEPARTMENT OF TRANSPORTATION (DOT) PRIOR APPROVAL

Maadi Farag
 P.E.
 ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
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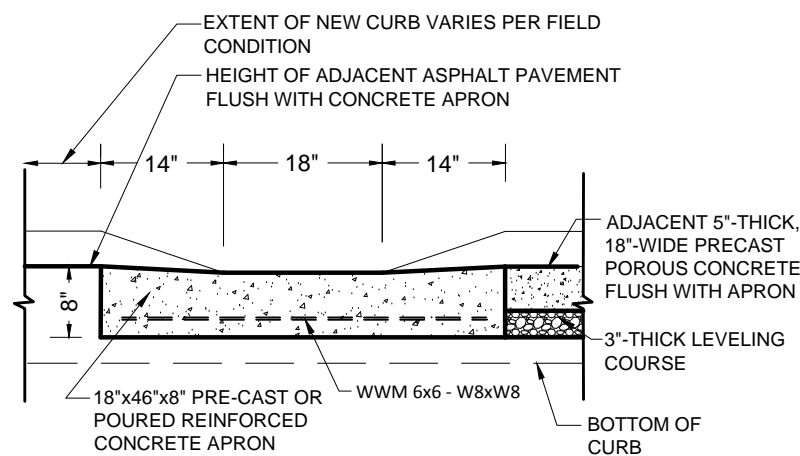
CITY OF NEW YORK
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STANDARD FOR 25'x5' R.O.W. BIOSWALE
- NO CONNECTION TO SEWERS



PLAN

NOTES:

1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY, UNLESS OTHERWISE NOTED IN THE CONTRACT SPECIFICATIONS.
2. INCLUDED IN THE COST OF THE BIOSWALE IS THE REMOVAL AND RESTORATION OF TWO (2') FOOT WIDTH OF THE WEARING COURSE AND ONE (1') 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 DETAIL H-1046. 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 SECTION 4.16 OF STANDARD HIGHWAY SPECIFICATIONS.
9. STONE STRIP BED TO BE BONDED WITH EPOXY TO KEEP STONES IN PLACE. STONES IN FRONT OF INLETS AND OUTLETS ARE TO BE LEFT LOOSE TO ACCOMMODATE CLEANING AND MAINTENANCE.
10. PLANTING PLANS FOR 25' X 5' R.O.W. BIOSWALES WILL BE DETERMINED BY DPR.



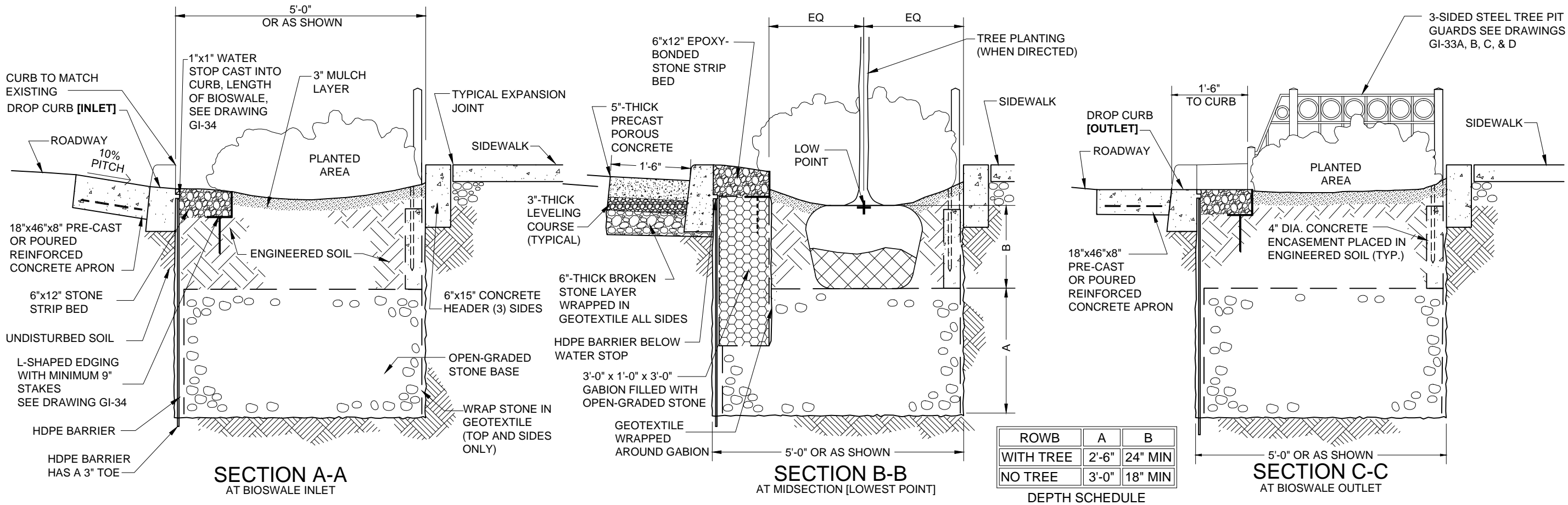
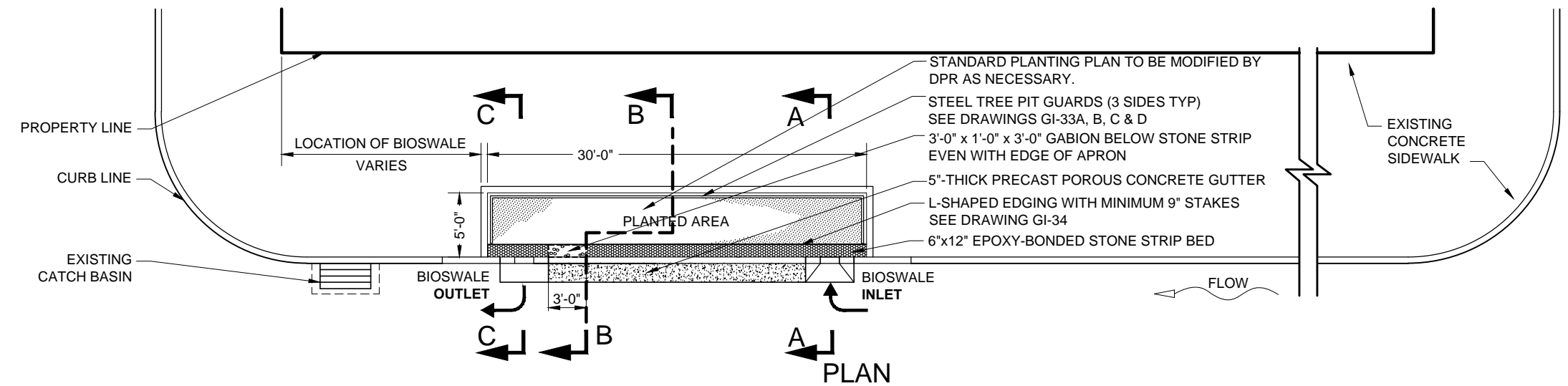
SECTION D-D

NOTE: CONSTRUCTION OF 25'X5' ROWB IS SUBJECT TO DEPARTMENT OF TRANSPORTATION (DOT) PRIOR APPROVAL

Maedi Faruq
P.E.
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
DATE

CITY OF NEW YORK
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 30'x5' R.O.W. BIOSWALE
 - NO CONNECTION TO SEWERS

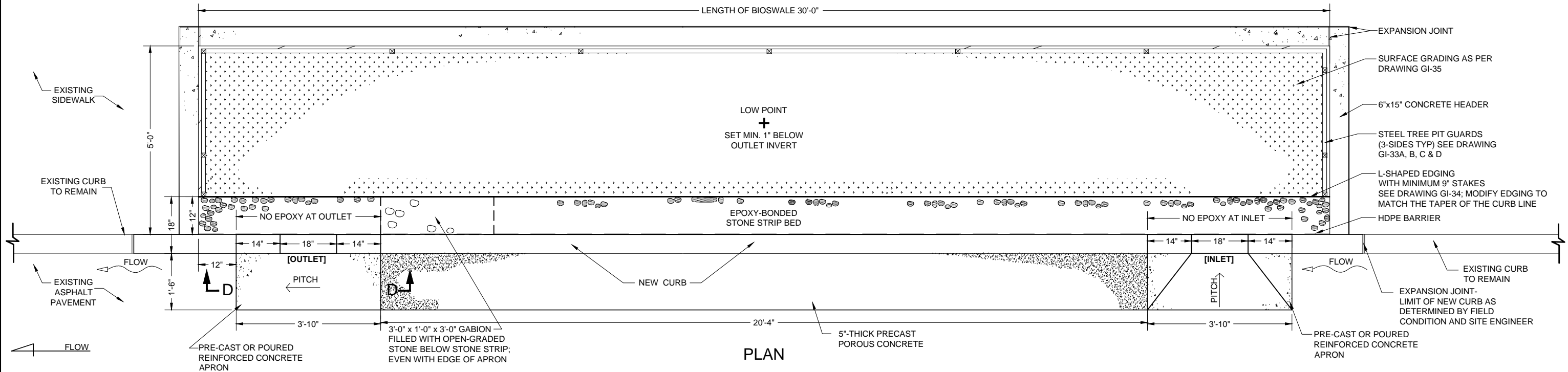


NOTE: CONSTRUCTION OF 30'x5' ROWB IS SUBJECT TO DEPARTMENT OF TRANSPORTATION (DOT) PRIOR APPROVAL

Maadi Farouk
 P.E.
 ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
 DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
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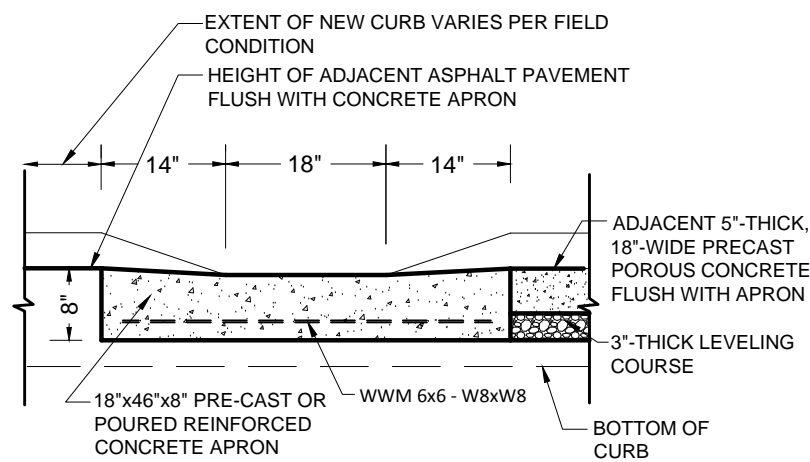
CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR 30'x5' R.O.W. BIOSWALE
- NO CONNECTION TO SEWERS



PLAN

NOTES:

1. INCLUDED IN THE COST OF THE BIOSWALE, THE CONTRACTOR SHALL BE REQUIRED TO REMOVE AND REPLACE THE ADJACENT EXISTING SIDEWALK FLAG TO NEAREST SIDEWALK JOINT BEYOND THE LIMITS OF THE BIOSWALE. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE COST OF SAWCUTTING THE EXISTING SIDEWALK AT THE JOINT. REPLACING THAT SIDEWALK IN KIND IN FULL COMPLIANCE WITH THE APPLICABLE SECTIONS OF STANDARD HIGHWAY SPECIFICATION SHALL BE PAID SEPARATELY, UNLESS OTHERWISE NOTED IN THE CONTRACT SPECIFICATIONS.
2. INCLUDED IN THE COST OF THE BIOSWALE IS THE REMOVAL AND RESTORATION OF TWO (2') FOOT WIDTH OF THE WEARING COURSE AND ONE (1') 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 DETAIL H-1046. 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 SECTION 4.16 OF STANDARD HIGHWAY SPECIFICATIONS.
9. STONE STRIP BED TO BE BONDED WITH EPOXY TO KEEP STONES IN PLACE. STONES IN FRONT OF INLETS AND OUTLETS ARE TO BE LEFT LOOSE TO ACCOMMODATE CLEANING AND MAINTENANCE.
10. PLANTING PLANS FOR 25' X 5' R.O.W. BIOSWALES WILL BE DETERMINED BY DPR.



