# Memorandum

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| To | Laurie Chambers<br>NBBJ<br>88 Kearny Street, Suite 900<br>San Francisco, CA 94108 | Date | January 22, 2013 |
| Copies | Heather Wiggins, NBBJ<br>Project File | Reference number | 227518-01/TC |
| From | Tristan Cooke, PE, LEED-AP | File reference | |
| Subject | Samsung – City of San Jose Site Development Permit | | |

Laurie-
In response to the City's comments on Samsung's Site Development Permit, dated January 14, 2013; Arup is pleased to provide the below narrative on the Low Impact Design (LID) techniques used on site in the design to-date.

The City of San Jose requires projects to treat 100% of the proposed stormwater runoff with surface LID treatment measures. LID treatment measures include rainwater harvesting, infiltration, and bio-treatment. LID treatment reduction credits can be applied to urban infill, high density, or transit-oriented projects that meet specific criteria for "Special Projects". This project qualifies as a transit-oriented "Special Project" and up to a 70% LID Treatment Reduction Credit, see attached Special Projects Worksheet for details.

Where LID treatment measures are not feasible, the project will implement tree wells, media filters, and other non-LID stormwater treatment techniques into the stormwater design where applicable. The landowner does not own another development site within this watershed to act as an offset project, and to our knowledge a regional project within the same watershed doesn't exist to act as an alternative compliance.

Due to existing site constraints it is infeasible to treat 100% of the proposed stormwater runoff with surface LID measures. According to the updated 2006 North San Jose Floodplain Management Study, the site is located within Zone OA and X. Based on this Study the ultimate blockage must not exceed 75% of the site perpendicular to the flow of the flood (south to north). This constraint limits the maximum elevations onsite; this accompanied by the surrounding existing developments and public roadways, results in a relatively flat site. The change in elevation across the site, due to these existing developments, limits the opportunity to convey stormwater at-grade.

As stated in the geotechnical report, clay soils present on site result in low permeability rates, and eliminate infiltration as a LID treatment measure. Per the City of San Jose Screening Worksheet, rainwater harvesting and use for toilet flushing has been determined to be not feasible for this project. As a result of these constraints, the LID treatment feature used on site is limited to bio-treatment. Both the geotechnical report and Screening Worksheet are attached for reference.

# Memorandum

The current stormwater strategy captures and treats as much stormwater runoff in surface LID stormwater treatment measures as feasible, prior to discharge to the municipal system. In locations where surface LID stormwater treatment features cannot be implemented in to the design, pervious pavement, flow through planters, and non-LID stormwater treatment measures will be implemented where applicable. We have included in this Site Development Permit package a Stormwater Control Plan, supplemental calculations, and worksheets that go into greater detail of the catchment areas, treatment measures used, and discharge points to the municipal system.

To aid in the City's review of this project we have attached the following documents as part of this Site Development Permit submittal:

1. Project Data Form
2. Screening Worksheet
3. Infiltration Worksheet
4. Special Projects Worksheet
5. Rainwater Harvesting Worksheet
6. Geotechnical Report

As the design progresses stormwater runoff control measures will be developed per the City of San Jose's standards and implemented into the design. Stormwater runoff control measures will including, but not limited to, pervious paving, bio-swales, and tree preservation/planting.

In addition to the runoff control measures, source controls will be implemented into the design, including "DRAINS TO BAY" labels on catch basins, a covered loading dock, and regular maintenance of stormwater infrastructure.

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# PROJECT DATA FORM

**Which Projects Must Comply with Stormwater Requirements?**

**All projects** that create and/or replace **10,000 sq. ft.** or more of **impervious surface** on a project site are Regulated Projects, and must fill out this worksheet.

**All projects involving restaurants, auto service facilities, retail gasoline outlets, and uncovered parking lots** (stand-alone or part of another development project, including the top uncovered portion of a parking structure) that create and/or replace **5,000 sq. ft.** or more of impervious surface on a project site are Special Land Use Categories (which are also Regulated Projects), and must fill out this worksheet.

The purpose of this worksheet is to describe and document a Regulated Project's compliance with Provision C.3 of the Municipal Regional Stormwater NPDES Permit (MRP), including the listing of its specific stormwater-related site design, source control, and treatment measures, treatment system sizing requirements, hydromodification management applicability, and operation and maintenance data. All Regulated Projects must fill out this worksheet and submit it to the Planning Division of the Department of Planning, Building and Code Enforcement with the development project application.

Interior remodeling projects, routine maintenance or repair projects such as re-roofing and re-paving, and single family homes that are not part of a larger plan of development are **NOT** required to complete this worksheet.

Contact Planning Division staff to determine if the project meets Smart Growth **Special Projects** criteria to potentially receive LID treatment reduction credits.

**What is an Impervious Surface?**

An impervious surface is a surface covering or pavement that prevents the land's natural ability to absorb and infiltrate rainfall/stormwater. Impervious surfaces include, but are not limited to rooftops, driveways, parking lots, walkways, and any other continuous watertight pavement or covering. However, pervious pavement, underlain with pervious soil or pervious storage material (e.g., drain rock), that infiltrates rainfall at a rate equal to or greater than surrounding unpaved areas OR that stores and infiltrates the water quality design volume specified in Provision C.3.d of the MRP, is not considered an impervious surface.

**For More Information**

For more information, refer to San Jose's *City Council Policy 6-29: Post Construction Urban Runoff Management* and *City Council Policy 8-14: Post-Construction Hydromodification Management*, both of which are available online at San Jose Planning's Stormwater Management webpage.

## 1. Project Information:

**Project Name:** Samsung Semiconductor, Inc. **APN #:** 097-53-026 and 097-53-027 **File No.:** _____

**Project Address:** 3655 North 1st Street, San Jose, CA

**Cross Streets:** North 1st Street & Tasman Drive

**Applicant/Developer Name:** Samsung Semiconductor, Incorporated

**Project Engineer:** Mr. Tristan Cooke, PE

**Project Type** (Check all that apply):

☐ Residential ☐ Commercial ☐ Industrial ☐ Mixed Use ☐ Public ☐ Institutional

☐ Restaurant ☐ Uncovered Parking ☐ Retail Fuel Outlet ☒ Other: Office, R&D, Light Industrial

☐ Auto Service, categorized as Standard Industrial Classification (SIC) Codes: 5013-5014, 5541, 7532-7534, 7536-7539 (list applicable SIC Code(s)): _____

**Project Description:**

Office & R&D facility (10 Story) with support amenity spaces and landscaped exterior spaces.

