San Tomas Expressway Widening and San Tomas Aquino Creek Spur Trail Project
Santa Clara County, California
July 2013

Stormwater Management Plan

Prepared for:

Prepared by:
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1 PROJECT DESCRIPTION

The San Tomas Expressway Widening and San Tomas Aquino Creek Spur Trail Project (Project) will widen San Tomas Expressway from six to eight lanes, which is an additional traffic lane in both the northbound and southbound directions, and adding outside shoulders in both directions between El Camino Real and Homestead Road (see Figure 1 and Figure 2 for the Project location and vicinity maps). The project will also construct a Class 1 Pedestrian and Bicycle Trail on the west side of San Tomas Expressway between El Camino Real and Homestead Road; a sidewalk on the east side of the San Tomas Expressway between El Camino Real and Homestead Road; and the associated intersection improvements, which will provide traffic relief throughout this portion of the expressway. The lane widths will be reduced from 12 ft to 11 ft to accommodate for the additional lanes, sidewalk, and spur trail. In addition, the proposed Project will replace existing substandard soundwalls along San Tomas Expressway between El Camino Real and Homestead Road. Required landscaping shall also be installed.

Figure 1. Project Location Map

Source: Google Earth
Figure 2. Project Vicinity Map

Source: U.S. Geological Survey (USGS)
The added impervious area, reworked area, required treatment area, and disturbed soil area (DSA) of the San Tomas Expressway Widening and San Tomas Aquino Creek Spur Trail projects are summarized in Table 1.

Table 1. Added Impervious, Reworked, and Disturbed Soil Areas

<table>
<thead>
<tr>
<th>Description</th>
<th>Area (ac.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Added Impervious</td>
<td>2.40</td>
</tr>
<tr>
<td>Reworked Impervious</td>
<td>1.06</td>
</tr>
<tr>
<td>Required Treatment</td>
<td>3.46</td>
</tr>
<tr>
<td>Total DSA</td>
<td>3.05</td>
</tr>
</tbody>
</table>

2 RECEIVING WATER AND SITE DATA

Based on Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) number 06085C0227H, the receiving water body is the San Tomas Aquinas Creek. Another water body near the Project site is Saratoga Creek, which is only a tributary to San Tomas Aquino Creek but not a Project receiving water body.

The Project is within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB). The Project is within hydrologic sub-area #205.50, which is described as being within the Santa Clara hydrologic unit and Palo Alto hydrologic area (confirmed using the California State University-Sacramento, Office of Water Programs’ Water Quality Planning Tool). According to the watershed boundary data set, the project is in the Saratoga Creek-Frontal San Francisco Bay Estuaries watershed and the San Tomas Aquino Creek (aka San Tomas Aquinas Creek) subwatershed. The average annual precipitation is 21.4 inches.

2.1 Soils

Based on the Preliminary Geologic Map of San Jose, 30 x 60-minute Quadrangle, California, the Project site is generally underlain by:

- Holocene levee deposits (Qhl): sandy and clayey silt ranging to sandy and silty clay, loose and moderately well sorted;
- Holocene basin deposits (Qhb): dark-colored clay and very fine silty clay; and
- Holocene Alluvial Fan Deposits (Qhf2 Older): brown gravelly sand and sandy clayey gravel.

According to the Geotechnical Engineering Report, San Tomas Expressway and Spur Trail Project between El Camino Real and Homestead Road, City of Santa Clara, California, clayey soils were predominantly encountered in the borings. All of the borings indicated clayey soils to a depth of at least 11 feet below ground surface (bgs). The surficial clays were generally very stiff to hard lean clays. Hard clays were also encountered from immediately below the pavement section to a depth of about 5 feet in several borings.
2.2 Groundwater
Based on the geotechnical report, groundwater was encountered during drilling in the 30 ft deep borings. Groundwater depths ranged from 11.5 ft to 18 ft bgs. Note that groundwater levels at the project site may change with passage of time due to groundwater fluctuations from season to season, weather conditions, and other factors which may not have been present at the time of the investigation.

