

Mapping requirements

Phase I and Western Washington Phase II Municipal Stormwater Permits
Preliminary draft “fact sheet”

I. Introduction

The Washington Department of Ecology (Ecology) is working on reissuing the Phase I and Western Washington Phase II Municipal Stormwater Permits. Ecology prepared preliminary draft permit language or narrative descriptions of specific permit sections and is accepting informal comments until 11:59 p.m., January 19, 2018. Send your comments to: <http://ws.ecology.commentinput.com/?id=tkx29>

Or mail hard copies to:

Municipal Stormwater Comments
WA Department of Ecology
Water Quality Program
PO Box 47696
Olympia, WA 98504-7696

II. Proposal


In early spring, Ecology announced that we are considering adding an outfall reporting standard requirement to the permits. We proposed some minimum attribute information and stated that Ecology would load the information received into the Water Quality Atlas. Based on comments received and Ecology’s own internal procedures, we are proposing a more step-wise approach to addressing outfall mapping and reporting by requiring the collection of more specific information (i.e. outfall size and material).


Ecology will commit to working with permittees to voluntarily associate outfall data with NHD reach and measure and load into the Water Quality Atlas during the 2019-2024 permit cycle.

We have made some additional refinement and enhancements to the mapping requirements, described below.

III. What are the proposed permit changes?

The proposed permit edits and approach:

- **Phase I**
 - Begin mapping the tributary conveyances to outfalls (with a size of 24” or greater) in rural areas of the county not previously mapped in the previous permit cycle. Previous permit requirements only required the mapping of these features in the urban/higher density rural sub-basins. Comments on the timeframe provided are requested.
- **Phase II**
 - Create new stand-alone permit section for mapping separate from the IDDE permit section. This follows the format of the Phase I permit and creates a more consistent permit structure for western Washington. 

- Make electronic format with fully described [mapping standards required](#) (electronic format is currently preferred) with a phase-in period for compliance.
- **Phase I and II**
 - Introduce new term “permanent stormwater facilities” to correct error in 2013 permits that inadvertently narrowed the scope of mapping (and operations and maintenance).
 - **Proposed definition:** Permanent stormwater facilities are structures or devices designed or used to control stormwater flows, or remove pollutants from stormwater, or both.
 - This proposed term will be used in the Operation and Maintenance section for the Phase I permit to address inspections of municipally owned facilities, as well as facilities regulated by the Permittee. In the Phase II permit, this term will be used to clarify inspections of municipally owned or operated facilities.
 - Retain reference to an example [description of standards](#) and enhance the example with new guidance and a sample geodatabase (This will be provided with the formal draft permit in 2018).
 - As outfall records are updated or added, additional information describing the size of the outfall and the material that it is made out of must be added. This does not mean that Permittees must re-survey all known MS4 outfalls by the date included in the preliminary permit language, but that as this information becomes available to the Permittee, through inspections, maintenance, project approvals etc., this attribute information would be added to the outfall records. 
- Proposed permit edits are shown below in **redline**.

IV. Mapping guidance

Ecology received a number of questions from interested stakeholders and Permittees asking clarifying questions to the mapping requirements. In addition to the proposed preliminary draft permit language, we have developed draft mapping guidance (attached) that is also available for review and comment. Ecology would appreciate comments on this guidance in order to make it useful and helpful.

PHASE II PERMIT - NEW SECTION - S5.C.0 (Note: Specific special condition number will be determined for the formal draft permit, it will not remain "0")

0. The SWMP shall include an ongoing program for mapping and documenting the MS4.

The minimum performance measures are:

- a. Ongoing Mapping: Each Permittee shall maintain mapping data for the features listed below of the MS4 shall continue on an ongoing basis.¹ MS4 maps shall be periodically updated. Update maps if necessary to meet the requirements of this section no later than February 2, 2018. At a minimum, maps shall include the following information:

i. Known MS4 outfalls and known MS4 discharge points.

ii. Receiving waters, other than ground water.

iii. Permanent stormwater treatment and flow control BMPs/facilities owned or operated by the Permittee.

iv. Geographic areas served by the Permittee's MS4 that do not discharge stormwater to surface waters.

iii-v. Tributary conveyances to all known outfalls and discharge points with a 24 inch nominal diameter or larger, or an equivalent cross-sectional area for non-pipe systems. The following attributes shall be mapped:

(a) Tributary conveyance type, material, and size where known.

(b) Associated drainage areas.

(c) Land use.

vi. Connections between the MS4 owned or operated by the Permittee and other municipalities or public entities.

iv-vii. All connections to the MS4 authorized or allowed by the Permittee after February 16, 2007.

- b. New Mapping: Each Permittee shall complete the following mapping no later than August 1, 2021.

i. For all known MS4 outfalls, the following attributes shall be mapped: size and material, where known.


¹ New Permittees shall meet the requirements to map the MS4 according to S5.C.3.a no later than February 2, 2018~~2024~~, except where otherwise noted in this section.


² New Permittees shall meet the requirements of S5.C.3.a.vii. after ~~August 1, 2013~~[LINK TO CODE UPDATE](#) for all connections to the MS4 authorized after ~~August 1, 2013~~[LINK TO CODE UPDATE](#).

Phase II Municipal Stormwater Permit
Preliminary Draft Permit Section:
Mapping 10/3/17

~~Connections between the MS4 owned or operated by the Permittee and other municipalities or public entities.~~

~~Geographic areas served by the Permittee's MS4 that do not discharge stormwater to surface waters.~~

~~b.c.~~ Beginning August 1, 2021, the required format for mapping is electronic with fully described mapping standards. An example description is available on Ecology's website. 

~~e.d.~~ To the extent consistent with national security laws and directives, each Permittee shall make available to Ecology, upon request, MS4 map(s) available maps depicting the information required in S5.C. X3.a.i through viii, above. ~~The preferred format for mapping will be an electronic format with fully described mapping standards. An example description is available on Ecology's website.~~ 

e. Upon request, and to the extent appropriate, Permittees shall provide mapping information to federally -recognized Indian Tribes, municipalities, and other Permittees. This permit does not preclude Permittees from recovering reasonable costs associated with fulfilling mapping information requests by federally -recognized Indian Tribes, municipalities, and other Permittees.

PHASE I PERMIT – S5.C.2

2. Municipal Separate Storm Sewer System Mapping and Documentation

The SWMP shall include an ongoing program for mapping and documenting the MS4.