**Project Watershed** (Baylands, Calabazas, Coyote, Guadalupe, or San Tomas): Guadalupe

## 2. Project Data:

| PERVIOUS AND IMPERVIOUS SURFACES COMPARISON TABLE | | | |
|---|---|---|---|
| **a. Project Phase Number (N/A, 1, 2, 3, etc.):** | N/A | **b. Total Site (acres):** | 9.44 |
| **c. Total Site Existing Impervious Surfaces (square feet):** | 315,160 | **d. Total Area of Site Disturbed (acres):** | 9.44 |

| **e. Impervious Surfaces** | **Existing Condition of Site Area Disturbed (square feet)** | **Proposed Condition of Site Area Disturbed (square feet)** | |
|---|---|---|---|
| | | **Replaced[1]** | **New[2]** |
| Roof Area(s) | 108,940 | 153,413 | 28,087 |
| Parking | 189,940 | 0 | 0 |
| Sidewalks, Patios, Driveways, etc. | 16,280 | 70,665 | 44,470 |
| Streets (public) | 0 | 0 | 0 |
| Streets (private) | 0 | 0 | 1,105 |
| **Total Impervious Surfaces:** | **e.1:** 315,160 | **e.2:** 224,078 | **e.3:** 73,662 |
| **f. Pervious Surfaces** | | | |
| Landscaped Areas | 95,895 | 33,223 | 46,462 |
| Pervious Paving | 0 | 0 | 33,650 |
| Other Pervious Surfaces (green roof, etc.) | 0 | 0 | 0 |
| **Total Pervious Surfaces:** | **f.1:** 95,895 | **f.2:** 33,223 | **f.3:** 80,112 |

| | |
|---|---|
| **g. Total Proposed Replaced + New Impervious Surfaces (e.2 + e.3):** | 297,740 |
| **h. Total Proposed Replaced + New Pervious Surfaces (f.2 + f.3):** | 113,335 |

| | |
|---|---|
| **i. Percent of Replacement of Impervious Area in redevelopment projects (e.2 ÷ c x 100):** | 71.10 % |

**Table Footnotes:**

[1]**Proposed Replaced Impervious Surface:** All impervious surfaces added to any area of the site that was a previously existing impervious surface.

[2]**Proposed New Impervious Surface:** All impervious surfaces added to any area of the site that was a previously existing pervious surface.

## 3. MRP Provision C.3 Applicability:

a. Is #2.g. equal to **10,000** sq. ft. or more, or **5,000** sq. ft. or more for restaurants, auto service facilities, retail gas outlets, and uncovered parking?

☒ Yes, C.3. source control, site design and treatment requirements apply.

☐ No, C.3. source control and site design requirements apply.

b. Is #2.i. equal to or greater than 50%?

☒ Yes, C.3. site design, source control, and treatment requirements apply to entire site.

☐ No, C.3. site design, source control, and treatment requirements only apply to the area of site disturbed.

## 4. Selection of Specific Stormwater Control Measures (Check all that apply):

### Site Design Measures

- ☒ Protect existing trees, vegetation, and soil.
- ☒ Preserve open space and natural drainage patterns.
- ☒ Reduce existing impervious surfaces.
- ☐ Create new pervious areas:
  - ☒ Landscaping.
  - ☒ Parking stalls.
  - ☒ Walkways and patios.
  - ☒ Emergency vehicle access.
  - ☒ Private streets and sidewalks.
- ☒ Direct runoff from roofs, sidewalks, patios to landscaped areas.
- ☒ Cluster structures/pavement.
- ☒ Plant trees adjacent to and in parking areas and adjacent to other impervious areas.
- ☐ Parking:
  - ☒ On top of or under buildings.
  - ☒ Not provided in excess of Code.
- ☐ Rainwater harvesting and use (e.g., rain barrel, cistern connected to roof drains).[1]
- ☐ Install a Green Roof on all or a portion of the roof.
- ☐ Protected riparian and wetland areas/ buffers.
- ☐ Other: _____

### Source Control Measures

- ☐ Connect the following features to sanitary sewer:[2]
  - ☒ Covered trash/ recycling enclosures.
  - ☒ Interior parking structures.
  - ☒ Wash area/ racks.
  - ☒ Pools, spas, fountains.
  - ☒ Covered loading docks and maintenance bays.
  - ☒ Pumped groundwater. (if required)
- ☐ Service stations/ fueling areas (must include all four below):

| | |
|---|---|
| Grade fueling areas to prevent ponding. | Use concrete for the fuel area surface. |
| Separate the fueling area from the rest of the site by a grade breaks that prevent run-on. | Cover the fueling areas with a canopy extending a minimum of ten feet from each pump. |

- ☐ Industrial, outdoor material storage, and recycling facilities (must include all four below):

| | |
|---|---|
| Stockpile material on an impervious surface or under permanent roof or covering, as appropriate. | Direct ponded water to the sanitary sewer,[2] onsite treatment system(s), or to offsite disposal. |
| Install berms or curbing to prevent runoff from the storage/ processing areas. | Segregate pollutant generating activities into a distinct drainage management area(s) and provide treatment. |

- ☒ Beneficial landscaping.[3]
- ☐ Use of water efficient irrigation systems.

### *Source Control Measures (continued)*

- ☒ Maintenance (pavement sweeping, catch basin cleaning, good housekeeping).
- ☒ Storm drain labeling.
- ☐ Other: _____

### Treatment Systems

#### *LID Treatment*

- ☒ Impervious surface(s) drains to a self-retaining area(s) that is sized per the design criteria listed in the SCVURPPP C.3 Stormwater Handbook.
- ☐ Rainwater harvest and use (e.g., cistern or rain barrel sized for C.3.d treatment).
- ☐ Infiltration basin.
- ☐ Infiltration trench.
- ☐ Exfiltration trench.
- ☒ Underground detention and infiltration system (e.g. pervious pavement drain rock, large diameter pipe).

