RECORDING REQUESTED BY:
City of Oxnard
Request recording without fee. Record for benefit of City of Oxnard pursuant to Section 6103 of Government Code

WHEN RECORDED MAIL TO:
Oxnard City Clerk's Office
300 West Third Street, 4th Floor
Oxnard, California 93030

APN(s):

Covenant & Deed Restriction
For Storm Water Quality Control Measures Maintenance and Access

THIS DECLARATION OF RESTRICTIVE COVENANT & DEED RESTRICTION is executed by _____
_____
_____ *(*"DECLARANT"*),* this _____ day of_____ 20___, in favor of the CITY OF OXNARD, a municipal corporation ("CITY"), located in the County of Ventura, State of California;

WHEREAS, DECLARANT owns real property ("Property") in the City of Oxnard, County of Ventura, State of California, (APN(s) _____) more specifically described in Exhibit "A", which exhibit is attached hereto and incorporated herein by this reference; and

WHEREAS, Planning and Zoning Permit(s) _____ ("Project") approved on the Property require(s) implementation and continual maintenance of on-site storm water quality control measures to minimize pollutants in urban runoff; and

WHEREAS, DECLARANT has chosen to install, operate, and maintain the storm water quality control measures depicted in the Site Map (Exhibit "B") in accordance with the Operations and Maintenance Plan (Exhibit "C"), which exhibits are attached hereto and incorporated herein by this reference, hereinafter referred to as "the Control Measures", as the Project on-site storm water quality control measures to minimize pollutants in urban runoff. Installation of the Control Measures is more particularly shown on City of Oxnard Drawing Number _____; and

WHEREAS, Project conditions of approval obligate DECLARANT to maintain the Control Measures; and

WHEREAS, the Control Measures have been (or will be) installed in accordance with plans and specifications accepted by CITY; and

WHEREAS, the Control Measures, having been (or to be) installed on private property and draining only private property, are private facilities with all inspection, maintenance or replacement therefore being the sole responsibility of DECLARANT in accordance with the terms of this Covenant; and

WHEREAS, DECLARANT is aware that periodic and continuous maintenance, including, but not necessarily limited to, filter material replacement and sediment removal, is required to assure peak performance of the Control Measures and that, furthermore, such maintenance activities will require compliance with all Local, State, and Federal laws and regulations, including those pertaining to confined space and waste disposal methods, in effect at the time such maintenance occurs.

NOW, THEREFORE, DECLARANT covenants as follows:

1. DECLARANT hereby provides CITY or CITY'S designee complete access, of any duration, to the Control Measures and their immediate vicinity at any time, upon reasonable notice, or in the event of emergency, as determined by CITY'S Director of Public Works ("Director") no advance notice, for the purpose of inspection, sampling, and/or testing of the Control Measures, and in case of emergency, to undertake all necessary repairs or other preventative measures at DECLARANT'S expense as provided in paragraph 3 below. CITY shall make reasonable efforts to minimize or avoid interference with DECLARANT'S use of Property.

2. DECLARANT shall use its best efforts to diligently maintain the Control Measures in a manner assuring peak performance at all times. DECLARANT agrees that the minimum periodic maintenance to be performed by DECLARANT to minimize pollutants in runoff from Property is specified within Exhibit "C". DECLARANT acknowledges that significantly more maintenance may be required to assure peak performance as is required by this Covenant. DECLARANT and DECLARANT'S representative or contractor shall exercise all reasonable precautions during removal and extraction of material(s) from the Control Measures and the ultimate disposal of the material(s) in a manner consistent with all relevant laws and regulations in effect at the time. As may be requested from time to time by CITY, DECLARANT shall provide CITY with documentation identifying the material(s) removed, the quantity, and disposal destination. DECLARANT shall maintain records of all maintenance performed on the Control Measures for a minimum of five (5) years. Developer shall provide CITY with an annual report demonstrating proper maintenance and operation of Control Measures.

3. In the event DECLARANT, or its successors or assigns, in the opinion of Director, fails to accomplish the necessary maintenance contemplated by this Covenant, then following written notice to DECLARANT and after a reasonable period within which to cure (of not more than seven (7) days), Director is hereby authorized by DECLARANT to cause any necessary maintenance to be done and charge the entire cost and expense to the DECLARANT or DECLARANT'S successors or assigns, including administrative costs, attorney's fees and interest thereon at the maximum rate authorized by the Civil Code from the date of the notice of expense until paid in full.

4. In event of legal action occasioned by any default or action of DECLARANT, DECLARANT agree(s) to pay all costs incurred by CITY in enforcing the terms of this Covenant, including reasonable attorney's fees and costs, and that CITY may record such costs (including costs incurred under item 3 above) as a special assessment against Property or as a lien on Property if DECLARANT fails to pay such costs within 30 days of CITY providing DECLARANT with an invoice detailing such costs.

