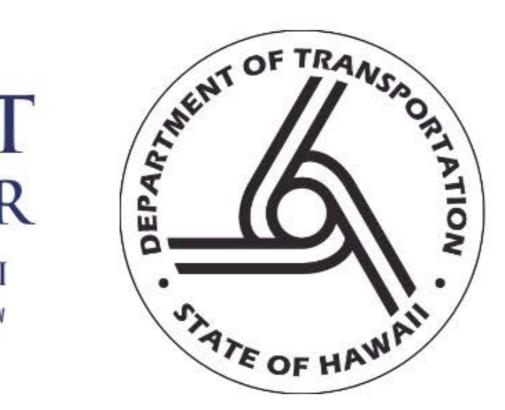
Storm Water Post-Construction **Best Management Practices Manual**



PROTECT **JURWATER** MĀLAMA I KA WAI

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION



State of Hawaii Department of Transportation **Highways Division** February 2022

Storm Water Post-Construction Best Management Practices Manual Updates

2024 Protect Our Water Conference November 13, 2024

Richard Price, P.E., CISEC

EA Engineering, Science, and Technology, Inc., PBC



- MALAMA I KA WAI-

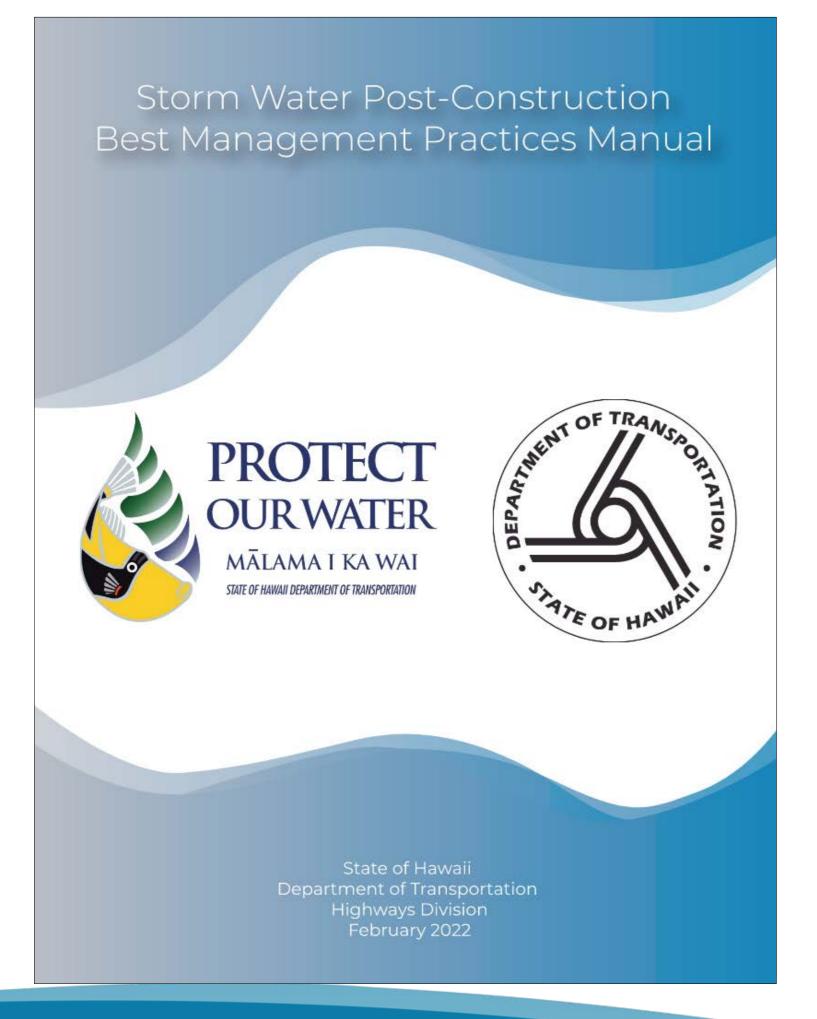
HDOT Highways Maui District

Jason Lau, P.E., CPESC TLCG





MAIN DIFFERENCES BETWEEN 2015 AND 2022 POST-CONSTRUCTION BMP MANUALS



- Separate criteria for MS4 & non-MS4 Permit Areas
- Post-Construction BMP trigger based on disturbed area vs. impervious area
- Prioritizes LID BMPs
- Modified formula for Required Treatment Area
- Spreadsheets created for:
 - o PC BMP Checklists
 - o Compliance Tracking Spreadsheet
 - o Variance Request Form



www.stormwaterhawaii.com www.stormwatermaui.com



About v

Communit

Learn more about the importance of reducing and preventing stormwater pollution and how you can help.



"Designers and Contractors"

Adopt-A-Highway Program

You Can Protect Our Water

esources

Contact N







2022 Post-Construction BMP Workshop

To learn more about our Permanent BMP criteria, download the presentation from our 2022 Post-Construction BMP Workshop.

DOWNLOAD 2022 POST-CONSTRUCTION BMP WORKSHOP PRESENTATION

DOWNLOAD 2022 POST-CONSTRUCTION BMP MANUAL Q&A SESSION

VIEW 2022 POST-CONSTRUCTION BMP MANUAL WORKSHOP PRESENTATION VIDEO

VIEW 2022 POST-CONSTRUCTION BMP MANUAL Q&A SESSION VIDEO

2022 Post-Construction (Permanent) Best Management Practices Materials (for projects initiated on or after July 1, 2022)

- 2022 Storm Water Post-Construction (Permanent) Best Management Practices Manual
- 2022 Post Construction (Permanent) BMP Review Checklist for MS4 Areas
- 2022 Post Construction (Permanent) BMP Review Checklist for Non-MS4 Areas
- 2022 Post-Construction (Permanent) BMP Alternative Compliance Guide and Worksheet

- Post-Construction BMP Manual
- Post-Construction BMP **Review Checklists**
- Alternative Compliance Guide and Worksheet
- 2022 Post-Construction **BMP Workshop and Q&A** Presentation
- Videos





POST-CONSTRUCTION BMP MANUAL UPDATE

- Updates to Post-Construction BMP Checklists
- Updates to Compliance Tracking Spreadsheet
- Local and nationwide trends



P Checklists preadsheet



GENERAL CHANGES TO POST-CONSTRUCTION BMP FILES

- Added "Overview" and "Guidance" tabs
- Combined the following into a single file:
 - PC BMP Checklists
 - **Compliance Tracking Spreadsheet** Ο
 - Variance Request Form Ο
- Created separate files for the design consultant and for HDOT reviewers





Compliance Tracking

Variance Request

Watersheds





"OVERVIEW" TAB

HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION



(Required for Projects initiated on or after July 1, 2022)

The design consultant shall complete and submit the Post-Construction BMP Checklist for all projects initiated on or after July 1, 2022 and submitted to the Hawaii Department of Transportation (HDOT) for review. Projects located within an MS4 Permit Area are also required to submit the Compliance Tracking Spreadsheet. The files are used by HDOT as a tool for ensuring that the Storm Water Management Program is in compliance with the MS4 Permit.

"Storm Water Post-Construction Best Management Practices Manual", Hawaii Department of Transportation, Highways Division, February 2022.

Refer to the HDOT Oahu District storm water website for more information at: www.stormwaterhawaii.com For projects on Maui, refer to the HDOT Maui District storm water website for more information at: https://stormwatermaui.com/

Non-MS4 Checklist

- 1. This file is password protected to maintain the integrity of the workbook and its data and formulas.
- 3. If the Project is located in a MS4 Permit Area, click on the "MS4 Checklist" tab to access the applicable checklist.

5. Complete the "Compliance Tracking" tab only for MS4 Permit Area projects that are required to implement post-construction BMPs or for postconstruction BMP projects which will result in a credit.

6. If the Project is requesting a Variance from storm water treatment requirements due to exceptional constraints, the "Storm Water Post-Construction BMP Variance Request Form" is also required.

	Revision Date	Revision No.
Original	April 2015	Original Document
Revised Check	December 2021	1
Revised Check comments.	February 2024	2
Revised Check comments.	November 2024	3

Overview

Guidance

MS4 Checklist

Storm Water Post-Construction Best Management Practices Manual



Overview

References

General Instructions

2. See the "Guidance" tab for general instructions on filling out the Post-Construction BMP Checklist and the Compliance Tracking Spreadsheet.

4. If the Project is located in a non-MS4 Permit Area, click on the "Non-MS4 Checklist" tab to access the applicable checklist.

Description

klist based on updated criteria and added Compliance Tracking Spreadsheet. klist and Compliance Tracking Spreadsheet to improve useability and address

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Compliance Tracking

Variance Request

Watersheds

"OVERVIEW" TAB

HAWAII DEPARTMENT OF TRANSPORTATION **HIGHWAYS DIVISION**



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General Instructions



Storm Water Post-Construction Best Management Practices Manual



Overview

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General Instructions

- 1. This file is password protected to maintain the integrity of the workbook and its data and formulas.
- 2. See the "Guidance" tab for general instructions on filling out the Post-Construction BMP Checklist and the Compliance Tracking Spreadsheet.
- 3. If the Project is located in a MS4 Permit Area, click on the "MS4 Checklist" tab to access the applicable checklist.
- 4. If the Project is located in a non-MS4 Permit Area, click on the "Non-MS4 Checklist" tab to access the applicable checklist.
- 5. Complete the "Compliance Tracking" tab only for MS4 Permit Area projects that are required to implement post-construction BMPs or for postconstruction BMP projects which will result in a credit.
- Construction BMP Variance Request Form" is also required.

Revision No.	Revision Date	
Original Document	April 2015	Original
1	December 2021	Revised Checklist b
2	Echruany 2024	Revised Checklist a
Ζ	February 2024	comments.
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Description

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"GUIDANCE" TAB

Guidance

Overview

drop down options where provided. Green cells (where applicable) are locked and cannot be modified. = user-defined cell (editable)

- Use the correct Post-Construction BMP Checklist depending on whether Project is located in a MS4 Permit Area or Non-MS4 Permit Area.
- Provide the project information in the top portion of the applicable checklist.
- work not listed, post-construction BMPs may be required. Proceed to Step 2.
- Honolulu and other counties
- 7. Step 3: Indicate whether Project results in one (1) acre or more of Disturbed Area.
- parking lots, industrial baseyards, and maintenance facilities.
- are considered as being associated with a sensitive receiving water.
- post-construction BMP projects which will result in a credit). 12. Sign and date the form.

