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STORMWATER OPERATIONS AND MAINTENANCE MANUAL

823 Newark Avenue
Jersey City, New Jersey
Block 9401, Lot 7

Prepared for: Vraj Group ("Owner")
Attention: Viral S. Patel/Andy Joiser

Prepard by: RA Design and Consultants, LLP
December 1, 2022

Research and experience have demonstrated that regular and thorough maintenance is necessary for stormwater management measures to perform effectively and reliably. They have also demonstrated that failure to perform such maintenance can lead to diminished performance, deterioration, and failure, in addition to a range of health and safety problems including mosquito breeding, vermin, and the potential for drowning. The potential for such problems to develop is accentuated by many of the very features and characteristics that allow stormwater management measures to do their job, including standing or slowing moving water, dense vegetation, forebays, trash racks, dams, and the need to continually function in all types of weather. As implied by their name, stormwater management measures are also expected to become the repositories for sediment, nutrients, trash, debris, and other pollutants targeted by the NJDEP Stormwater Management Rules. For this reason, stormwater management measures share maintenance requirements with more mundane items as vacuum cleaner bags, car motor filters, and floor mats, all of which require regular inspection and cleaning, sediment and debris removal, and periodic replacement.

In recognition of these needs and potential problems, the NJDEP Stormwater Management Rules require that a maintenance plan be developed for all stormwater management measures incorporated into the design of a major development. This maintenance plan must contain specific preventative and corrective maintenance tasks, schedules, cost estimates, and the name, address, and telephone number of the person or persons responsible for the measures' maintenance.

STORMWATER OPERATIONS & MAINTENANCE MANUAL

1.0 PROJECT DESCRIPTION:

Owner is proposing the construction of a mixed commercial and multi-family development. The subject property is designated 823 Newark Avenue Jersey City, New Jersey, Block 9401, Lots7. The subject property is located within the City of Jersey City, in the Journal Square 2060 Zone and fronts Newark Avenue.

The total project area is 3,440 square feet (0.08 acres), there shall be 3,334.27 square feet of impervious surface (96.9%), which is also the total area of disturbance for this project.

This Stormwater Operations & Maintenance Manual has been prepared to discuss the measures proposed to conform to the stormwater management requirements set forth by the City of Jersey City, Jersey City Municipal Utilities Authority (JCMUA), and the New Jersey Department of Environmental Protection (NJDEP).

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2.0 PROPOSED DEVELOPMENT

Under the proposed development plan, the project area will include a multi-family development. The proposed development includes the construction of twelve (12) dwelling units as well as one (1) commercial unit. This project shall have stormwater management measures including: "green roof" system (see Appendix B) as well as an underground storm water detention system (see Appendix C).

3.0 STORMWATER MANAGEMENT OPERATIONAL PROCEDURES

Operation and maintenance of the permanent stormwater control BMPs shall be the responsibility of the operator of the project site at the time that the applicable maintenance is required. The current owner and responsible agent of the project is:

Vraj Group
Viral Patel/Andy Joiser

A copy of this report and shall be always kept on-site both during and after construction. Upon reviewing agency approval, the title and date of the maintenance plan as well as the contact information of the current agent responsible for maintaining the stormwater management measures for the project shall be recorded on the deed of the property on which the measures are located. Any future change in this information such as change in property ownership shall also be recorded on the deed.

The current responsible agent shall evaluate the maintenance plan for effectiveness at least annually and revise the plan as necessary. A detailed, written log of all preventative and corrective maintenance performed for each stormwater management measure must be kept, including a record of all inspections and copies of maintenance-related work orders. Upon request from a public entity with jurisdiction over the project area the responsible agent shall make available the maintenance plan and associate logs and other records for review.

3.1 MAINTENANCE EQUIPMENT AND PERSONNEL

The current responsible agent shall ensure that adequate equipment and training is provided to maintenance personnel to perform the required maintenance tasks. The material and equipment necessary for inspection and maintenance activities shall include, but not be limited to, the following:

- Green Roof Areas: Material and equipment customary in landscape maintenance practices.
- Garage Area: Litter vacuum to collect sediment from asphalt surface, brooms, and disposal bags.
- Rear Yard Area: leaf/litter blower to collect sediment from landscaped areas.