5. CITY may require DECLARANT to post security in a form and for a time period satisfactory to CITY to guarantee the performance of the obligations stated herein. Should

DECLARANT fail to perform the obligations under the Covenant, CITY may, in the case of a cash bond, act for DECLARANT using the proceeds from it, or in the case of a surety bond, require the sureties to perform the obligations of this Covenant. As an additional remedy, Director may withdraw any previous storm water related approval with respect to the property on which the Control Measures have been installed until such time as DECLARANT pays to CITY its reasonable costs incurred in accordance with paragraphs 3 and 4 above.

6. This Covenant shall be recorded in the Office of the Recorder of Ventura County, California and shall constitute notice to all successors and assigns of the title to Property of the obligation herein set forth, and shall also constitute a lien in such amount as will fully reimburse CITY, including interest as herein above set forth, subject to foreclosure in event of default in payment.

7. DECLARANT agrees to indemnify, defend and hold harmless CITY and its officers, agents, employees and other authorized representatives from any and all liability, claims, demands, damages (whether contract or tort, including personal injury, death at any time, or property damage), costs and financial loss, including all costs and expenses of litigation or arbitration, which result or are claimed to have resulted directly or indirectly from the wrongful or negligent acts, errors or omissions of DECLARANT or any of its employees, agents, or contractors in fulfilling DECLARANT'S obligations provided for in this Covenant, except in cases of sole negligence on the part of CITY or its officers, agents, employees or subcontractors.

8. The obligations herein undertaken by DECLARANT shall be deemed to be covenants running with Property and shall be binding upon the heirs, successors, executors, administrators and assigns of DECLARANT. The term "DECLARANT" shall include not only the present DECLARANT, but also DECLARANT'S heirs, successors, executors, administrators, and assigns. DECLARANT shall notify any successor to title of all or part of Property of the existence of this Covenant. DECLARANT shall provide such notice prior to such successor obtaining an interest in all or part of Property. DECLARANT shall provide a copy of such notice to CITY at the same time such notice is provided to the successor.

9. Time is of the essence in the performance of this Covenant and Deed Restriction.

10. Any notice to a party required or called for in this Covenant and Deed Restriction shall be served in person, or by deposit in the U.S. Mail, first class postage prepaid, to the address set forth below. Notice(s) shall be deemed effective upon receipt, or seventy-two (72) hours after deposit in the U.S. Mail, whichever is earlier. A party may change a notice address only by providing written notice thereof to the other party.

If to CITY:	If to DECLARANT:
City of Oxnard	_____
Development Services Dept.	_____
Attn: Development Services Manager	_____
214 S. C Street	_____
Oxnard, CA 93030	_____

IN WITNESS THEREOF, DECLARANT has executed this Restrictive Covenant and Deed Restriction as of the date first written above.

DECLARANT:

Entity: _____

By: _____
(Signature)

Name: _____
(Print Name)

Title: _____

DECLARANT:

Entity: _____

By: _____
(Signature)

Name: _____
(Print Name)

Title: _____

NOTARY ACKNOWLEDGEMENT REQUIRED

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA
COUNTY OF _____

On _____ before me, _____,
(here insert name and title of the officer)

personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Seal *Signature* _____.

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF CALIFORNIA
COUNTY OF _____

On _____ before me, _____ ,
(here insert name and title of the officer)

personally appeared _____, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s) or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Seal *Signature* _____ .

EXHIBIT "A"

(Legal Description)

Exhibit "A" (Legal Description) instructions:

Exhibit "A" to the Declaration of Restrictive Covenant and Deed Restriction for Storm Water Quality Control Measures shall be a legal description of the affected parcel(s).

Exhibit "A" shall adhere to the following:

1. A licensed land surveyor or civil engineer must prepare Exhibit "A" in an 8 ½" by 11" format. Exhibit "A" is a legal description of the lot(s) or parcel(s) on which the Storm Water Quality Control Measures are being installed. If the control measures treat the storm water runoff from more than one legal lot or parcel, then the legal description shall include all lots for which the control measures provide storm water treatment.
2. The legal description must be signed and sealed by the professional preparing the document.

NOTE: All lettering must be clear and legible in accordance with requirements of the County Recorders Office. Suggest a minimum lettering size of 1/10 inch.

EXHIBIT "B"

(Site Map)

Exhibit "B" (Site Map) instructions:

Exhibit "B" to the Declaration of Restrictive Covenant and Deed Restriction for Storm Water Quality Control Measures shall be a site map depicting the location of all long-term post-construction storm water quality control measures.

Exhibit "B" shall include the following:

1. Provide a "to scale" 8 ½" by 11" site map showing boundaries of the site (generally property lines), building footprint, and hardscape (sidewalks, curbs, asphalt, etc.) Clearly distinguish between soft and hard surfaces on the site map. If the entire site cannot be clearly depicted on a single sheet then multiple 8 ½" by 11" sheets may be used.
2. Identify locations of existing and proposed onsite storm drain facilities. Show points of connection between the onsite private system and any public storm drain system.
3. Clearly note all points of storm water discharge from the site including surface discharge.
4. With legend, show locations of expected sources of pollution generation (outdoor work and storage areas, trash enclosures, fueling areas, industrial clarifiers, wash-racks, etc).
5. Include a legend that indicates types and locations of permanent post-construction storm water quality control measures that will be installed or constructed to permanently control storm water pollution. Use the exact title (e.g. INF-3: Bioretention) used in the 2011 Technical Guidance Manual for Storm Water Quality Control Measures. Include all pollution prevention, treatment, and containment measures.