#### *Biotreatment*[4]

- ☒ Bioretention area.
- ☒ Flow-through planter.
- ☐ Tree box w/ bioretention soil.[5]
- ☐ Other: _____

#### *Other Treatment Methods*

- ☐ Proprietary tree box filter.[6]
- ☐ Media filter (sand, compost, or proprietary media).[6]
- ☐ Vegetated filter strip.[7]
- ☐ Dry detention basin.[7]
- ☐ Other: _____

[1] As a site design measure, it does not have to be sized to comply with Provision C.3.d treatment requirements.
[2] Subject to sanitary sewer authority requirements.
[3] Landscaping that minimizes irrigation and runoff, promotes surface infiltration where possible, and minimizes the use of pesticides and fertilizers.
[4] Biotreatment measures are allowed only with completed feasibility analysis showing that infiltration and rainwater harvest and use are infeasible
[5] Bioretention soils shall infiltrate runoff at a minimum of 5 inches per hour during the life of the facility and sustain healthy, vigorous plant growth.
[6] These treatment measures are only allowed if the project qualifies as a "Special Project".
[7] These treatment measures are only allowed as part of a multi-step treatment process.

5. **Treatment System Sizing for Projects with Treatment Requirements:**
Indicate the hydraulic sizing criteria used and provide the calculated design flow or volume to be treated (Complete the table below, and then continue to Section 6):

| Treatment System Component | Hydraulic Sizing Criteria Used[8] | Design Flow or Volume (cfs or cu.ft.) |
|---|---|---|
| Bio-Retention Swale/Basin | 3 | 3,100 CF |
| | | |
| | | |

[8]Key: 1a: Volume – WEF Method
1b: Volume – CASQA BMP Handbook Method
2a: Flow – Factored Flood Flow Method
2b: Flow – CASQA BMP Handbook Method
2c: Flow – Uniform Intensity Method
3: Combination Flow and Volume Design Basis

6. **Hydromodification Management (HM) Applicability:**
   a. Does project create and/or replace one acre or more of impervious surface AND create an increase in total impervious surface from the pre-project condition (i.e., is 2.g. > 2.e.1 and > one acre)?
      ☐ Yes, continue to Section 6.b.
      ☒ No, exempt from HM. Continue to Section 8.
   b. Is the project located in an area of HM applicability (green area) on the HM Applicability Map?
      ☐ Yes, project must implement HM requirements. Continue to Section 7.
      ☒ No, project is exempt from HM requirements. Continue to Section 8.

7. **Selection of Specific Flow Duration Controls for Hydromodification Management (HM) (Check all that apply and then continue to Section 8):**

☐ Detention basin. ☐ Underground tank or vault. ☐ Bioretention with outlet control. ☐ Other:_____

8. **Operation & Maintenance (O&M) Information:**
   a. Property Owner's Information:
      1. Name: TBD
      2. Company: _____
      3. Address: _____
      4. Phone/E-mail: _____
   b. Responsible Party (if different than the Property Owner) for Stormwater Treatment/ Hydromodification Control O&M:
      1. Name: TBD
      2. Company: _____
      3. Address: _____
      4. Phone/E-mail: _____

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# Screening Worksheet for Determining Infiltration and/or Harvesting and Use Feasibility for Compliance with C.3 Treatment Requirements

*Complete this form to determine if Infiltration and/or Rainwater Harvesting and Use are feasible or infeasible Low Impact Development (LID) treatment measures for your* ***C.3 Regulated Project.***** See the Glossary (Attachment 1) for definitions of terms marked with an asterisk (*). Contact the Planning Project Manager to determine if the project is smart growth development that meets* ***Special Project**** *criteria included in the Municipal Regional Permit. If the project meets Special Project criteria, it may receive LID treatment reduction credits.*

## APPLICATION INFORMATION

**1. Contact Information**

Contact Person Name: Mr. Tristan Cooke, PE Project Name: Samsung Semiconductor, Inc.
Site Address: 3655 North 1st Street, San Jose, CA APN: 097-53-026 & 097-53-027 File No.:
Phone No.: (415) 957-9445 E-Mail: tristan.cooke@arup.com
Mailing Address: 560 Mission Street, Suite 700 San Francisco, CA 94105

## INFILTRATION FEASIBILITY ANALYSIS

**2. Evaluate the Feasibility for Infiltration**

Do site soils either (a) have a **saturated hydraulic conductivity*** (Ksat) that will NOT allow infiltration of 80% of the annual runoff (that is, the Ksat is LESS than 1.6 inches/hour), or, if the Ksat rate is not available, (b) consist of Type C or D soils?[1]

- ☒ Yes – Infiltration is infeasible. Continue to Section 3.
- ☐ No – Infiltration might be feasible. Complete the Infiltration Feasibility Worksheet and Continue to Section 6.

## RECYCLED WATER USE

**3. Recycled Water Use**

Check one of the boxes below to indicate if the project is installing and using a recycled water plumbing system for non-potable water use.

- ☐ Yes – The project is installing a recycled water plumbing system, and the installation of a second non-potable water system for harvested rainwater is impractical, and considered infeasible due to cost considerations. Continue to Section 6.
- ☒ No – The project is not installing a recycled water plumbing system. Continue to Section 4.

## RAINWATER CAPTURE ANALYSIS

**4. Calculate the Potential Rainwater Capture Area* for Screening of Potential Rainwater Harvesting and Use**

*Complete this section for the entire project area. Note: If rainwater harvesting and use is infeasible for the entire site, and the project includes one or more buildings that each have an individual roof area of 10,000 sq. ft. or more, then it will be necessary to complete Sections 4 and 5 of this form for each of these buildings (after completing the 'entire project area' analysis).*

[1] Base this response on the site-specific soil report. If this is not available, consult the soil hydraulic conductivity map in Attachment 3.
*For definitions, see Glossary (Attachment 1).