SECTION D-D

NOTE: CONSTRUCTION OF 30'X5' ROWB IS SUBJECT TO DEPARTMENT OF TRANSPORTATION (DOT) PRIOR APPROVAL

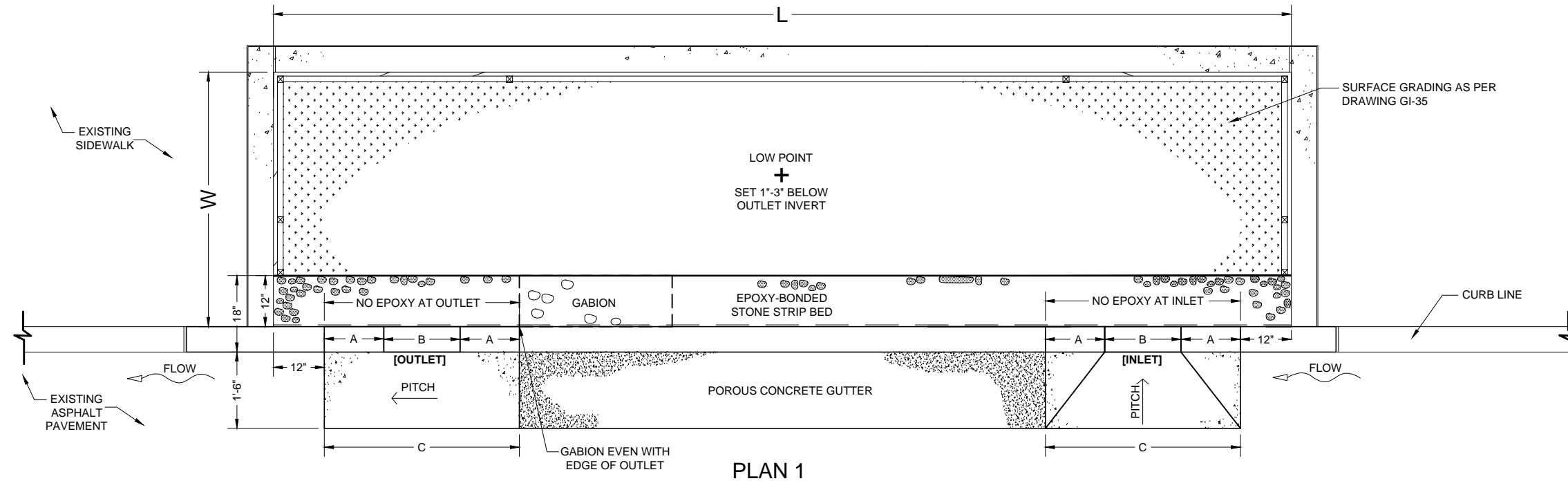
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DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

DIMENSION SCHEDULE FOR VARIABLE SIZE R.O.W. BIOSWALE

- NO CONNECTION TO SEWERS



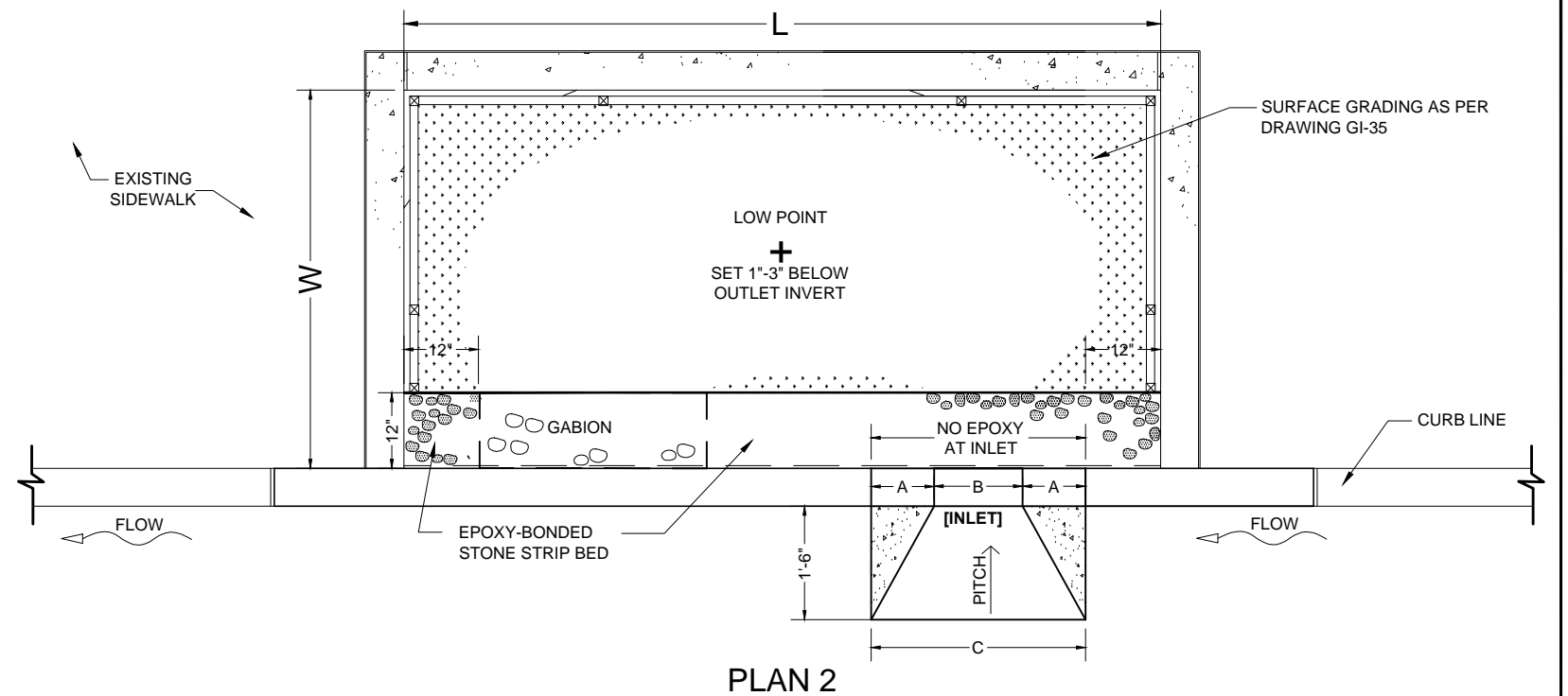
PLAN 1

| ROWB DETAILS | | | INLET/OUTLET DIMENSIONS | | | PLANTING PLAN |
|--------------------|----------------|--------|-------------------------|-----|--------|--------------------|
| LENGTH (L) | WIDTH (W) | LAYOUT | A | B | C | TYPE / PAGE NUMBER |
| $L \geq 17'$ | 4'-0" TO 6'-0" | PLAN 1 | 14" | 18" | 3'-10" | TYPE 1 / GI-9A-C |
| $17' > L \geq 13'$ | 4'-0" TO 6'-0" | PLAN 1 | 10" | 14" | 2'-10" | TYPE 2 / GI-18A-C |
| $13' > L \geq 10'$ | 4'-0" TO 6'-0" | PLAN 2 | 10" | 14" | 2'-10" | TYPE 3 / GI-23A-C |

DIMENSION AND PLANTING PLAN SCHEDULE

NOTES:

- STANDARD CROSS-SECTIONAL DETAILS AS SPECIFIED.
- PAYMENT OF VARIABLE SIZE ROWB 13' IN LENGTH OR GREATER WILL BE PROPORTIONAL TO THE COST OF THE TYPE 2 ROWB, NORMALIZED BY SQUARE FOOTAGE.
- PAYMENT OF VARIABLE SIZE ROWB LESS THAN 13' IN LENGTH WILL BE PROPORTIONAL TO THE COST OF THE TYPE 3 ROWB, NORMALIZED BY SQUARE FOOTAGE.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR WILL CONFIRM THE LEVELS OF THE ROWB TO PREVENT FLOODING.
- DOT APPROVAL REQUIRED FOR ALL ROWB WIDTHS GREATER THAN 5'.
- PLANTING QUANTITIES AND PLANS FOR VARIABLE WIDTH ROWB AS PER THE PAGE NUMBERS SPECIFIED, DISTRIBUTED EVENLY.



PLAN 2

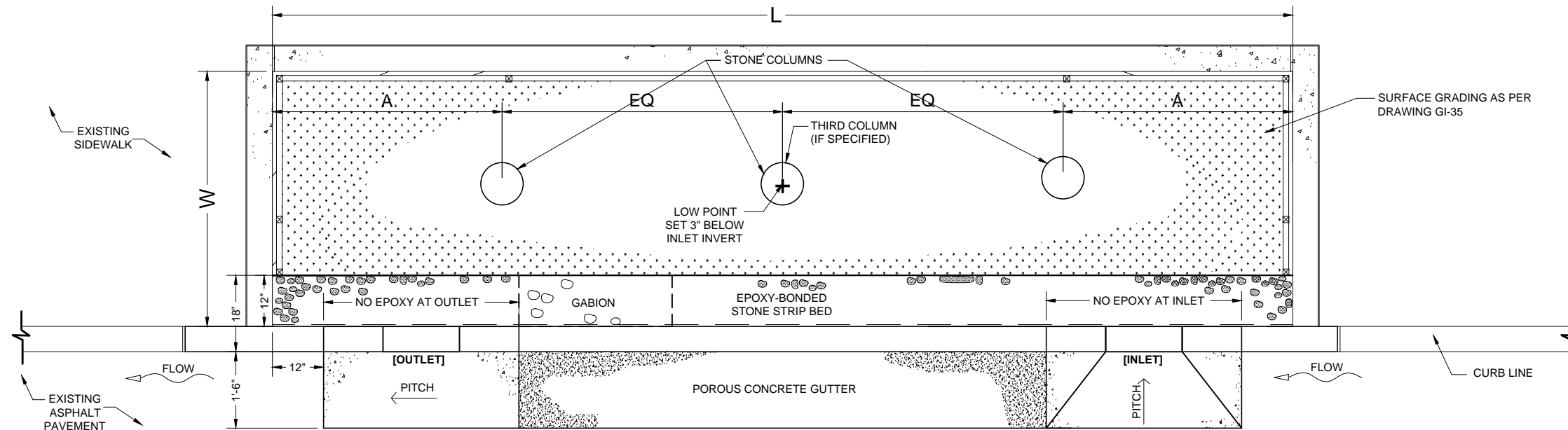
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DEPARTMENT OF ENVIRONMENTAL PROTECTION

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DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

STONE COLUMN SCHEDULE FOR VARIABLE SIZE R.O.W. BIOSWALE

- NO CONNECTION TO SEWERS



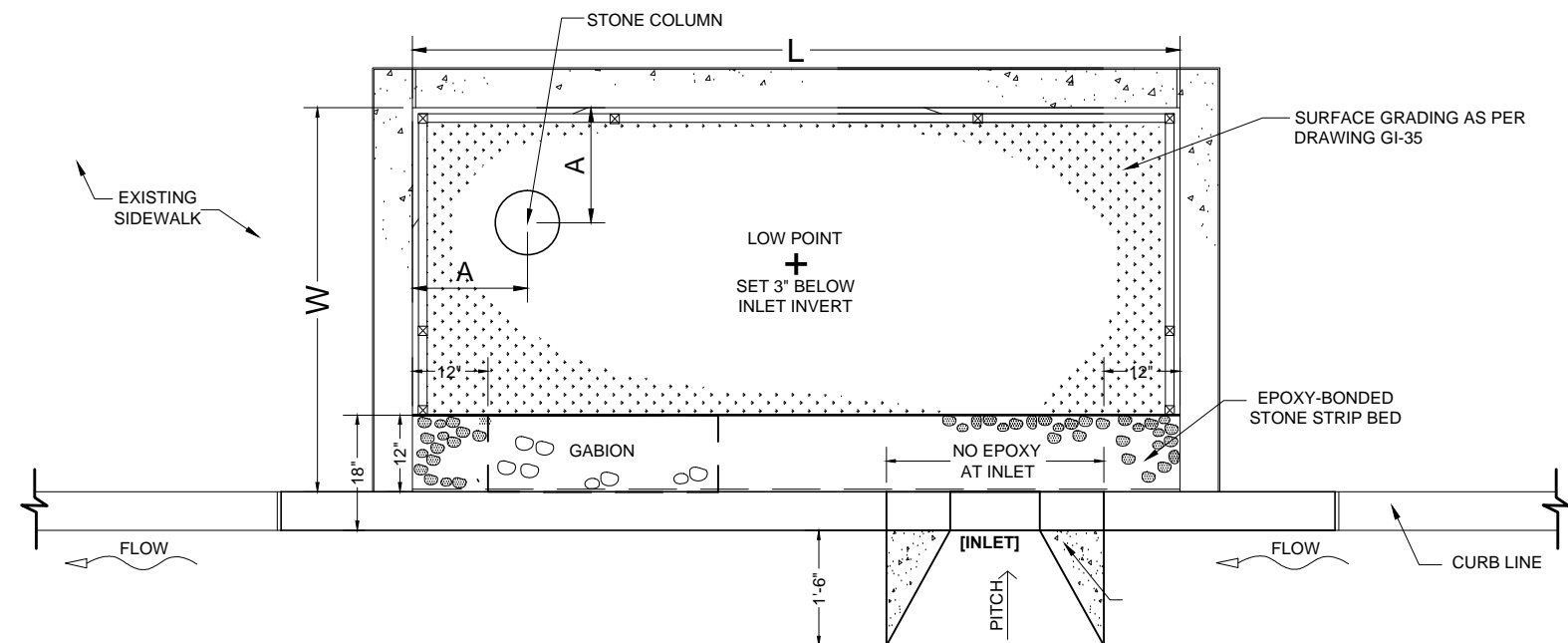
PLAN 1

| ROWB DETAILS | | | STONE COLUMN DETAILS | |
|-----------------------|----------------|--------|----------------------|-------|
| LENGTH (L) | WIDTH (W) | LAYOUT | NUMBER OF COLUMNS | A |
| $17' \leq L < 20'$ | 4'-0" TO 6'-0" | PLAN 1 | 3 | 4'-6" |
| $13' \leq L < 17'$ | 4'-0" TO 6'-0" | PLAN 1 | 2 | 3'-6" |
| $10' \leq L \leq 13'$ | 4'-0" TO 6'-0" | PLAN 2 | 1 | 1'-6" |

DIMENSION SCHEDULE

NOTES:

- STANDARD STONE COLUMN CROSS-SECTIONAL DETAILS AS SPECIFIED.
- THIRD COLUMN LOCATED IN CENTER OF ROWB.
- ROWB WITH THREE COLUMNS WILL NOT CONTAIN A TREE.