NOTE: All lettering must be clear and legible in accordance with requirements of the County Recorders Office. Suggest a minimum lettering size of 1/10 inch. Hatching and/or shading should not used on exhibits due to difficulty with legibility when documents are imaged.

EXHIBIT "C"

(Operation and Maintenance Plan)

Exhibit "C" (Operation and Maintenance Plan) instructions:

Exhibit "C" to the Declaration of Restrictive Covenant and Deed Restriction for Storm Water Quality Control Measures is intended to comply with the requirements contained in Part 4, Section E.IV.1 of the Los Angeles Regional Water Quality Control Board's municipal separate storm sewer ("MS4") permit Order R4-2010-0108 (as revised from time to time) and, Chapter 7 of the 2011 Technical Guidance Manual for Storm Water Control Measures ("2011 TGM"). Use of the format provided below is intended to simplify both the consultant preparation process and City review process.

The plan should include, but not necessarily be limited to, the following:

Section 1 **Introduction** --- Prepare a narrative that includes the following:

a. General description of the project
b. Planning & Zoning Permit No.
c. Project location and site address
d. Proposed use(s)
e. Property owner and site operator (if different from owner)
f. Other applicable general site information
g. A description of expected sources of pollution generation (outdoor work and storage areas, delivery areas, trash enclosures, fueling areas, wash-racks, etc.)
h. Indicate the person(s) (including names, addresses, and phone numbers) responsible for operation and maintenance of Storm Water Quality Control Measures ("Control Measures")
i. Indicate the intended method of providing financing for operation and maintenance of the onsite Control Measures
j. Include any other information required to understand the project relative to storm water quality issues

Section 2 **Site Map** --- Exhibit B used earlier in this Covenant and Deed Restriction could be used as a starting point for this site map. This exhibit (may be multiple pages) will be recorded against the property and must be 8-1/2" x 11" and prepared in compliance with Ventura County Recorder's Office requirements for legibility. Additional information on the requirements of this section can be found under item 7.1 on Page 7-1 of Chapter 7 of the 2011 TGM.

Section 3 **Site Control Measure Descriptions and Operational/Maintenance Requirements** --- Provide a written description of the maintenance and waste disposal procedures that are to be performed for each Control Measure (Structural and Treatment Control) selected for the site. These written procedures must provide enough detail for a person unfamiliar with the required maintenance to perform the activity, or identify the specific skills or knowledge

necessary to perform and document the maintenance. Attachment 1 to this Exhibit "C" provides a starting point for many of the common 2011 TGM based Control Measures. It is recommended that these Operations/Maintenance tables be the starting point for this section. Please fill in the appropriate blanks and add attachments as needed based on site specific requirements and proprietary device recommendations. Only those tables that are applicable to the project are to be included in the package. The Inspection and Maintenance Checklists referenced in these tables must be included in Section 7 of this Plan. The section titled "Operations and Maintenance" included in Chapter 6 of the 2011 TGM is a good starting point for required maintenance activities and schedule for Control Measures included in the 2011 TGM. Inspection and Maintenance Checklists included in Appendix I of the 2011 TGM are appropriate for inclusion to meet the checklist requirements for the applicable Control Measures.

Section 4 **Spill Plan** --- Include discussion of issues listed in item 7.3 on Page 7-2 of Chapter 7 of the 2011 TGM for requirements of this section.

Section 5 **Facility Changes** --- Include a statement regarding the requirement to periodically update the Operations and Maintenance Plan when operational or facility changes which significantly affect the character or quantity of pollutants discharging into the storm water management control measures occur. Review item 7.4 on Page 7-2 of Chapter 7 of the 2011 TGM for the requirements of this section.

Section 6 **Training** --- Include discussion of issues listed in item 7.5 on Page 7-3 of Chapter 7 of the 2011 TGM for requirements of this section.

Section 7 **Basic Inspection and Maintenance Activities** --- This section should include an inspection and maintenance schedule, preferably in the form of a table or matrix, for each activity for all Control Measures implemented on the site. The schedule should specify inspection and maintenance in relationship to elapsed time (e.g. monthly), seasons (e.g. beginning and after rainy season), specific dates (e.g. Oct 15th and Jan 15th) and/or rain events (e.g. after each storm event). This section should also include master copies of the Inspection and Maintenance Checklists referenced in the tables provided for Section 3. Review item 7.6 on Page 7-3 of Chapter 7 of the 2011 TGM for the requirements of this section.

Section 8 **Revisions of Pollution Mitigation Measures** --- Include a statement similar to the wording provided in item 7.7 on Page 7-3 of Chapter 7 of the 2011 TGM for the requirements of this section.