Minimum performance measures:

- a. Ongoing Mapping: Each Permittee shall maintain mapping data for the features listed below.
 - i. Known MS4 outfalls and discharge points.
 - ii. Receiving waters, other than ground water.
 - iii. Permanent stormwater treatment and flow control BMPs/facilities owned or operated by the Permittee, including all connections to tributary conveyances (mapped in accordance with this section) and all associated emergency overflows.
 - iv. Geographic areas served by the Permittee's MS4 that do not discharge stormwater to surface water.
 - v. Tributary conveyances to all known outfalls and discharge points with a 24-inch nominal diameter or larger, or an equivalent cross-sectional area for non-pipe systems. For Counties, this requirement applies to urban/higher density rural sub-basins. For Cities, this requirement applies throughout the City. The following attributes shall be mapped:
 - (a) Tributary conveyance type, material, and size where known.
 - (b) Associated drainage areas.
 - (c) Land uses.
 - vi. Connections between the MS4 owned or operated by the Permittee and other municipalities or other public entities.
 - vii. All connections to the MS4 authorized or allowed by the Permittee after February 16, 2007.
 - viii. Existing, known connections over greater than or equal to 8 inches in nominal diameter to tributary conveyances mapped in accordance with S5.C.2.a.v. For Counties, this requirement applies to the area of the county within urban/higher density rural sub-basins mapped under the previous permit. For Cities, this requirement applies throughout the City.



b. New Mapping: Each Permittee shall complete the following mapping, no later than August 1, 2021.

viii.i. For all known MS4 outfalls, the following attributes shall be mapped: size and material, where known, no later than August 1, 2021.

ix.ii. No later than four years from the effective date of this permit, Counties shall map tributary conveyances, as described in S5.C.2.a.v., for areas not mapped under the previous permit cycle.

Note to reviewers: Please consider and comment on whether the timeframe provided above is appropriate and compliance with this schedule is feasible. If not, please explain.

~~New Mapping: Each Permittee shall complete the following mapping no later than December 31, 2017.~~

~~x. Counties shall map tributary conveyances, as described in S5.C.2.a.v, for any urban/higher density rural sub-basins not mapped under the previous permit.~~

~~Counties shall map existing, known connections greater than 8 inches in nominal diameter to tributary conveyances mapped in accordance with S5.C.2.b.i.~~

~~Each Permittee shall map existing, known connections equal to 8 inches in nominal diameter to tributary conveyances mapped in accordance with S.5.C.2.~~

~~Each Permittee shall map connections between stormwater treatment and flow control BMPs/facilities and tributary conveyances mapped in accordance with S5.C.2. The Permittee shall map all associated emergency overflows.~~

c. The required format for mapping is electronic with fully described mapping standards. An example description is available on Ecology's website.

~~b.d. To the extent consistent with national security laws and directives, each Permittee shall make available to Ecology, upon request, available maps depicting the information required in S5.C.2.a and b, above. The required format for mapping is electronic with fully described mapping standards. An example description is available on Ecology's website.~~

e.e. Upon request, and to the extent appropriate, Permittees shall provide mapping information to federally recognized Indian Tribes, municipalities, and other Permittees. This permit does not preclude Permittees from recovering reasonable costs associated with fulfilling mapping information requests by federally recognized Indian Tribes, municipalities, and other Permittees.

Draft Mapping Guidance for Phase I and Western Washington Phase II NPDES Municipal Stormwater Permittees

Table of Contents

- I. Purpose of this document: 2
- II. Know your MS4: 2
- III. Permit mapping terms and definitions - with guidance 4
 - Note to reader:* 8
- IV. More guidance on features required to be mapped..... 8
- V. Not required, but recommended features to map 9
- VI. MS4 mapping scenarios..... 10

Ecology is accepting written comments on this draft guidance until 11:59 p.m. January 19, 2018.

Please submit written comments to: <http://ws.ecology.commentinput.com/?id=tkx29> or mail hard copy comments to:

*Municipal Permit Comments
Washington State Department of Ecology
PO Box 47600 Olympia, WA 98504-7600*

I. Purpose of this document:

This document provides general guidance to the mapping requirements found in the current Phase I and Western Washington (WWA) Phase II Municipal Stormwater Permits (Permit), as well as in the [proposed 2019 draft Permits¹](#). Although the specific mapping requirements between the two permits vary slightly, the terms used are the same. The following provides additional guidance on mapping terms and definitions, and example municipal separate storm sewer system (MS4) scenarios, including how features should be mapped in accordance with the permit requirements.

II. Know your MS4:

The mapping requirements found in the permit serves the purpose of supporting implementation of the permit requirements for:

- Illicit Discharge Detection and Elimination (IDDE),
 - including responding to and notification of spills,
- Operation and maintenance of the stormwater infrastructure,
- Informing programs of potential pollutant sources – e.g. Public education and outreach, source control inspections, and local monitoring programs.

To be successful, Permittees must have complete and accurate knowledge of what is regulated under this permit.

Mapping requirements apply only to the Permittee’s municipal stormwater system.

Permittees must maintain an on-going mapping program to keep existing maps of their MS4 up-to-date. The 2013 Permits required Permittees to update their MS4 maps by a certain date² to include all the new mapping features. The proposed 2019 permit will also include a specific date for Permittees to update their MS4 mapping to meet new requirements. Permittees should establish their own protocols for maintaining and updating their MS4 mapping to best support permit implementation.

Table 1 summarizes the required features to map as described in the Permits, as well as proposed mapping for the 2019 Permits. Refer to the current permit language (and proposed preliminary draft language) for a complete description of the mapping requirements.

MS4 mapping and documentation requirements are included in the 2013 Phase I permit at:

- S5.C.2 for Clark, King, Pierce and Snohomish Counties and City of Tacoma and City of Seattle

¹ Proposed permit changes to the mapping requirements are shown as [underlined red text and strikethrough text](#).

- S6.D.3.c for secondary permittees
- S6.E.3.c for the Ports of Seattle and Tacoma

MS4 mapping and documentation requirements are included in the 2013 Phase II permit at:

- S5.C.3 for Phase II permittees
- S6.D.4.c for secondary permittees

For the 2019 Permit, we propose moving the mapping requirements out of (S5.C.3) IDDE program to its own Special Condition (S5.C.X), to align with the Phase I permit structure.

Table 1: Summary table of municipal stormwater mapping requirements

2013-2019 & Proposed 2019-2024 Phase I and WWA Phase II mapping features	
Common elements	
<ul style="list-style-type: none"> • Known MS4 outfalls (discharges to surface receiving waters or waterbody) • Known discharge points (DP) (discharges to facilities/BMPs designed to infiltrate) • Receiving waters ('other than groundwater') • Stormwater treatment and flow control BMPs/facilities owned or operated by the Permittee • <u>Permanent stormwater facilities owned and operated by the Permittee</u> • MS4 geographic areas that do not discharge to surface waters • Tributary Conveyances (& attributes) to <u>outfalls & DP with ≥ 24" diameter</u>, or an equivalent cross-sectional area for non-pipe <ul style="list-style-type: none"> ○ Attributes include: <ul style="list-style-type: none"> ▪ Tributary conveyance type, material, and size where known ▪ Associated drainage areas ▪ Land use • Connections: <ul style="list-style-type: none"> ○ Between Permittee's MS4s and other municipalities or public entities ○ All connections to the MS4 authorized after 2/16/07 	
Phase I Only	
<ul style="list-style-type: none"> • Connections: <ul style="list-style-type: none"> ○ ≥ 8" diameter connections to tributary conveyances ○ Between stormwater treatment and flow control BMPs and tributary conveyances, including emergency overflows 	
Phase I required format: electronic, with fully described mapping standards	WWA PH II <u>required</u> preferred format: electronic, with fully described mapping standards.