PLAN 2

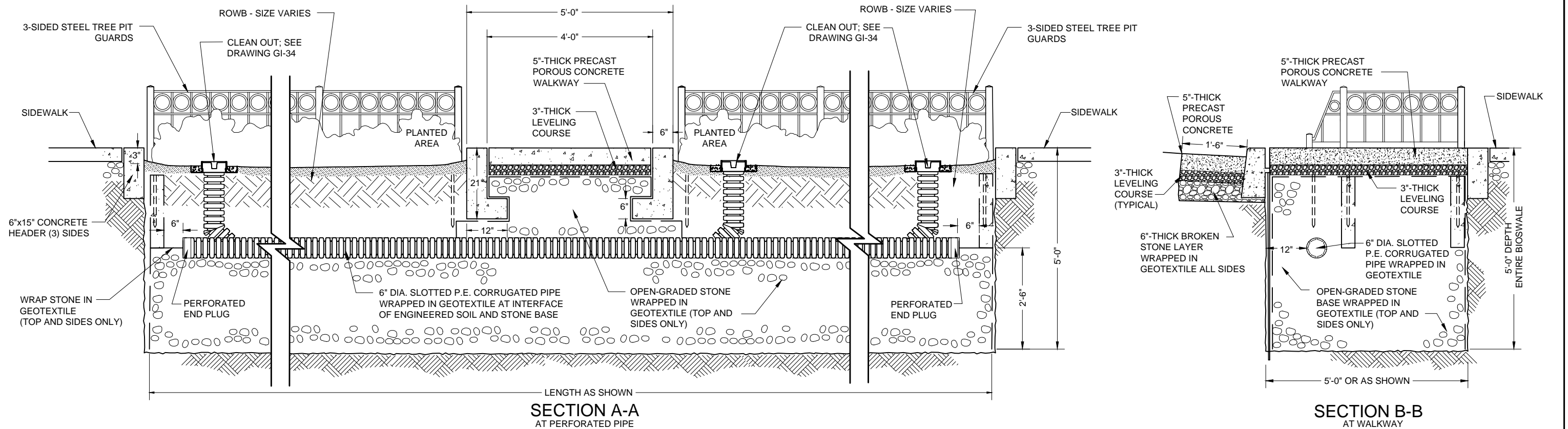
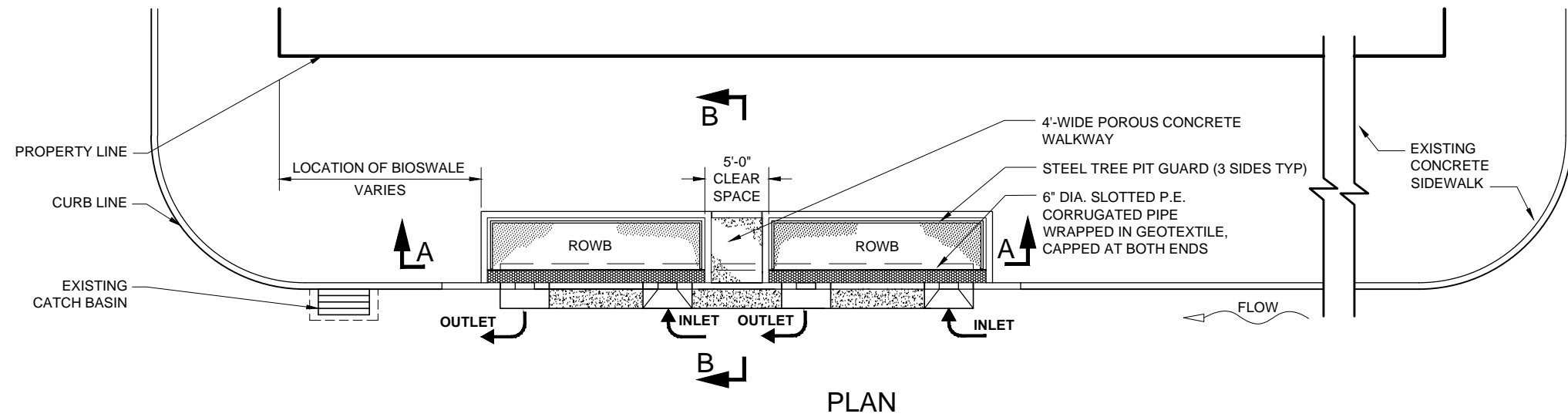
Moadi Faraj
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7-16-13
DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

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

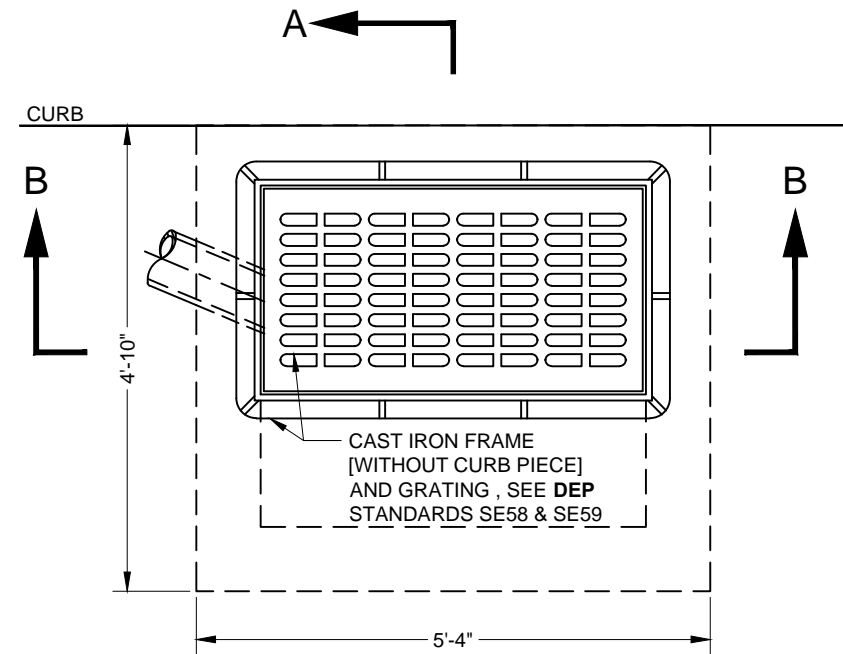
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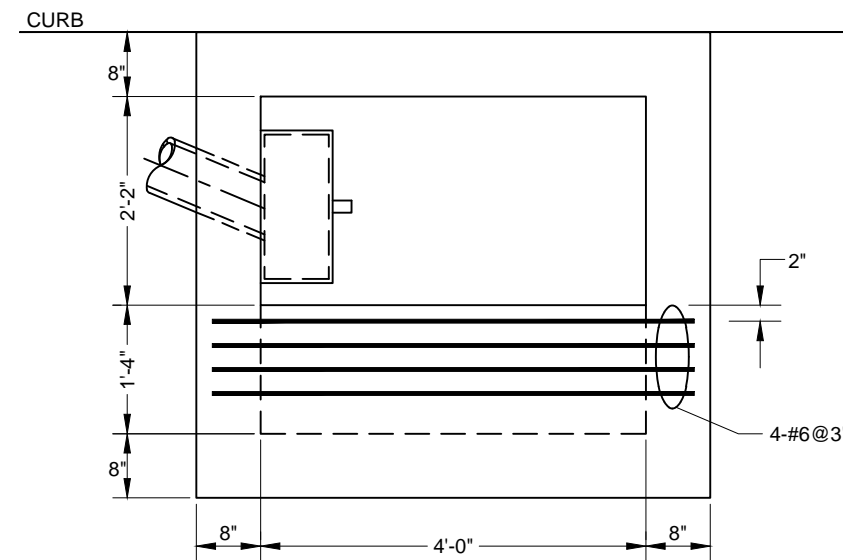
Maadi Farag
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 DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
 DATE

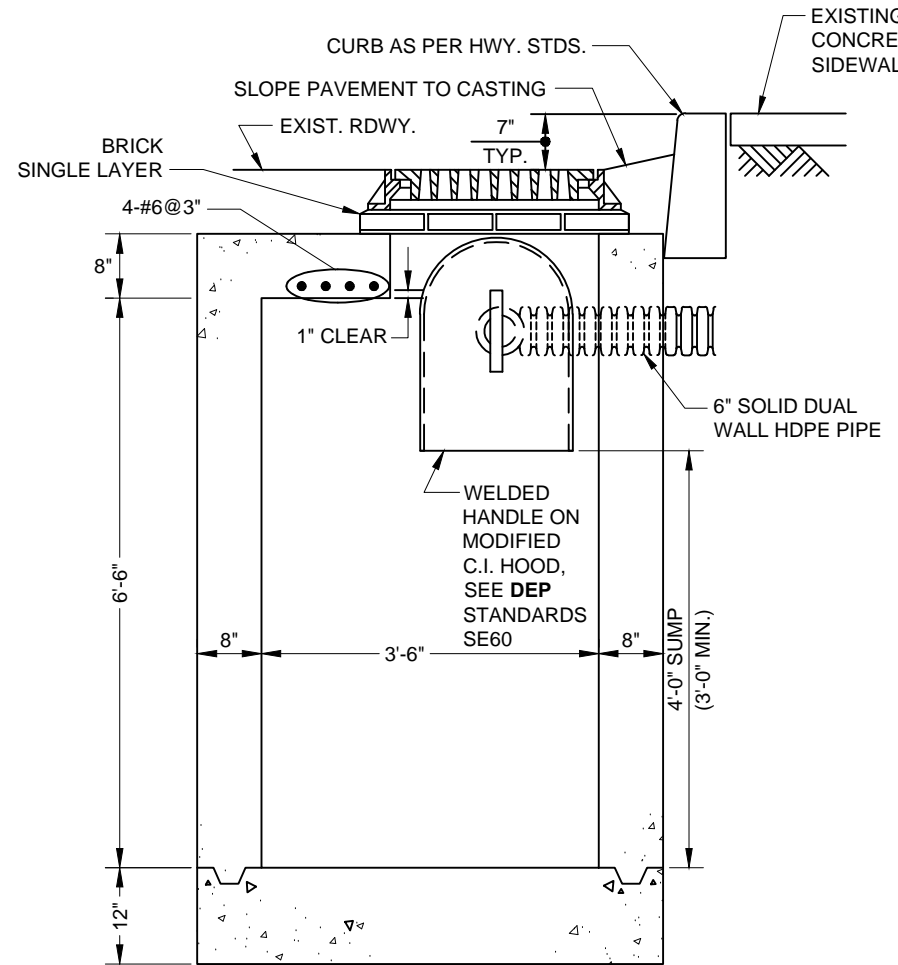
CITY OF NEW YORK
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR STORMWATER INLET
 FOR R.O.W. BIOSWALE TYPE 1B AND TYPE 2B - NO CONNECTION TO SEWERS



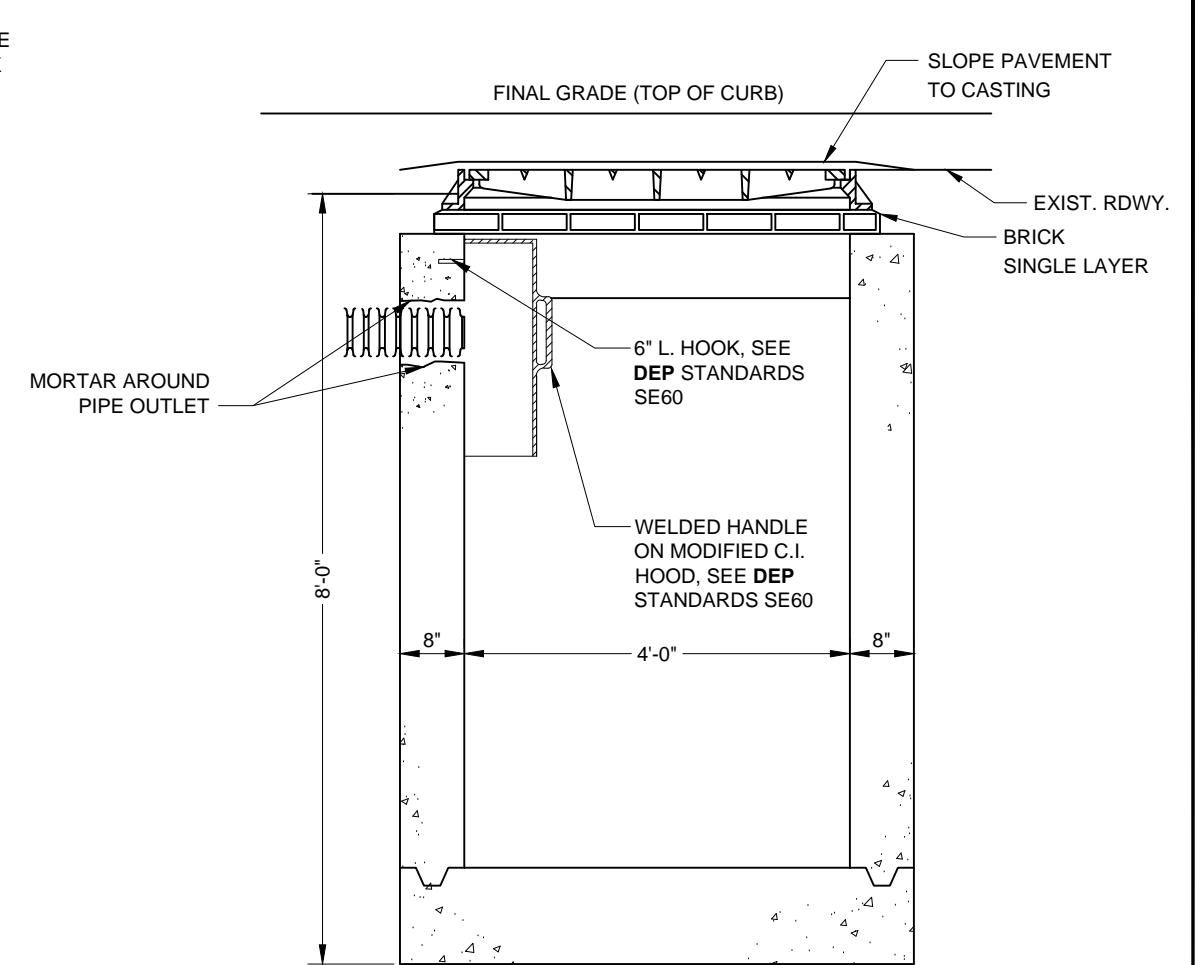
PLAN [WITH CASTING]