FIELD	DESCRIPTION
Project	Title of Project
Project Number	HDOT Project Number
Island	Island where project is located (select using pulldown menu)
Project Route Name(s)	Name(s) of HDOT roadways in which project is located.
MP Begin	Mile Post at beginning of project
MP End	Mile Post at end of project
Project Watershed(s)	Enter project watershed(s) in which the Project is located. If the Project is located in more than one watershed, list each watershed separated by commas. The watersheds in which the Project is located can be determined using the interactive GIS map located at this website:
	https://geoportal.hawaii.gov/datasets/HiStateGIS::watersheds/explore
Disturbance Area	Area of construction-related activity that results in the penetration, turning, or moving of soil including roadway construction demolition, grading, grubbing, and reconstruction of pavement which exposes the underlying base course or bare soil. Area i for the entire Project and not just for the portion within HDOT right-of-way.
New Impervious Area	Area of new impervious surface constructed over existing pervious area such as asphalt and concrete pavements, bridge decks, sidewalks, walkways, concrete slabs, and roofs. Area is for the entire Project and not just for the portion within HDOT right-of-way.

which implement post-construction BMPs but are not required to do so.

- 2. Provide the project information in Rows 4 to 7 of the Compliance Tracking spreadsheet.
- For MS4 Permit Area projects required to implement post-construction BMPS:
- automatically fill in. If the Project is located in multiple watersheds, fill in multiple rows.
- (Column D). The "Required Treatment Area for New Development" (Column E) will be automatically calculated
- automatically calculated.
- - Development" (Column E) and the "Required Treatment Area for Redevelopment" (Column G) minus any credit for Existing Treatment. Treated" (Column L). The project's "Credit or Deficit" (Column M) will be automatically calculated. If this calculation equals zero (0) or greater, then
 - the project meets the requirements for storm water treatment.
- automatically fill in. If the Project is located in multiple watersheds, fill in multiple rows.

FIELD

- 10. Enter "0" for the "Total Required Treatment Area" (Column J).

Project	Title of Project	
Proj. No.	HDOT Project Number	
Island	Island where	project is located
Project Type	Indicate whether project is " engineering consultant firms (funding) of or administered way. Private projects are not Honolulu and other counties	
FIELD	COLUMN	
Project Watershed	A	Enter project wat provide the addit treatment areas v can be determine https://geoportal
Project Watershed Priority	В	Ranking of waters TMDL watersheds https://health.ha
Existing Impervious Area Removed	с	Area of existing ir
New Impervious Area Added	D	Area of new impe
Required Treatment Area for New Development	E	Area required to between impervio

Non-MS4 Checklist

MS4 Checklist

Redev Area to Remain

uidance

General

The tabs that comprise this spreadsheet consist of yellow cells that require user-provided information entered either manually or via the use of

= automatically populated cell (non-editable)

Post-Construction BMP Checklists for MS4 and Non-MS4 Permit Areas

The purpose of the Post-Construction BMP Checklists is to determine whether the Project is exempt from implementing post-construction BMPs and, if post-construction BMPs are required, whether the Required Treatment Area has been adequately met

4. "Disturbance Area" and "New Impervious Area" are for the entire Project and not just for the portion within HDOT right-of-way.

5. Step 1 determines if the project is exempt from implementing post-construction BMPs based upon project type or proposed improvements. Click on checkboxes where applicable. Multiple checkboxes may be filled in depending on the type of project. If the project includes any non-exempt

6. Step 2: A "private" project is not under the authority (funding) of or administered by HDOT, is located within or adjacent to HDOT right-of-way, and drains to the HDOT right-of-way. Private projects are not necessarily privately-funded but also includes projects funded by the City and County of

8. Step 4: A Priority Project has a higher potential for generating pollutant runoff due to the anticipated level of traffic or proposed land use such as

9. Step 5: Sensitive receiving waters include designated Total Maximum Daily Load (TMDL) watersheds and 303(d)-listed water bodies. To determine whether the Project is located within or drains to sensitive receiving waters, refer to the "Watersheds" tab. Watersheds having a Priority of 3 or 4

10. Step 6: Indicate whether the Project treats the Required Treatment Area (refer to PC BMP Manual Section 7.1).

11. Step 7: Complete the Compliance Tracking spreadsheet (for MS4 Permit Area Projects that are required to implement post-construction BMPs or for

Compliance Tracking Spreadsheet

*Note: Compliance Tracking is only required for MS4 Permit Area projects that are required to implement post-construction BMPs or for projects

1. The purpose of the Compliance Tracking spreadsheet is to determine the resulting credit or debit for the applicable Project.

3. Fill in the "Project Watershed" (Column A) for the watershed in which the Project is located. The "Project Watershed Priority" (Column B) will

4. Fill in the boxes in the "New Development" columns indicating "Existing Impervious Area Removed" (Column C) and "New Impervious Area Added"

5. Fill in the box for "Redevelopment Impervious Area" (Column F). The "Required Treatment Area for Redevelopment" (Column G) will be

6. Fill in the boxes in the "Existing Treatment" columns indicating "Existing Treatment of Redevelopment Area to Remain" (Column H) and "Existing

Treatment of Redevelopment Area Lost" (Column I). HDOT will allow some credit for existing treatment on a case-by-case basis. 7. The "Total Required Treatment Area" (Column J) will be automatically calculated and is the sum of the "Required Treatment Area for New

8. Fill in the boxes in the "New Treatment Provided" columns indicating the "Primary BMP Treatment Type" (Column K) and "Impervious Area

For MS4 Permit Area projects in which post-construction BMPS are <u>not</u> required but are implemented to generate a credit:

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al.hawaii.gov/datasets/HiStateGIS::watersheds/explore

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impervious surfaces removed (in acres).

ervious surface constructed over existing pervious area (in acres).

be treated by post-construction BMPs attributed to "New Development" which is the difference ious surfaces added and removed (in acres)

Compliance Tracking

Variance Request





"GUIDANCE" TAB

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Guidance

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The purpose of the Post-Construction BMP Checklists is to determine whether the Project is exempt from implementing post-construction BMPs

Use the correct Post-Construction BMP Checklist depending on whether Project is located in a MS4 Permit Area or Non-MS4 Permit Area.

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- 12. Sign and date the form.

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Project	Title of Project

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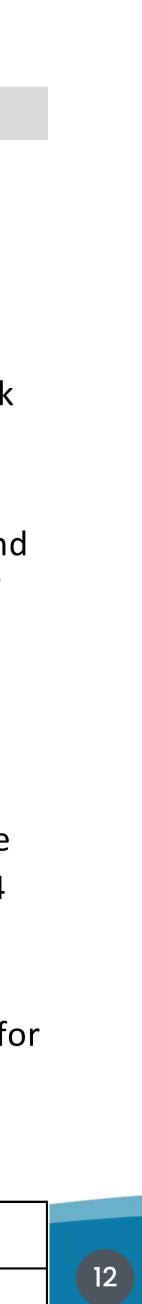
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Disturbance Area	Area of construction-related activity that resu demolition, grading, grubbing, and reconstruc for the entire Project and not just for the port
New Impervious Area	Area of new impervious surface constructed of decks, sidewalks, walkways, concrete slabs, an right-of-way.

Compliance Tracking Spreadsheet

*Note: Compliance Tracking is only required for MS4 Permit Area projects that are required to implement post-construction BMPs or for projects which implement post-construction BMPs but are not required to do so.

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is located.

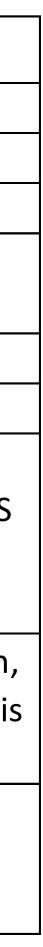
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A	r	22	E	

Compliance Tracking Spreadsheet

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DESCRIPTION





FIELD		
Project	Title of Project	
Proj. No.	HDOT Project Number	
Island	Island where project is located	
Project Type	Indicate whether project is "public" or "private engineering consultant firms, and constructed (funding) of or administered by HDOT, is locate way. Private projects are not necessarily priva Honolulu and other counties.	

FIELD	COLUMN	
Project Watershed	A	Enter project watershed(s) in wh provide the additional watershed treatment areas will be calculate can be determined using the inter https://geoportal.hawaii.gov/dat
Project Watershed Priority	В	Ranking of watershed based on i TMDL watersheds listed in the 20 <u>https://health.hawaii.gov/cwb/f</u>
Existing Impervious Area Removed	С	Area of existing impervious surfa
New Impervious Area Added	D	Area of new impervious surface

DESCRIPTION

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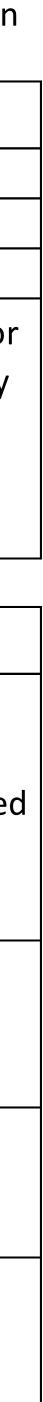
itasets/HiStateGIS::watersheds/explore

identified sensitive receiving waters including 303(d)-listed water bodies and 024 State of Hawaii Water Quality Monitoring and Assessment Report.

files/2024/09/IR-2024-final-draft.pdf

faces removed (in acres).

constructed over existing pervious area (in acres).





Required Treatment Area for New Development	E	Area required to be treated by p between impervious surfaces ad
Redevelopment Impervious Area	F	Area of any construction, recons which the underlying soil or perv acres).
Required Treatment Area for Redevelopment	G	Area required to be treated by p
Existing Treatment of Redev Area to Remain	Н	Area treated by existing post-cor
Existing Treatment of Redev Area Lost	Ι	Area treated by existing post-cor
TOTAL REQUIRED TREATMENT AREA	J	Total area required to be treated Development, Redevelopment, a
Primary BMP Type Used for Treatment	K	Enter primary type of post-const down options.
Impervious Area Treated	L	Enter the amount of impervious
CREDIT OR DEFICIT	М	The resulting credit or deficit cal

post-construction BMPs attributed to "New Development" which is the difference dded and removed (in acres).

struction, alteration, or improvement performed on existing impervious area in vious subgrade is exposed, penetrated, or replaced during construction (in

post-construction BMPs attributed to "Redevelopment" (in acres).

onstruction BMPs to remain (in acres).

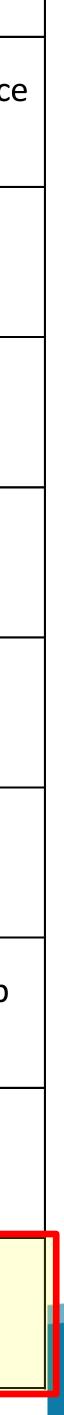
onstruction BMPs to be removed (in acres).

ed by post-construction BMPs for the project taking into consideration New and existing post-construction BMPs (in acres).

struction BMP proposed to meet the Required Treatment Area by using the drop

area treated by all proposed post-construction BMPs (in acres).

Iculated for each watershed.



Redev Area Lost J Total area required to be treated TOTAL REQUIRED J Total area required to be treated TREATMENT AREA J Enter primary type of post-const Primary BMP Type K Enter primary type of post-const Used for Treatment L Enter the amount of impervious Impervious Area L Enter the amount of impervious CREDIT OR Impervious Impervious			
TREATMENT AREAJDevelopment, Redevelopment, aPrimary BMP Type Used for TreatmentKEnter primary type of post-considown options.Impervious Area TreatedLEnter the amount of imperviousCREDIT ORMThe resulting credit or deficit cal	Ũ	I	Area treated by existing post-cor
Used for Treatment K down options. Impervious Area L Enter the amount of impervious Treated M The resulting credit or deficit cal		J	Total area required to be treated Development, Redevelopment, a
Treated L Enter the amount of impervious CREDIT OR M The resulting credit or deficit cal		К	Enter primary type of post-const down options.
M The resulting credit or deficit cal	·	L	Enter the amount of impervious
		М	The resulting credit or deficit calo

Variance Request Form

- Provide the project information in the top portion of the Variance Request Form. 2.
- 3. Multiple checkboxes may be filled in depending on the project site conditions.
- For Step 2, provide any other supporting information to justify why full treatment cannot be met using post-construction BMPs. 4.
- Indicate what type of information will be provided in support of the variance request in Step 3. 5.
- Sign and date the form in Step 4. 6.

onstruction BMPs to be removed (in acres).

d by post-construction BMPs for the project taking into consideration New and existing post-construction BMPs (in acres).