III. Permit mapping terms and definitions - with guidance

This section pertains strictly to terms and definitions used in the Permit's mapping requirements section. See Permit for any other relevant definition. The *Additional Guidance* is largely taken from past Fact sheets and Response to Comments documents associated with the Permits.

Discharge point (DP) means the location where a discharge leaves the Permittee’s MS4 through the Permittee’s MS4 facilities/BMPs designed to infiltrate.


Additional Guidance

- Permittees are required to map all “known” DPs, which includes those found during field reconnaissance, permitting, etc. As a Permittee discovers or permits a DP that is not in their mapping system, the Permittee should follow an established protocol to update the map to include this feature.
- This definition refers specifically to facilities/BMPs designed to infiltrate that are owned or operated by the Permittee.
- Locations that inadvertently infiltrate are not included in this definition.
- In locations where DPs overlap with other features that are required to be mapped (such as permanent stormwater facilities) both features should be mapped and distinguishable - as permit requirements, such as inspection and maintenance, relate to the features differently.

Conveyance system means that portion of the municipal separate storm sewer system designed or used for conveying stormwater.

Additional Guidance

- This definition is provided to distinguish the parts of the system that are used for the transportation of stormwater from all other parts.


Municipal separate storm sewer system means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains): 

(i) Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the State.

(ii) Designed or used for collecting or conveying stormwater.


(iii) Which is not a combined sewer.

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

(v) Which is defined as “large” or “medium” or “small” or otherwise designated by Ecology pursuant to 40 CFR 122.26 


Outfall means a point source as defined by 40 CFR 122.2 at the point where a discharge leaves the Permittee’s MS4 and enters a surface receiving waterbody or surface receiving waters. Outfall does not include pipes, tunnels, or other conveyances which connect segments of the same stream or other surface waters and are used to convey primarily surface waters (i.e., culverts).

Additional Guidance

- Permittees are required to map all “known” outfalls, which includes those found during field reconnaissance, permitting, etc. As a Permittee discovers or permits an outfall that is not in their mapping system, the Permittee should follow an established protocol to update the map to include this feature. Further, as outfall records are added or updated, include outfall size and material as associated information.
- Definition clearly refers to a stormwater discharge to a SURFACE receiving water and does not include discharges to ground.
- Map MS4 outfalls at locations where discharges leave the MS4 and enters a private stormwater system, or other conveyance system or pathway, when it is known that discharge will enter a surface receiving water. 
- Outfalls are not intended to connect the same stream segment or conveyance system under roads or driveways.

Permanent stormwater facilities are structures or devices designed or used to control stormwater flows, or remove pollutants from stormwater, or both.

Additional Guidance

- This definition is provided to return to language that was included in the 2007 Permits. It calls for the mapping of structural stormwater BMPs or devices owned and operated by the Permittee whether or not these facilities meet, or help to meet, the minimum requirements included in the Permits.
- This term refers to devices or structural stormwater BMPs constructed as retrofit projects, or prior to permit requirements. 

Receiving waterbody or receiving waters means naturally and/or reconstructed naturally occurring surface water bodies, such as creeks, streams, rivers, lakes, wetlands, estuaries, and marine waters, or ground water, to which a MS4 discharges.

Additional Guidance


- Receiving waters is intended as a sub-set of ‘waters of the state.’
- Federal regulations require the mapping of receiving waters by the permittee.

Tributary conveyance means pipes, ditches, catch basins, and inlets owned or operated by the Permittee and designed or used for collecting and conveying stormwater.


Additional Guidance

- Tributary conveyance refers to the MS4 conveyance system and not the natural stream system.
- Permittees are required to map the tributary conveyance to an outfall or DP with ≥ 24 " diameter
- Permittees must also collect attributes of the tributary conveyance system, which include:
 - Tributary conveyance type (e.g. ditch, pipe, catch basins), material (e.g. metal) , and size where known (e.g. 24")
 - Associated drainage areas –delineate the area of land that contributes to the tributary conveyance system
 - Land use – e.g. Industrial, commercial, residential, etc.

Stormwater Treatment and Flow Control BMPs/Facilities means detention facilities, treatment BMPs/facilities, bioretention, vegetated roofs, and permeable pavements that help meet Appendix 1 Minimum Requirements #6 (treatment), #7 (flow control), or both.

*NOTE TO READER: the proposed mapping language now relies on the proposed term "permanent stormwater facilities" to capture Stormwater Treatment and Flow control facilities/BMPs – these types of facilities would only be required to be mapped as a permanent stormwater **facility**" which does not distinguish between a facility built as a retrofit (i.e. not necessarily to meet new or redevelopment standards) and a stormwater treatment and flow control BMP/facility (helps to meet MR# 6 or 7, or both). It may be helpful to make that distinction in your mapping system as the two may have different inspection and maintenance requirements.* 

Additional Guidance

- Stormwater treatment and flow control BMPs/facilities that help to meet Minimum Requirements #6, #7, or both are required to be mapped.
- If more than one BMP/facility is required to meet either of these minimum requirements, all must be mapped.
 - Infiltration BMPs are included within treatment BMPs/facilities in the manual.
 - Dispersion BMPs are included within detention facilities.
 - Temporary erosion and sediment control BMPs, and BMPs/facilities built exclusively to meet minimum requirement #5, are not included in this definition. Further, a County may choose to include retention of forested conditions within the term if they are used to help meet minimum requirements #6 or #7.
- Permittees are not required to map stormwater facilities regulated by the Permittee, which are not owned or operated by the Permittee. While Permittees are not required to map private stormwater facilities, they must inspect private facilities that control stormwater runoff from new development and redevelopment sites –it may be useful to map those facilities that require inspection. 

Note to reader:

Underground Injection Control (UIC) Program - The terms “outfall” and “discharge point” **do not** change how UIC wells are regulated or managed. The Municipal Stormwater Permits categorically exclude discharges to ground water through UIC wells (Special Condition S2.A.1; language provided above). Wells regulated through the UIC program are not required to be mapped under the Municipal Stormwater Permit, as the UIC program rules apply. However, it may be useful to include UICs on your map.