**4.1** Complete Table 1. This table represents the **entire project area.**

**Table 1: Calculation of the Potential Rainwater Capture Area***
*The Potential Rainwater Capture Area may consist of the entire project area.*

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | Pre-Project Total Site Existing Impervious Surfaces[2] (sq. ft.) | Proposed Impervious Surfaces[2] (IS) of Site Area Disturbed (sq. ft.) | | Post-Project Landscaped Areas for Site Area Disturbed (sq. ft.) |
| | | Replaced[3] IS | New[4] IS | |
| a. Enter the totals for the area to be evaluated: | 315,160 | 224,078 | 73,662 | 113,335 |
| b. Sum of replaced and new impervious surfaces: | N/A | 297,740 | | N/A |
| c. Area of existing impervious surfaces that will NOT be replaced by the project: | 0 | N/A | | N/A |

**4.2** Answer this question for the entire project area ONLY. If existing impervious surface will be replaced by the project, does the area to be replaced equal 50% or more of the total existing impervious surface? *(Refer to Table 1, Row "a". Is the area in Column 2 > 50% of Column 1?)*

☒ Yes – C.3 stormwater treatment requirements apply to areas of impervious surface that will remain in place as well as the area created and/or replaced.

☐ No – C.3 requirements apply only to the impervious area created and/or replaced because the project **does not** include alteration of more than 50% of the total existing impervious surfaces.

**4.3** Enter the square footage of the **Potential Rainwater Capture Area***. If you answered "no" to Question 4.2, this amount is from Row "b" in Table 1. If you answered "yes" to Question 4.2, this amount is the sum of Rows "b" and "c" in Table 1: 297,740 sq. ft.

**4.4** Convert the measurement of the **Potential Rainwater Capture Area*** from square feet to acres (divide the amount in Item 4.3 by 43,560): 6.84 acres.

**4.5** Does the project have at least one **building roof area of 10,000 square feet** or more? If so, **complete Table 2 and Items 4.6 and 4.7 below** (if not, continue to Item 5). Attach additional tables for each additional individual building roof area of 10,000 sq. ft. or more, as applicable.

**Table 2: Calculation of the Potential Rainwater Capture Area***
*The Potential Rainwater Capture Area may consist of a building(s) with a roof area(s) of 10,000 sq. ft. or more.*

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| | Pre-Project Total Site Existing Impervious Surfaces[5] (sq. ft.) | Proposed Impervious Surfaces[2] (IS) of the Building Roof Area (sq. ft.) | | Post-Project Landscaped Areas for Site Area Disturbed (sq. ft.) |
| | | Replaced[3] IS | New[4] IS | |
| a. Enter the totals for the area to be evaluated: | N/A | 153,413 | 28,087 | 113,335 |
| b. Sum of replaced and new impervious surfaces: | N/A | 181,500 | | N/A |
| c. Area of existing impervious surfaces that will NOT be replaced by the project: | N/A | N/A | | N/A |

**4.6** Enter the square footage of the **Potential Rainwater Capture Area*** from Row "b" in Table 2: 181,500 sq. ft.

**4.7** Convert the measurement of the **Potential Rainwater Capture Area*** from square feet to acres (divide the amount in Item 4.6 by 43,560): 4.17 acres.

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[2] Enter the total of all impervious surfaces, including the building footprint, driveway(s), patio(s), impervious deck(s), unroofed porch(es), uncovered parking lot (including top deck of parking structure), impervious trails, miscellaneous paving or structures, and off-lot impervious surface (new, contiguous impervious surface created from road projects, including sidewalks and/or bike lanes built as part of new street). Impervious surfaces do NOT include vegetated roofs or pervious pavement that stores and infiltrates rainfall at a rate equal to immediately surrounding, unpaved landscaped areas, or that stores and infiltrates the **C.3.d amount of runoff***.

[3] "Replaced" means that the project will install impervious surface where existing impervious surface is removed.

[4] "New" means the project will install impervious surface where there is currently no impervious surface.

[5] Enter the total of the building's roof area. Impervious surfaces do NOT include appropriately-designed vegetated roofs.

*For definitions, see Glossary (Attachment 1).

## RAINWATER HARVESTING AND USE FOR LANDSCAPE IRRIGATION FEASIBILITY ANALYSIS

**5. Evaluate the Feasibility for Rainwater Harvesting and Use**

**5.1** Is the onsite Post-Project Landscaping Area (*refer to the number in Column 4 of Table 1 if evaluating for entire site area, or the number in Column 4 of Table 2 if evaluating for an individual roof area*) LESS than 2.5 times the size of the **Potential Rainwater Capture Area*** (*refer to the number in Section 4.3 if evaluating for entire site area, or the number in Section 4.6 if evaluating for an individual roof area*)? (Note: landscape area(s) have to be contiguous and within the same Drainage Management Area to use harvested rainwater for irrigation via gravity flow.)

- ☒ Yes – Harvesting and Use for landscape irrigation is infeasible. Continue to Section 5.2.
- ☐ No – Harvesting and Use for landscape irrigation might be feasible. Direct runoff from impervious areas to **self-retaining areas*** OR refer to Table 11 on page 33 and the curves in Appendix F of the BASMAA Feasibility Criteria Report to evaluate feasibility of harvesting and using the C.3.d amount of runoff for irrigation.

## RAINWATER HARVESTING AND USE FOR TOILET FLUSHING OR NON-POTABLE INDUSTRIAL USES FEASIBILITY ANALYSIS

**5.2** Depending on the type for project you are evaluating, complete the appropriate Subsection(s) below (5.2.a through 5.2.e) to determine if harvested rainwater can be used for toilet flushing or non-potable industrial uses:

**a. Residential Projects:** Proposed number of dwelling units: _____

Calculate the dwelling units per impervious acre by dividing the number of dwelling units by the acres of the **Potential Rainwater Capture Area*** in Item 4.4 (if evaluating the entire project area) or in Item 4.7 (if evaluating the roof area of a building).

When evaluating the entire project area, enter the result here: _____
When evaluating the roof area of a building, enter the result here: _____

Is the number of dwelling units per impervious acre LESS than 120 (assumes 2.34 occupants/unit[6])?

- ☐ Yes – Harvest and Use is infeasible. Continue to Section 6.
- ☐ No – Harvest and Use might be feasible. Complete the Rainwater Harvesting and Use Feasibility Worksheet.

**b. Commercial/Industrial Projects:** Proposed interior floor area: 577,340 sq. ft.

Calculate the proposed interior floor area (sq. ft.) per acre of impervious surface by dividing the interior floor area (sq. ft.) by the acres of the **Potential Rainwater Capture Area*** in Item 4.4 (if evaluating the entire project area) or in Item 4.7 (if evaluating the roof area of a building).