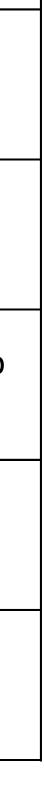
struction BMP proposed to meet the Required Treatment Area by using the drop

area treated by all proposed post-construction BMPs (in acres).

Iculated for each watershed.

A Variance Request Form is required for projects in both MS4 and non-MS4 Permit areas that do not treat the full Required Treatment Area.

For Step 1, click on the applicable checkboxes to indicate the contributing reason(s) for incurring an overall debit in water quality treatment.





POST-CONSTRUCTION BMP DESIGN CHECKLIST

- Required for all projects initiated on or after July 1, 2022 and subject to HDOT review
- Separate checklist for MS4 and non-MS4 Permit areas







CHECKLIST FOR MS4 PERMIT AREAS

STORM WATER POST-C CHECKLIST FOR MS

		Pr
Project:		
Project Number:		
Project Route Nam	e(s):	
Project Watershed	(s):	
To identify watershe	ed(s), refe	<u>r to: https://geoport</u>
Disturbance Area*	(acres):	
*Note: Areas are fo	r the entir	e Project and not jus
Applicant Name:		
Email Address:		
		Applica
1. Check "Yes" if p	roject en	tirely consists of o
below. The pro	ject may	be exempt from Po
activities ONLY.	Otherwi	se, if the project in
below, continue	e to Step	2.
- Draiact daas	not roc:	lt in discharge inte
		It in discharge into
· · · · · · · · · · · · · · · · · · ·		tenance activities
b.1. Structur		
		nance and repairs
	ion or re	placement of pave
b.4. Other		
		on Treatment whic
or subgrade	~~~~~	
		ground Utility Proje
		tion or replaceme
		n or relocation
		tion or replaceme
		vements or Preserv
e.1. Shorelin		
e.2. Landsca		ct Construction DA
		st-Construction BN
		ment control
e.5. Rockfall		
		or bicycle paths
		structed above or b
		Project (i.e., signag
i. Emergency p	·····	
j. Temporary p		· · · · · · · · · · · · · · · · · · ·
aid (city or co	unty project (provi

Non-MS4 Checklist

Overview

Guidance

MS4 Checklist

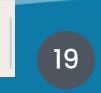
ONSTRUCTION BN	ΛP		New Su	bmittal
4 PERMIT AREAS			🗌 Resubm	ittal
roject Information	l			
	Island:	Maui		
	MP Begin:		MP End:	
tal.hawaii.gov/dataset				
-+ (New Imperv		* (acres):	
st for the portion with		-oj-way.)		
	Company: Telephone:			
ability and Evan				
ability and Exemp		• • • •	1	
one or more of the fo	•			
ost-Construction BN				Yes
cludes other types o	of improvem	ients not lis	sted	105
o the HDOT MS4 or s	state waters			
		····.		
ement striping and p	avement ma	arkers		
	a a altatu ala una			
ch does not expose o	or disturb ur	nderlying ag	ggregate	
ects				
ent				
ent				
vation				
MPs				
				<u> </u>
				<u></u>
below existing impe	rvious areas			
ge, ADA ramps, etc.)				<u></u>
ide documentation	showing city	or county	approval)	

Compliance Tracking

Variance Request

Watersheds





CHECKLIST FOR MS4 PERMIT

STORM WATER POST-CONST

CHECKLIST FOR MS4 PER

Project

Project:

Project Number:

Project Route Name(s):

Project Watershed(s):

<u>(To identify watershed(s), refer to: https://geoportal.haw</u>

Disturbance Area* (acres):

(*Note: Areas are for the entire Project and not just for the

Applicant Name:

Email Address:

Applicability

1. Check "Yes" if project entirely consists of one or below. The project may be exempt from Post-Co activities **ONLY**. Otherwise, if the project includes below, continue to Step 2.

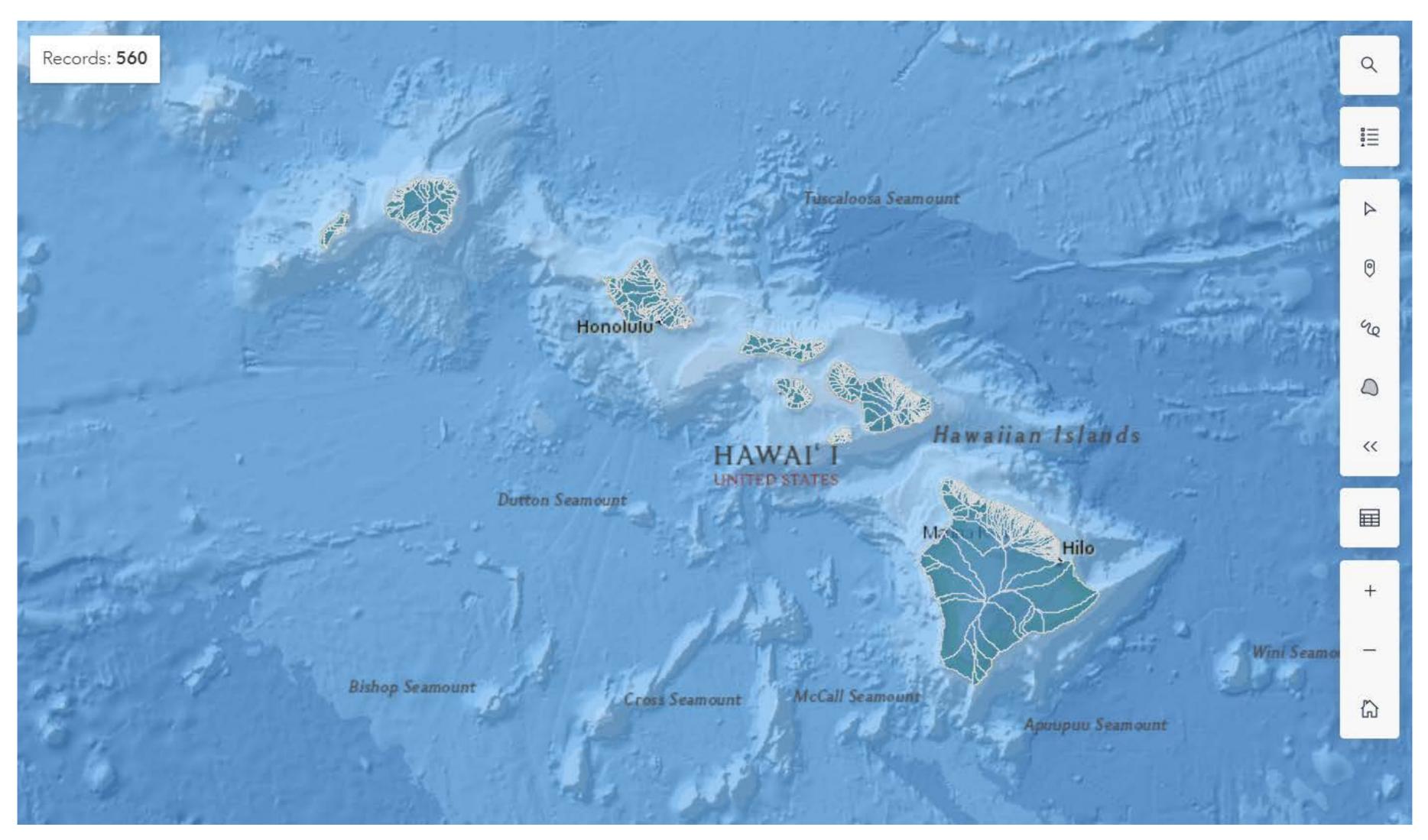
a. Project does not result in discharge into the H

TAREAS					
	IP		New Su	bmittal	
RMIT AREAS			Resubm		
t Information					
	Island:	Maui			
	MP Begin:		MP End:		
waii.gov/datasets	s/HiStateGIS:	:watersheds	<u>/explore)</u>		
	New Imperv	vious Area*	(acres):		
the portion within	n HDOT right-	of-way.)			
	Company:				
	Telephone:				
ty and Exempt	ions				
r more of the fo	llowing activ	vities or co	nditions		
onstruction BMPs if it includes these exempted					
es other types of improvements not listed			Yes		
	-				
HDOT MS4 or st	tate waters				