PLAN [WITH REINFORCEMENTS]



SECTION A-A



SECTION B-B

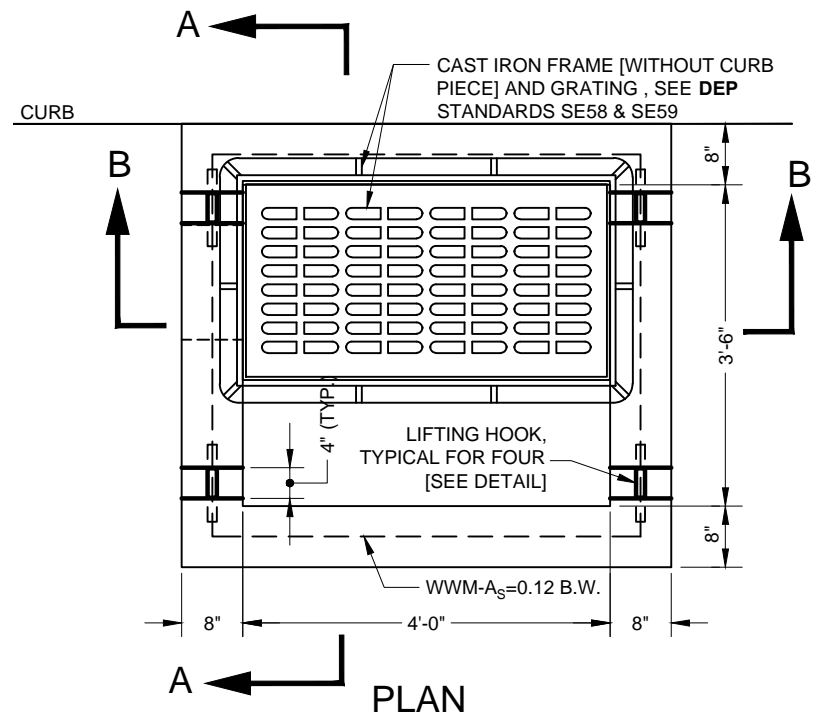
NOTES:

- (1) LOCATION OF CURB SHALL BE AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- (2) LOCATION AND ANGLE OF 6" PVC OUTLET PIPE MAY BE VARIED TO SUIT FIELD CONDITIONS.
- (3) KEYED CONSTRUCTION JOINTS ARE REQUIRED BETWEEN ANY SUCCESSIVE POURS.
- (4) CONCRETE IS TO BE CLASS 40. REBARS-GRADE 60.

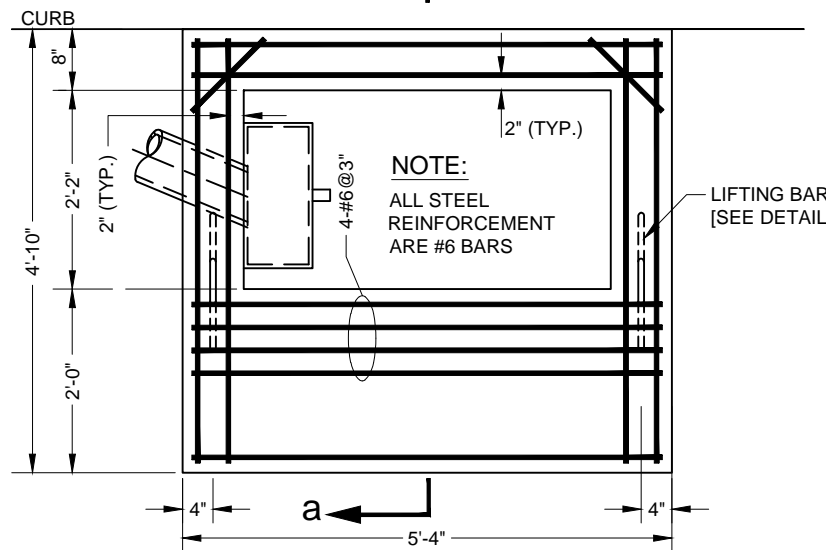
Maedi Faruq
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 DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
 DATE

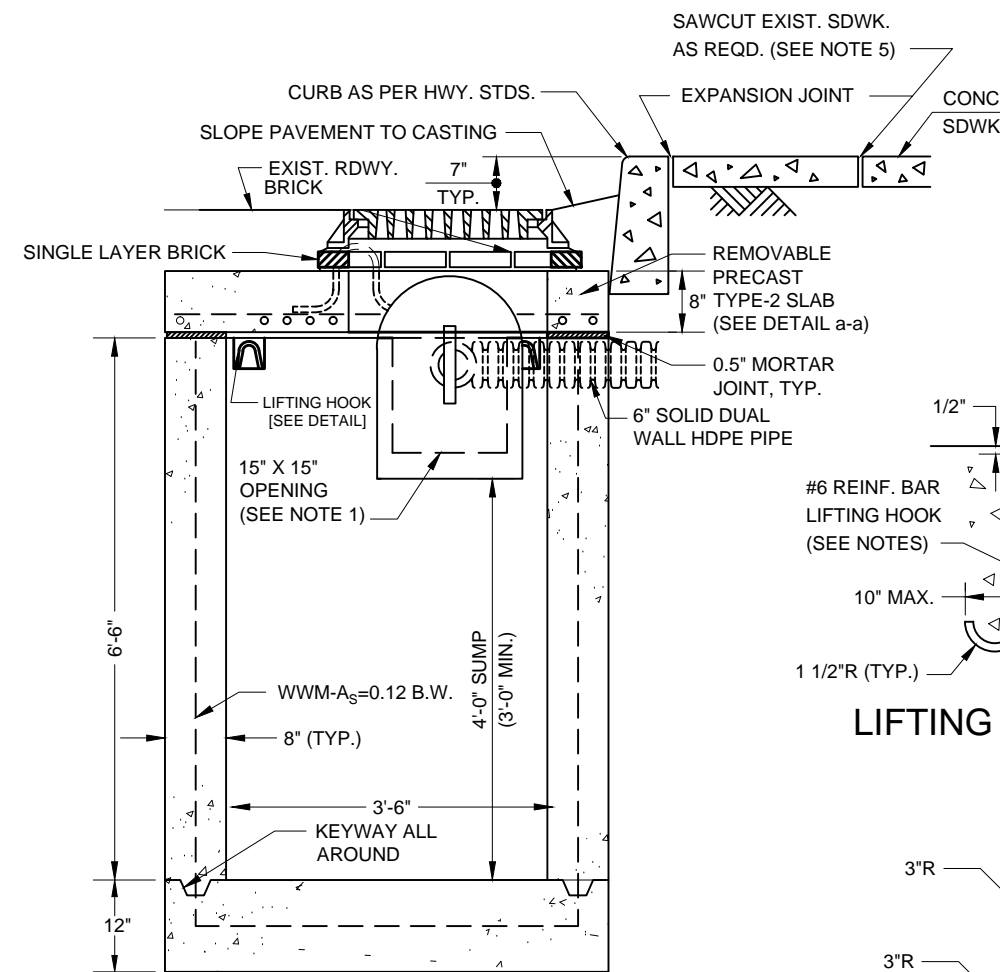
CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE
STANDARD FOR PRECAST STORMWATER INLET
FOR R.O.W. BIOSWALE TYPE 1B AND 2B - NO CONNECTION TO SEWERS



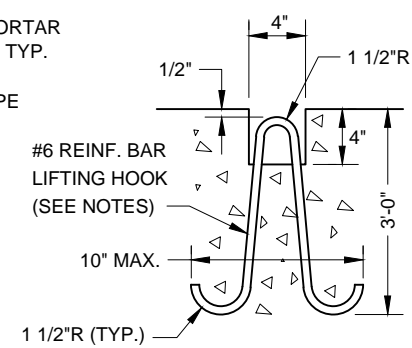
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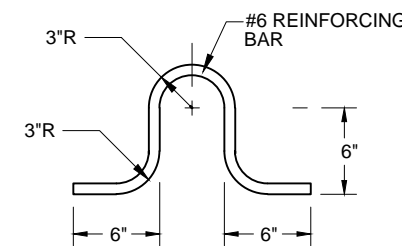
REINFORCEMENT PLAN
[REMOVABLE PRECAST TYPE 2 SLAB]



SECTION A-A



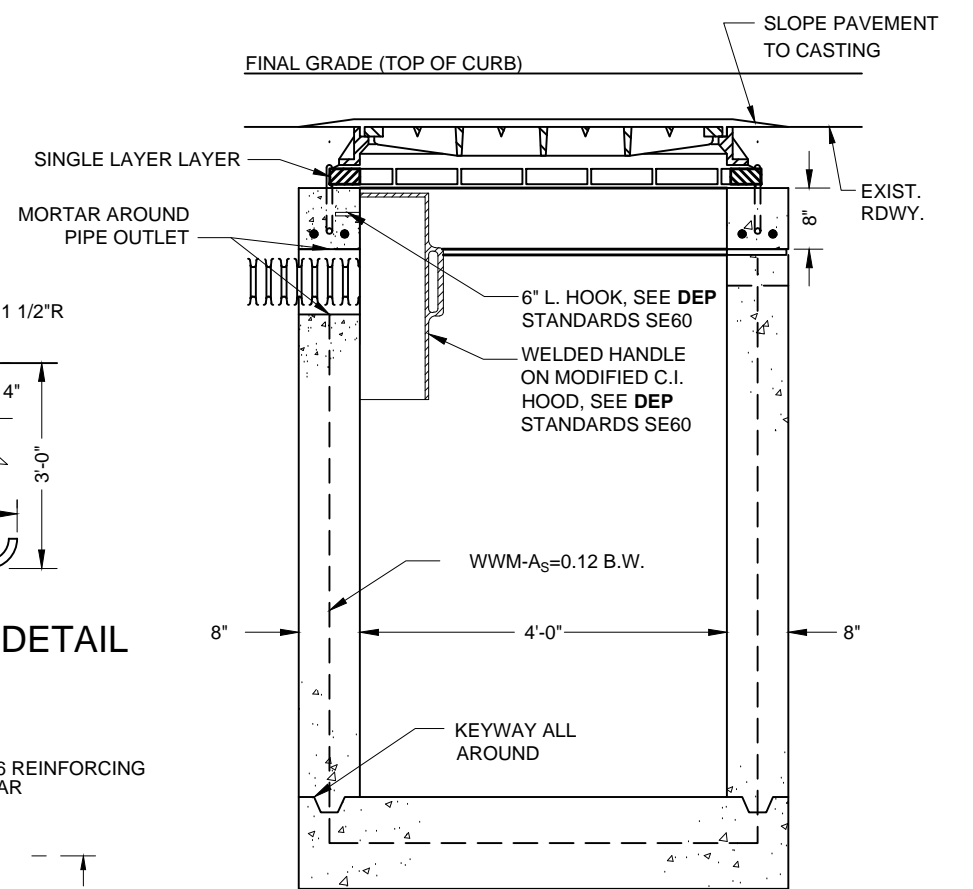
LIFTING HOOK DETAIL
(N.T.S.)