<table>
<thead>
<tr>
<th>Receiving Water Body</th>
<th>303(d) Listed Pollutant</th>
<th>Potential Source</th>
<th>TMDL Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Tomas Aquino Creek</td>
<td>Trash</td>
<td>Illegal Dumping Urban Runoff/Storm Sewers</td>
<td>2021</td>
</tr>
<tr>
<td>San Francisco Bay, South</td>
<td>Chlordane</td>
<td>Nonpoint Source</td>
<td>2013</td>
</tr>
<tr>
<td></td>
<td>Invasive Species</td>
<td>Ballast Water</td>
<td>2019</td>
</tr>
<tr>
<td></td>
<td>PCBs</td>
<td>Unknown Nonpoint Source</td>
<td>2008</td>
</tr>
<tr>
<td></td>
<td>PCBs (dioxin-like)</td>
<td>Unknown Nonpoint Source</td>
<td>2019</td>
</tr>
<tr>
<td></td>
<td>Selenium</td>
<td>Domestic Use of Ground Water</td>
<td>2019</td>
</tr>
</tbody>
</table>

3 PERMANENT BMPS
The primary constraint for applying stormwater management measures in this Project is the amount of available space due to right-of-way limitations. The other constraint in this Project is utility conflicts. We are required to treat 3.46 acres, but the proposed bioretention swale would only treat 1.75 acres. The Project team would need to find offsite treatment locations to mitigate for the deficit of 1.71 acres.

The Drainage Details (see Appendix E) show a bioretention swale proposed along median of San Tomas Expressway between approximately 600 ft north of Homestead Road at “ST” 390+99 and approximately 200 ft south of Benton Street at “ST” 403+00. The bottom width of the bioretention swale has a 3-in. mulch layer, followed by an 18-in. bioretention soil mix, and then a 12-in. Class 2 permeable material (blanket), of which 8 in. is above a 4-in. perforated underdrain. The permeable material contains a fiber optic conduit. The location and depth will need to be verified in the field. (See Appendix E.) A waterproof fabric would be wrapped around these layers and keyed-in. There are seven 2 foot curb openings along the median for stormwater to enter the bioretention swale. The bioretention swale watershed maps are summarized in Table 3. (See Appendix E for watershed maps.)

<table>
<thead>
<tr>
<th>Description</th>
<th>Watershed Map</th>
<th>Treated Area (acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southbound 1 (SB-1)</td>
<td>WSM-1</td>
<td>0.85</td>
</tr>
<tr>
<td>Southbound 2 (SB-2)</td>
<td>WSM-2</td>
<td>0.58</td>
</tr>
<tr>
<td>Northbound 1 (NB)</td>
<td>WSM-2</td>
<td>0.32</td>
</tr>
<tr>
<td><strong>Total Treated Area</strong></td>
<td><strong>1.75</strong></td>
<td></td>
</tr>
</tbody>
</table>
3.1 Hydromodification Management Plan
This Project is exempt from hydromodification mitigation requirements because the Project site is draining to a hardened channel and/or tidal area as shown on the HMP Applicability Map, according to the Santa Clara Valley Urban Runoff Pollution Prevention Program’s Hydromodification Management Plan Final Report (see Appendix C).

4 CONSTRUCTION SITE BMPS
The Project Risk Level is 1, and the risk assessment is detailed in Section 5. This section presents the temporary construction site BMP strategy for this Project to meet Santa Clara County criteria and the requirements presented in the Construction General Permit (CGP).

The duration for the construction work for this Project is from February 2014 until fall 2015. Whenever possible, the scheduling of earth-disturbing construction activities should not be made during anticipated rain events. To mitigate potential runoff or run-on within the Project area, construction site BMPs should be installed prior to the start of construction or as early as feasibly possible during construction.