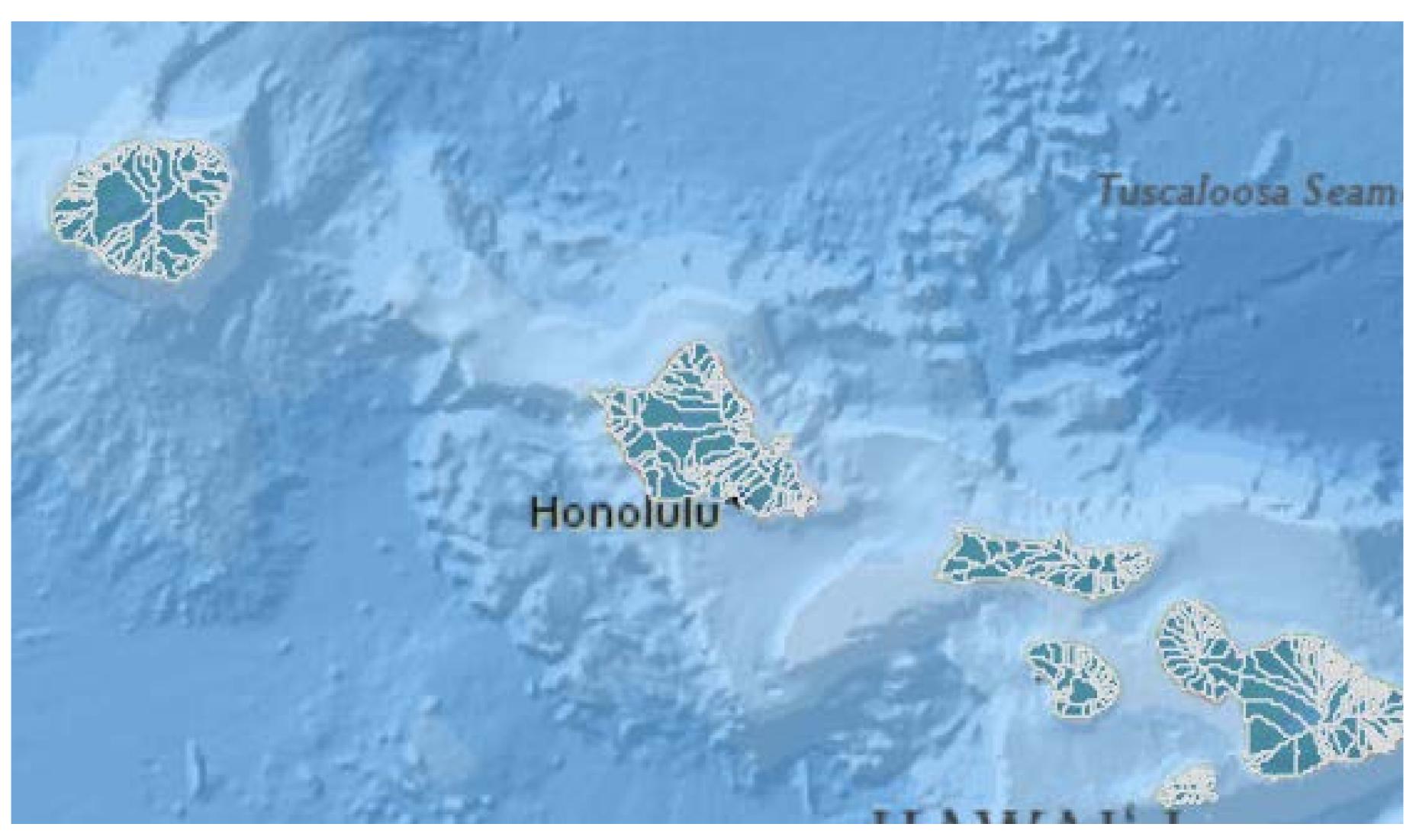


IDENTIFYING THE PROJECT WATERSHED





IDENTIFYING THE PROJECT WATERSHED





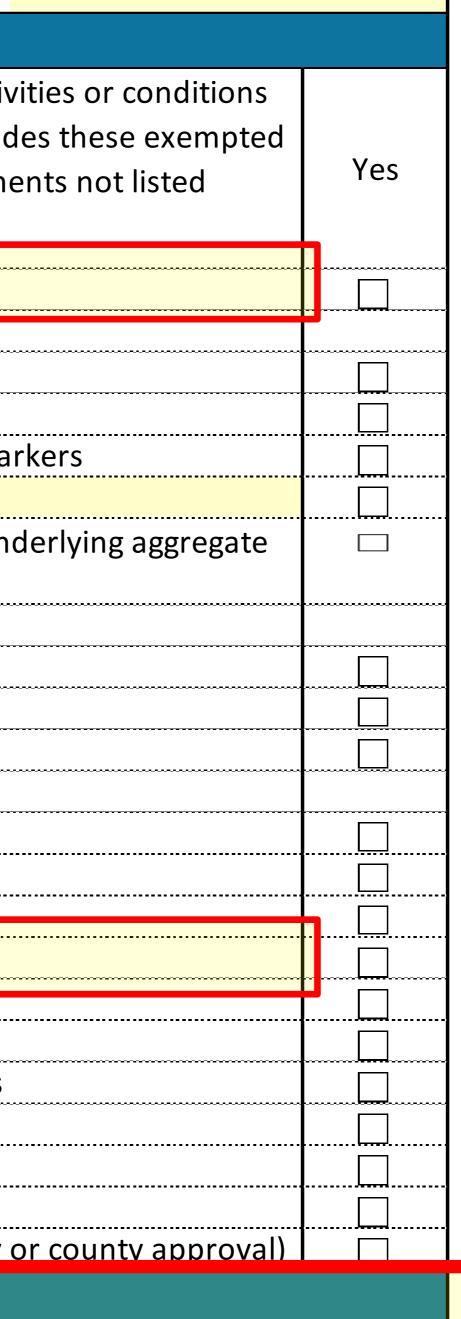
IDENTIFYING THE PROJECT WATERSHED





	Email Address: Telephone:
	Applicability and Exemptions
	 Check "Yes" if project entirely consists of one or more of the following activities or con- below. The project may be exempt from Post-Construction BMPs if it includes these end activities ONLY. Otherwise, if the project includes other types of improvements not lis below, continue to Step 2.
	a. Project does not result in discharge into the HDOT MS4 or state waters
	b. Operations and Maintenance activities
	b.1. Structural repairs
	b.2. Baseyard maintenance and repairs
	b.3. Installation or replacement of pavement striping and pavement markers
	b.4. Other
	c. Pavement Preservation Treatment which does not expose or disturb underlying ag
	or subgrade layer
	d. Guardrail and Underground Utility Projects
	d.1. Guardrail installation or replacement
	d.2. Utility installation or relocation
	d.3. Culvert rehabilitation or replacement
	e. Water Quality Improvements or Preservation
	e.1. Shoreline protection
	e.2. Landscaping
	e.3. Installation of Post Construction BMPs e.4. Erosion and sediment control
L	
	f. Pedestrian walkways or bicycle paths
	g. Bridges or roads constructed above or below existing impervious areas
	h. "Minor" Disturbance Project (i.e., signage, ADA ramps, etc.)
	i. Emergency project
	j. Temporary project
	k. Federal-aid city or county project (provide documentation showing city or county a
	Does project ONLY consist of exempt activities listed above?
	Yes, proceed to Step 8.

• •



STEP 1

- Determines whether project is exempt from Post-Construction BMPs
- MS4 includes swales, gutters, ditches, runoff into HDOT right-of-way
- Only select an item if project <u>only</u> consists of work type shown
- If project is not exempt, continue with Step 2
- Otherwise, go to Step 8





2. Is project a private construction project?
Yes; project is entirely outside the HDOT
applicable county storm water requireme
Continue to Step 7.
Yes; project is within or partially within H
if project has the potential to discharge st
No; Continue to Step 3.
3. Does project result in one (1) acre or more o
Yes; LID BMPs are required. Continue to S
No; continue to Step 4.
4. Is project a Priority Project with a high poten
Yes; Post-Construction BMPs may be requ
Disturbed Area. Continue to Step 6.
No; continue to Step 5.
5. Is project located within or drain to sensitive
Yes ; Post-Construction BMPs may be requ
Disturbed Area. Continue to Step 6.
No; continue to Step 7.
 Does project treat the full Required Treatme
Yes; continue to Step 7.
No ; acceptance of water quality treatmer
Request Form ("Variance Request" tab m
7. Prepare and submit Compliance Tracking Sp
8. Provide signature and date below.
Signature
For Department Use Only: Does the project adequately address Post-Construction
Yes ; the project treats the full Required T
required to submit the Compliance Track
Yes ; the project is exempt from post-cons
required except for Post-Construction BN
No; the project is not designed to the ME No: the project will result in a debit for w
No ; the project will result in a debit for w
required for the remainder of the Require
Compliance Tracking Spreadsheet. (*Note
Reviewed By (HDOT PM):

Assurance of Dec (UDOT Due work 1)

Approved By (HDOT Branch Head):

right-of-way. Post-Construction BMPs must comply with the ents. Identify any county-required documentation below.

HDOT right-of-way. Post-Construction BMPs may be required storm water to the HDOT right-of-way. Continue to Step 3.

of Disturbed Area? Step 6.

ntial for pollutant discharge? (i.e. high-volume or industrial) quired at the discretion of HDOT regardless of the amount of

ve receiving waters? (*refer to "Watersheds" tab*) quired at the discretion of HDOT regardless of the amount of

ent Area?

ent to be determined pending HDOT review. Submit a Variance nust be completed). Continue to Step 7.

preadsheet ("Compliance Tracking" tab). Continue to Step 8.

Date:

iction BMP requirements?

Treatment Area or is designed to the MEP. The designer is king Spreadsheet.

nstruction BMPs. The Compliance Tracking Spreadsheet is not MP projects which will result in a credit.

EP. Provide additional Post-Construction BMPs.

vater quality treatment and Alternative Compliance* will be red Treatment Area. The designer is required to submit the te: Private projects are not eligible Alternative Compliance.)



Date:

Date:



2. Is project a private construction project?
Yes ; project is entirely outside the HDOT righ
applicable county storm water requirements
Continue to Step 7.
Yes ; project is within or partially within HDO ⁻
if project has the potential to discharge storr
No; Continue to Step 3.
3. Does project result in one (1) acre or more of D
Yes; LID BMPs are required. Continue to Step
No; continue to Step 4.
4. Is project a Priority Project with a high potential
Yes ; Post-Construction BMPs may be require
Disturbed Area. Continue to Step 6.
No; continue to Step 5.
5. Is project located within or drain to sensitive red
Yes ; Post-Construction BMPs may be require
Disturbed Area. Continue to Step 6.
No; continue to Step 7.
6. Does project treat the full Required Treatment A
Yes; continue to Step 7.
No; acceptance of water quality treatment to
Request Form ("Variance Request" tab must

nt-of-way. Post-Construction BMPs must comply with the s. Identify any county-required documentation below.

T right-of-way. Post-Construction BMPs may be required m water to the HDOT right-of-way. Continue to Step 3.

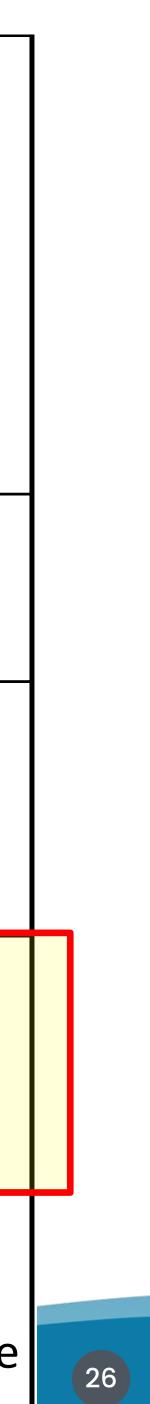
isturbed Area? p 6.

for pollutant discharge? (i.e. high-volume or industrial) ed at the discretion of HDOT regardless of the amount of

ceiving waters? (*refer to "Watersheds" tab*) ed at the discretion of HDOT regardless of the amount of

Area?

o be determined pending HDOT review. Submit a Variance be completed). Continue to Step 7.