The estimated cost of routine, scheduled maintenance activities is estimated to be approximately $17,000.00 per year. Approximate breakdown of yearly routine maintenance costs are noted below (excludes structural repairs):

MAINTENANCE COST BREAKDOWN:

Sediment debris and trash removal:	$5,000
Green Roof maintenance in accordance with Appendix B:	$12,000

4.0 STORMWATER BMP INVENTORY

The stormwater management measures incorporated into this development are listed below. The corresponding Field Manuals for the stormwater management measures are in the Appendix of the Maintenance Plan.

4.1 GENERAL MAINTENANCE

The following general tasks shall be performed:

1. All stormwater inlets and manholes shall be inspected for debris and sediment accumulation and structural integrity at least four (4) times annually. Debris and sediment removal shall be scheduled as required to maintain stormwater runoff conveyance efficiency and disposed of in compliance with all applicable local, state, and federal waste regulations.
2. Street sweeping shall occur at least once (1) monthly in all parking lot areas onsite. Regenerative air equipment shall be used.
3. Trash receptacles onsite shall be emptied, and their liners replaced at a minimum of three (3) times per week.
4. Landscaping within the roof area of the site shall be maintained in accordance with Appendix B.

5.0 STORMWATER BMP PREVENTATIVE MAINTENANCE ACTIONS

As per N.J.A.C. 7:8-5.8(b) & (e), preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure, including, but not limited to, repairs or replacement to the structure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; and repair or replacement of non-vegetated linings.

As per NJDEP BMP Manual Ch. 8 Feb. 2004), maintenance plans should include specific preventative and corrective maintenance tasks such as removal of sediment, trash, and debris; mowing, pruning, and

restoration of vegetation; restoration of eroded areas; elimination of mosquito breeding habitats; control of aquatic vegetation; and repair or replacement of damaged or deteriorated components.

5.1 GENERAL MAINTENANCE

A periodic inspection will be performed. The following general maintenance tasks shall be performed.

5.1.1 MONTHLY

a. Street sweeping shall occur at least once (1) monthly in all parking lot areas onsite. Regenerative air equipment shall be used.
b. Trash receptacles onsite shall be emptied, and their liners replaced at a minimum of three (3) times per week.
c. Landscaping within the developed portions of the site shall be trimmed/mowed twice (2) monthly during the growing season. Reforested portions of the site shall be left undisturbed to vegetate naturally.

5.1.2 QUARTERLY

a. All stormwater inlets and manholes shall be inspected for debris and sediment accumulation and structural integrity at least four (4) times annually. Debris and sediment removal shall be scheduled as required to maintain stormwater runoff conveyance efficiency and disposed of in compliance with all applicable local, state, and federal waste regulations.

5.1.3 ANNUALLY

a. A submission to the Township from the owner of the end-of-year maintenance records will be required.

6.0 INSPECTION AND LOGS OF ALL PREVENTATIVE AND CORRECTIVE MEASURES

As per N.J.A.C. 7:8-5.8(f), the person responsible for maintenance shall maintain a detailed log of all preventative and corrective maintenance for the structural stormwater management measures incorporated into the design of the development, including a record of all inspections and copies of all maintenance-related work orders.

As per NJDEP BMP Manual Ch. 8 (February 2004), a maintenance plan shall include a schedule of regular inspections and tasks, and detailed logs of all preventative and corrective maintenance performed on the stormwater management measure, including all maintenance-related work orders. The person with maintenance responsibility must retain and, upon request, make available the maintenance plan and associated logs and other records for review by a public entity with administrative, health, environmental, or safety authority over the site. Inspection Checklists in the Field Manual for the stormwater management measures on this site include:

Appendix A-1: General Inspection Checklist Log
Appendix A-2: General Preventative Maintenance Log
Appendix A-3: General Corrective Maintenance Log
Appendix A-4: Annual Evaluation Records
Appendix B: Green Roof Maintenance Manual

All inspection and maintenance activities shall be recorded to document frequency of inspection and maintenance, and implementation of corrective action. All regularly scheduled inspections, inspections following one (1) inch of precipitation, maintenance activities, and repairs shall be recorded. Refer to the Appendix of this Manual for the BMP Inspection & Maintenance Log for this facility. This log shall be considered a minimum standard for recording purposes, the Operator and Inspection/Maintenance Personnel are encouraged to supplement the Log with additional notes and photos.