Section 9 **Monitoring & Reporting Program** --- This section shall include a requirement to provide the City with an annual report demonstrating proper maintenance and operation of project Control Measures. The annual report shall, at a minimum, comply with the requirements of Part 4, Section E.IV.2(d) of the MS4 permit. Annual reports shall be transmitted to:

City of Oxnard Stormwater Program
Attn: Technical Services Manager
6001 Perkins Road
Oxnard, CA 93033

This section shall include a description of additional monitoring and reporting requirements only if required by the City. Review item 7.8 on Page 7-4 of Chapter 7 of the 2011 TGM for additional information if required.

ATTACHMENT 1

TO EXHIBIT "C" (Operations and Maintenance Plan)

Site Control Measures Operations/Maintenance Requirements

This attachment is intended to provide a starting point for operations/maintenance requirements for many of the common 2011 TGM based Control Measures used on projects. It is recommended that the applicable operations/maintenance tables be the starting point for section 3. Please fill in the appropriate blanks and add attachments as needed based on site specific requirements and proprietary device recommendations. The inspection and maintenance checklists referenced in these tables must be included in Section 7 of the Plan.

Inspection and maintenance of project Storm Water Quality Control Measures (Control Measures) shall be performed by the responsible party identified in Section 1 at a minimum as indicated below and in Section 7 of this plan. Additional inspection and maintenance may be required to assuring peak performance of Control Measures at all times.

Storm Water Quality Control Measure or Pollutant Source	Inspection Frequency	Operations/Maintenance Activities
1 - "Don't dump – Drains to Ocean" Placard maintenance at all onsite catch basins/inlets. ☐ Applicable ☐ Not Applicable	□ Monthly □ Quarterly ☒ Yearly □ Prior to Rainy Season (Oct 1st) □ End of Rainy Season (April 15th) □ After large Rain Events □ Minimum of __ times per year □ As Needed (Minimum of yearly) □ Other _____	Replace placard if missing, defaced, or unreadable.
2 - Onsite Trash Enclosure to be provided with a solid roof and to be kept clean and free of spills. ☐ Applicable ☐ Not Applicable	☒ Monthly □ Quarterly □ Yearly □ Prior to Rainy Season (Oct 1st) □ End of Rainy Season (April 15th) □ After large Rain Events □ Minimum of __ times per year □ As Needed (Minimum of yearly) □ Other _____	a) Remove trash and debris from floor and walls of enclosure. b) Inspect roof structure for leaks and repair as needed.

Storm Water Quality Control Measure or Pollutant Source	Inspection Frequency	Operations/Maintenance Activities
3 - Onsite storm drain system to be kept clean and clear of obstructions. ☐ Applicable ☐ Not Applicable	□ Monthly □ Quarterly □ Yearly ☒ Prior to Rainy Season (Oct 1st) ☒ End of Rainy Season (Apr 15th) ☒ After large Rain Events □ Minimum of __ times per year ☒ As Needed (Minimum of yearly) □ Other _____	Inspect and clean onsite catch basins and storm drain piping.
4 - Parking lot(s) to be maintained free of litter and debris. ☐ Applicable ☐ Not Applicable	□ Monthly □ Quarterly □ Yearly ☒ Prior to Rainy Season (Oct 1st) □ End of Rainy Season (April 15th) □ After large Rain Events □ Minimum of __ times per year ☒ As Needed (Minimum of yearly) □ Other _____	Sidewalks and parking lots to be swept regularly to prevent accumulation of litter and debris. Litter, debris, and any cleaning agents will be trapped and collected to prevent entry into storm drain system.

___ – INF-1: Infiltration Basin

An earthen basin constructed in naturally pervious soils with a flat bottom to allow retained runoff to percolate into the underlying native soils.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Infiltration Basin maintenance should include frequent inspection to ensure that surface ponding infiltrates into the subsurface completely within ____ hours.

The following operations and maintenance activities along with regular inspections are important for proper function of Infiltration Basins:

1) Regular inspection and removal of sediment, debris, and trash from pretreatment areas.
2) If water is noticed in the basin more than ____ hours after a major storm the infiltration facility may be clogged. Maintenance activities triggered by a potentially clogged facility include:
   a. Check for debris/sediment accumulation, rake surface, and remove sediment (if any) and evaluate potential sources of sediment and debris. Add or increase provision of pre-treatment if necessary;
   b. Removal of the top layer of native soil may be required to restore infiltrative capacity;
   c. Debris or algae growth located on top of the infiltration facility should be removed and disposed of properly;
   d. Facilities shall be inspected annually. Trash and debris should be removed as needed, but at least annually prior to the beginning of the wet season.
3) Site vegetation should be maintained as frequently as necessary to maintain the aesthetic appearance of the site, and as follows:
   a. Slopes that become eroded or bare must be re-graded (if necessary) and revegetated;
   b. Grass must be mowed to 4" – 9" high and grass clippings removed.
   c. Fallen leaves, trash and debris must be raked and removed.
   d. Invasive vegetation, such as Castor Bean, Alligatorweed, and Giant Reed must be removed and replaced with non-invasive species.
   e. Dead vegetation must be removed if it exceeds 10% of area coverage. Vegetation must be replaced immediately to maintain cover density and control erosion.
4) Additional site specific Operations/Maintenance Activities are included in Attachment _____.
5) Perform inspections and complete **I.5 – Infiltration BMP Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – INF-2: Infiltration Trench

Infiltration trenches are long, narrow, gravel-filled trenches, often vegetated that infiltrate storm water runoff from small drainage areas. The majority of runoff is stored in the void space within the gravel and infiltrates through the sides and bottom of the trench.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Infiltration trench maintenance should include frequent inspection to ensure that water infiltrates into the subsurface completely within ___ hours.