UIC wells are manmade structures used to discharge fluids into the subsurface. Examples are drywells, infiltration trenches with perforated pipe, and any structure deeper than the widest surface dimension. The majority of UIC wells in Washington are used to manage stormwater (i.e., drywells) and sanitary waste (large on-site systems), return water to the ground, and help clean up contaminated sites. UIC wells are regulated under the UIC Program (Ch. 173-218 WAC).

UIC Requirements for municipalities with national pollutant discharge elimination system (NPDES) permits¹

The Municipalities that are under a NPDES stormwater permit may also have stormwater discharges to UIC wells. The Stormwater Management Program required by the NPDES stormwater permit includes best management practices that also may be applied to stormwater discharges to UIC wells. To avoid duplication, municipalities that are under an NPDES stormwater permit may choose to meet UIC program requirements by applying their Stormwater Management Program to areas served by UIC wells. See Chapter 173-218-090(1) WAC.

IV. More guidance on features required to be mapped

The following features are not specifically defined, but are required to be mapped. Here is some guidance to help support the mapping effort:

- MS4 Geographic areas that do not discharge to surface waters

The requirement to map areas that do not discharge to surface waters calls for mapping geographic areas such as city blocks, parts of sub-basins, etc, that do not drain to surface waters, and instead drain to the ground. This provision does not require mapping individual drainage systems that discharge to ground.

- **Connections**


Connection refers to any discrete point where stormwater enters or leaves the MS4 - such as from ditches or pipes. This term does not include sheet flow, or roof drains.

This term is not defined in the Permits. The Response to Comments for the 2007, 2013 Permits, and 2014 Permit modification, all include the above definition.

Specific connection points to the MS4 are called out to be mapped (see above). Knowing where stormwater discharges leave or enter your MS4 system assists with notifying adjacent municipalities/entities that a hazardous spill has occurred, or to better trace illicit discharges, or to understand where stormwater impacts may be occurring.

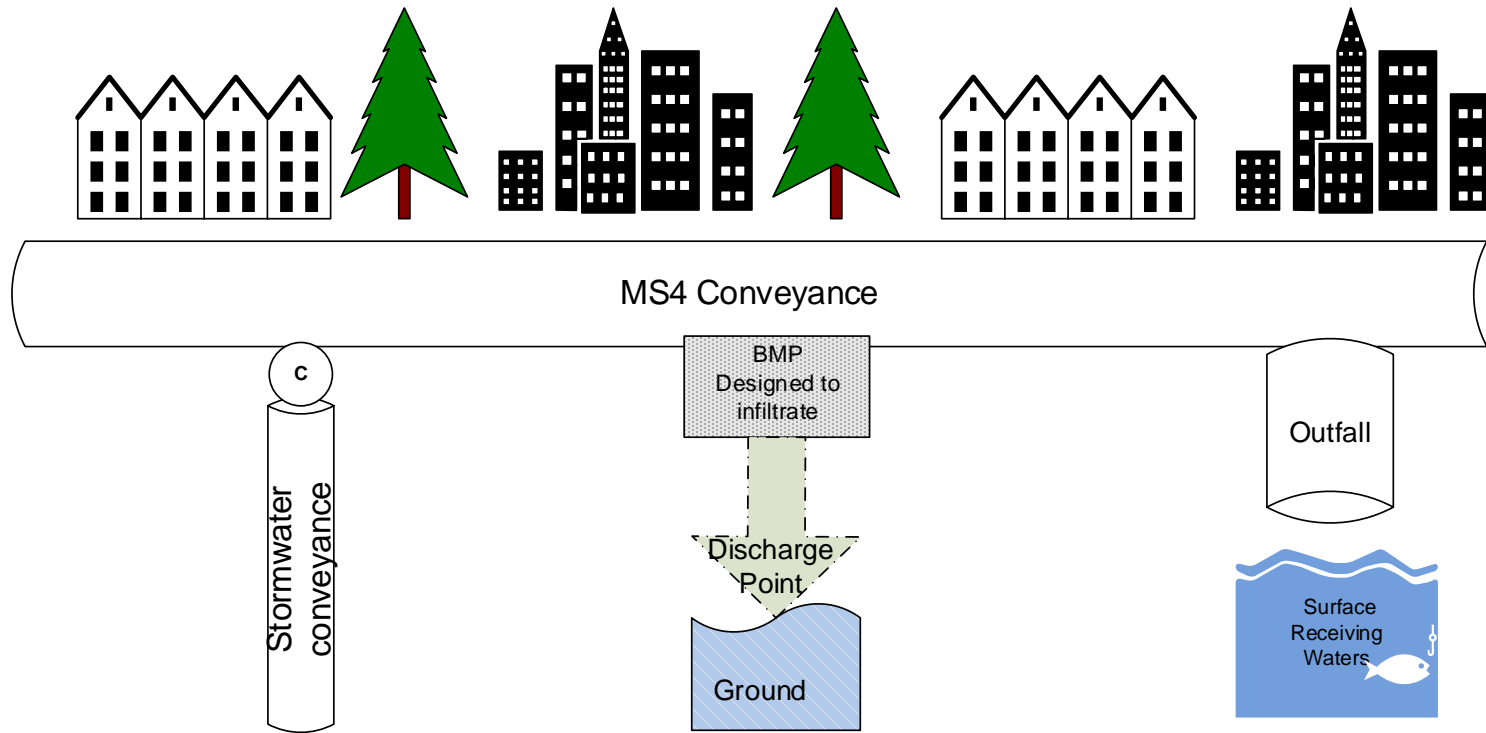
V. Not required, but recommended features to map

The requirements for mapping are limited to the minimum features necessary to implement the permits. However, Ecology recommends that Permittees map additional features so that knowledge of the stormwater system is relatively complete. Consider mapping the following additional features, although this universe can be easily expanded based on local needs:

- UIC facilities
- Tributary conveyance to outfalls or discharge points with a smaller diameter (or equivalent cross-section) than 24 inches
- Older or retrofit permanent stormwater BMPs, otherwise not required to be mapped
- Land use 
- critical habitats and waterbodies with listed salmon species

VI. MS4 mapping scenarios

The following scenarios are provided to illustrate terms and definitions of stormwater features in the context of a typical MS4, as well as which of these features ought to be mapped by the Permittee.



C = Connection btwn the permittee's MS4 & other muni/public entities

Figure 1. Simplified overview of the selected terms used to describe the Municipal Storm Sewer System (MS4) (e.g., a connection, a discharge point and an outfall). Permittees are required to map all known MS4 outfalls and discharge points, and "all connections to the MS4 authorized or allowed by the Permittee after February 16, 2007." This includes connections from private systems to the MS4 authorized or allowed after February 16, 2007.