7.0 ANNUAL EVALUATION OF THE EFFECTIVENESS OF THE PLAN

As per N.J.A.C. 7:8-5.8(g), the person responsible for maintenance shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.
The responsible party should evaluate the effectiveness of the maintenance plan by comparing the maintenance plan with the actual performance of the maintenance. The items to evaluate may include, but not limited to,

- Whether the inspections have been performed as scheduled;
- Whether the preventive maintenance has been performed as scheduled;
- Whether the frequency of preventative maintenance needs to increase or decrease;
- Whether the planned resources were enough to perform the maintenance;
- Whether the repairs were completed on time;
- Whether the actual cost was consistent with the estimated cost;
- Whether the inspection, maintenance, and repair records have been kept.

If actual performance of those items has been deviated from the maintenance plan, the responsible party should find the causes and implement solutions in a revised maintenance plan.

SUMMARY

1. Copies of the maintenance plan must be provided to the owner and operator of the stormwater management measure. Copies must also be submitted to all reviewing agencies as part of each agency's approval process. In addition, a copy should be provided to the local mosquito control or extermination commission upon request.

2. The title and date of the maintenance plan and the name, address, and telephone number of the person with stormwater management measure maintenance responsibility as specified in the plan must be recorded on the deed of the property on which the measure is located. Any change in this information due, for example to a change in property ownership, must also be recorded on the deed.

3. The person with maintenance responsibility must evaluate the maintenance plan for effectiveness at least annually and revise as necessary.

4. A detailed, written log of all preventative and corrective maintenance performed at the stormwater management measure must be kept, including a record of all inspections and copies of maintenance-related work orders.

5. The person with maintenance responsibility must retain and, upon request, make available the maintenance plan and associated logs and other records for review by a public entity with administrative, health, environmental, or safety authority over the site.

APPENDIX A-8

INSPECTION CHECKLIST LOG

1. **The responsible party shall report issues to the local authority and mosquito commission as required by local ordinances and regulatory authorities.**
2. **The maintenance crew should fill out the checklist in the field manual when performing each inspection/maintenance task.**
3. **After the maintenance task is performed, the checklist should be filed in the Maintenance Plan and recorded in the log below.**

Cycle of Inspection	*Stormwater Management Measure No.*	*Checklist No.*	*Date(s) of Inspection*
(1st Quarter)			
(2nd Quarter)			
(3rd Quarter)			
(4th Quarter)			
(Unscheduled Inspection; e.g., after 1" rain)			
(1st Quarter)			
(2nd Quarter)			
(3rd Quarter)			
(4th Quarter)			
(Unscheduled Inspection; e.g., after 1" rain)			
(1st Quarter)			
(2nd Quarter)			
(3rd Quarter)			
(4^{th} Quarter)			
(Unscheduled Inspection; e.g., after 1" rain)			

APPENDIX A-9

PREVENTATIVE MAINTENANCE LOG

MAINTENANCE SCHEDULE	STORMWATER MANAGEMENT MEASURE NO.	PREVENTATIVE MAINTENANCE RECORD NO.	DATE(S) OF MAINTENANCE
(1st Quarter)			
(2nd Quarter)			
(3rd Quarter)			
(4th Quarter)			
(Unscheduled Maintenance work; e.g., after 1" rain)			
(1st Quarter)			
(2nd Quarter)			
(3rd Quarter)			
(4th Quarter)			
(Unscheduled Inspection; e.g., after 1" rain)			

APPENDIX A-10

ANNUAL EVALUATION RECORD

As per N.J.A.C. 7:8-5.8(g), the person responsible for maintenance shall evaluate the effectiveness of the maintenance plan at least once per year and adjust the plan and the deed as needed.