SENSITIVE RECEIVING WATERS

OAHU WATERSHEDS						
WatershedPriorityWatershedPriorityWatershedPriority						
Aiea	1	Keaau	0	Waianu	0	
Ala Wai	1	Keamanea	1	Waiawa	1	
Anahulu	1	Keehi	0	Waikane	1	
Diamond Head	0	Kiikii	4	Waikele	4	
Hahaione	0	Koko Crater	0	Wailele	0	
Haiamoa	0	Koloa	0	Wailupe	0	
Hakipuu	0	Kualoa	0	Waimalu	1	
		Kuliouou	1	Waimanalo	4	
Halehaa 0 Loko Ea		Loko Ea	0	Waimea	0	
Hanauma 0 Maakua		Maakua	0	Waipio	0	
Heeia	1	Mailiili	0	Waipuhi	0	
Honouliuli 0		Makaha	0			
Kaaawa	1	Makaiwa	0			
Kaalaea	1	Makaleha	0			
Kaelepulu	3	Makapuu	0			
Kahaluu	1	Makaua	0			
Kahana	1	Makua	0			
Kahawai	0	Malaekahana	0			
Kahawainui	1	Manini	0			
Kaipapau	0	Manuwai	0			

Overview

Guidance

MS4 Checklist

Non-MS4 Checklist

WATERSHED PRIORITIES			
None	0		
Low	1		
Medium	2		
High	3		
TMDLs approved	4		

"Sensitive Receiving Waters" = Priority "3" or "4"

Variance Request

Watersheds



SENSITIVE RECEIVING WATERS

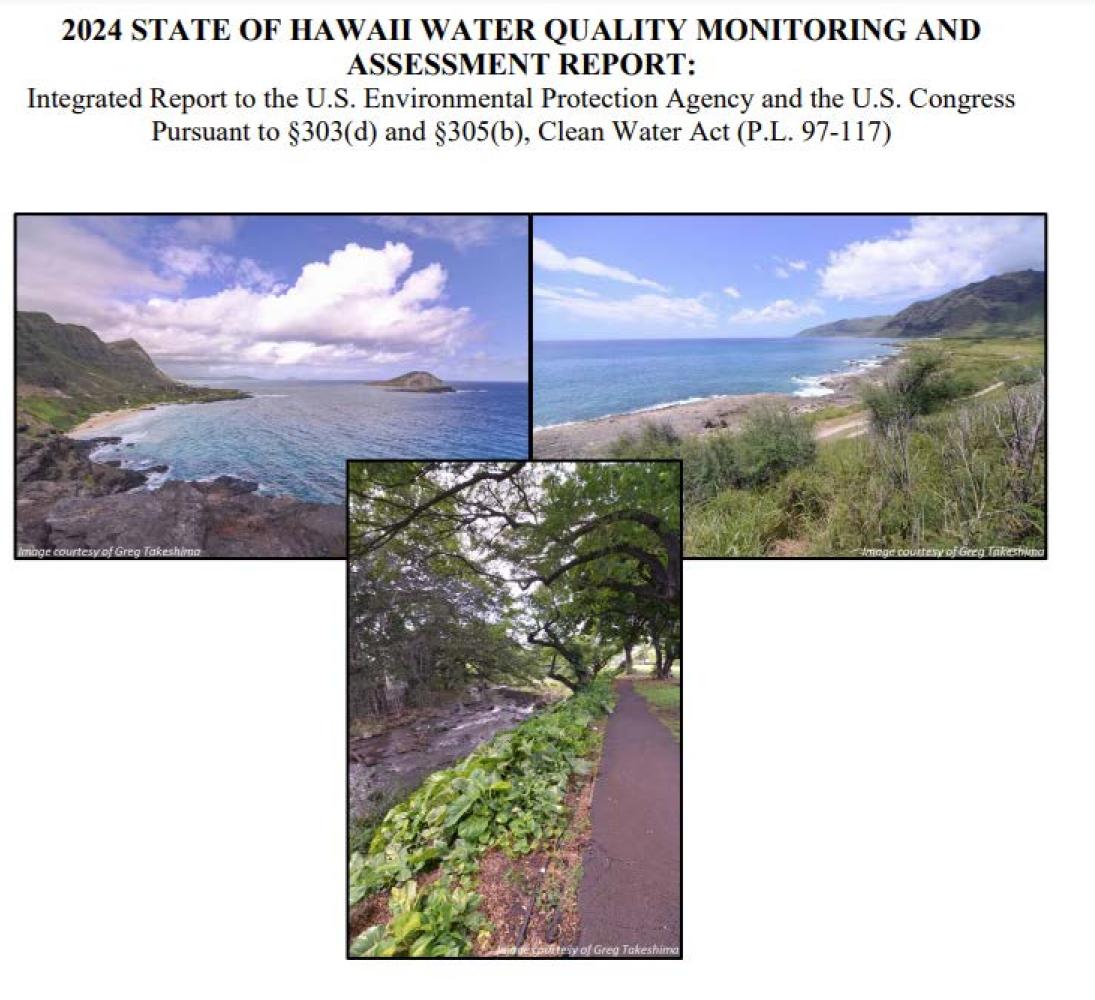
- Based upon the "2024 State of Hawaii \bullet Water Quality Monitoring and Assessment Report"
- Includes TMDL watersheds and 303(d)listed water bodies

https://health.hawaii.gov/cwb/files/2024/09/IR-2024-final-draft.pdf

• Summarized in "Watersheds" tab

2024 STATE OF HAWAII WATER QUALITY MONITORING AND ASSESSMENT REPORT:

Pursuant to §303(d) and §305(b), Clean Water Act (P.L. 97-117)



The Hawaii State Department of Health Clean Water Branch Honolulu, Hawaii April 8, 2024 Final



Ē	7 Prepare and submit Compliance Tracking Sprea					
	8. Provide signature and date below.					
9	Signature					
Ţ	or HDOT Department Use Only:					
ו	Does the project adequately address Post-Constructior					
	Yes; the project requires post-construction B					
	designed to the MEP. The designer is require					
	Yes; the project does <u>not</u> require post-constr					
	required to submit the Compliance Tracking					
	☐ No ; the project requires post-construction BI					
	Post-Construction BMPs.					
	□ No ; the project requires post-construction Bl					
	and Alternative Compliance* will be required					
	designer is required to submit the Compliand					
	eligible Alternative Compliance.)					
F	Reviewed By (HDOT PM):					

Approved By (HDOT Branch Head):

dsheet ("Compliance Tracking" tab) Continue to Step 8

Date:

BMP requirements?

MPs and treats the full Required Treatment Area or is

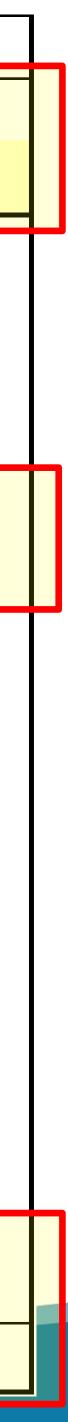
d to submit the Compliance Tracking Spreadsheet.

ruction BMPs but will generate a credit. The designer is Spreadsheet.

MPs but is not designed to the MEP. Provide additional

MPs but will result in a debit for water quality treatment d for the remainder of the Required Treatment Area. The ce Tracking Spreadsheet. (*Note: Private projects are not

Date:	
Date:	



POST-CONSTRUCTION BMP COMPLIANCE TRACKING

Project :			
Proj. No.:			
Island:	Maui	Project Type:	
PC BMP Check	ist Filing Date:		("Public" or "Private")

Complete all columns for projects located in a MS4 Permit Area that are required to implement post-construction BMPs. For projects <u>not</u> required to implement post-construction BMP projects but will generate a credit, fill in columns A-B and J-M only.

	Project Watershed Priority	NEW DEVELOPMENT			REDEVEL	OPMENT	EXISTING T	REATMENT		NEW TREATMENT PRO	VIDED		
Project Watershed		Existing Impervious Area Removed (acres)	New Impervious Area Added (acres)	Required Treatment Area for New Development (acres)	Redevelopment Impervious Area (acres)	Required Treatment Area for Redevelopment (acres)	Existing Treatment of Redev Area to Remain (acres)	Existing Treatment of Redev Area Lost (acres)	TOTAL REQUIRED TREATMENT AREA (acres)	Primary BMP Type Used for Treatment	Impervious Area Treated (acres)	CREDIT OR DEFICIT (acres)	
		А	В	(B-A) = C	D	(D * 0.25) = E	F	G	Н		1	(I-H) = J	

Overview

Guidance

MS4 Checklist

Non-MS4 Checklist

COMPLIANCE TRACKING SPREADSHEET

FOR MS4 TRACKING PURPOSES:

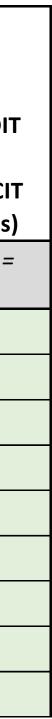
Required Treatment Area due to New Development (acres) = Required Treatment Area due to Redevelopment (acres) = Net Credit/Debit to WQ Bank (acres) =

Compliance Tracking

Variance Request

Watersheds









POST-CONSTRUCTION BMP COMPLIANCE TRACKING

Project :		
Proj. No.:		
Island:	Maui	Proje
PC BMP Chec	cklist Filing Date:	

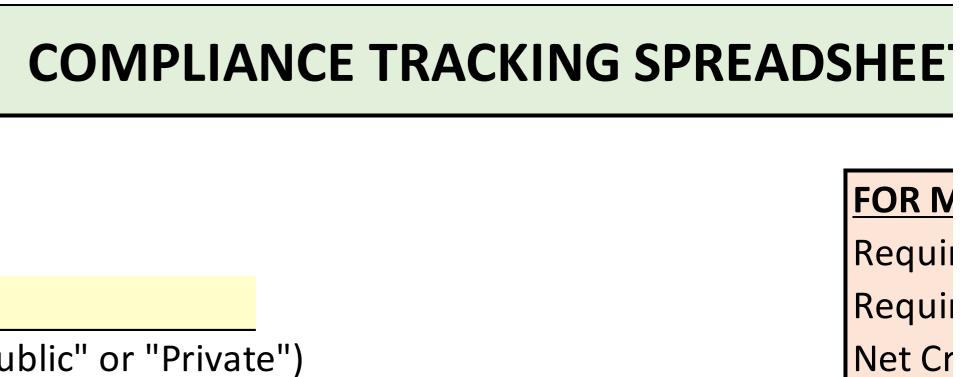
MS4 Checklist

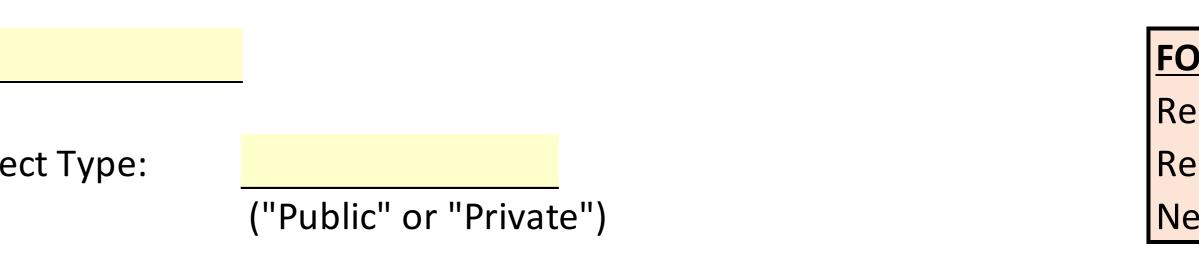
Guidance

Overview

Complete all columns for projects located in a MS4 Permit Area that are required to implement post-construction BMPs. For projects <u>not</u> required to implement post-construction BMP projects but will generate a credit, fill in columns A-B and J-M only.