DSAs will be protected in accordance with the Project’s water pollution control measures. The construction site BMP strategy for this Project shall consist of the following:

- Soil Stabilization Measures
- Sediment Control Measures
- Non-stormwater Management Measures
- General Job Site Management

Soil stabilization and sediment control include placing linear sediment barriers such as silt fence at the toe of all excavation and embankment slopes, as well as at the top of all cut slopes to prevent erosion from run-on sources. Slope interruption devices such as fiber rolls would be installed at intervals as specified, and soil stabilizer would be hydraulically applied. Wherever possible, early implementation of permanent erosion control seeding or landscape planting would be performed.

Storm drain inlet protection would be deployed throughout the Project at all existing, temporary, and permanent drainage inlets.

There are areas adjacent to San Tomas Aquino Creek that would be designated as environmentally sensitive areas (ESAs) and protected with temporary high visibility fencing.

Currently, no in-water work, temporary creek diversion, and dewatering are anticipated in San Tomas Aquino Creek.

Various waste management, materials handling, and other housekeeping BMPs would be used throughout the duration of the Project. Stockpiles of various kinds are anticipated and shall be maintained with the appropriate BMPs.
For the San Tomas Expressway Widening Project, the Water Pollution Control Plans show:

- Silt Fence
- Fiber Roll
- Storm Drain Inlet Protection
- Paving and Grinding Operations
- Hydroseeding
- Concrete Washout Management
- Stabilized Construction Entrance/Exit

For the San Tomas Aquino Creek Spur Trail Project, the Water Pollution Control Plans show:

- Silt Fence
- Concrete Washout Management
- Environmentally Sensitive Area
- Storm Drain Inlet Protection
- Paving and Grinding Operations
- Hydroseeding
- Stabilized Construction Entrance/Exit

(See Appendix F for Water Pollution Control Plans.)

5 RISK ASSESSMENT

The CGP requirements include a risk assessment to determine the Project’s impact risk to receiving water bodies. The risk assessment uses measurements of the Project’s potential sediment risk and the sensitivity of the receiving water bodies to sediment to determine the risk level of the Project. This Project has a Low Sediment Risk Factor and a Low Receiving Water Risk Factor; the combined risk is Level 1. The risk factors are detailed in the following sections and summarized in Appendix D.

5.1 Sediment Risk

The sediment risk is based on the following equation from the CGP “Fact Sheet” (Section J.1.a pg. 28):

**Equation 1. Sediment Risk Equation**

\[ A = (R)(K)(LS)(C)(P) \]

Where:

- \( R \) = Runoff erosivity factor
- \( K \) = Soil erodibility factor
- \( LS \) = Length-slope
- \( C \) = Cover
P = Management operations and support practices
A = Rate of sheet and rill erosion (tons per acre)

Low sediment risk corresponds to rate of 1 – 15 tons per acre. High sediment risk corresponds to a rate of more than 75 tons per acre. A rate between 15 – 75 tons per acre is considered medium risk.

The rainfall runoff erosivity factor (R) of 35 was determined from the United States Environmental Protection Agency (EPA) “Rainfall Erosivity Factor Calculator for Small Construction Sites.”

The soil erodibility factor (K) of 0.37 was determined from the California State University, Sacramento’s Water Quality Planning Tool and the U.S. Department of Agriculture Natural Resources Conservation Service “Web Soil Survey.”

The length-slope factor (LS) of 0.21 was determined by examining the original grade delineated on the Typical Cross Sections included in the Contract Project Plans.

The cover factor (C) and management operations and support practices (P) are given values of 1.0 by the CGP to simulate bare ground conditions.

Based on these factors, the rate of sheet and rill erosion (A) is 2.72 tons per acre, which puts the sediment risk below 15 tons per acre; therefore, the sediment risk is low.

5.2 Receiving Water Body Risk
San Tomas Aquino Creek, also known as San Tomas Aquinas Creek, is the receiving water body which is located underground in a box culvert in the median of the San Tomas Expressway. There is an open channel (daylighted) portion of San Tomas Aquino Creek for a length of approximately 900 ft between approximately 600 ft south of El Camino Real and approximately 600 ft north of Benton Street. The San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan) was used to determine the beneficial uses of San Tomas Aquino Creek. The Basin Plan shows that San Tomas Aquino Creek has the beneficial uses of: Cold Freshwater Habitat (COLD), Preservation of Rare and Endangered Species (RARE), Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Water Contact Recreation (REC-1), and Noncontact Water Recreation (REC-2).