The responsible party should evaluate the effectiveness of the maintenance plan by comparing the maintenance plan with the actual performance of the maintenance. The items to evaluate may include, but not limited to,

- Whether the inspections have been performed as scheduled;
- Whether the preventive maintenance has been performed as scheduled;
- Whether the frequency of preventative maintenance needs to increase or decrease;
- Whether the planned resources were enough to perform the maintenance;
- Whether the repairs were completed on time;
- Whether the actual cost was consistent with the estimated cost;
- Whether the inspection, maintenance, and repair records have been kept.

If actual performance of those items has been deviated from the maintenance plan, the responsible party should find the causes and implement solutions in a revised maintenance plan.

Evaluator(s)	*Date of Evaluation*	*Decision*
		__Maintain current version OR __Revise current version Revision date _____ (also update the last revision date on the cover page) __Requires a new deed recording (also update the last recording information on the cover page)
		__Maintain current version OR __Revise current version Revision date _____ (also update the last revision date on the cover page) __Requires a new deed recording (also update the last recording information on the cover page)
		__Maintain current version OR __Revise current version Revision date _____ (also update the last revision date on the cover page) __Requires a new deed recording (also update the last recording information on the cover page)

APPENDIX A-11

Cycle of Inspection	*Stormwater Management Measure No.*	*Checklist No.*	*Date(s) of Inspection*
(1st Quarter)			
(2nd Quarter)			
(3rd Quarter)			
(4th Quarter)			
(Unscheduled Inspection; e.g., after 1" rain)			
(1st Quarter)			
(2nd Quarter)			
(3rd Quarter)			
(4th Quarter)			
(Unscheduled Inspection; e.g., after 1" rain)			

NOTE: The system shown was selected specific for this project. Should the builder propose a similar system by a different manufacturer, the architect should be notified and provided with the alternative manufacturer's product/system information. The architect shall verify that the alternative product/system meets the intent and requirements of what was proposed.

Eco-Roofs, LLC is continually evaluating and testing our shipping equipment and processes to find the safest and most efficient methods for all involved including the plants. Here we are presenting our preferred and standard processes but these may vary depending on your location, the size of your roof and other considerations and may change as we find new and better methods.

Whenever possible we ship our trays and mats shelved on rolling racks on enclosed 53' semi trailers. The shelving and enclosed trailers protects the plant foliage from damage. Since the racks roll on firm, smooth surfaces, they can be wheeled on site (on the roof or for rough surfaces, create a path with plywood.) This often allows entire cart loads to be wheeled through buildings and to be taken up in elevators. Be sure to get good measurements of all doorways, elevator capacity, etc.

The racks are heavy and may take two people to move them around. Eco-Roofs, LLC's drivers will assist in getting the racks to the back of the truck. In most cases it will be necessary to have a forklift to move the racks to the ground and due to their weight, it can be helpful in moving them around, into cradles, etc. Check to make sure forklift is capable of handling the weight and size of the full racks.

When lifting the racks by crane, Eco-Roofs, LLC offers the use of steel "cradles" equipped with crane certified chains for easy and safe lifting. Eco-Roofs, LLC has a limited supply of these cradles in both single (1 rack) and double (2 rack) sizes to speed up the lifting process. Contact Eco-Roofs, LLC for availability and weight guidelines if you are interested in using Eco-Roofs, LLC's cradles.

When estimating lifts and labor, you can use the following formulas but keep in mind these formulas may vary from actual shipping quantities.

3.3" deep Eco-Standard trays: 64sf/rack

4" deep Eco-Standard trays: 56sf/rack

6" deep Eco-Standard trays: 32sf/rack

All quantities are based on Eco-Roofs, LLC's standard Sedum mix. Other plants almost always decrease the quantity per rack.

Eco-Mat Pre-Vegetated Sedum Mat: 250sf/rack

Installation of Eco-Roofs, LLC's trays is quick and efficient.

- **Keep the installation surface clean and free of debris**
- **Roll out slip sheet/protection fabric on the waterproofing.**
  Make sure that root barriers and other impermeable fabrics are flat (no folds) and do not cover drains or impede the drainage of excess water.
- **Place the trays tightly next to each other in nice, straight rows with even edges.**
  If plant material is hanging over the edges of the trays, lift it on top of the trays to allow a tight fit with no plant material between the trays.