		NEW DEVELOPMENT			REDEVEL	EXISTING TREAT		
Project Watershed	Project Watershed Priority	Existing Impervious Area Removed (acres)	New Impervious Area Added (acres)	Required Treatment Area for New Development (acres)	Redevelopment Impervious Area (acres)	Required Treatment Area for Redevelopment (acres)	Existing Treatment of Redev Area to Remain (acres)	Tre Re
		A	В	(B-A) = C	D	(D * 0.25) = E	F	





Non-MS4 Checklist

Variance Request

Watersheds



POST-CONSTRUCTION BMP VARIANCE REQUEST

	-	
Proj		
-	ect Number:	
-	ect Route Name(s):	
-	ect Watershed(s):	
	dentify watershed(s), refer to: http	s://g
	uired Treatment Area (acres):	
	licant Name:	
Ema	il Address:	
		tific
	Check "Yes" for any applicable p	
õ	a. Where Low Impact Developm	
	BMPs to the Maximum Extent	
	providing less than the requir	ed v
	further descriptions of the va	riou
	a.1. Hydrogeological Constrai	nt
	a.2. Physical Constraint	
	a.3. Operational Constraint	
	a.4. Environmental/Cultural C	Cons
	a.5. Other Constraint Type	
ł	 Project results in an increase 	in im
	c. Project will remove an existin	
	an existing post-construction	
	l. Other	
2. F	Provide detailed information reg	ardi
a k c	ndicate other information that v Design drawings or details Calculations Photos Other	will b
	Applicant signature and date	
<u>4</u>		
4. <i>F</i>		
	ature:	
Sign	ature: epartment Use Only:	
Sign For De	epartment Use Only:	
Sign For De	epartment Use Only:	
Sign For De	epartment Use Only:	
Sign	epartment Use Only:	
Sign For De	epartment Use Only:	
Sign For <u>Di</u> Note	epartment Use Only: 25:	
<u>or Di</u> Note	epartment Use Only:	

Overview

Guidance

MS4 Checklist

Project Informa	ation		
,			
	Island:		
	MP Begin:	MP End:	
antal hannaii aan (dat	nanta (IlliCtarta CICumunta	rehede (euroleus)	
ortai.nawaii.gov/aati	asets/HiStateGIS::wate	nent Area (acres):	
	Company:	ient Area (acres).	
	Telephone:		
on for Project Wa			
onditions below wh	nich will incur a debit	(s).	
)) BMPs are require	ed, the designer shall	implement LID	
able. Indicate any s	site constraints that w	vill result in	
	t. Refer to Section 5.2	2 of the manual for	
pes of constraints.			Ye
nt			
rvious area			
	r reduce the treatme	nt effectiveness of	
onstruction BMP o		nt effectiveness of	
onstruction BMP o duction in associat	ted WQV or WQFR)	nt effectiveness of why full treatment ca	nno
eduction in associat	ted WQV or WQFR)		nno
construction BMP o eduction in associat the resulting project wrovided to evaluate	ted WQV or WQFR) t debits and indicate	why full treatment ca	nno
onstruction BMP o eduction in associat he resulting project he rovided to evaluate Yes	ted WQV or WQFR) t debits and indicate	why full treatment ca	nno
construction BMP o eduction in associat the resulting project the resulting project	ted WQV or WQFR) t debits and indicate	why full treatment ca	nno
construction BMP o eduction in associat the resulting project the resulting project	ted WQV or WQFR) t debits and indicate	why full treatment ca	nno
nonstruction BMP o eduction in associat the resulting project the resulting project rovided to evaluate Yes Yes	ted WQV or WQFR) t debits and indicate t debits and indicate t debits and indicate No No No No No Dat	why full treatment ca his variance request.	

Compliance Tracking Non-MS4 Checklist

Date: Date:

Variance Request

Watersheds



POST-CONSTRUCTION BMP VARIANCE REQUEST

STORM WATER POST-CONSTRUCTION BMP

VARIANCE REQUEST FORM

Project Information

Project:	
----------	--

Project Number:

Project Route Name(s):

Project Watershed(s):

(To identify watershed(s), refer to: https://geoportal.hawaii.gov/datasets/HiStateGIS::watersheds/explore)

Required Treatment Area (acres):

Applicant Name:

Email Address:

Company:

Telephone:

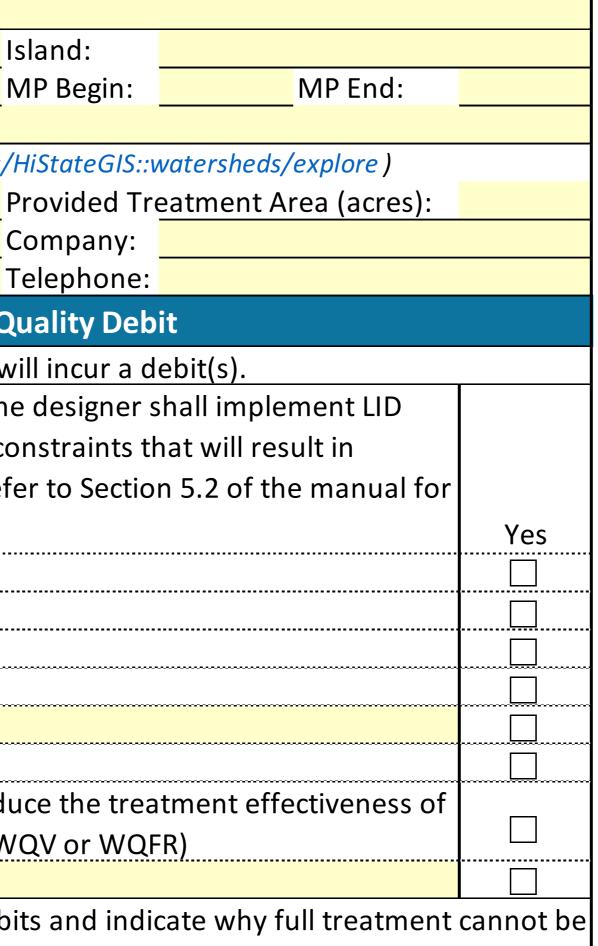
Island:

MP Begin:

Justification for Project Water Quality Debit

- . Check "Yes" for any applicable project conditions below which will incur a debit(s).
 - a. Where Low Impact Development (LID) BMPs are required, the designer shall implement LID BMPs to the Maximum Extent Practicable. Indicate any site constraints that will result in providing less than the required water quality treatment. Refer to Section 5.2 of the manual for further descriptions of the various types of constraints.
- a.1. Hydrogeological Constraint
 - a.2. Physical Constraint
 - a.3. Operational Constraint
 - a.4. Environmental/Cultural Constraint
 - a.5. Other Constraint Type
- b. Project results in an increase in impervious area
- c. Project will remove an existing post-construction BMP or reduce the treatment effectiveness of an existing post-construction BMP (reduction in associated WQV or WQFR) d. Other
- 2. Provide detailed information regarding the resulting project debits and indicate why full treatment cannot be met by using post-construction BMPs.

Overview Guidance MS4 Checklist



- Only required for projects that do not meet the **Required Treatment Area**
- Applicable to both MS4 and lacksquarenon-MS4 Permit Area projects
- For "public" construction lacksquareprojects only

Compliance Tracking Non-MS4 Checklist

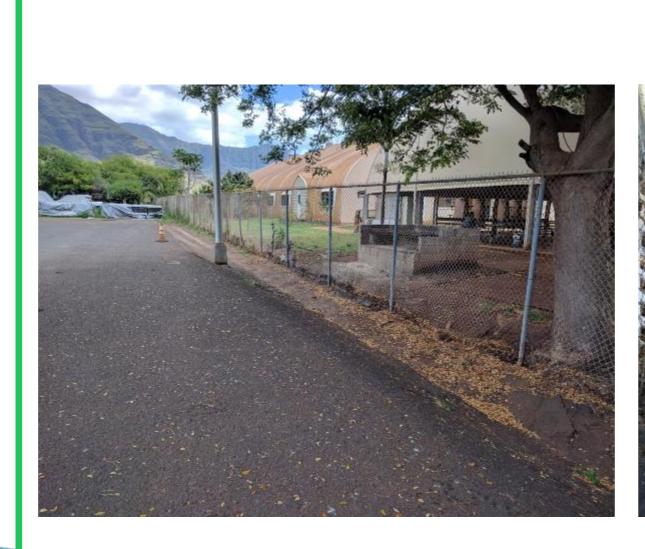
Variance Request

Watersheds















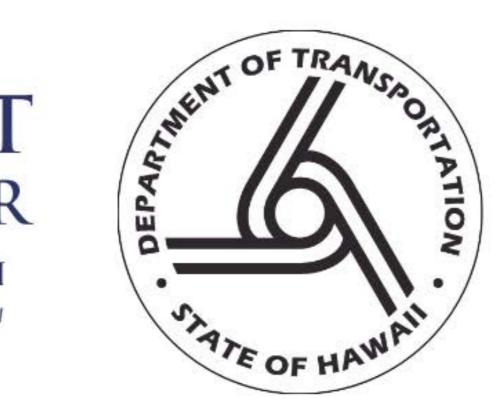


Storm Water Post-Construction **Best Management Practices Manual**



PROTECT **DURWATER** MĀLAMA I KA WAI

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION



State of Hawaii Department of Transportation **Highways Division** February 2022

Storm Water Post-Construction Best Management Practices: Trends in Permit Requirements

2024 Protect Our Water Conference November 13, 2024

Richard Price, P.E., CISEC

EA Engineering, Science, and Technology, Inc., PBC



PROTECT OUR W - MALAMA I KA WAI-HDOT Highways Maui District







Post Construction BMPs in Highway NPDES Permits Overview

Requirements vary state-to-state

Typically, three approaches for DOTs:

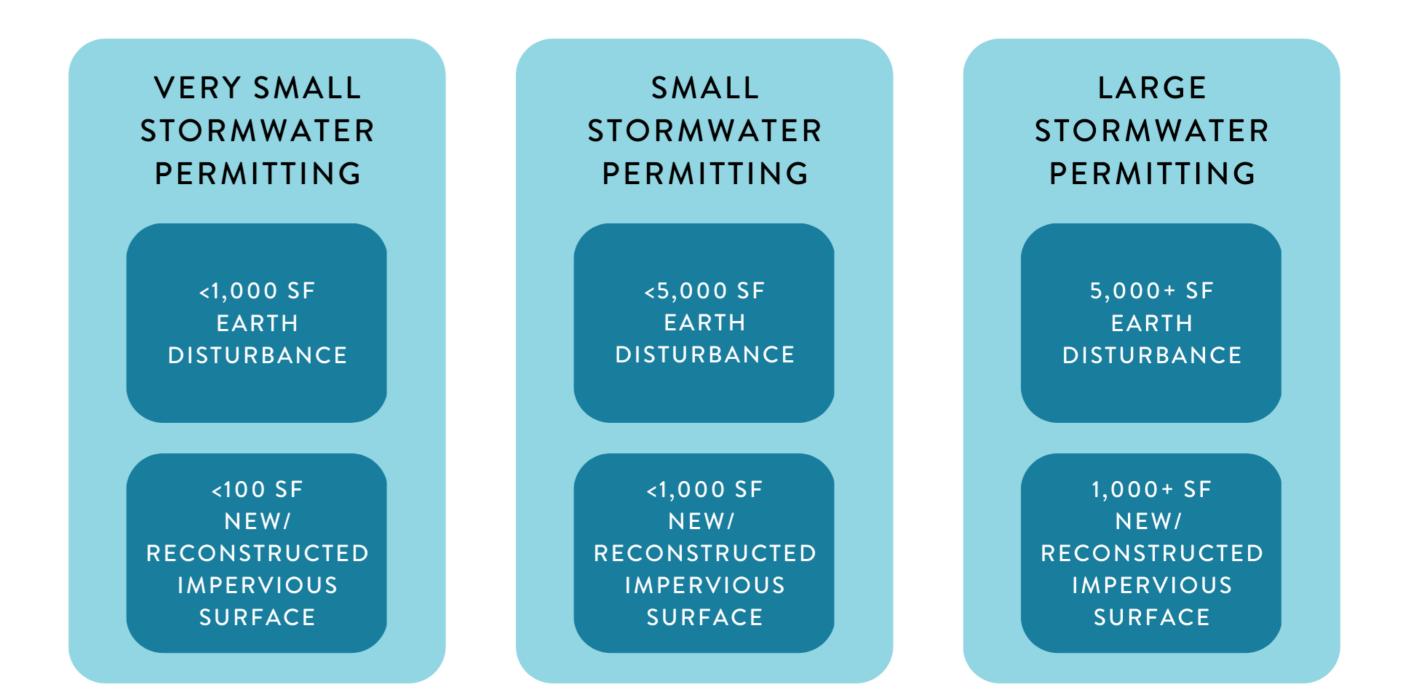
- Regulating agency develops a comprehensive SW manual
 - DOT addresses requirements in their design/drainage manual
- DOT creates their own manual
- Hybrid of the two



Trends in Post Construction BMPs: Tightening the Screw...

- **Reducing project size triggers:**
- Multiple trigger requirements:
- Disturbed area.
- New or replaced hard surface.
- Pollutant generating hard surface.
- Vegetation conversion.
- Intended use.

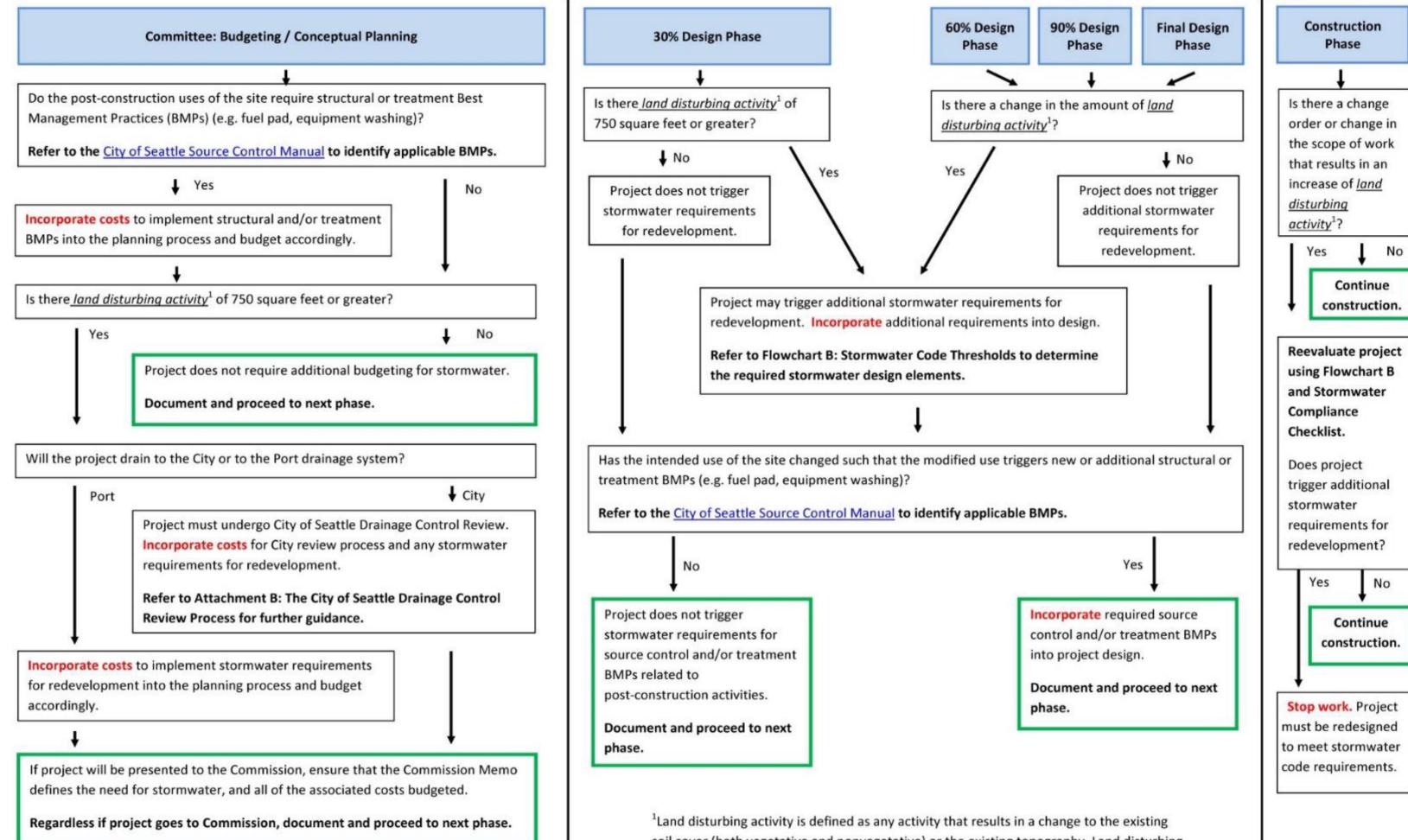
• City of Seattle requires drainage review for 750 ft² new or replaced hard surface.







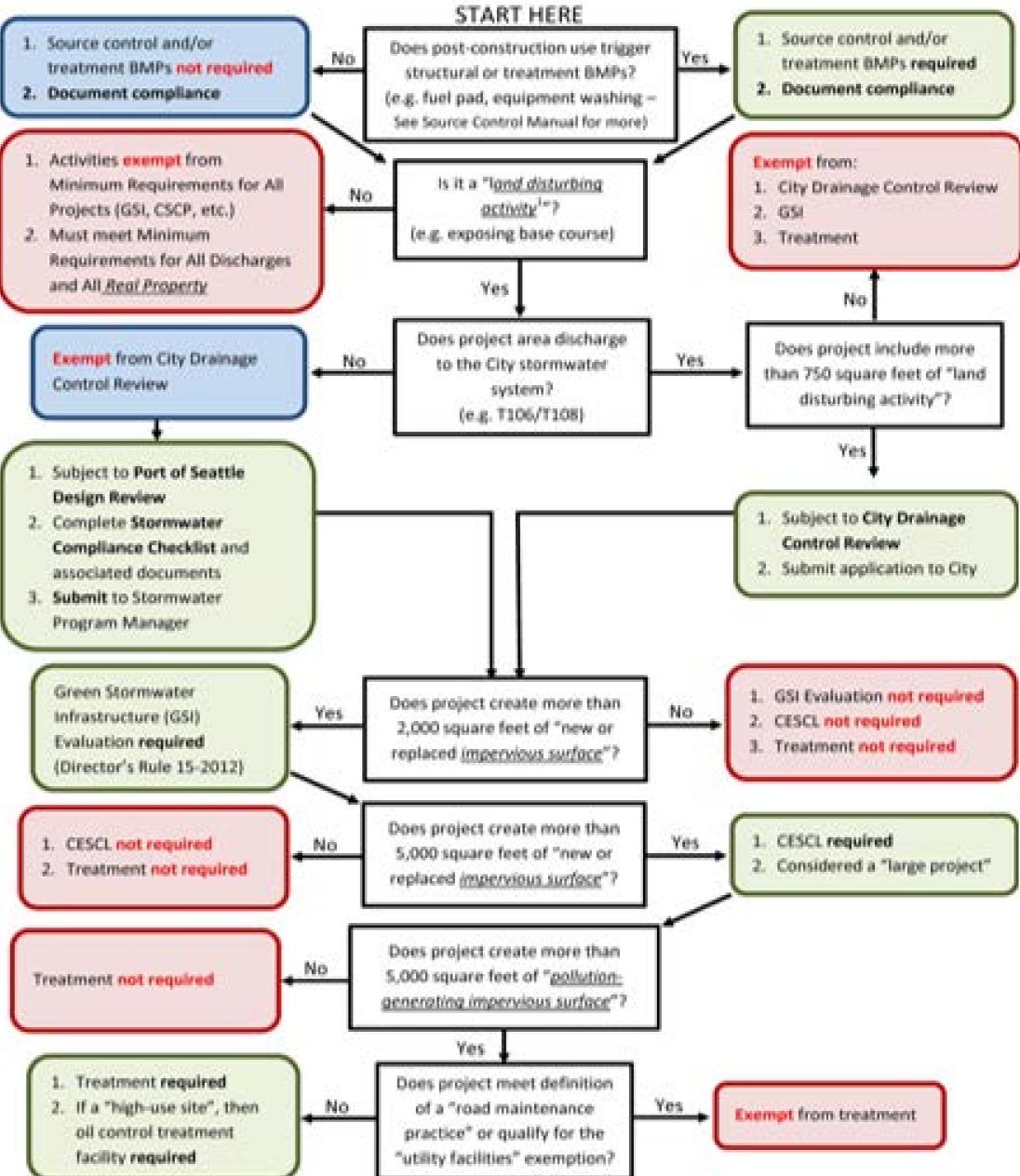
Trends in Post Construction BMPs: Complexity...



[•]Land disturbing activity is defined as any activity that results in a change to the existing soil cover (both vegetative and nonvegetative) or the existing topography. Land disturbing activities include, but are not limited to clearing, grading, filling and excavation.