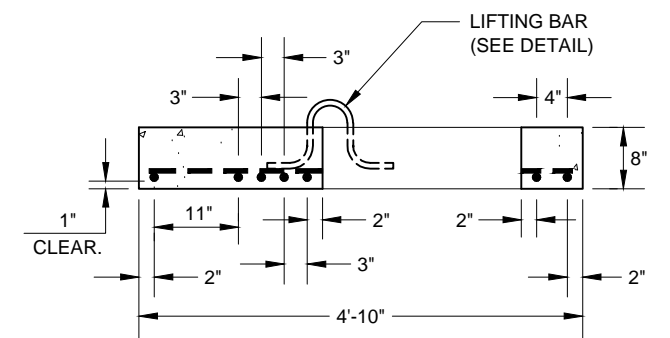
LIFTING BAR DETAIL
[IN REMOVABLE PRECAST TYPE 2 SLAB]

NOTES:

- (1) LOCATION OF OPENING SHALL BE DETERMINED PRIOR TO THE MANUFACTURING OF BASIN BY FIELD MEASUREMENTS.
- (2) LOCATION OF CURB SHALL BE AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
- (3) LOCATION AND ANGLE OF 6" PVC OUTLET PIPE MAY BE VARIED TO SUIT FIELD CONDITIONS.
- (4) LIFTING HOOKS SHALL BE LOCATED IN THE SECTION AS PER MANUFACTURERS RECOMMENDATIONS AND GROUTED PRIOR TO BACKFILLING. (FOUR (4) LIFTING HOOKS SHALL BE PROVIDED FOR EACH SECTION AND SHALL BE PLACED SYMMETRICALLY AND IN SUCH A MANNER AS TO PROVIDE FOR THE EVEN LIFTING OF THE SECTION.)
- (5) LIFTING BAR TO BE CUT FLUSH TO SURFACE AFTER PLACEMENT OF PRECAST TYPE 2 SLAB.
- (6) CONCRETE IS TO BE CLASS 40 AND 5% AIR ENTRAINED. REBARS-GRADE 60. WWM-F_s=65,000 PSI.
- (7) MODIFY STANDARD CAST IRON HOOD AND HOOKS [SE60] AS PER DRAWING



SECTION B-B



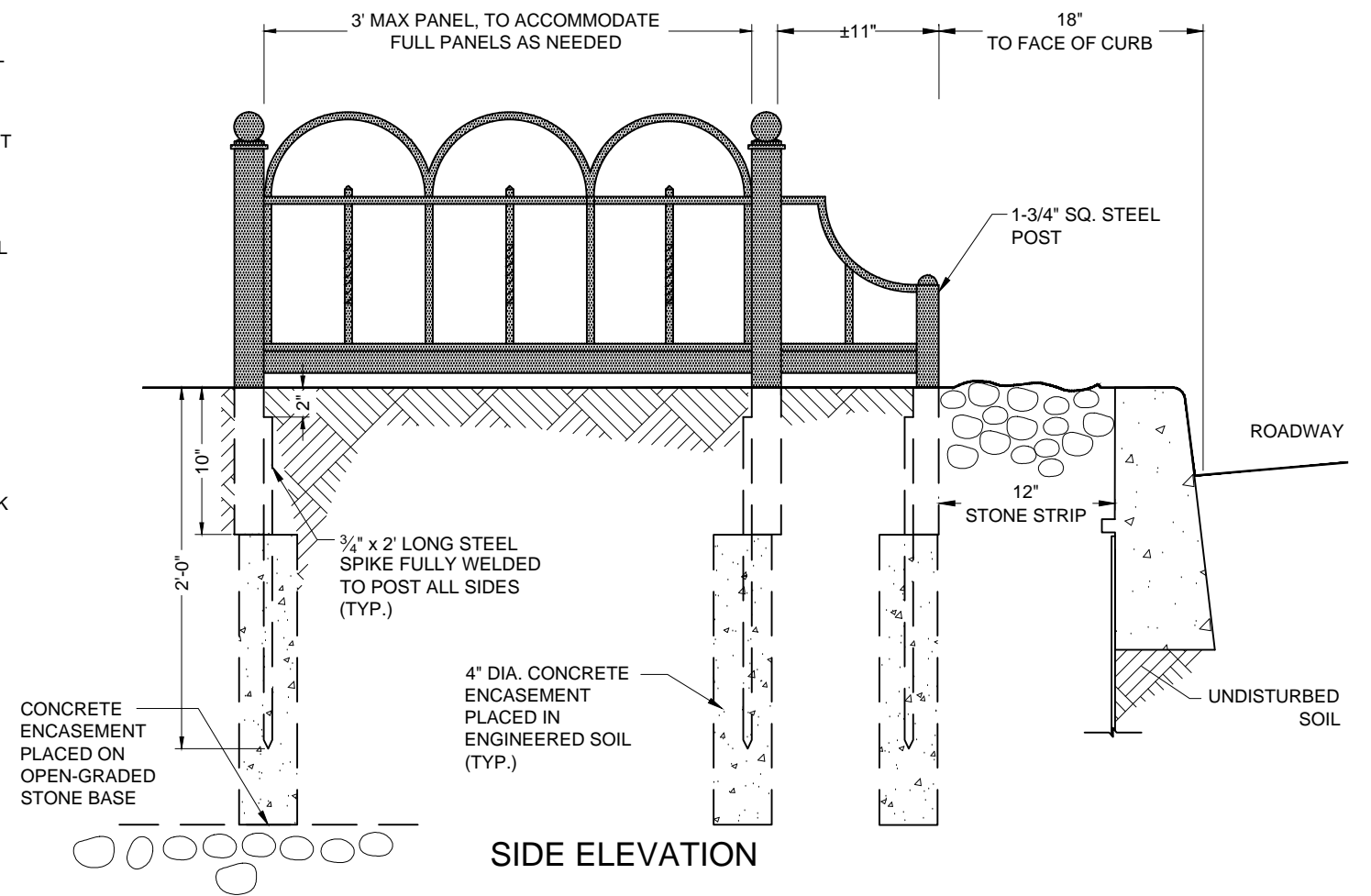
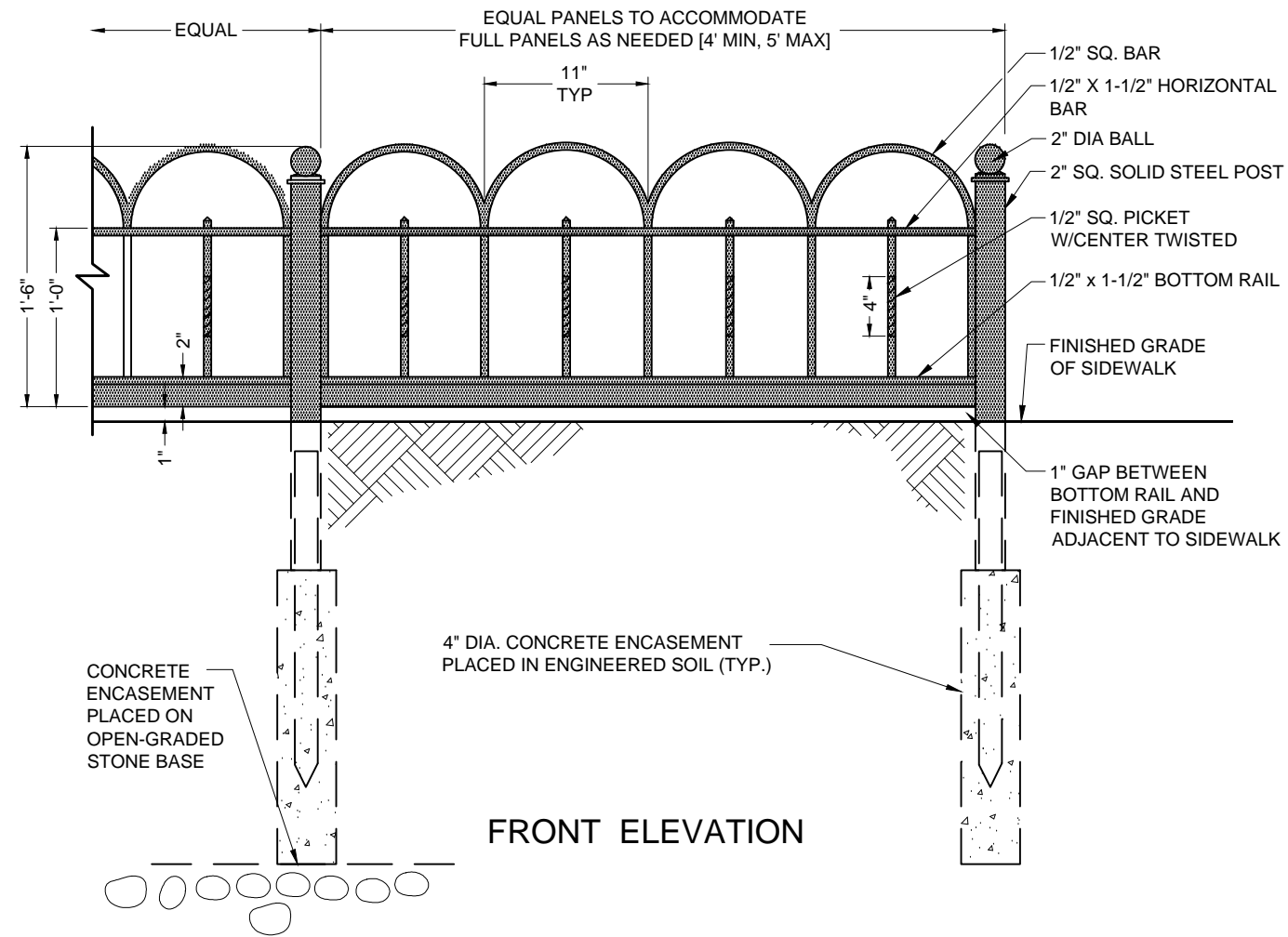
DETAIL a-a
[OF REMOVABLE PRECAST TYPE 2 SLAB]

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7-16-13
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CITY OF NEW YORK
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF GREEN INFRASTRUCTURE

STANDARD FOR R.O.W. BIOSWALE - TYPE 'A' STEEL GUARD



NOTES

** FINAL DESIGN OF GUARDS TO BE SELECTED BY DPR/DOT UPON REVIEW OF NEIGHBORHOOD'S CONTEXT

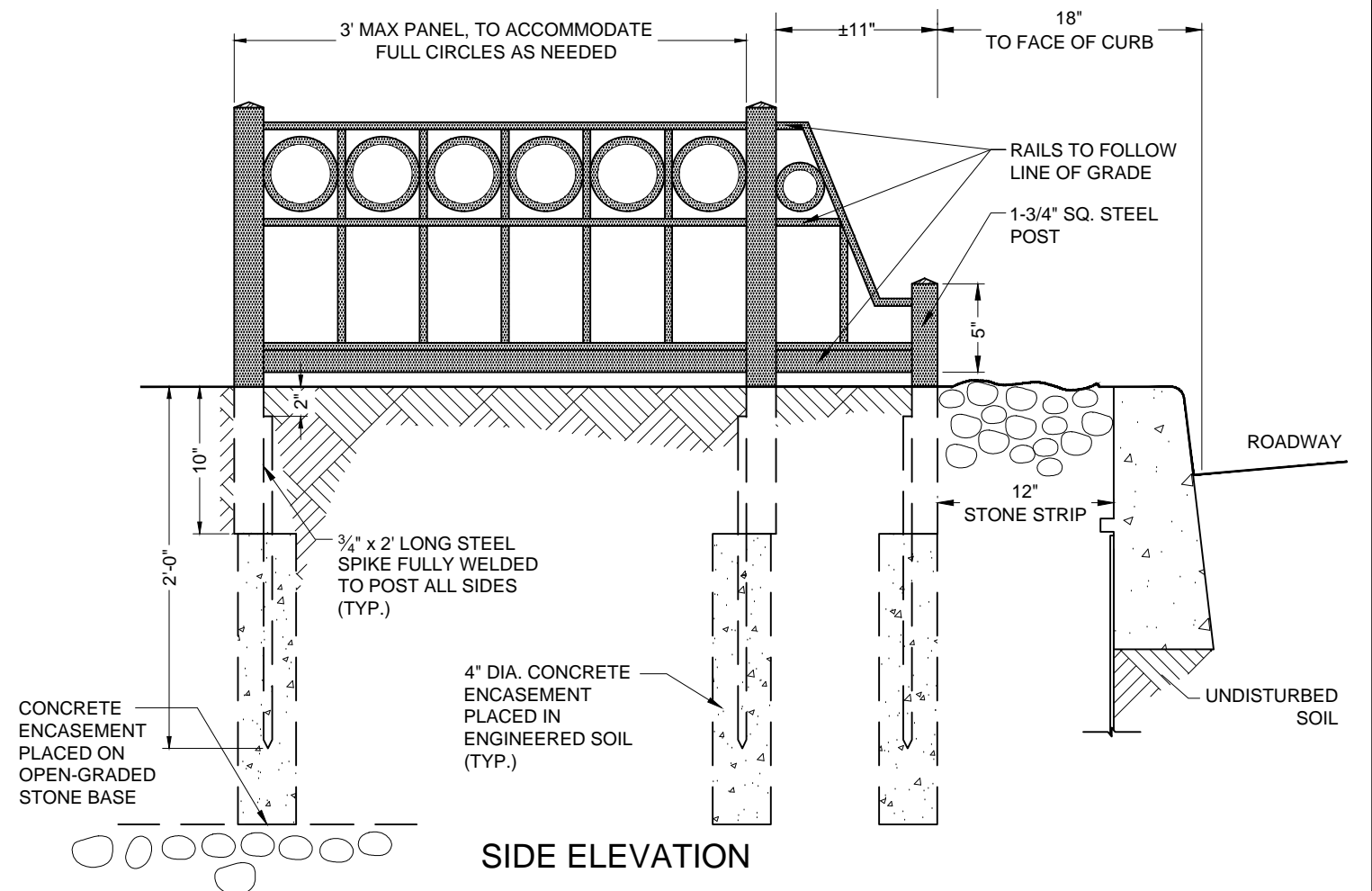
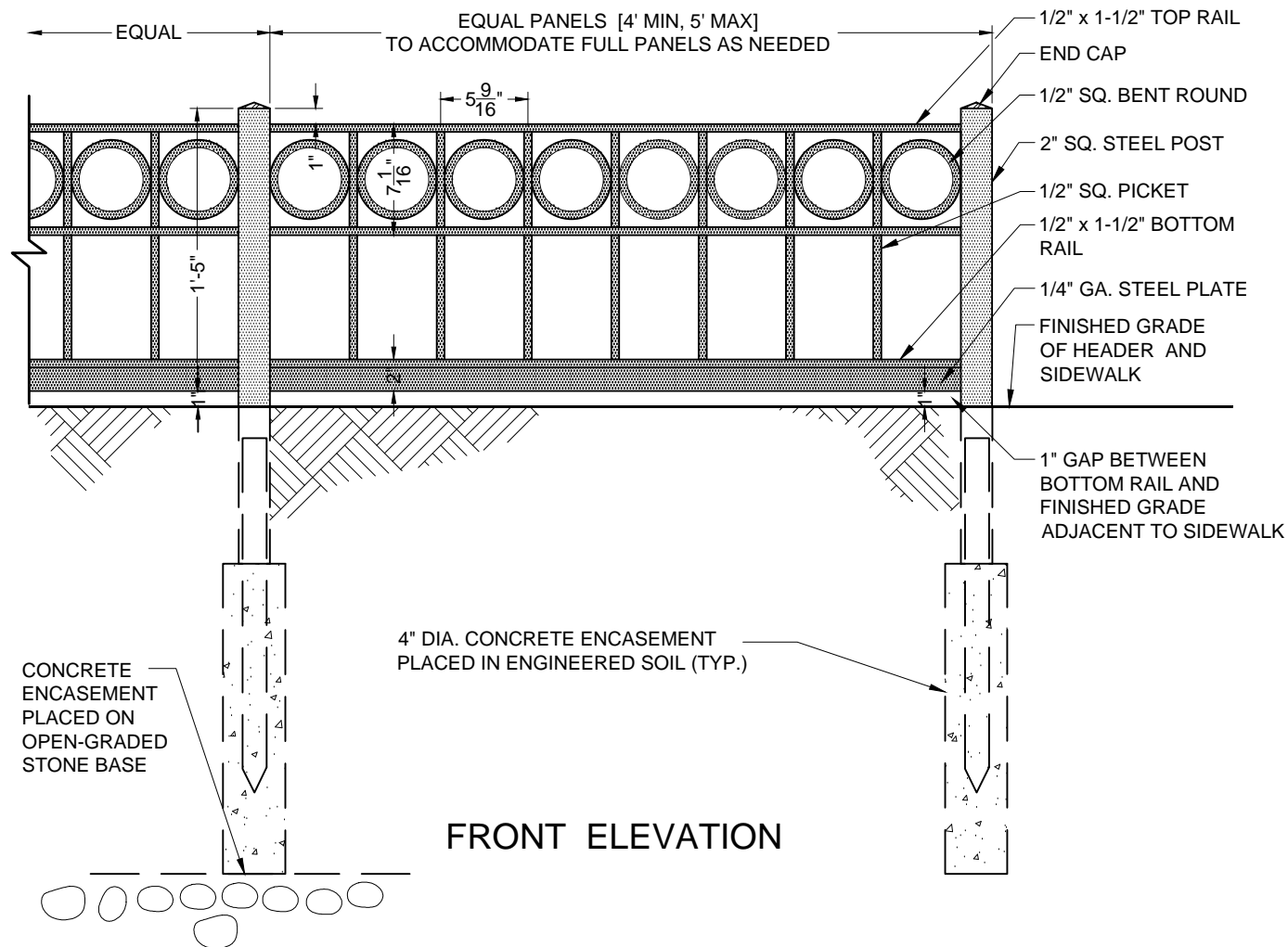
1. FIELD MEASUREMENTS MUST BE TAKEN PRIOR TO FABRICATION.
2. ALL STEEL SHALL CONFORM TO SPECIFICATION C1015 OF THE A.I.S.I.
3. ALL JOINTS TO BE WELDED UNLESS NOTED OTHERWISE.
4. ALL STEEL TO BE PAINTED WITH ONE (1) SHOP COAT OF PRIMER AND ONE (1) SHOP COAT OF INTERMEDIATE AND ONE (1) SHOP COAT (OR ROLLED FIELD COAT) OF FINISH TOP COAT IN COMPLIANCE WITH THE REQUIREMENTS OF SUBSECTION 2.13.4 OF THE NYC DOT STANDARD HIGHWAY SPECIFICATIONS. THE COLOR OF TOP COAT SHALL BE BLACK.
5. RAILS TO FOLLOW LINE OF GRADE.
6. ALL STEEL TO BE SOLID STEEL.
7. ALL SPIKES OF TREE GUARD TO BE EMBEDDED IN CONCRETE PIERS AS PER STANDARD DRAWINGS