  Eco-Roofs, LLC's Eco-Standard trays should firmly abut the next tray. The trays can be installed in either direction.

Built-up green roofs (including those with Eco-Mat pre-vegetated Sedum mat) are all unique in their design and installation. The protection, drainage and filtration layers are all installed in the arrangement specified. The growing media is evenly leveled and compacted. Erosion nets and vegetated mat, plugs, cuttings or other plants are planted in the arrangement, spacing, or rate as specified.

These simple explanations are not meant to provide the training necessary to install green roofs but merely to give an idea of the installation process.

Eco-Roofs, LLC offers an Installer Certification class where perspective green roof installers can become certified installers of Eco-Roofs, LLC's green roof systems.

Phone: (269) 471-7408 ECO-ROOFS Fax: (269) 471-2495

Eco-Roofs, LLC's Maintenance Recommendations

These maintenance recommendations are based on Eco-Roofs, LLC's standard green roof products outlined in this brochure. While most apply equally to all green roofs, there are many variables that need to be considered.

We are happy to assist you in creating a customized maintenance plan for your roof.

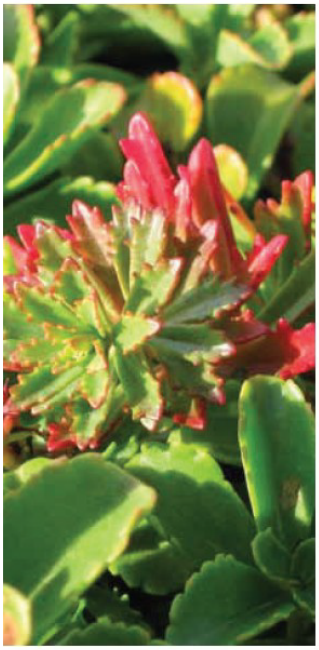
Biweekly (twice per month) maintenance inspections should be carried out during the active growing season (April through October, longer in some areas.) All activity and green roof maintenance should be recorded including the date, time, name(s) of person(s) involved, activities performed and quantities used or applied. Photographs would be great. Records should also include all access and activities by non-green roof personnel such as HVAC repair, window washers, etc. Traffic should be kept to a minimum.

Throughout the Growing Season on All Systems

Biweekly Inspections

(twice per month)

Check and Manage the Following



- ✓ Irrigate as needed (see next page)
- ✓ Remove trash and debris.
- ✓ Inspect all drains for proper functioning with no obstructions.
- ✓ Remove weeds by hand. Do not use any herbicides.
- ✓ Replace displaced growing media.
- ✓ Avoid the use of pesticides, herbicides or any chemicals that could contaminate the water supply.
- ✓ To avoid damage to the plants, keep foot traffic to a minimum.

At the Beginning of the Growing Season

(in addition to the regular items above)

- ✓ Apply a slow release fertilizer.
- ✓ Optional: trim the Sedum to remove dead flower stalks. Leave clippings on the roof. Use proper protection and extreme caution with power equipment.

At the End of the Growing Season

(in addition to the regular items above)

- ✓ Check for any bare spots and replant.
- ✓ Stop all irrigation 4 weeks before first frost. Winterize irrigation equipment.
- ✓ Avoid the use of deicing chemicals and salt around plants.

Eco-Roofs, LLC's Maintenance Recommendations (continued)

Irrigation

Installation and Establishment Phase
1st Full Summer on the Roof

Eco-Standard Trays

Pre-grown at the Nursery for at least 12 weeks and planted only with Sedum

✓ Water to full saturation at installation and continue to water any time natural rainfall is less than 1" in a 4 week period or if the plants start wilting

Eco-Mat and All Built-In-Place Systems

Eco-Standard Trays (with plants other than Sedum or not pre-grown at the nursery for 12 weeks)

✓ A customized irrigation plan will need to be set up.
Depending on the system used, you may need to water daily for the first 60 days after installation and then up to 2-3 times per week through the remainder of the growing season.