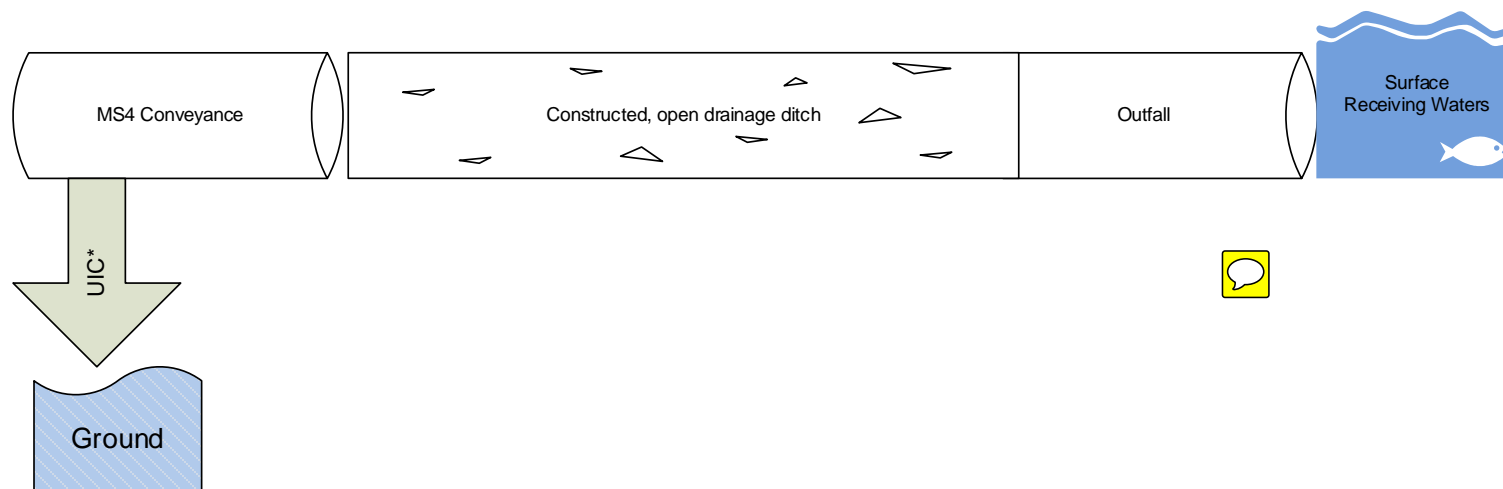


Figure 2. Single jurisdiction’s MS4 discharges to a surface receiving waters. This example includes a UIC facility with an emergency overflow to the MS4.

In Figure 2, the Permittee does not need to map the open drainage ditch as a Discharge Point, although mapping the ditch as a line segment may be of use to the Permittee. The point where the runoff leaves the ditch and discharges to the surface receiving water is mapped as an outfall. The UIC well is regulated through its own program and is not required to be mapped per the Phase I or Phase II Permit requirements.

*Regulated through the Underground Injection Control (UIC) Program. UIC facilities are excluded from the Municipal Permit, see S2.A.1.

Although not required, a permittee may decide to map UIC facilities for a comprehensive understanding of municipal drainage.

UIC Program additional info:

<http://www.ecy.wa.gov/programs/wq/grndwtr/uic/index.html>

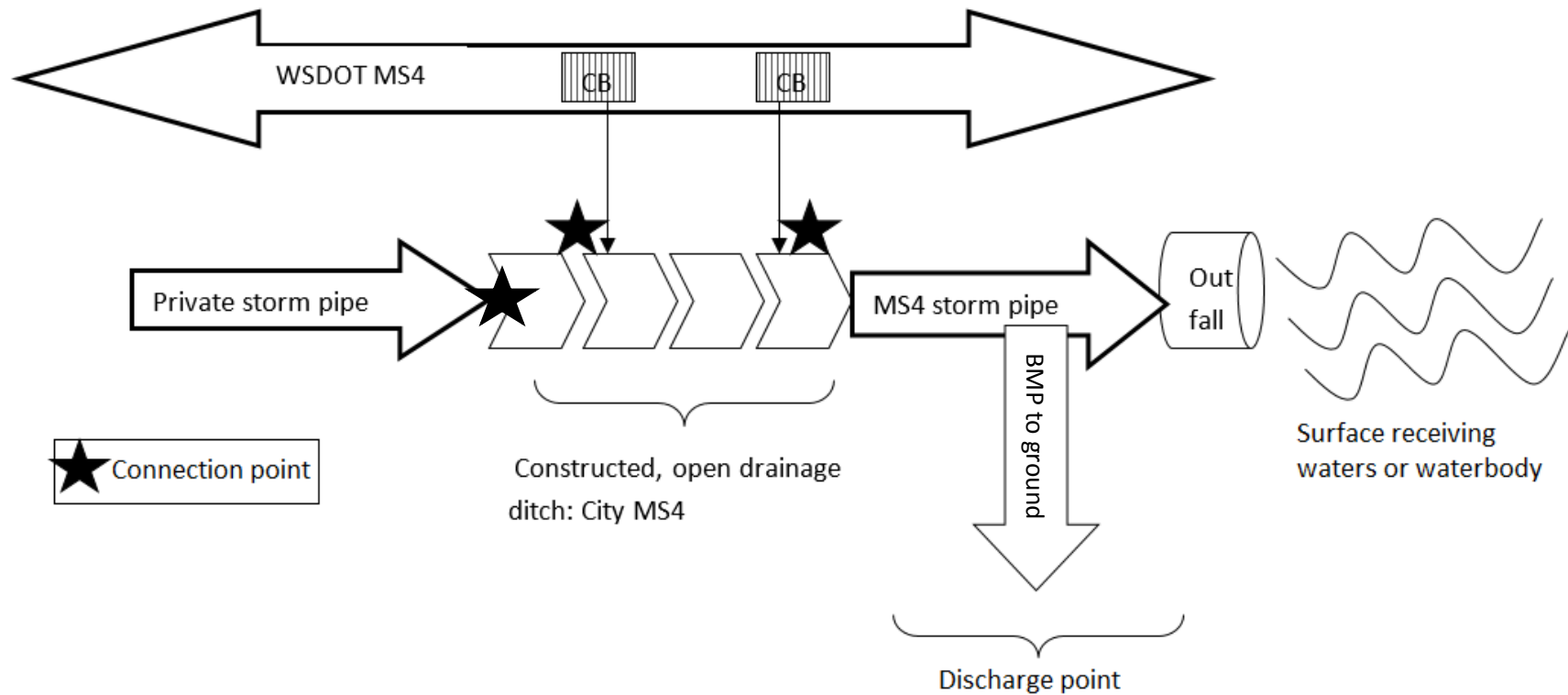


Figure 3. Example of the Department of Transportation (WSDOT) MS4 discharging to a City's MS4

In Figure 3, the City would map the three connection points where WSDOT's catch basins direct runoff to a city's MS4, and the private storm pipe connection is authorized by the Permittee after February 16, 2007 (or after August 1, 2013 for new permittees in the 2013 Permit). The city would map the BMP that was designed to infiltrate as a discharge point (and as a **permanent stormwater facility**, or both). The city would map the overflow pipe that discharges to a surface receiving waters as an outfall.