Maedi Farah
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 DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
 DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

STANDARD FOR R.O.W. BIOSWALE - TYPE 'B' STEEL GUARD



NOTES

** FINAL DESIGN OF GUARDS TO BE SELECTED BY DPR/DOT UPON REVIEW OF NEIGHBORHOOD'S CONTEXT

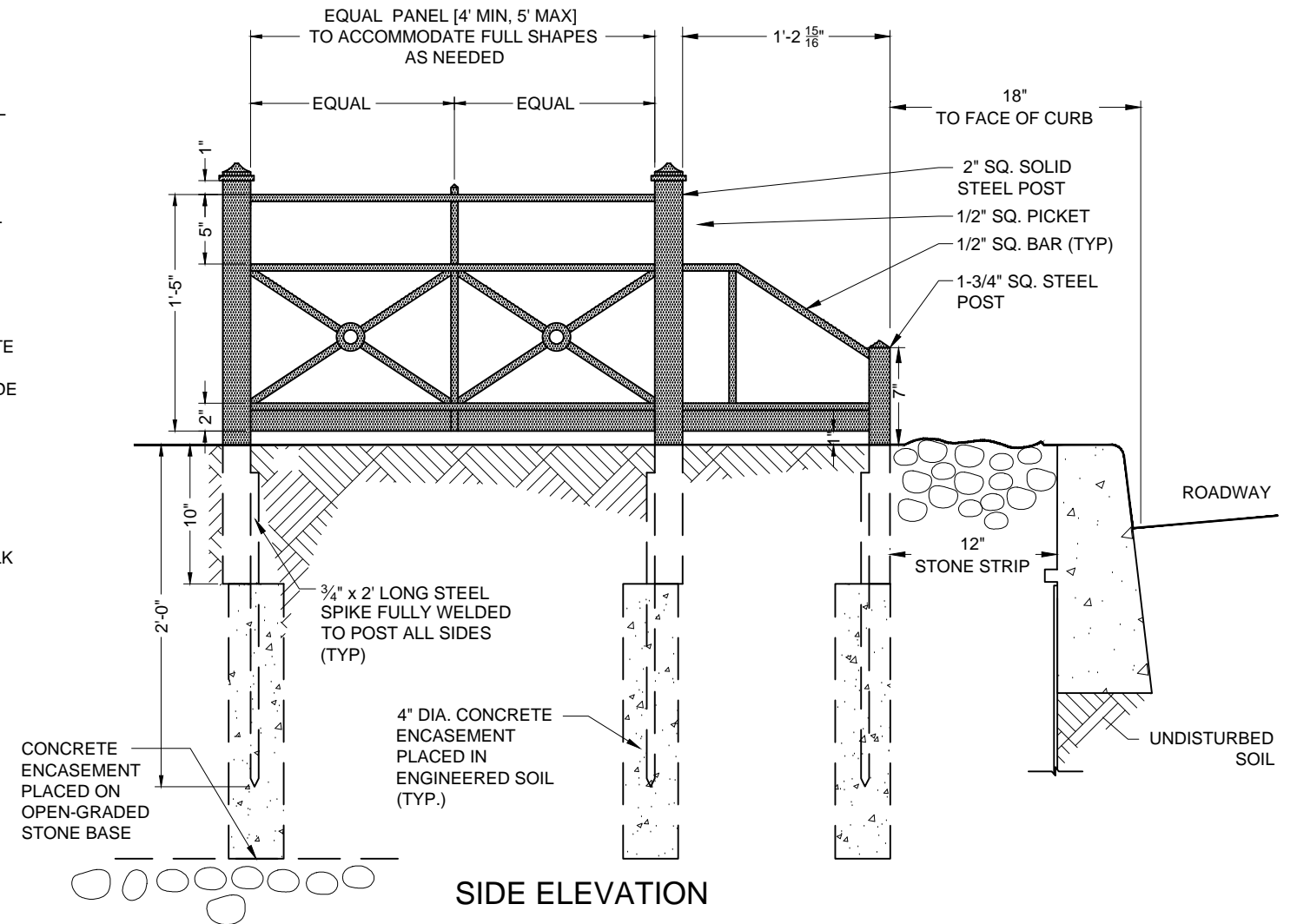
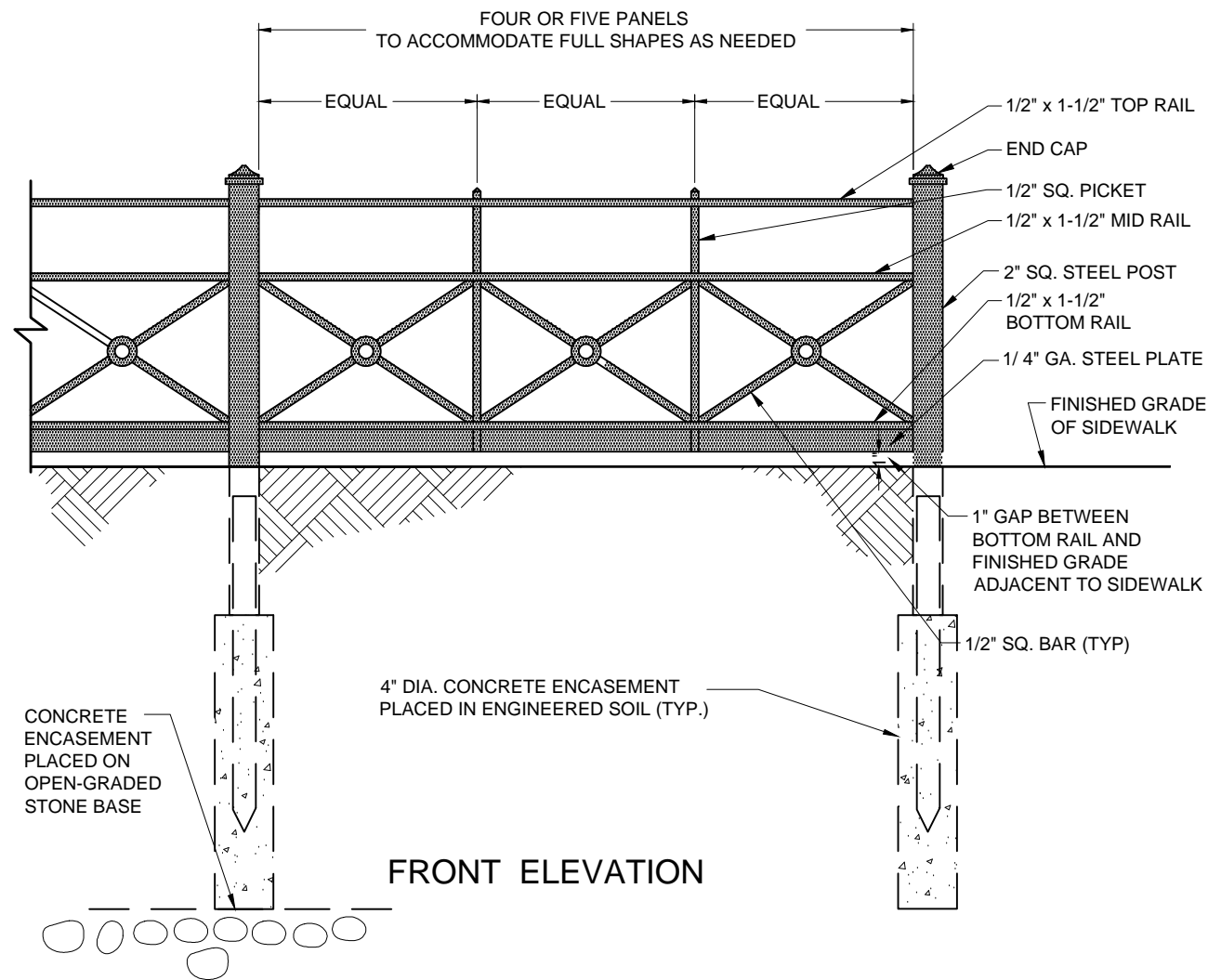
1. FIELD MEASUREMENTS MUST BE TAKEN PRIOR TO FABRICATION.
2. ALL STEEL SHALL CONFORM TO SPECIFICATION C1015 OF THE A.I.S.I.
3. ALL JOINTS TO BE WELDED UNLESS NOTED OTHERWISE.
4. ALL STEEL TO BE PAINTED WITH ONE (1) SHOP COAT OF PRIMER AND ONE (1) SHOP COAT OF INTERMEDIATE AND ONE (1) SHOP COAT (OR ROLLED FIELD COAT) OF FINISH TOP COAT IN COMPLIANCE WITH THE REQUIREMENTS OF SUBSECTION 2.13.4 OF THE NYC DOT STANDARD HIGHWAY SPECIFICATIONS. THE COLOR OF TOP COAT SHALL BE BLACK.
5. RAILS TO FOLLOW LINE OF GRADE.
6. ALL STEEL TO BE SOLID STEEL.
7. ALL SPIKES OF TREE GUARD TO BE EMBEDDED IN CONCRETE PIERS AS PER STANDARD DRAWINGS

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P.E.
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