When evaluating the entire project area, enter the result here: 577,340/ 6.57= 87,875 sf/acre
When evaluating the roof area of a building, enter the result here: 577,340/ 4.72 = 122,318 sf/acre

Does square footage of the interior floor space per impervious acre equal LESS than 70,000?

- ☐ Yes – Harvest and Use is infeasible. Continue to Section 6.
- ☒ No – Harvest and Use might be feasible. Complete the Rainwater Harvesting and Use Feasibility Worksheet.

**c. School Projects:** Proposed interior floor area: _____ sq. ft.

Calculate the proposed interior floor area per acre of impervious surface by dividing the interior floor area (sq. ft.) by the acres of the **Potential Rainwater Capture Area*** in Item 4.4 (if evaluating the entire project area) or in Item 4.7 (if evaluating the roof area of a building).

When evaluating the entire project area, enter the result here: _____
When evaluating the roof area of a building, enter the result here: _____

Does square footage of the interior floor space per impervious acre equal LESS than 21,000?

- ☐ Yes – Harvest and Use is infeasible. Continue to Section 6.
- ☐ No – Harvest and Use might be feasible. Complete the Rainwater Harvesting and Use Feasibility Worksheet.

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[6] Source: U.S. Census Bureau, 2006-2010 American Community Survey.
*For definitions, see Glossary (Attachment 1).

d. **Mixed Commercial and Residential Use Projects:**

- Evaluate the residential toilet flushing demand based on the dwelling units per impervious acre for the residential portion of the project, following the instructions in Item 5.2.a, except you will use a prorated acreage of impervious surface, based on the percentage of the project dedicated to residential use.
- Evaluate the commercial toilet flushing demand per impervious acre for the commercial portion of the project, following the instructions in Item 5.2.b, except you will use a prorated acreage of impervious surface, based on the percentage of the project dedicated to commercial use.

e. **Industrial Projects:** Estimated non-potable water demand (gallons/day): _____

Is the non-potable demand LESS than 2,400 gallons/day per acre of the Potential Rainwater Capture Area?

☐ Yes – Harvest and Use is infeasible. Continue to Section 6.

☐ No – Harvest and Use might be feasible. Refer to the curves in Appendix F of the BASMAA Feasibility Criteria Report to evaluate feasibility of harvesting and using the C.3.d amount of runoff for industrial use.

## BIOTREATMENT DETERMINATION

**6. Complete Sections 6.1 through 6.4 below to determine if Biotreatment facilities can be used to comply with C.3 treatment requirements**

**6.1** Were all the "Yes" boxes in Section 2: Feasibility for Infiltration checked?

☐ Yes – Continue to Section 6.2.

☒ No – Complete the Infiltration Feasibility Worksheet.

**6.2** Were all the "Yes" boxes in Section 3: Recycled Water Use checked?

☐ Yes – Continue to Section 7.

☒ No – Complete to Section 6.3.

**6.3** Were all the "Yes" boxes in Section 5: Feasibility for Rainwater Harvesting and Use checked?

☐ Yes – Continue to Section 6.4.

☒ No – Complete the Rainwater Harvesting and Use Feasibility Worksheet.

**6.4** If only "Yes" boxes were checked for questions 6.1 through 6.3 above, then the applicant may use appropriately designed **biotreatment facilities** for compliance with C.3 treatment requirements. The applicant is encouraged to maximize infiltration of stormwater as site conditions allow.

## SUMMARY RESULTS OF THE ENTIRE SCREENING WORKSHEET ANALYSIS

**7. Based on this screening worksheet, the following steps will be taken (check all that apply)**

☒ Infiltration and/or Harvest and Use are infeasible. Appropriately-designed biotreatment measures will be used to comply with C.3 treatment requirements.

☐ Infiltration might be feasible. Applicant will conduct further analysis of infiltration feasibility by completing the Infiltration Feasibility Worksheet.

☐ Harvest and Use might be feasible. Applicant will conduct further analysis of rainwater harvesting and use by (check one):

- ☐ Completing the Rainwater Harvesting and Use Feasibility Worksheet for:
  - ☐ The entire project area.
  - ☐ Individual building(s) with a roof area(s) of 10,000 sq. ft. or more, if applicable, describe: _____
- ☐ Evaluating the feasibility of harvesting and using the C.3.d amount of runoff for irrigation, based on Table 11 (on page 33) and the curves in Appendix F of the BASMAA LID Feasibility Criteria Report.
- ☐ Evaluating the feasibility of harvesting and using the C.3.d amount of runoff for non-potable industrial use, based on the curves in Appendix F of the BASMAA LID Feasibility Criteria Report.

*For definitions, see Glossary (Attachment 1)

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

# Infiltration Feasibility Worksheet

**Municipal Regional Stormwater NPDES Permit (MRP)**
**Stormwater Controls for Development Projects**

*Complete this worksheet for* **C.3 Regulated Projects*** *for which the soil hydraulic conductivity (Ksat) exceeds 1.6. Use this checklist to determine the feasibility of treating the* **C.3.d *amount of runoff**** *with infiltration. Where it is infeasible to treat the C.3.d amount of runoff* with infiltration or rainwater harvesting and use, stormwater may be treated with* **biotreatment*** *measures.*

*See Glossary (Attachment 1) for definitions of terms marked with an asterisk (*).*

## 1. Enter Project Data

| | | |
|---|---|---|
| 1.1 | Project Name: | Samsung Semiconductor, Inc. |
| 1.2 | Project Address: | 3655 North 1st Street, San Jose, CA |
| 1.3 | Applicant/Agent Name: | Mr. Tristan Cooke, PE |
| 1.4 | Applicant/Agent Address: | 560 Mission Street, Suite 700 San Francisco, CA 94105 |
| 1.5 | Applicant/Agent Email: | tristan.cooke@arup.com |