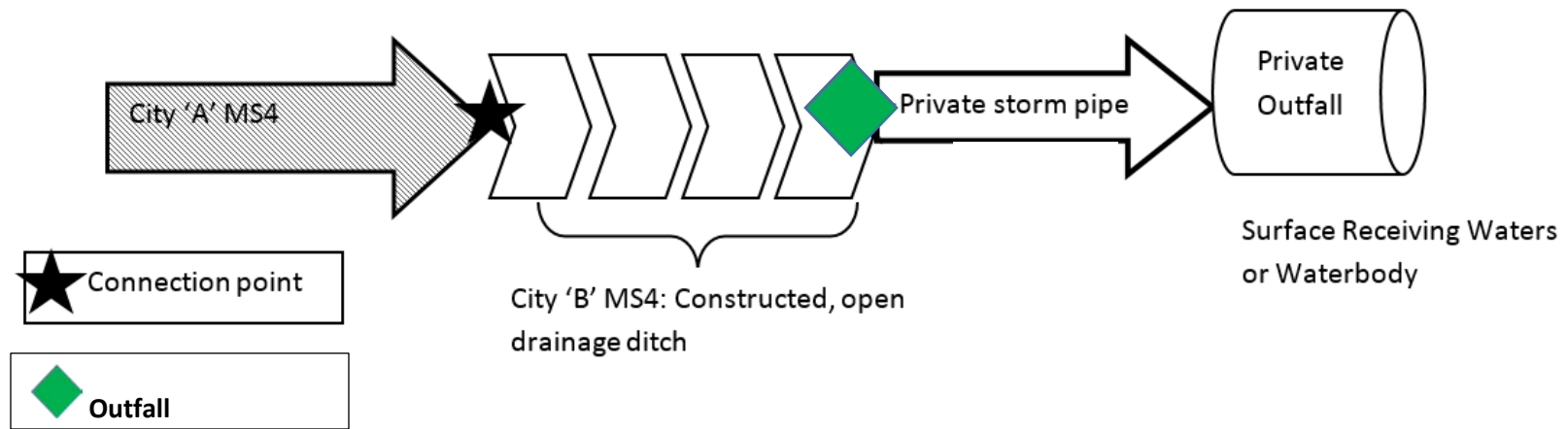


Figure 4. Example of two MS4s discharging to a private storm system with an MS4 outfall.

In Figure 4, City 'A' should map the Connection Point where its MS4 discharges to City 'B's open drainage ditch. City B would map the location where the drainage ditch (part of the MS4) discharges to the private storm system as an outfall, this is because City B knows that the MS4 discharges to a surface receiving water after it leaves its system. The private infrastructure would not be required to be mapped per the Permit, although this may be helpful for a permittee's program. The UIC well must follow UIC Program rules and is not required to be mapped per the Phase I or II Permit requirements.

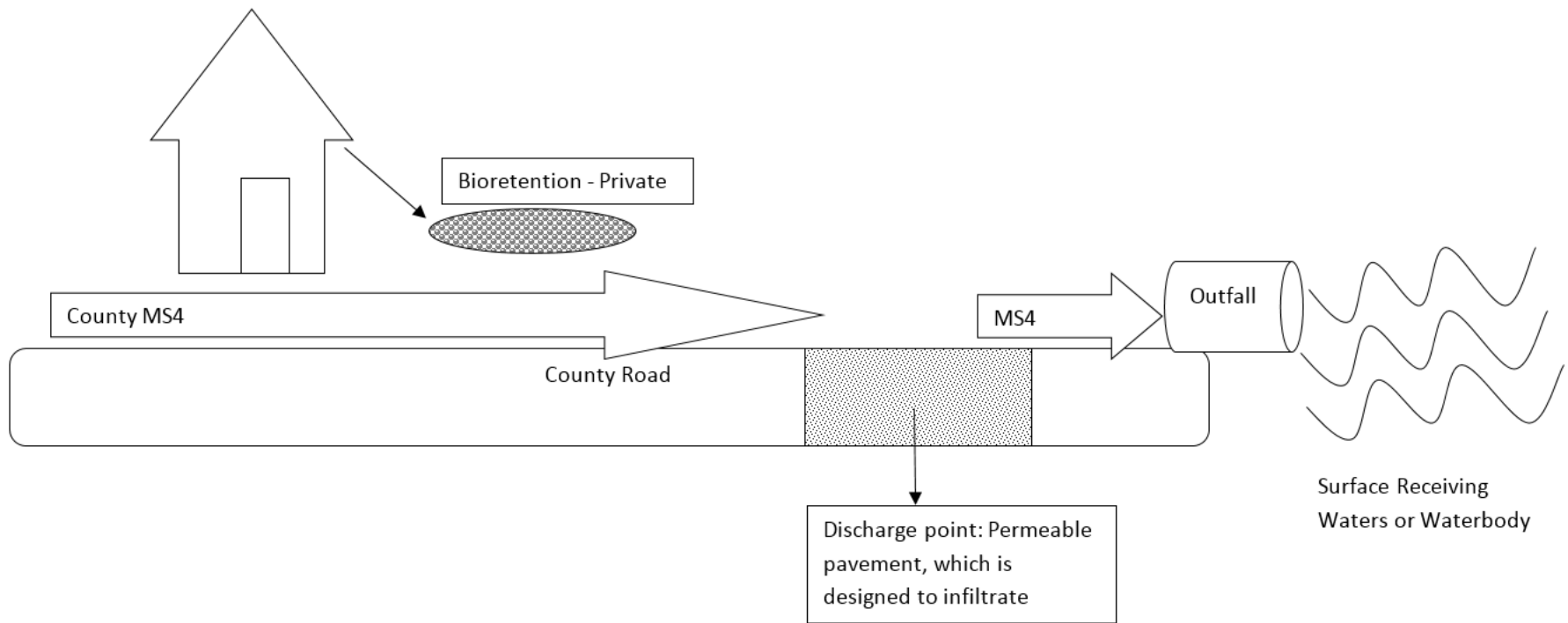


Figure 5. Examples of several types of stormwater BMPs near and within the MS4 system.