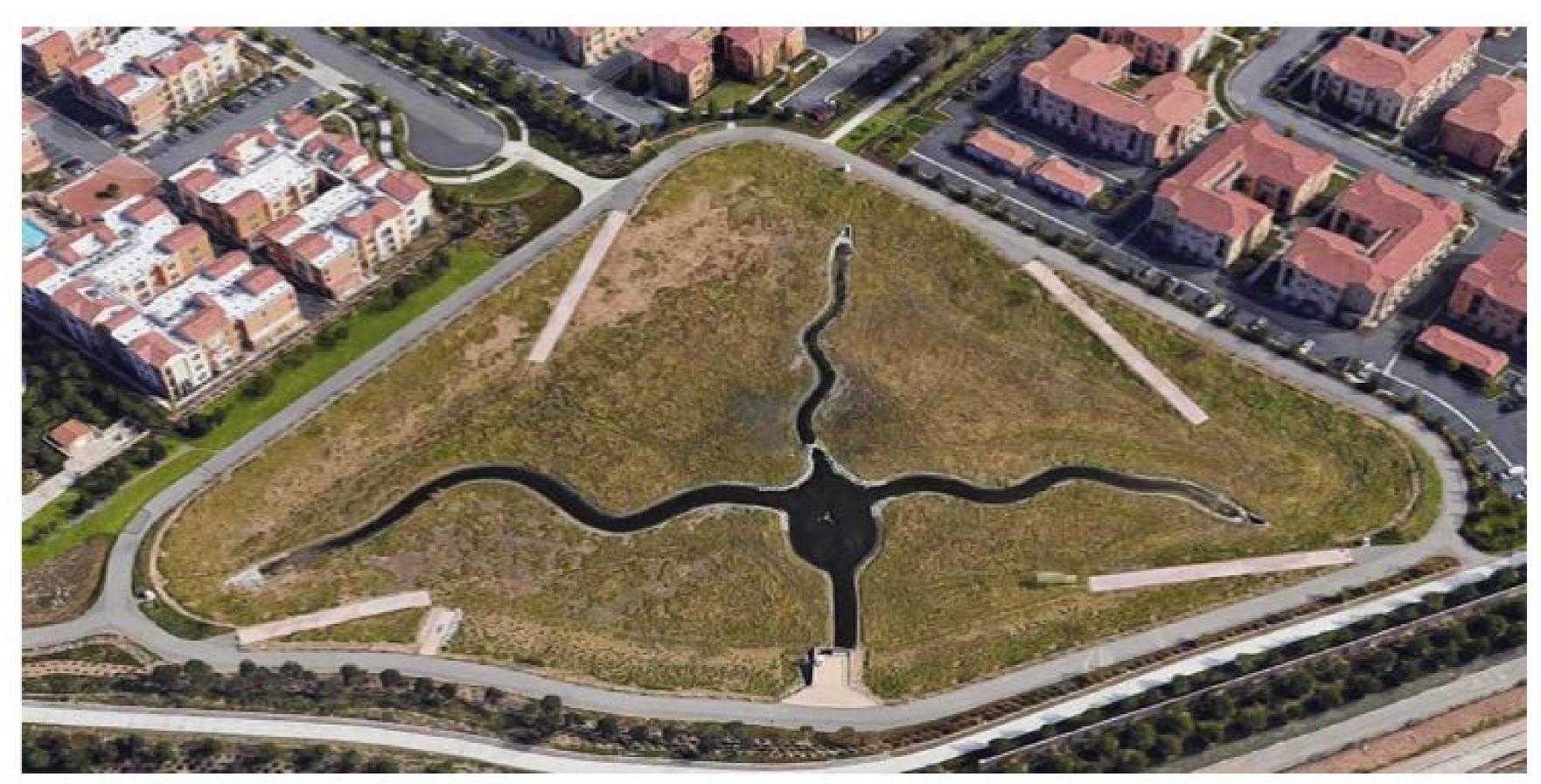


Trends in Post Construction BMPs: Complexity 2...



rol and/or MPs required ompliance	
e Control Review	
include more re feet of "land activity"?	
ity Drainage lew ication to City	
n not required quired at required	

Trends in Post Construction BMPs: Regional Treatment Facilities



Photograph of a Typical Detention Multi-Benefit Trash Treatment System



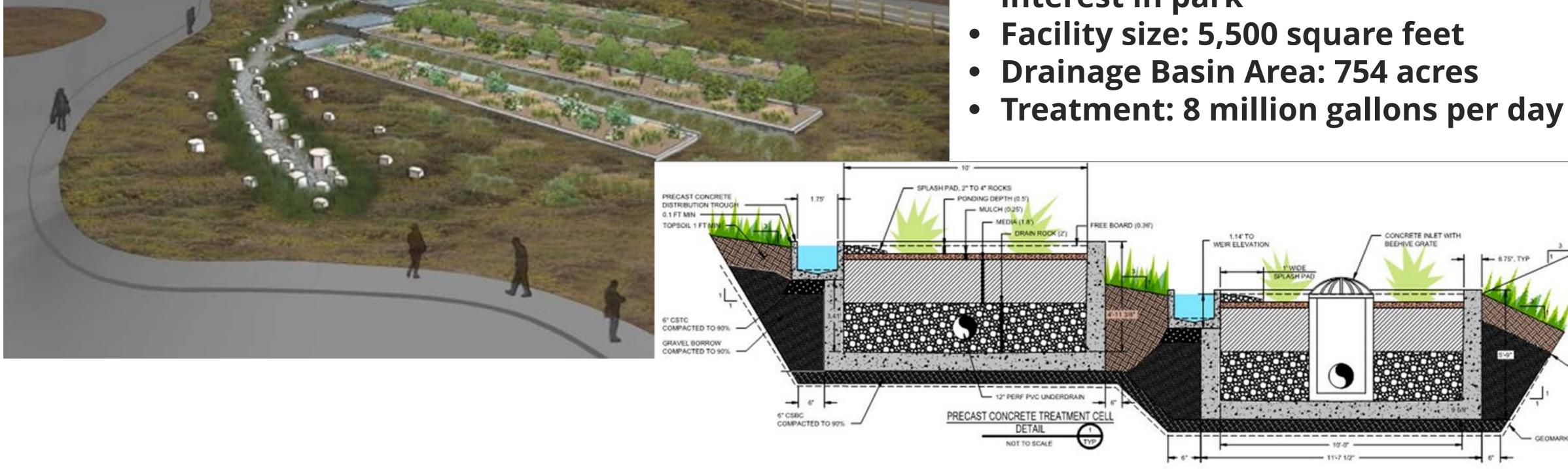
Trends in Post Construction BMPs:

ovides stormwater treatment and visual interest in a park

)15

500 square feet

54 acres, 8 million gallons per day





City of Tacoma: Point Defiance Stormwater Treatment Facility

- Provides SW treatment and visual interest in park



IANUFACTURER

Trends in Post Construction BMPs: New Requirements/Emerging Contaminants

- New requirements:
- PCBs:
 - Caulk
 - Paint
 - Building materials
- TMDLs
- Trash reduction
- Multiple trigger requirements:
- Polyfluoroalkyl substances (PFAS)
- 6PPD-quinone





Trends in Post Construction BMPs: New BMPs

Oyster Shells







Trends in Post Construction BMPs: New BMPs Cross Section of a Grattix

Grattix Box

Plant rushes and sedges, 2 each

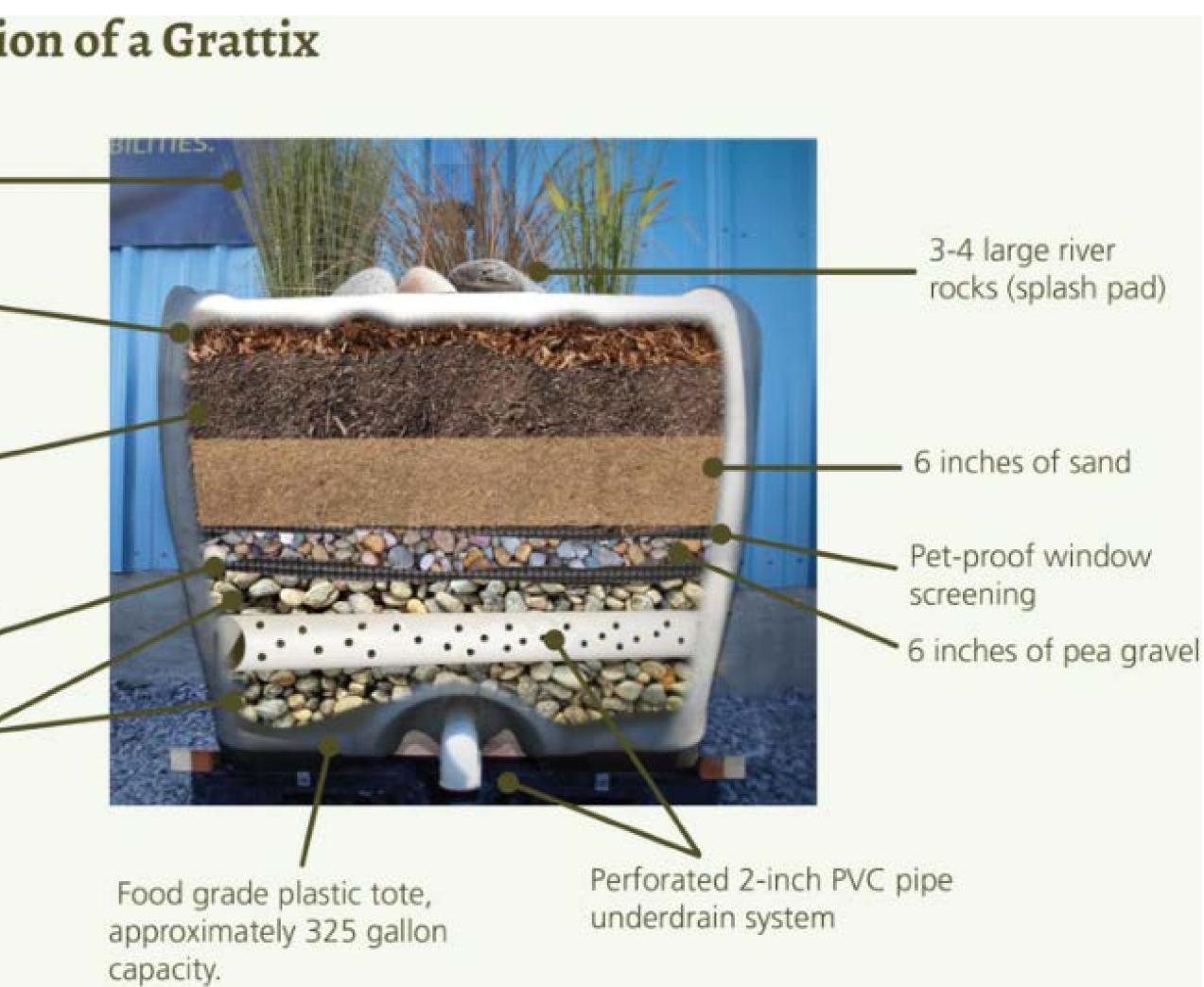
2-3 inches of hardwood mulch

10 inches bioretention soil mix (40% compost and 60% sand)

Pet-proof window screening

12 inches of 2-3 inch drain rock







Trends in Post Construction BMPs: New BMPs

Custom Filter Media Mixes

- Mulch
- Sand
- Bioretention mix
- BioChar
- Compost
- Oyster shells





Questions?

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