Applicant/Agent Phone: (415) 957-9445

## 2. Evaluate Infiltration Feasibility

*Check "Yes" or "No" to indicate whether the following conditions apply to the project. If "Yes" is checked for any question, then infiltration is infeasible, and you can continue to Item 3.1 without answering any further questions in Section 2. If all of the answers in Section 2 are "No," then infiltration is feasible, and you may design* ***infiltration facilities**** *for the area from which runoff must be treated. Items 2.1 through 2.3 address the feasibility of using* ***infiltration facilities****, as well as the potential need to line bioretention areas.*

| | | Yes | No |
|---|---|---|---|
| 2.1 | Would infiltration facilities at this site conflict with the location of existing or proposed underground utilities or easements, or would the siting of infiltration facilities at this site result in their placement on top of underground utilities, or otherwise oriented to underground utilities, such that they would discharge to the utility trench, restrict access, or cause stability concerns? (*If yes, attach evidence documenting this condition.*) | ☐ | ☒ |
| 2.2 | Is there a documented concern that there is a potential on the site for soil or groundwater pollutants to be mobilized? (*If yes, attach documentation of mobilization concerns.*) | ☐ | ☒ |
| 2.3 | Are geotechnical hazards present, such as steep slopes, areas with landslide potential, soils subject to liquefaction, or would an infiltration facility need to be built less than 10 feet from a building foundation or other improvements subject to undermining by saturated soils? (*If yes, attach documentation of geotechnical hazard.*) | ☒ | ☐ |

Respond to Questions 2.4 through 2.8 only if the project proposes to use an **infiltration device*.**

| | | | |
|---|---|---|---|
| 2.4 | Do local water district or other agency's policies or guidelines regarding the locations where infiltration may occur, the separation from seasonal high groundwater, or setbacks from potential sources of pollution prevent infiltration devices from being implemented at this site? (*If yes, attach evidence documenting this condition.*) | ☐ | ☐ |
| 2.5 | Would construction of an infiltration device require that it be located less than 100 feet away from a septic tank, underground storage tank with hazardous materials, or other potential underground source of pollution? (*If yes, attach evidence documenting this claim.*) | ☐ | ☐ |

## Infiltration Feasibility Worksheet

| | | Yes | No |
|---|---|---|---|
| 2.6 | Is there a seasonal high groundwater table or mounded groundwater that would be within 10 feet of the base of an infiltration device* constructed on the site? (*If yes, attach documentation of high groundwater.*) | ☐ | ☐ |
| 2.7 | Are there land uses that pose a high threat to water quality – including but not limited to industrial and light industrial activities, high vehicular traffic (i.e., 25,000 or greater average daily traffic on a main roadway or 15,000 or more average daily traffic on any intersecting roadway), automotive repair shops, car washes, fleet storage areas, or nurseries? (*If yes, attach evidence documenting this claim.*) | ☐ | ☐ |
| 2.8 | Is there a groundwater production well within 100 feet of the location where an infiltration device would be constructed? (*If yes, attach map showing the well.*) | ☐ | ☐ |

### 3. Results of Feasibility Determination

| | | Infeasible | Feasible |
|---|---|---|---|
| 3.1 | Based on the results of the Section 2 feasibility analysis, infiltration is (check one): | ☒ | ☐ |

*→ If "FEASIBLE" is indicated for Item 3.1, then the amount of stormwater requiring treatment must be treated with infiltration (or rainwater harvest and use, if feasible).* ***Infiltration facilities**** *may be designed for the area from which runoff must be treated.*

*→ If "INFEASIBLE" is checked for item 3.1, then the applicant may use appropriately designed biotreatment facilities for compliance with C.3 treatment requirements. The applicant is encouraged to maximize infiltration of stormwater if site conditions allow.*

Tristan Cooke
Name of Applicant (Print)

Name of Applicant (Sign)

1/22/2013
Date

*See Glossary (Attachment 1) for definitions of terms marked with an asterisk (*).*

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

# SPECIAL PROJECTS WORKSHEET

*Complete this worksheet to determine if the Regulated Project meets the Special Project criteria to receive LID treatment reduction credits. Special Projects are smart growth projects (e.g., small urban infill, high density, or transit oriented development) that can receive LID treatment reduction credits and use specific types of non-LID treatment, but only after the use of onsite and offsite LID treatment is evaluated. This Special Projects determination, and whether onsite and offsite LID treatment is feasible or infeasible, is subject to the Planning Division's review and approval.*

**1. Project Information:**

**Project Name:** Samsung Semiconductor, Inc. **APN #:** 097-53-026 & 097-53-027 **File No.:** _____

**Project Address:** 3655 North 1st Street, San Jose, CA

**Applicant/Developer Name:** Mr. Tristan Cooke, PE

**2. Feasibility/Infeasibility of Onsite and Offsite LID Treatment:**

☒ A Narrative Discussion is attached that describes the feasibility or infeasibility of using 100% LID treatment, onsite and offsite, as part of the project's stormwater management plan. (Note: See Appendix J, Section J.7 of the SCVURPPP C.3 Stormwater Handbook for complete narrative discussion instructions in order to use any LID treatment reduction credits identified in Section 4 below).

**3. "Special Project" Determination:**

**Special Project Category "A" – Small Infill Projects:**

Does the project have ALL of the following characteristics?

- ☐ Located in a San José designated downtown core area or downtown core zoning district, neighborhood business district, or historic preservation district;[1]
- ☐ Creates and/or replaces 0.5 acres or less of impervious surface;
- ☐ Includes no surface parking;[2] and
- ☐ Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment.

☒ No – Continue to Special Project Category "B" below.

☐ Yes – Complete Section 4, Category A below of the LID Treatment Reduction Credit Calculation.

**Special Project Category "B" – High Density Projects:**

Does the project have ALL of the following characteristics?

- ☐ Located in a San José designated downtown core area or downtown core zoning district, neighborhood business district, or historic preservation district[1];
- ☐ Creates and/or replaces an area of impervious surface that is greater than 0.5 acres, and no more than 2.0 acres;
- ☐ Includes no surface parking[2];
- ☐ Has at least 85% coverage of the entire site by permanent structures. The remaining 15% portion of the site may be used for safety access, parking structure entrances, trash and recycling service, utility access, pedestrian connections, public uses, landscaping and stormwater treatment; and
- ☐ Minimum density of either 50 dwelling units per acre (for residential projects) or a Floor Area Ratio (FAR) of 2:1 (for commercial or mixed use projects).

☒ No – Continue to Special Project Category "C" below.

☐ Yes – Complete Section 4, Category B below of the LID Treatment Reduction Credit Calculation.

---

[1] See Special Projects Criteria Maps located at the following links: Special Projects Category A (Small Infill) and B (High Density) Location Criteria and Special Projects Category C Transit Oriented Development Location Criteria.