In Figure 5, the permeable pavement, which has been designed to infiltrate stormwater runoff, would be mapped as a discharge point. The bioretention facility located on private property would not be mapped as a discharge point or an outfall because it is not part of the permittee’s MS4. However, if either the bioretention facility, or the permeable pavement were constructed to help meet Appendix 1 Minimum Requirements #6, #7, or both, then these facilities would be considered stormwater treatment/flow control BMPs/facilities and the public facility (i.e. permeable pavement in this case) would be mapped as a **permanent stormwater facility**. The point where there is a discharge from the MS4 to receiving waters would be mapped as an outfall.





Figure 7. Municipal system to private stormwater system.


In this scenario, the City maps the location where discharge leaves the MS4 and enters the private stormwater system as an outfall because the City has knowledge the discharge will enter a surface receiving water. 



Figure 8. In this scenario, the City maps the location where discharge leaves the MS4 as an outfall because the City has knowledge the discharge will enter a surface receiving water.

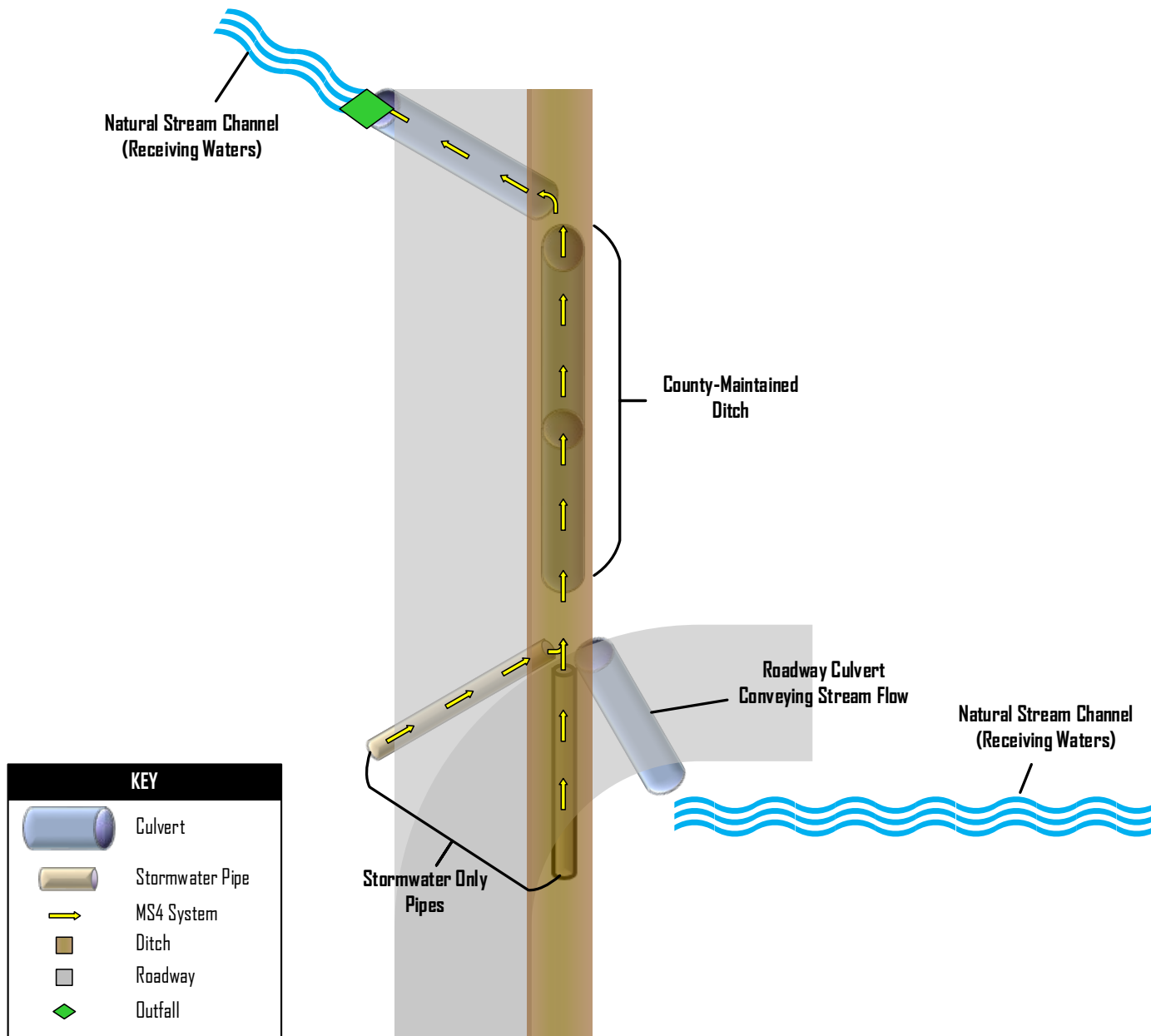


Figure 9. Mapping MS4 outfall locations

In this scenario, two MS4 stormwater pipes discharge to a County maintained ditch that conveys both stormwater and streamflow. If these stormwater pipes are instead City-owned, the two upstream stormwater pipes would be connections between the City and County MS4s.

The County-owned enclosed pipe discharges both stormwater and streamflow to a natural stream channel, where the ditch discharges to the natural stream is the outfall.

The Permittee is only required to map tributary conveyances and attributes to outfalls and discharge points that are ≥ 24 inches in normal diameter.