Maintenance Phase
2nd Full Summer on the Roof

Eco-Standard Trays

Pre-grown at the Nursery for at least 12 weeks and planted only with Sedum

✓ Water to full saturation if natural rainfall is below 1" in 4 weeks during the growing season
In many parts of North America it is possible to keep Eco-Standard trays alive without a permanent irrigation system if they are pre-grown to full establishment and planted with standard Sedum but a hose bib or source of temporary water should be available.

Eco-Mat and All Built-In-Place Systems

Eco-Standard Trays (with plants other than Sedum or not pre-grown at the nursery for 12 weeks)

✓ A customized irrigation plan will need to be set up.
Depending on the system used, you may need to water weekly or more. In most of these cases it is best to install an automated irrigation system rather than depending on manual or temporary methods. You should ask for a detailed irrigation plan prepared by a horticulturist.

Definitions

Growing Season: April through October in most parts of North America. In some areas it will extend longer.

Established: Fully rooted into the substrate.

Saturation: Full depth of substrate is moist and excess water is draining away below.

Substrate: Soil or growing media base.

Notes

As far as maintenance, the amount and timing of irrigation is one of the big differences between various green roof systems. Plant choice, amount of pre-establishment and geographic location also critically affect irrigation. The recommendations here are general guidelines and may not apply in all situations. Eco-Roofs, LLC will be happy to assist you in a plan specific to your green roof.

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Eco-Roofs, LLC's Eco-Standard Tray Case Study

These trays are installed on a Chicago hotel conveniently located near McCormick Place convention center with an incredible view of Lake Michigan. This 2012 installation is irrigated given it's high visibility from other parts of the hotel.

Above and Facing Page: Photos taken Summer 2013 of a 2012 Installation

Above: Summer 2013
Below: Installation Day, Fall 2012

Above:
Drip Irrigation lines laid on top of Eco-Standard Trays at the time of installation.

Below:
The following summer.
If you look closely
you might be able to see the irrigation lines.

NOTE: The system shown is for reference only. Should the builder propose a similar system by a different manufacturer, the architect should be notified and provided with the alternative manufacturer's product/system information. The architect shall verify that the alternative product/system meets the intent and requirements of what was proposed.

STORMWATER SOLUTIONS / STORAGE / DETENTION

Detention

Prinsco's underground detention systems are completely customizable to your unique project and can be designed with the support of our Prinsco engineering team. Our detention systems can be perforated, allowing for percolation into the soil for groundwater recharge, or solid, containing the storm event for a controlled release into a municipal storm sewer. Headers and Laterals combine to create an "underground pond" allowing valuable land to be utilized for green-space, parking lots and more. Prinsco systems are closed, mitigating the health risks and safety hazards associated with an open pond.

Available Sizes

Diameter (in.)	DD/Width (in.)	length (ft.)
12"	14.4"	10'/20'
15"	17.6"	10'/20'
18"	21.5"	11'/20'
24"	28.2"	11'/20'
30"	34.6"	11'/20'
36"	40.6"	11'/20'
42"	47.7"	11'/20'
48"	54.0"	11'/20'
60"	66.7"	11'/20'

Backfill Properties: Stone Porosity*

Diameter (in.)	Volume (CF/LF)	40% (CF/LF)	35% (CF/LF)	30% (CF/LF)
12"	0.80	0.89	0.78	0.67
15"	1.24	1.10	0.96	0.82
18"	1.79	1.56	1.39	1.19
24"	3.19	2.62	2.29	1.96
30"	4.78	3.46	3.03	2.60
36"	6.91	4.24	3.72	3.19
42"	9.39	5.31	4.64	3.98
48"	12.57	6.59	5.76	4.94
60"	19.44	9.89	8.63	7.39