[2] Except for incidental parking for emergency vehicle access, ADA access, and passenger or freight loading zones.

**Special Project Category "C" – Transit Oriented Development Projects:**

Does the project have ALL of the following characteristics?

- ☐ At least 50% of the project area is within 1/2 mile of an existing or planned transit hub[3] or 100% within a Priority Development Area (PDA)[4];
- ☐ The project is characterized as a non-auto-related use[5]; and
- ☐ Minimum density of either 25 dwelling units per acre (for residential projects) or a Floor Area Ratio (FAR) of 2:1 (for commercial or mixed use projects).

☐ No (if "No" was selected in Categories A, B and C, the project does not qualify as a Special Project).

☒ Yes – Complete Section 4, Category C below of the LID Treatment Reduction Credit Calculation.

**4. LID Treatment Reduction Credit Calculation:**

(Note: Projects that qualify in multiple Special Project Categories may use the LID Treatment Reduction Credit from only one category.)

| Category | Impervious Area Created/Replaced[6] (acres) | Site Coverage (%) | Project Density (DU/Ac or FAR) | Density/Criteria | Allowable Credit (%) | Applied Credit (%) |
|---|---|---|---|---|---|---|
| A | | | N.A. | N.A. | 100% | |
| | | | | | **Total Category A Credit:** | |
| B | | | | Res ≥ 50 DU/ac or FAR ≥ 2:1 | 50% | |
| | | | | Res ≥ 75 DU/ac or FAR ≥ 3:1 | 75% | |
| | | | | Res ≥ 100 DU/ac or FAR ≥ 4:1 | 100% | |
| | | | | | **Total Category B Credit:** | |
| C | N.A. | N.A. | N.A. | **Location credit (select one):**[7] | | |
| | | | | Within ¼ mile of existing/planned transit hub | 50% | X |
| | | | | Within ½ mile of existing/planned transit hub | 25% | |
| | | | | Within a PDA | 25% | |
| | | | 2.97 | **Density credit (select one):** | | |
| | | | | Res ≥ 30 DU/ac or FAR ≥ 2:1 | 10% | X |
| | | | | Res ≥ 60 DU/ac or FAR ≥ 4:1 | 20% | |
| | | | | Res ≥ 100 DU/ac or FAR ≥ 6:1 | 30% | |
| | | | N.A. | **Parking credit (select one):** | | |
| | | | | ≤ 10% at-grade surface parking[8] | 10% | X |
| | | | | No surface parking[9] | 20% | |
| | | | | | **Total Category C Credit:** | 70% |

[3] Existing "Transit hub" is defined as a rail, light rail, or commuter rail station, ferry terminal, or bus transfer station served by three or more bus routes (Note: A bus stop with no supporting services does not qualify). Planned transit hub is a station on the MTC's Regional Transit Expansion Program list, per MTC's Resolution 3434 (revised April 2006).

[4] "PDA" is an infill development area formally designated by the ABAG/MTC's FOCUS regional planning program.

[5] Category C excludes stand-alone surface parking lots; car dealerships; auto and truck rental facilities with onsite surface storage; restaurants, banks or pharmacies with drive-through lanes; gas stations; car washes; auto repair and service facilities; or other auto-related projects that are unrelated to the concept of transit oriented development.

[6] To calculate impervious area created/replaced, use the square footage shown in 2.g of the Pervious and Impervious Surfaces Comparison Table of the City of San Jose Project Data Form and then convert it to acres (÷ by 43,560).

[7] To qualify for the Transit Hub location credit, at least 50% of the project's site must be located within the ¼ mile or ½ mile radius of an existing or planned transit hub. To qualify for the PDA location credit, 100% of the project site must be located within a PDA.

[8] The at-grade surface parking must be treated with LID treatment measures.

[9] Except for incidental parking for emergency vehicle access, ADA access, and passenger or freight loading zones.

CITY OF SAN JOSE
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# Rainwater Harvesting and Use Feasibility Worksheet

**Municipal Regional Stormwater NPDES Permit (MRP)**

**Stormwater Controls for Development Projects**

Complete this worksheet for all **C.3 Regulated Projects*** for which the project density exceeds the **screening density*** provided by municipal staff. Use this worksheet to determine the feasibility of treating the **C.3.d amount of runoff*** with rainwater harvesting and use for indoor, non-potable water uses. Where it is infeasible to treat the C.3.d amount of runoff with either harvesting and use or infiltration, stormwater may be treated with **biotreatment*** measures.

See Glossary (Attachment 1) for definitions of terms marked with an asterisk (*).

Complete this worksheet for the entire project area. If rainwater harvesting and use is infeasible for the entire project, and the project includes one or more buildings that each individually has a roof area of 10,000 square feet, then complete a separate copy of this form for each of these buildings (in this case, complete only the sections of the form that make sense for the roof area evaluation).

## 1. Enter Project Data

| | | |
|---|---|---|
| 1.1 | Project Name: | Samsung Semiconductor, Inc. |
| 1.2 | Project Address: | 3655 North 1st Street, San Jose, CA |
| 1.3 | Applicant/Agent Name: | Mr. Tristan Cooke, PE |
| 1.4 | Applicant/Agent Address: | 560 Mission Street, Suite 700 San Francisco, CA 94105 |

*(For projects with a potential non-potable water use other than toilet flushing, skip to Question 5.1)*

| | | | | |
|---|---|---|---|---|
| 1.5 | Project Type: | Office, R&D, Light Industrial | If residential or mixed use, enter # of dwelling units: | N/A |
| 1.6 | | | Enter square footage of non-residential interior floor area: | 577,340 |
| 1.7 | **Potential rainwater capture area*:** | | 205,607 | sq.ft. |
| 1.8 | If it is a **Special Project***, indicate the percentage of **LID treatment*** reduction: *(Item 1.8 applies only to entire project evaluations, not individual roof area evaluations.)* | | 70 | percent |
| 1.9 | Total potential rainwater capture area that will require LID treatment: *(This is the total rain capture area remaining after any Special Project LID treatment reduction is applied.)* | | 61,682 | sq.ft. |