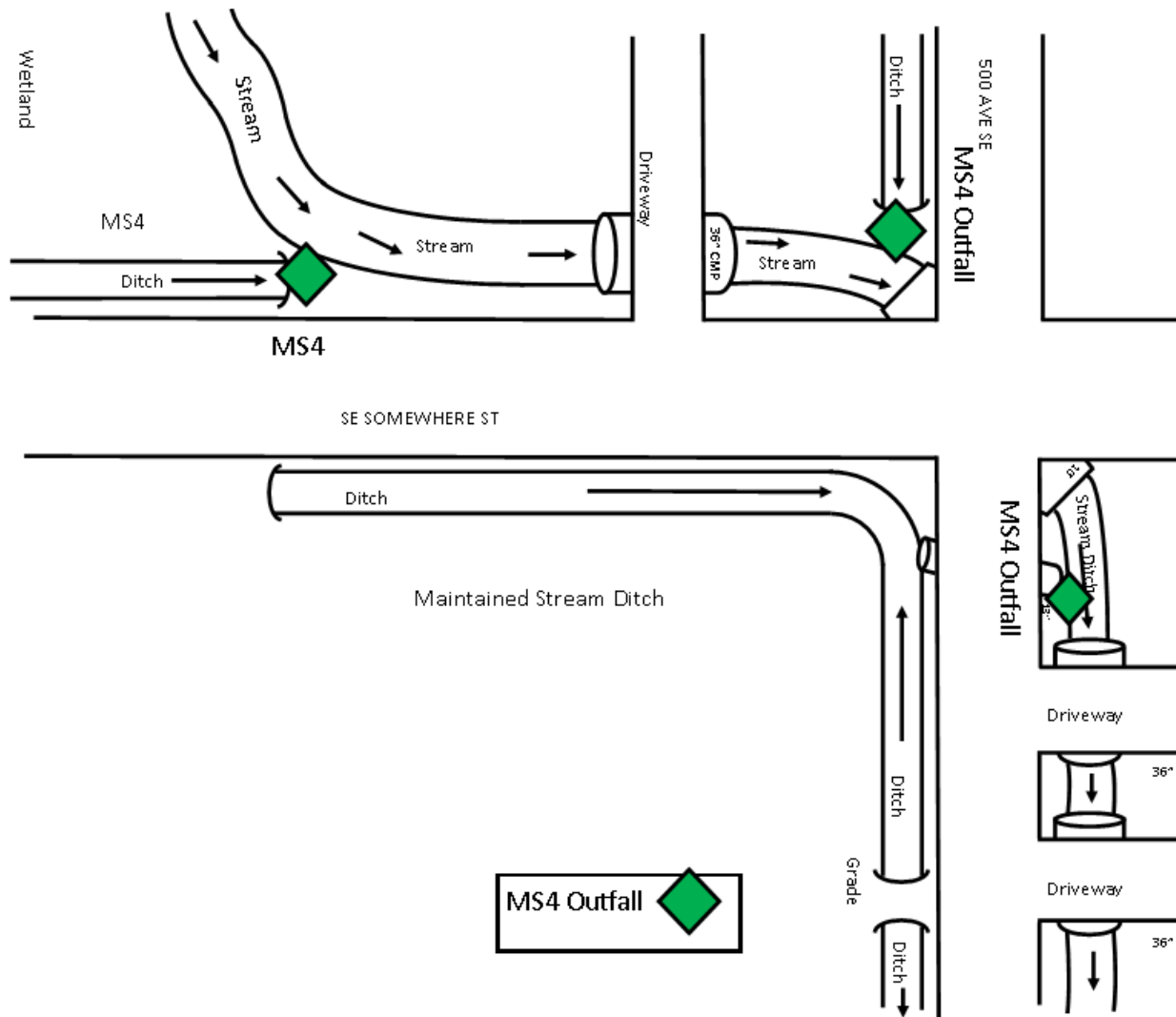


Figure 10. Mapping MS4 outfall locations

In this scenario, three MS4 outfalls are mapped within this commingled stream and MS4 ditched system.

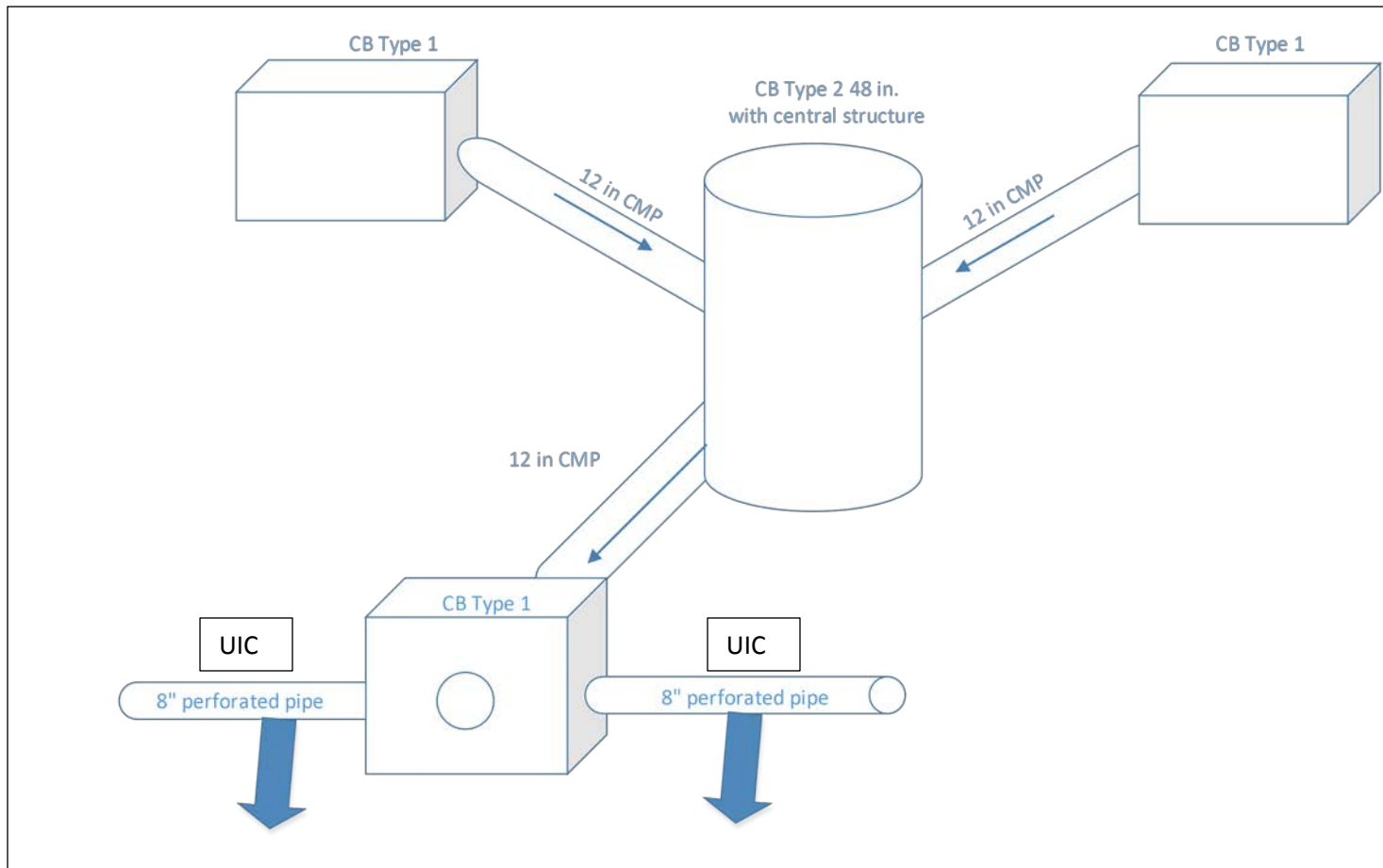


Figure 11. 'Is it a discharge point, a UIC or an outfall?' scenario.

In this scenario, the perforated pipe represents an infiltration trench, which meets the definition of a UIC. As such, the Permittee is not required to map this UIC. However, as aforementioned, the Permittee may find it useful to map this UIC from a system maintenance standpoint. Hypothetically, if this structure did not meet the definition of a UIC, but was designed to infiltrate stormwater, it should be mapped as a discharge point.