**Additional storage (cf/lf) for perforated systems. Based on conservative values.*

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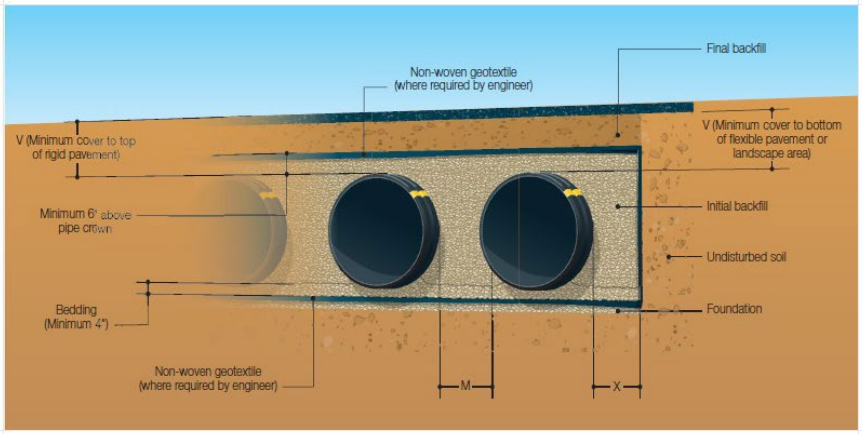
Installation of Parallel Pipe



Installation

Detention and/or Retention Systems shall be installed in accordance with the latest edition of ASTM D2321 and Prinsco's installation guidelines. A non-woven geotextile filter fabric or other measures should be taken to prevent native soil from migrating into the initial backfill material, when required.

Foundation: Unstable trench bottoms, or rock, or unyielding material shall be excavated to a depth directed by the engineer and replaced with suitable material. For unstable materials, geotextile may be used to stabilize the trench bottom, if directed by the engineer.

Bedding: Suitable material shall be Class I or II, as specified by ASTM D2321. Minimum bedding thickness shall be 4".

Initial Backfill: Suitable material shall be Class I or II, as specified by ASTM D2321. Compaction and backfill lifts shall be in accordance with ASTM D2321. Initial backfill shall extend to not less than 6" above the top of the pipe.

Minimum Cover: For up to H-25 traffic applications a minimum of 12" for pipe up to 36" diameter, 15" for 42" diameter and 18" for 48" and 60" diameter. Minimum cover, V, shall be measured from the top of the pipe to bottom of flexible pavement or to the top of rigid pavement. Additional cover may be required for heavier loads, construction loads or to prevent floatation.

Final Backfill: Suitable materials directed by the engineer shall be used in landscape or non-traffic applications. For areas subjected to traffic a higher degree of compaction is required and a separation layer of non-woven geotextile may be required. Compaction levels and/or geotextile may be specified at the discretion of the design engineer.

Fittings: Available with either plain end or belled end. Custom fittings can be tailored to meet project needs/requirements.