## 2. Calculate Area of Self-Treating Areas, Self-Retaining Areas, and Areas Contributing to Self-Retaining Areas

| | | | |
|---|---|---|---|
| 2.1 | Enter square footage of any **self-treating areas*** in the area that is being evaluated: | 33,650 | sq.ft. |
| 2.2 | Enter square footage of any **self-retaining areas*** in the area that is being evaluated: | 6,000 | sq.ft. |
| 2.3 | Enter the square footage of areas contributing runoff to **self-retaining area***: | 251,000 | sq.ft. |
| 2.4 | TOTAL of Items 2.1, 2.2, and 2.3: | 290,650 | sq.ft. |

## 3. Subtract Credit for Self-Treating/Self-Retaining Areas from Area Requiring Treatment

| | | | |
|---|---|---|---|
| 3.1 | Subtract the TOTAL in Item 2.4 from the potential rainwater capture area in Item 1.9: | -228,968 | sq.ft. |
| 3.3 | Convert the remaining area required for treatment in Item 3.1 from square feet to acres: | -5.26 | acres |

## 4. Determine Feasibility of Use for Toilet Flushing Based on Demand

| | | | |
|---|---|---|---|
| 4.1 | Project's dwelling units per acre of adjusted potential rain capture area (Divide the number in 1.5 by the number in 3.3): | | dwelling units/acre |
| 4.2 | Non-residential interior floor area per acre of adjusted potential rain capture area (Divide the number in 1.6 by the number in 3.3): | -105,958 | Int. non-res. floor area/acre |

*Note: formulas in Items 4.1 and 4.2 are set up, respectively, for a residential or a non-residential project. Do not use these pre-set formulas for mixed use projects. **For mixed use projects**, evaluate the residential toilet flushing demand based on the dwelling units per acre for the residential portion of the project (use a prorated acreage, based on the percentage of the project dedicated to residential use). Then evaluate the commercial toilet flushing demand per acre for the commercial portion of the project (use a prorated acreage, based on the percentage of the project dedicated to commercial use).*

## Rainwater Harvesting and Use Feasibility Worksheet

4.3 Refer to the applicable countywide table in Attachment 2. Identify the number of dwelling units per impervious acre needed in your Rain Gauge Area to provide the toilet flushing demand required for rainwater harvest feasibility: _____ dwelling units/acre

4.4 Refer to the applicable countywide table in Attachment 2. Identify the square feet of non-residential interior floor area per impervious acre needed in your Rain Gauge Area to provide the toilet flushing demand required for rainwater harvest feasibility: 70,000 int. non-res. floor area/acre

*Check "Yes" or "No" to indicate whether the following conditions apply. If "Yes" is checked for any question, then rainwater harvesting and use is infeasible. As soon as you answer "Yes", you can skip to Item 6.1. If "No" is checked for all items, then rainwater harvesting and use is feasible and you must harvest and use the C.3.d amount of stormwater, unless you infiltrate the C.3.d amount of stormwater*.*

| | | | |
|---|---|---|---|
| 4.5 | Is the project's number of dwelling units per acre of adjusted area requiring treatment (listed in Item 4.1) LESS than the number identified in Item 4.3? | ☐ Yes | ☒ No |
| 4.6 | Is the project's square footage of non-residential interior floor area per acre of adjusted area requiring treatment (listed in Item 4.2) LESS than the number identified in Item 4.4? | ☒ Yes | ☐ No |

### 5. Determine Feasibility of Rainwater Harvesting and Use Based on Factors Other Than Demand

| | | | |
|---|---|---|---|
| 5.1 | Does the requirement for rainwater harvesting and use at the project conflict with local, state, or federal ordinances or building codes? | ☐ Yes | ☐ No |
| 5.2 | Would the technical requirements cause the harvesting system to exceed 2% of the Total Project Cost, or has the applicant documented economic hardship in relation to maintenance costs? (*If so, attach an explanation.*) | ☐ Yes | ☐ No |
| 5.3 | Do constraints, such as a slope above 10% or lack of available space at the site, make it infeasible to locate on the site a cistern of adequate size to harvest and use the C.3.d amount of water? (*If so, attach an explanation.*) | ☐ Yes | ☐ No |
| 5.4 | Are there geotechnical/stability concerns related to the surface (roof or ground) where a cistern would be located that make the use of rainwater harvesting infeasible? (*If so, attach an explanation.*) | ☐ Yes | ☐ No |
| 5.5 | Does the location of utilities, a septic system and/or **heritage trees*** limit the placement of a cistern on the site to the extent that rainwater harvesting is infeasible? (*If so, attach an explanation.*) | ☐ Yes | ☐ No |
| 5.6 | Does the project include other features (i.e., waterless urinals, composting toilets) that reduce the non-potable water demand below the Required Demands identified in Table 10 on page 32 of the BASMAA LID Feasibility Criteria Report? | ☐ Yes | ☐ No |

*Note 1: It is assumed that projects with significant amounts of landscaping will either treat runoff with landscape dispersal (self-treating and self-retaining areas) or will evaluate the feasibility of havesting and using rainwater for irrigation using the curves in Appendix F of the BASMAA LID Feasibility Ciriteria Report.*

### 6. Results of Feasibility Determination

| | | Infeasible | Feasible |
|---|---|---|---|
| 6.1 | Based on the results of the feasibility analysis in Item 4.4 and Section 5, rainwater harvesting/use is (check one): | ☒ | ☐ |

→ *If "FEASIBLE" is indicated for Item 6.1 the amount of stormwater requiring treatment must be treated with harvesting/use, unless it is infiltrated into the soil.*

→ *If "INFEASIBLE" is checked for Item 6.1, then the applicant may use appropriately designed* ***bioretention*****[1]** *facilities for compliance with C.3 treatment requirements. If Ksat > 1.6 in./hr., and infiltration is unimpeded by subsurface conditions, then the bioretention facilities are predicted to infiltrate 80% or more average annual runoff. If Ksat < 1.6, maximize infiltration of stormwater by using bioretention if site conditions allow, and remaining runoff will be discharged to storm drains via facility underdrains. If site conditions preclude infiltration, a lined bioretention area or flow-through planter may be used.*

Tristan Cooke
Name of Applicant (Print)

Name of Applicant (Sign) 1/22/2013 Date

1 Bioretention facilities designed to maximize infiltration with a raised underdrain may also be called **bioinfiltration facilities***.

* See definitions in Glossary (Attachment 1).