The following operations and maintenance activities along with regular inspections are important for proper function of Infiltration Trenches:

1) Regular inspection and removal of sediment, debris, and trash from pretreatment areas.
2) If water is noticed in the observation well of the trench more than ___ hours after a major storm, the infiltration trench may be clogged. Maintenance activities triggered by a potentially clogged facility include:
   a. Assessment of the condition of the top aggregate layer for sediment buildup and crusting. Remove the top layer of pea gravel and replace.
   b. If slow draining condition persists, entire trench may need to be excavated and replaced.
3) Debris or algae growth located on top of the infiltration trench should be removed and disposed of properly;
4) Clean when loss of infiltrative capacity is observed. If drawdown time is observed to have increased significantly over the design drawdown time of ____ hours, removal of sediment may be necessary. This is an expensive maintenance activity and the need for it can be minimized through prevention of upstream erosion.
5) Keep vegetative cover mowed to a height of between ___ inches and ___ inches.
6) Site vegetation should be maintained as frequently as necessary to maintain the aesthetic appearance of the site. Monitor health of vegetation and replace as necessary.
7) Inspect and control for mosquitoes and other vectors as necessary.
8) Additional site specific Operations/Maintenance Activities are included in Attachment _____.
9) Perform inspections and complete **I.5 – Infiltration BMP Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – INF-3: Bioretention

Bioretention treatment facilities are landscaped shallow depressions that capture and filter storm water runoff. These facilities function as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical processes.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Bioretention area maintenance includes annual plant, soil, and mulch layer maintenance to ensue optimum infiltration, storage, and pollutant removal capabilities.

In general Bioretention maintenance requirements include typical landscape care procedures such as:

1) Removal of accumulated fine sediment, dead leaves, trash and debris.
2) Watering to maintain plantings in a flourishing manner.
3) Inspect and repair flow entrances, ponding areas, and surface overflow areas if erosion is evident. If erosion problems are occurring, review for excessive flow velocities, steepened slopes, and proper flow distribution within the cell.
4) Pruning of plant material as necessary. Replace dead or dying plants. Perform periodic weeding.
5) Site vegetation should be maintained as frequently as necessary to maintain the aesthetic appearance of the site. Monitor health of vegetation and replace as necessary.
6) Minimize or eliminate fertilizer and pesticide use in bioretention areas.
7) Maintain a 2" to 3" layer of mulch throughout bioretention areas. Mulch must be replaced annually in bioretention facilities where heavy metal deposition is likely (e.g., industrial and auto dealer/repair parking lots and roads).
8) If drawdown time is observed to have increased significantly over the design drawdown time of ____ hours, complete removal and replacement of 3" mulch layer may be necessary
9) Inspect and control for mosquitoes and other vectors as necessary.
10) Additional site specific Operations/Maintenance Activities are included in Attachment _____.
11) Perform inspections and complete **I.1 – Bioretention/Planter Box Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – INF-4: Drywell

A drywell is a bored, drilled, or driven shaft or hole whose depth is greater than its width. A drywell is designed specifically for flood alleviation and storm water disposal. Drywells can be used to reduce the increased volume from roofs.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Drywell maintenance must be performed frequently to ensure that water infiltrates completely into the subsurface.

The following operations and maintenance activities along with regular inspections are important for proper function of Drywells:

1) Regular inspection and removal of sediment, debris, and trash at inlet and outlet.
2) Inspect and repair flow entrances, ponding areas, and surface overflow areas if erosion is evident
3) Inspect and control for mosquitoes and other vectors as necessary.
4) Clean when loss of infiltrative capacity is observed. If drawdown time is observed to have increased significantly over the design drawdown time of ____ hours, removal of sediment may be necessary. This is an expensive maintenance activity and the need for it can be minimized through prevention of upstream erosion.
5) Debris or algae growth located on top of the drywell should be removed and disposed of properly;
6) Additional site specific Operations/Maintenance Activities are included in Attachment _____.
7) Perform inspections and complete **I.5 – Infiltration BMP Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – INF-5: Permeable Pavement

Permeable pavements contain small voids that allow water to pass through to a stone base. They come in a variety of forms including modular paving systems (concrete pavers, grass-pave, or gravel-pave), porous concrete, or permeable asphalt. All permeable pavements with a stone reservoir base treat storm water and remove sediments and metals.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Permeable pavement maintenance mainly requires vacuuming and management of adjacent areas to limit sediment contamination and prevent clogging caused by fine sediment.