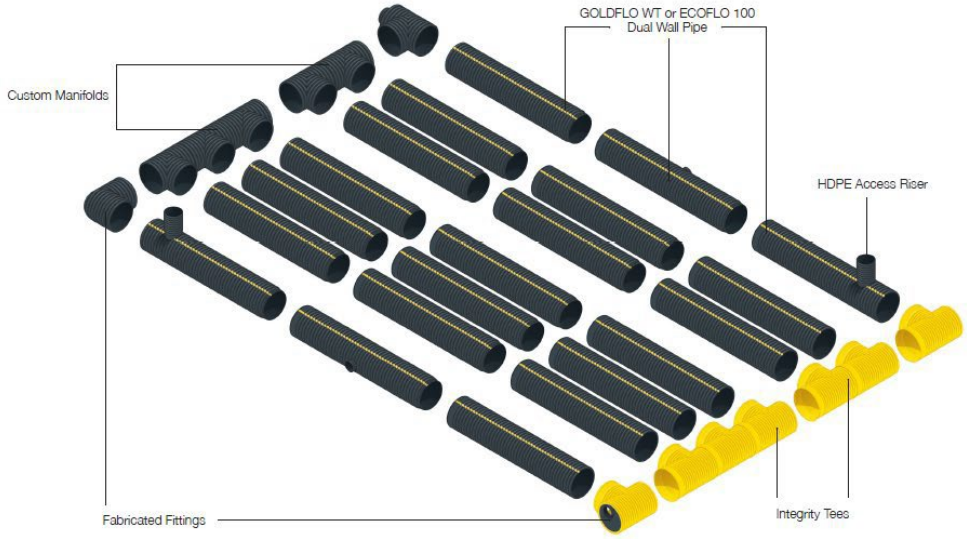
Installation Recommendations

Pipe Diameter (in.)	Bedding Depth to Trench Wall (in.)*	"V" Minimum (in.)*	"X" Minimum (in.)*	"M" Minimum (in.)*
12"	4"	12"	8"	12"
15"	4"	12"	8"	12"
18"	4"	12"	9"	12"
24"	4"	12"	10"	12"
30"	4"	12"	18"	15"
36"	4"	12"	18"	18"
42"	6"	15"	18"	21"
48"	6"	18"	18"	24"
60"	6"	18"	18"	30"

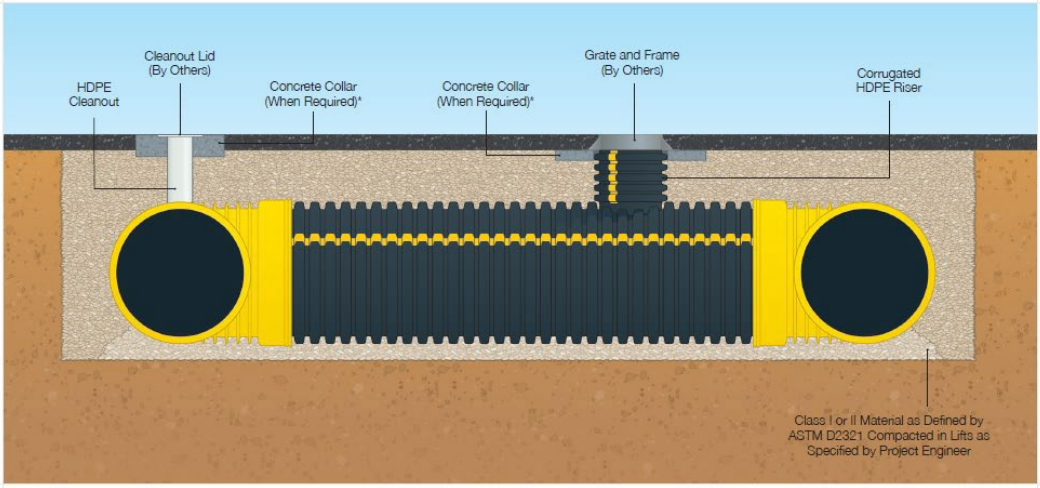
Dimensions measured from outside diameters.

STORMWATER SOLUTIONS / STORAGE / DETENTION

Underground System Components



Access Riser



**A concrete collar shall be constructed around any riser/cleanout located in a traffic area.*
All pipe shall be installed in accordance with ASTM D2321 standard practice for underground installation of flexible thermoplastic sewer pipe, latest edition.

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STORMWATER SOLUTIONS / STORAGE / DETENTION

Green Fact: When ECOFLO100 is used in a detention system it creates the perfect sustainable water conservation solution.

MOBILE RESOURCES

More about Detention
Installation Videos
Installation Documents
Specifications
Technical Notes

Prinsco.com/detention-resources

ENGINEERED WITH INTEGRITY

Prinsco products are fully supported by our engineering team and are designed, manufactured and tested to meet/exceed the high performance needs of the construction market. Prinsco's engineering, quality control and production teams are committed to a continuous process of innovation, product development and quality improvement. We are focused on current and future market needs centered around environmental sustainability, water quality, stormwater management and performance advancement.

HydroStor Prinsco also offers HydroStor, a Chamber Detention solution. Visit **Prinsco.com/HydroStor** for more information.

COLLECTION & CONVEYANCE

GOLDFLO WT®
AASHTO Dual-Wall Pipe

ECOFLO® 100
High Performance
Recycled Dual-Wall Pipe

TREATMENT

STORMWATER QUALITY
Water Treatment

STORAGE

HYDROSTOR™
High Performance
Arched Chambers

UNDERGROUND DETENTION
Customized High Performance
Pipe Systems

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