STANDARD FOR R.O.W. BIOSWALE - TYPE 'C' STEEL GUARD



NOTES

** FINAL DESIGN OF GUARDS TO BE SELECTED BY DPR/DOT UPON REVIEW OF NEIGHBORHOOD'S CONTEXT

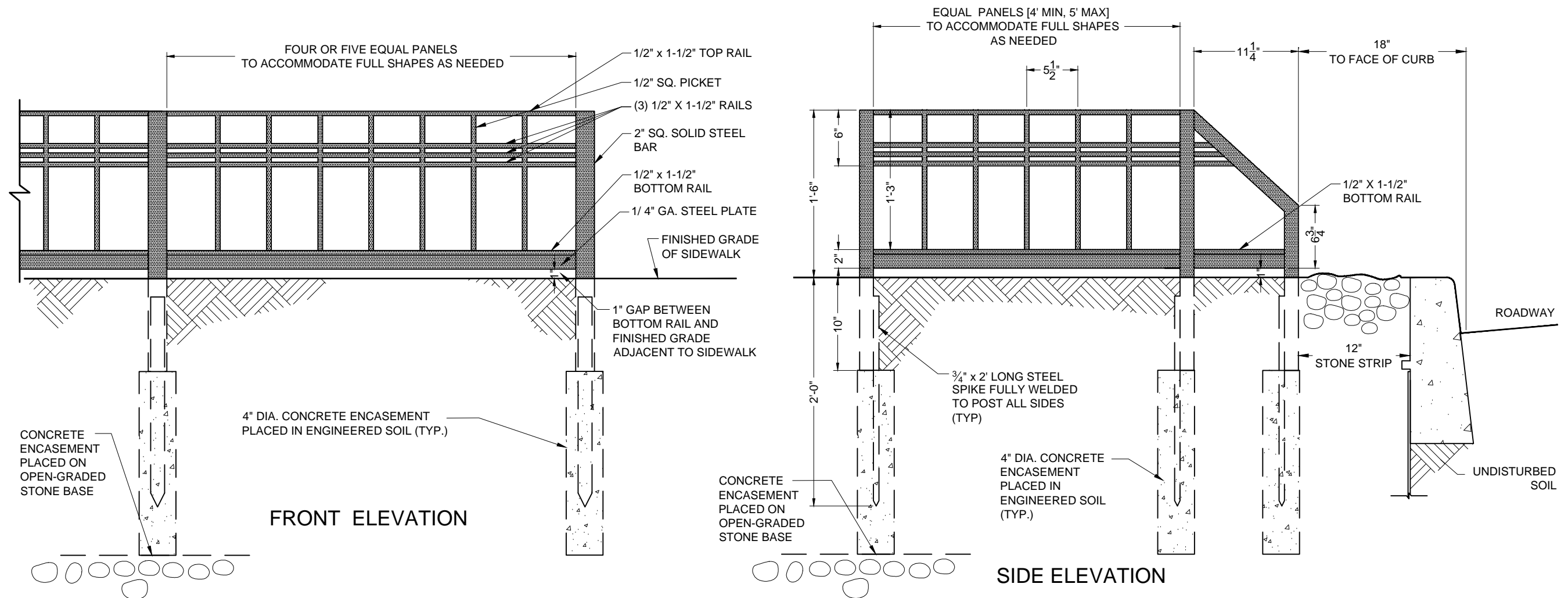
1. FIELD MEASUREMENTS MUST BE TAKEN PRIOR TO FABRICATION.
2. ALL STEEL SHALL CONFORM TO SPECIFICATION C1015 OF THE A.I.S.I.
3. ALL JOINTS TO BE WELDED UNLESS NOTED OTHERWISE.
4. ALL STEEL TO BE PAINTED WITH ONE (1) SHOP COAT OF PRIMER AND ONE (1) SHOP COAT OF INTERMEDIATE AND ONE (1) SHOP COAT (OR ROLLED FIELD COAT) OF FINISH TOP COAT IN COMPLIANCE WITH THE REQUIREMENTS OF SUBSECTION 2.13.4 OF THE NYC DOT STANDARD HIGHWAY SPECIFICATIONS. THE COLOR OF TOP COAT SHALL BE BLACK.
5. RAILS TO FOLLOW LINE OF GRADE.
6. ALL STEEL TO BE SOLID STEEL.
7. ALL SPIKES OF TREE GUARD TO BE EMBEDDED IN CONCRETE PIERS AS PER STANDARD DRAWINGS

Maedi Farah
P.E.
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DEPARTMENT OF ENVIRONMENTAL PROTECTION

7-16-13
DATE

CITY OF NEW YORK
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF GREEN INFRASTRUCTURE

STANDARD FOR R.O.W. BIOSWALE - TYPE 'D' STEEL GUARD



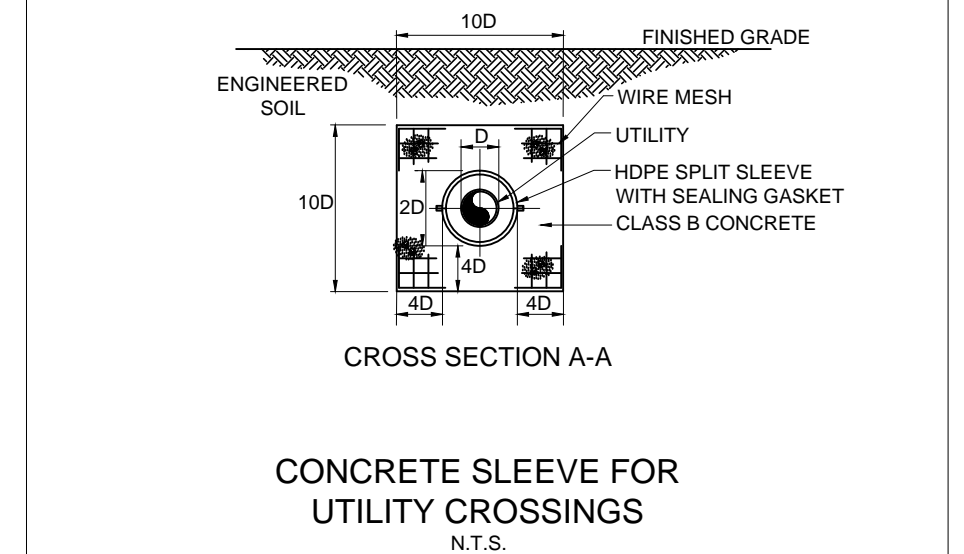
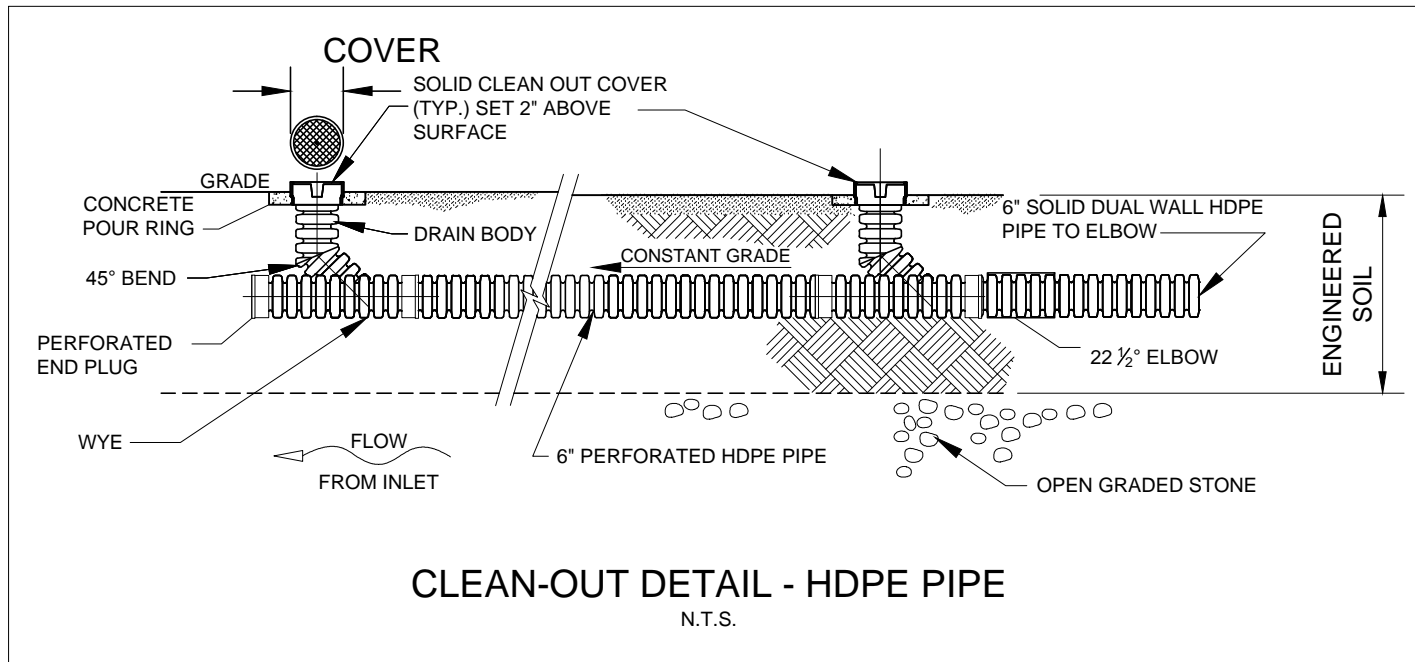
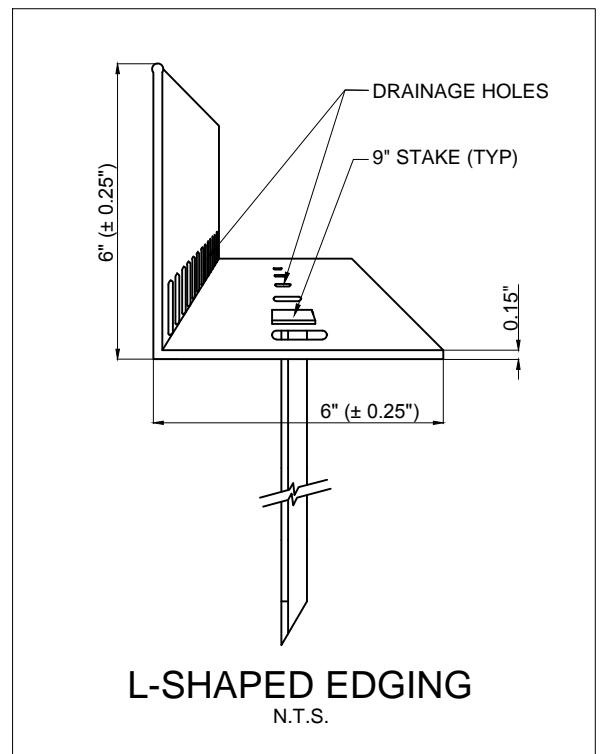
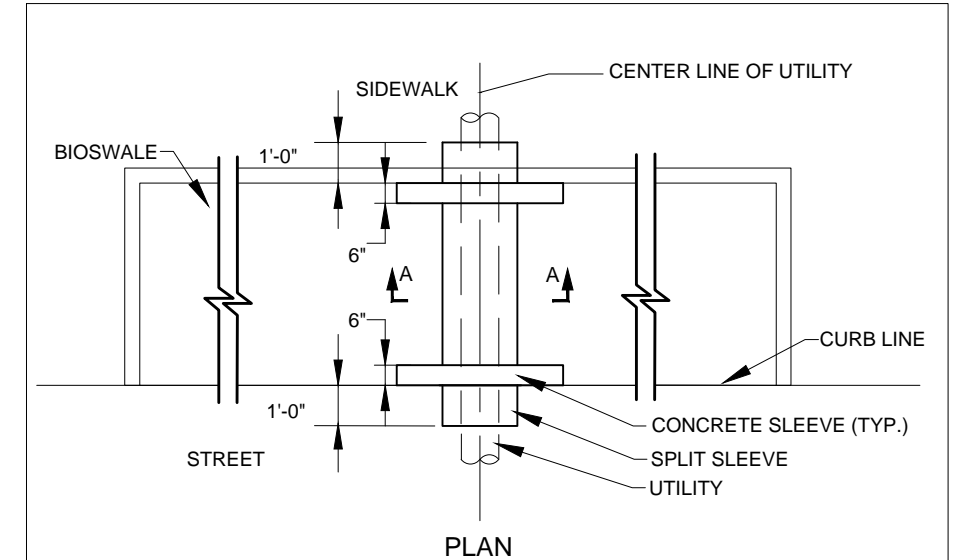
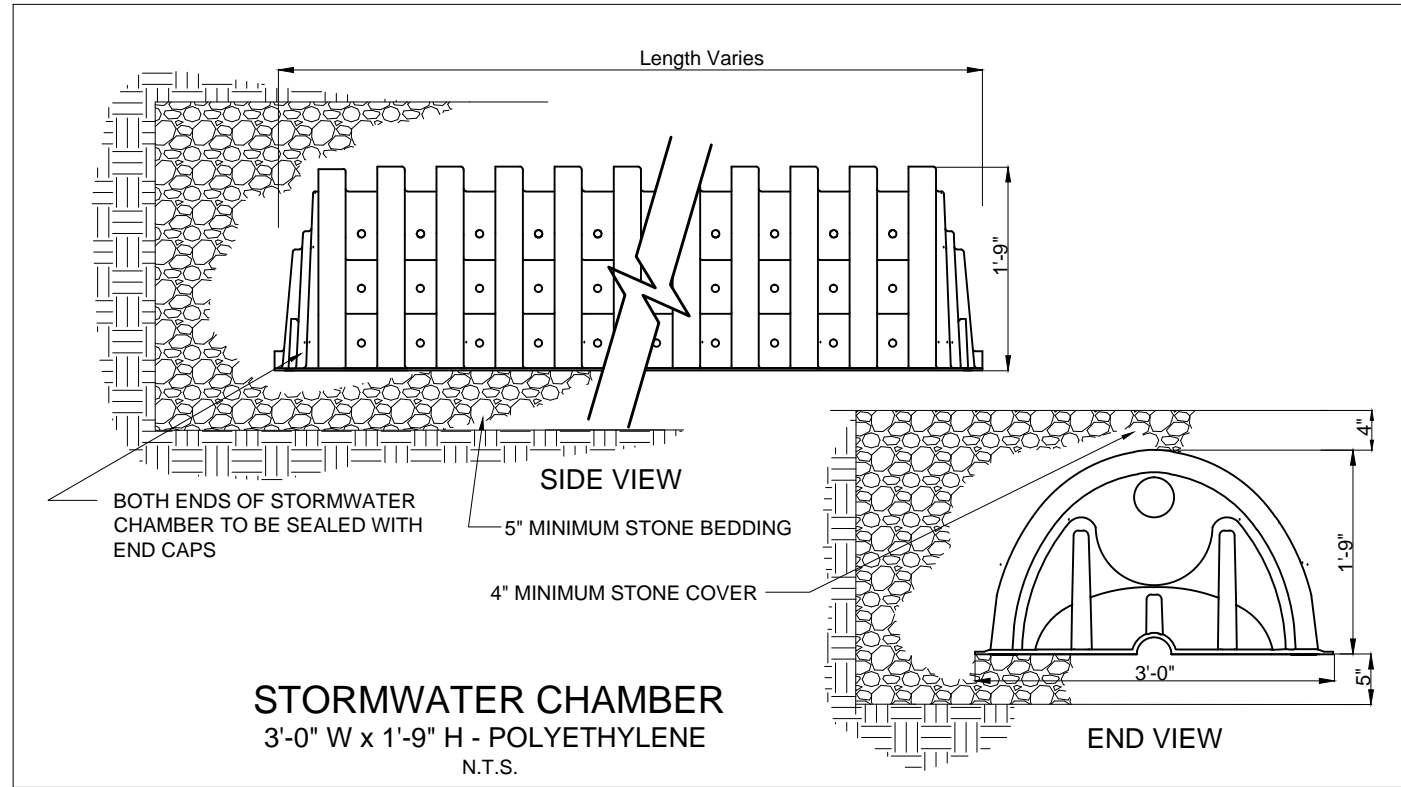
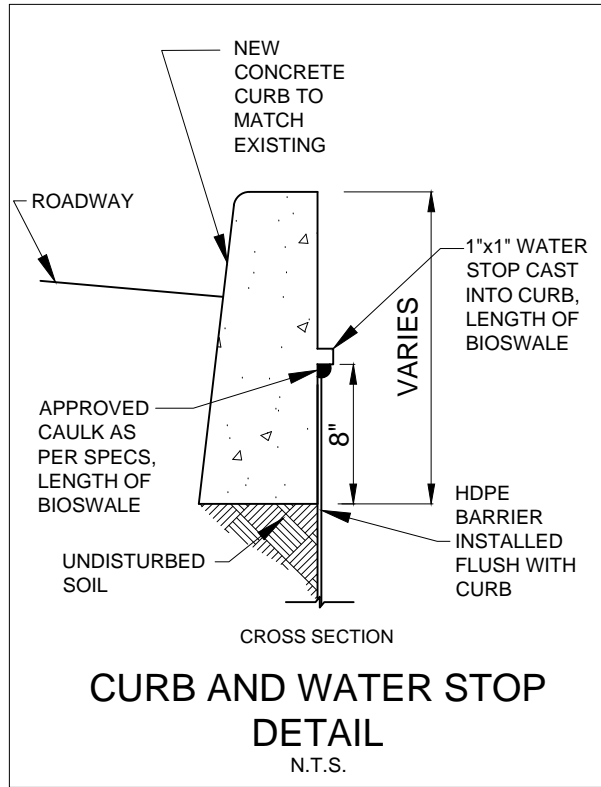
NOTES