The following operations and maintenance activities along with regular inspections are important for proper function of Permeable Pavements:

1) Regular removal of accumulated fine sediment, dead leaves, trash and debris from parking lots and along drive aisles.
2) Regular inspection of pavement for pools of standing water after rain events. Standing water indicates surface clogging.
3) Actively (3 to 4 times per year, or more frequently if standing water is noticed) vacuum sweep the pavement to reduce the risk of clogging by frequently removing fine sediments before they can clog the pavement and subsurface layers. This also helps to prolong the functional period of the pavement.
4) Inspect for vegetative growth on pavement and remove when present.
5) Inspect for missing sand/gravel in spaces between pavers and replace as needed.
6) Spot clogging of porous concrete may be remedied by drilling 0.5 inch holes every few feet in the concrete.
7) Interlocking pavers that are damaged should be replaced.
8) Additional site specific Operations/Maintenance Activities are included in Attachment _____.
9) Perform inspections and complete **I.6 – Permeable Pavement Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – INF-6: Proprietary Infiltration

Proprietary infiltration products allow for infiltration and subsurface storage while offering durable prefabricated structures. There are many varieties of proprietary infiltration based Control Measures.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Proprietary Infiltration devices maintenance mainly involves regular cleaning of pre-treatment devices and management of adjacent areas to limit sediment contamination and prevent clogging caused by fine sediment.

The following operations and maintenance activities along with regular inspections are important for proper function of Proprietary Infiltration devices:

1) Regular inspection and removal of sediment, debris, and trash from device.
2) Inspect and repair flow entrances, ponding areas, and surface overflow areas if erosion is evident
3) Inspect and control for mosquitoes and other vectors as necessary.
4) Maintenance of pre-treatment filtration devices is critical to prevention of loss of long-term infiltration capability of Proprietary Infiltration devices. If drawdown time is observed to have increased significantly over the design drawdown time of ____ hours, cleaning of device may be necessary. This is an expensive maintenance activity and the need for it can be minimized through prevention of upstream erosion and proper maintenance of pre-treatment devices.
6) Additional manufacturer specific Operations/Maintenance Activities are included in Attachment _____.
7) Perform inspections and complete **I.5 – Infiltration BMP Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – INF-7: Bioinfiltration

Bioinfiltration facilities are designed for partial infiltration of runoff and partial biotreatment. These facilities are often placed in parking lot island planters, traffic circles, and similar small landscape areas. Larger storm flows are generally designed to exit via a raised grate or secondary outlet when water ponds above the design depth.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Bioinfiltration maintenance includes annual plant, soil, and mulch layer maintenance to ensue optimum infiltration, storage, and pollutant removal capabilities. In general Bioinfiltration maintenance requirements include typical landscape care procedures such as:

1) Removal of accumulated fine sediment, dead leaves, trash and debris.
2) Watering to maintain plantings in a flourishing manner.
3) Inspect and repair flow entrances, ponding areas, and surface overflow areas if erosion is evident. If erosion problems are occurring, review for excessive flow velocities, steepened slopes, and proper flow distribution within the cell.
4) Pruning of plant material as necessary. Replace dead or dying plants. Perform periodic weeding.
5) Site vegetation should be maintained as frequently as necessary to maintain the aesthetic appearance of the site. Monitor health of vegetation and replace as necessary.
6) Minimize or eliminate fertilizer and pesticide use in bioretention areas.
7) Maintain a 2" to 3" layer of mulch throughout bioretention areas. Mulch must be replaced annually in bioretention facilities where heavy metal deposition is likely (e.g., industrial and auto dealer/repair parking lots and roads).
8) If drawdown time is observed to have increased significantly over the design drawdown time of ____ hours, complete removal and replacement of 3" mulch layer may be necessary
9) Inspect and control for mosquitoes and other vectors as necessary.
10) Additional site specific Operations/Maintenance Activities are included in Attachment _____.
11) Perform inspections and complete **I.1 – Bioretention/Planter Box Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – BIO-1:Bioretention w/ Underdrain

Bioretention with underdrain treatment facilities are landscaped shallow depressions that capture and filter storm water runoff. These facilities function as a soil and plant based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. They normally consist of a ponding area, mulch layer, planting soils, and plants. They are similar to standard Bioretention areas but are provided with an underdrain due to site specific soil conditions.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Bioretention with Underdrain maintenance includes annual plant, soil, and mulch layer maintenance to ensue optimum infiltration, storage, and pollutant removal capabilities. In general Bioretention maintenance requirements include typical landscape care procedures such as:

1) Removal of accumulated fine sediment, dead leaves, trash and debris.
2) Watering to maintain plantings in a flourishing manner.
3) Inspect and repair flow entrances, ponding areas, and surface overflow areas if erosion is evident. If erosion problems are occurring, review for excessive flow velocities, steepened slopes, and proper flow distribution within the cell.
4) Pruning of plant material as necessary. Replace dead or dying plants. Perform periodic weeding.
5) Site vegetation should be maintained as frequently as necessary to maintain the aesthetic appearance of the site. Monitor health of vegetation and replace as necessary.
6) Minimize or eliminate fertilizer and pesticide use in bioretention areas.
7) Maintain a 2" to 3" layer of mulch throughout bioretention areas. Mulch must be replaced annually in bioretention facilities where heavy metal deposition is likely (e.g., industrial and auto dealer/repair parking lots and roads).
8) If drawdown time is observed to have increased significantly over the design drawdown time of ____ hours, complete removal and replacement of 3" mulch layer may be necessary
9) Inspect and control for mosquitoes and other vectors as necessary.
10) Additional site specific Operations/Maintenance Activities are included in Attachment _____.
11) Perform inspections and complete **I.1 – Bioretention/Planter Box Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – BIO-2: Planter Box

Planter Boxes are bioretention treatment control measures that are completely contained within an impermeable structure with an underdrain (they do not infiltrate). These facilities function as a soil and plant based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. They normally consist of a ponding area, mulch layer, planting soils, plants and an underdrain within the planter box. Storm water is filtered, adsorbed, and biodegraded by the plants and soil as storm water passes through the planter box.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Planter Box maintenance includes annual plant, soil, and mulch layer maintenance to ensue optimum infiltration, storage, and pollutant removal capabilities. In general Planter Box maintenance requirements include typical landscape care procedures such as:

1) Removal of accumulated fine sediment, dead leaves, trash and debris.
2) Watering to maintain plantings in a flourishing manner.
3) Inspect and repair flow entrances, ponding areas, and surface overflow areas if erosion is evident. If erosion problems are occurring, review for excessive flow velocities, steepened slopes, and proper flow distribution within the cell.
4) Pruning of plant material as necessary. Replace dead or dying plants. Perform periodic weeding.
5) Site vegetation should be maintained as frequently as necessary to maintain the aesthetic appearance of the site. Monitor health of vegetation and replace as necessary.
6) Minimize or eliminate fertilizer and pesticide use in bioretention areas.
7) Maintain a 2" to 3" layer of mulch throughout bioretention areas.
8) If drawdown time is observed to have increased significantly over the design drawdown time of ____ hours, complete removal and replacement of 3" mulch layer may be necessary
9) Inspect and control for mosquitoes and other vectors as necessary.
10) Additional site specific Operations/Maintenance Activities are included in Attachment _____.
11) Perform inspections and complete **I.1 – Bioretention/Planter Box Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – BIO-3: Vegetated Swale

Vegetated Swales are open shallow channels with low lying vegetation covering the sides and bottom that collect and slowly convey runoff to downstream discharge points. Vegetated swales provide pollutant removal through settling and filtration in the vegetation (usually grasses) lining the channels, provide the opportunity for storm water volume reduction through infiltration, reduce the flow velocity, and conveying storm water runoff.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Vegetated Swale maintenance includes typical landscape care procedures. In general Vegetated Swale maintenance minimum requirements include:

1) Inspection of Vegetated Swales for erosion or damage to vegetation after every storm greater than 0.75 inches with a minimum of twice annually.
2) Swale inlets (curb cuts or pipes) should maintain a calm flow of water entering the swale. Remove sediment that blocks entry at the inlet, inhibits vegetative growth, or blocks even distribution of storm water.
3) Flow spreaders should provide even dispersion of flows across the swale. Sediment and debris should be removed from the flow spreader if blocking flows.
4) Side slope vegetation must be maintained to prevent erosion that introduces sediment into the swale. Slopes must be stabilized and planting used to inhibit erosion.
5) Swales should drain within 48 hours of the end of a storm. If water ponding extends beyond 48 hours, soil within swale should be tilled to eliminate compaction or clogging and swale re-vegetated. Clean any perforated underdrains.
6) Vegetation must be maintained to attain a healthy, dense and aesthetic appearance that provides filtering, while protecting underlying soils from erosion as follows:
   a. Mulch must be replenished as needed to ensure survival of vegetation.
   b. Grass must be mowed to between 4" – 6" high and grass clippings removed.
   c. Accumulated fine sediment, fallen leaves, trash and debris must be raked and removed.
   d. Invasive vegetation, such as Castor Bean, Alligatorweed, and Giant Reed must be removed and replaced with non-invasive species.
   e. Dead vegetation must be removed if it exceeds 10% of area coverage. Vegetation must be replaced immediately to maintain cover density and control erosion.
   f. Check for debris/sediment accumulation, rake surface, and remove sediment (if any) and evaluate potential sources of sediment and debris. Add or increase provision of pre-treatment if necessary;
7) Additional site specific Operations/Maintenance Activities are included in Attachment _____.
8) Perform inspections and complete **I.2 – Vegetated Swale Filter Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – BIO-4: Vegetated Filter Strip

Vegetated Filter Strips are vegetated areas designed to treat sheet flow runoff from adjacent impervious surfaces or intensive landscaped areas such as golf courses. Filter Strips decrease runoff velocity, filter out total suspended solids and associated pollutants, and provide some infiltration into underlying soils.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Vegetated Filter Strip maintenance includes typical landscape care procedures. In general Vegetated Filter Strip maintenance minimum requirements include:

1) Inspect Strips at least twice annually for erosion or damage to vegetation, preferably at the end of the rainy season to schedule summer maintenance and at the beginning of the rainy season to ensure the Strip is ready for the winter. Additional inspection after periods of heavy rainfall is desirable. Accumulated fine sediment, dead leaves, trash and debris should be removed on a regular basis.
2) Mow as frequently as necessary for safety and aesthetics or to suppress weeds and woody vegetation.
3) Regularly inspect Vegetated Filter Strips for pools of standing water. Regrade to eliminate areas were water ponds more than 48 hours after the end of a storm.
4) Vegetation must be maintained to attain a healthy, dense and aesthetic appearance that provides filtering, while protecting underlying soils from erosion as follows:
   a. Mulch must be replenished as needed to ensure survival of vegetation.
   b. Grass must be mowed to between 4" – 6" high and grass clippings removed.
   c. Accumulated fine sediment, fallen leaves, trash and debris must be raked and removed.
   d. Invasive vegetation, such as Castor Bean, Alligatorweed, and Giant Reed must be removed and replaced with non-invasive species.
   e. Dead vegetation must be removed if it exceeds 10% of area coverage. Vegetation must be replaced immediately to maintain cover density and control erosion.
   f. Check for debris/sediment accumulation, rake surface, and remove sediment (if any) and evaluate potential sources of sediment and debris. Add or increase provision of pre-treatment if necessary;
5) Additional site specific Operations/Maintenance Activities are included in Attachment _____.
6) Perform inspections and complete **I.3 – Vegetated Filter Strip Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – TCM-5: Cartridge Media Filter

Cartridge Media Filters are manufactured devices that typically consist of a series of cylindrical vertical filters contained in a catch basin, manhole, or vault that provide treatment through filtration and sedimentation. The manhole or vault may be divided into multiple chambers where the first chamber acts as a pre-settling or pre-treatment basin for removal of coarse sediment.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Cartridge Media Filter maintenance mainly involves regular inspection, cleaning and media replacement.

The following operations and maintenance activities along with regular inspections are important for proper function of Cartridge Media Filters:

1) Regular inspection and removal of sediment, debris, and trash from device.
2) Inspect inlet and outlet openings for clogging.
3) Inspect and control for mosquitoes and other vectors as necessary.
4) Additional manufacturer specific Operations/Maintenance Activities are included in Attachment _____.
5) Perform inspections and complete **I.10 – Proprietary Device Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – PT-1: Hydrodynamic Separator

Hydrodynamic Separation devices are devices that remove trash, debris, and coarse sediment from incoming flows using screening, gravity settling, and centrifugal forces generated by forcing the influent into a circular motion. Forcing water to move in a circular fashion can result in significant removal of suspended sediments and attached pollutants.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Hydrodynamic Separator maintenance mainly involves regular inspection and cleaning.

The following operations and maintenance activities along with regular inspections are important for proper function of Hydrodynamic Separators:

1) Regular inspection and removal of sediment, debris, and trash from device. Initial inspection should be performed every 6 months. A revised inspection schedule should be determined based on the rate of sediment accumulation observed during initial inspections.
2) Inspect inlet and outlet openings for clogging.
3) Inspect and control for mosquitoes and other vectors as necessary.
4) Additional manufacturer specific Operations/Maintenance Activities are included in Attachment _____.
5) Perform inspections and complete **I.10 – Proprietary Device Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

___ – PT-2: Catch Basin Insert

Catch Basin Inserts are manufactured filters or fabric placed in a drop inlet to remove sediment and debris and may include sorbent media (oil absorbent pouches) to remove floating oils and grease.

Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

Catch Basin Insert maintenance mainly involves regular inspection, cleaning, and filter/sorbent replacement.

The following operations and maintenance activities along with regular inspections are important for proper function of Catch Basin Inserts:

1) Regular inspection and removal of sediment, debris, and trash from device. Initial inspection should be performed every ___ months and after every storm greater than 0.2 inches of rainfall. A revised inspection schedule should be determined based on the rate of sediment accumulation observed during initial inspections.
2) Inspection (every ___ months) and replacement of filter/sorbent media.
3) Inspect inlet and outlet openings for clogging.
4) Inspect and control for mosquitoes and other vectors as necessary.
5) Additional manufacturer specific Operations/Maintenance Activities are included in Attachment _____.
6) Perform inspections and complete **I.10 – Proprietary Device Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.

To be used for BMPs not covered by provided tables

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Inspection Frequency

☐ Monthly ☐ Quarterly ☐ Yearly

☐ Prior to Rainy Season (Oct 1st)

☐ End of Rainy Season (April 15th)

☐ After large Rain Events

☐ Minimum of ____ times per year

☐ As Needed (Minimum of yearly)

☐ Other _____

Operations/Maintenance Activities

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__) Additional Operations/Maintenance Activities are included in Attachment _____.

__) Perform inspections and complete _____ **Inspection and Maintenance Checklist** (Found in Section 7 – Basic Inspection and Maintenance Activities) at frequency specified in Inspection Frequency section. Maintain records of completed inspections for a minimum of five years.