- ** FINAL DESIGN OF GUARDS TO BE SELECTED BY DPR/DOT UPON REVIEW OF NEIGHBORHOOD'S CONTEXT
- 1. FIELD MEASUREMENTS MUST BE TAKEN PRIOR TO FABRICATION.
- 2. ALL STEEL SHALL CONFORM TO SPECIFICATION C1015 OF THE A.I.S.I.
- 3. ALL JOINTS TO BE WELDED UNLESS NOTED OTHERWISE.
- 4. ALL STEEL TO BE PAINTED WITH ONE (1) SHOP COAT OF PRIMER AND ONE (1) SHOP COAT OF INTERMEDIATE AND ONE (1) SHOP COAT (OR ROLLED FIELD COAT) OF FINISH TOP COAT IN COMPLIANCE WITH THE REQUIREMENTS OF SUBSECTION 2.13.4 OF THE NYC DOT STANDARD HIGHWAY SPECIFICATIONS. THE COLOR OF TOP COAT SHALL BE BLACK.
- 5. RAILS TO FOLLOW LINE OF GRADE.
- 6. ALL STEEL TO BE SOLID STEEL.
- 7. ALL SPIKES OF TREE GUARD TO BE EMBEDDED IN CONCRETE PIERS AS PER STANDARD DRAWINGS

Maedi Farah
P.E.
ASSISTANT COMMISSIONER, OFFICE OF GREEN INFRASTRUCTURE
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7-16-13
DATE

CITY OF NEW YORK
 DEPARTMENT OF ENVIRONMENTAL PROTECTION
 OFFICE OF GREEN INFRASTRUCTURE
STANDARD R.O.W. BIOSWALE DETAILS



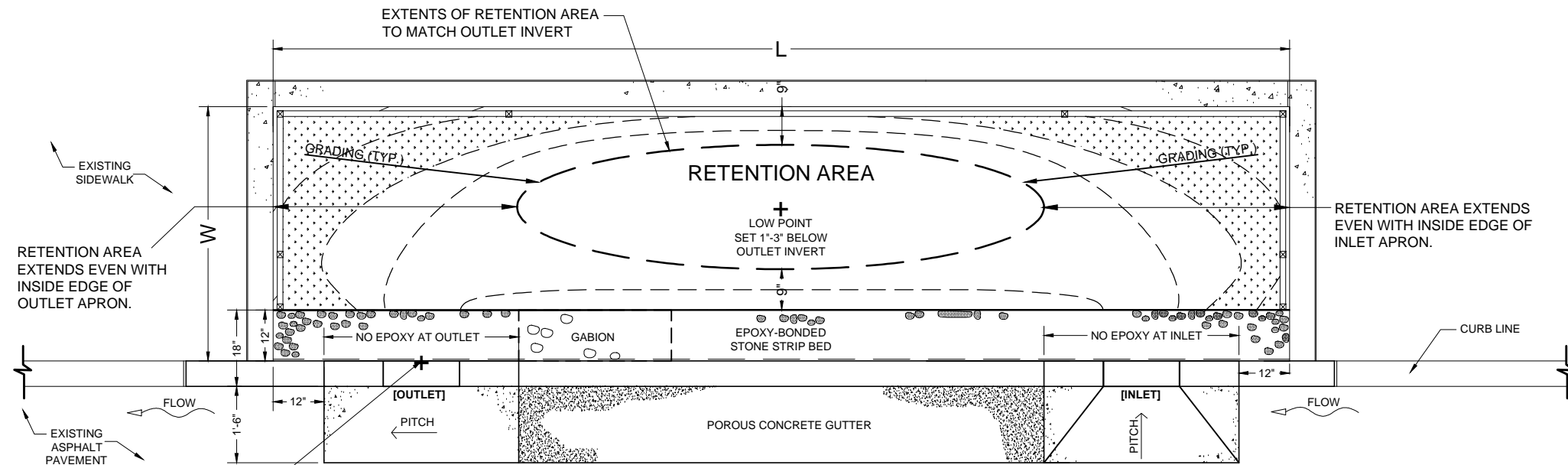
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SURFACE GRADING PLANS FOR R.O.W. BIOSWALES

- NO CONNECTION TO SEWERS

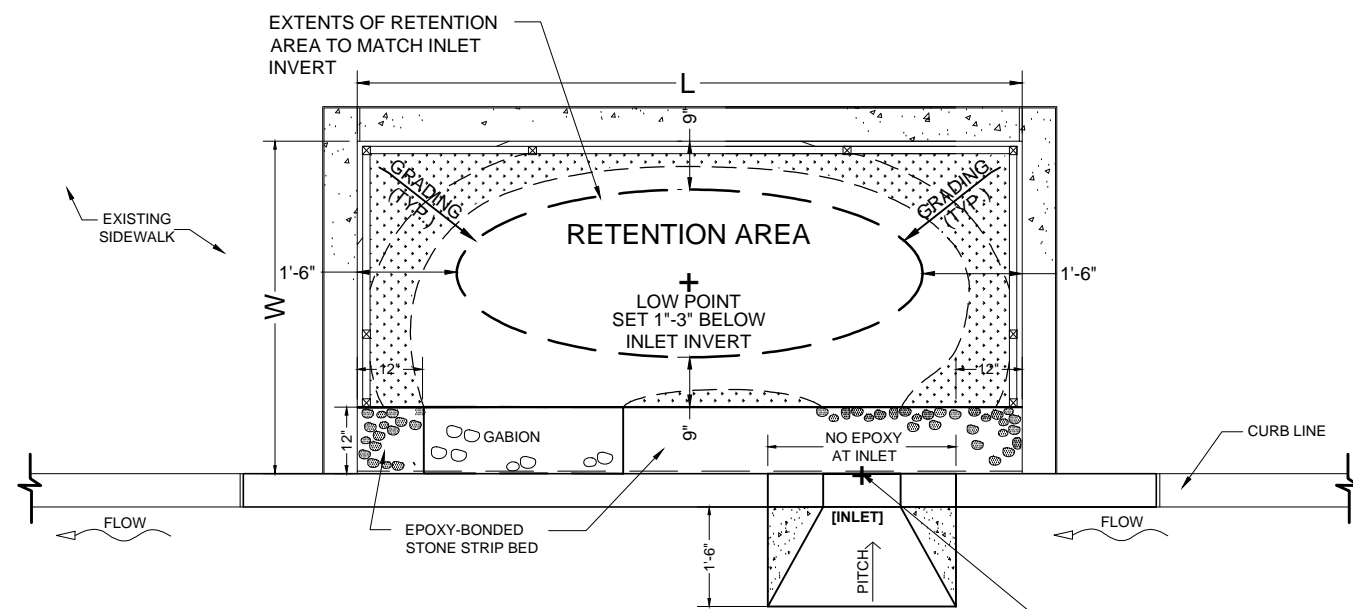


GRADING PLAN 1

FOR ALL ROWB WITH
L = 13' OR GREATER

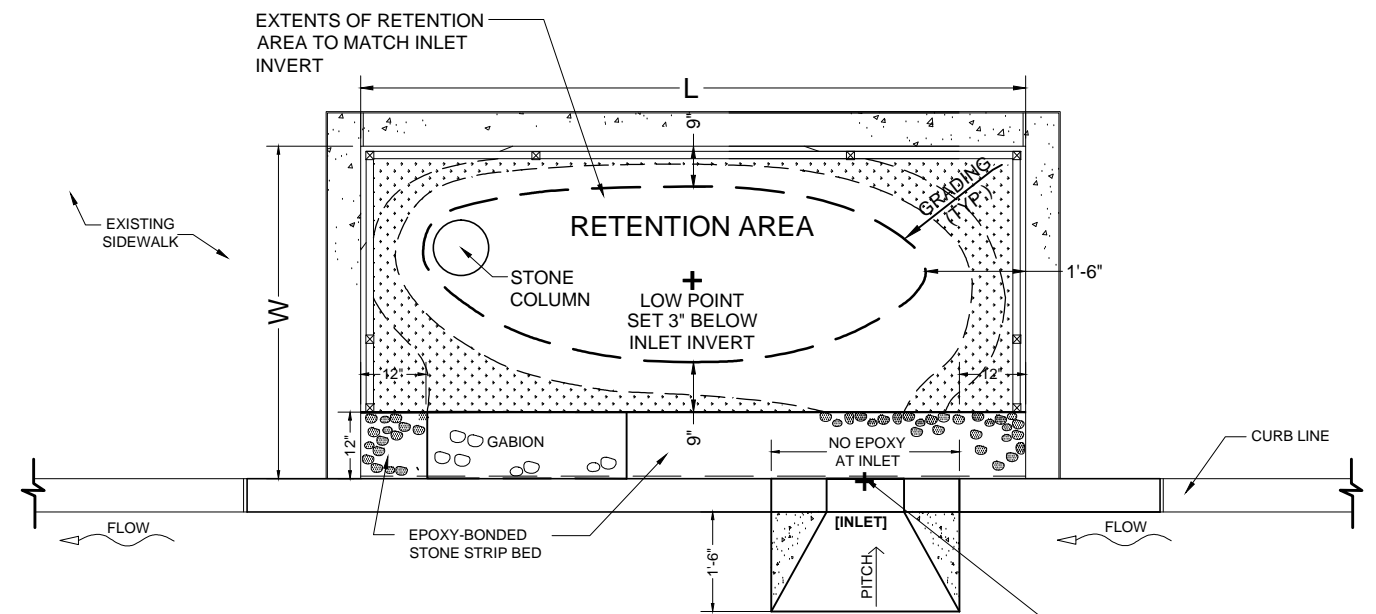
NOTES:

1. ALL SURFACE GRADING TO TAPER TOWARD THE LOW POINT.
2. CONTOUR LINES SHOWN ON THIS DRAWING ARE SCHEMATIC ONLY AND DEPEND ON THE STREET GRADE.



GRADING PLAN 2

FOR ROWB WITHOUT STONE COLUMN AND
L = LESS THAN 13'



GRADING PLAN 3

FOR ROWB WITH STONE COLUMN AND
L = LESS THAN 13'

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