The U.S. Environmental Protection Agency’s approved California 2008-2010 Section 303(d) List of Impaired Waters labels the creek as “San Tomas Aquinas Creek,” which is polluted with trash for 9 miles due to illegal dumping (unpermitted discharges) and urban runoff/storm sewers. The expected total maximum daily load (TMDL) completion date is 2021.

Because San Tomas Aquino Creek does not have all three beneficial uses of Cold Freshwater Habitat (COLD), Fish Migration (MIGR), and Fish Spawning (SPWN) and it is not impaired with sediment, the receiving water body risk is considered low.
Appendix A  CWP questionnaire
Clean Water Questionnaire

1. Project Information

Project Name: San Tomas Expressway Widening and Spur Trail

APN # ___________________

Project Address: San Tomas Expressway

Cross Streets: From approximately 750 feet south of Homestead Road to El Camino Real

Applicant/Developer Name: County of Santa Clara, Department of Roads and Airports

Project Phase(s): ______ of ______  Engineer: ---

Project Type (Check all that apply):  ☐ New Development  ☑ Redevelopment

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

☐ Restaurant  ☐ Uncovered Parking  ☐ Retail Gas Outlet  ☐ Auto Service (SIC code) _______

☐ Other  ________________________________________

(5013-5014, 5541, 7532-7534, 7536-7539)

Project Description:
The San Tomas Expressway Widening and San Tomas Aquino Spur Trail Project will widen San Tomas Expressway from 6 lanes to 8 lanes, which is an additional traffic lane in both northbound and southbound directions, and adding outside shoulders in both directions between El Camino Real and Homestead Road. The project will also construct a Class 1 Pedestrian and Bicycle Trail on the west side of San Tomas Expressway between El Camino Real and Homestead Road,
a sidewalk on the east side of the San Tomas Expressway between El Camino Real and Homestead Road; and the associated intersection improvements, which will provide traffic relief throughout this portion of the expressway. This will be achieved by reducing the lane widths from 12 ft to 11 ft. In addition, the proposed project will replace existing substandard soundwalls on San Tomas Expressway between El Camino Real and Homestead Road. Furthermore, required landscaping shall also be installed.

Project Watershed/Receiving Water (creek, river or bay): __ San Tomas Aquino Creek ________

2. Project Size

<table>
<thead>
<tr>
<th>a. Total Site Area: 21.9 acre</th>
<th>b. Total Site Area Disturbed: 3.05 acres (including clearing, grading, or excavating)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Existing Area (ft²)</td>
</tr>
<tr>
<td></td>
<td>Replaced</td>
</tr>
<tr>
<td>Impervious Area</td>
<td></td>
</tr>
<tr>
<td>Roof</td>
<td></td>
</tr>
<tr>
<td>Parking</td>
<td></td>
</tr>
<tr>
<td>Sidewalks and Streets</td>
<td>648,270</td>
</tr>
<tr>
<td>c. Total Impervious Area</td>
<td>648,270</td>
</tr>
<tr>
<td>d. Total new and replaced impervious area</td>
<td>159,579 ft² (3.66 acre)</td>
</tr>
<tr>
<td>Pervious Area</td>
<td></td>
</tr>
<tr>
<td>Landscaping</td>
<td></td>
</tr>
<tr>
<td>Pervious Paving</td>
<td></td>
</tr>
<tr>
<td>Other (e.g. Green Roof)</td>
<td></td>
</tr>
<tr>
<td>e. Total Pervious Area</td>
<td></td>
</tr>
<tr>
<td>f. Percent Replacement of Impervious Area in Redevelopment Projects (Replaced Total Impervious Area ÷ Existing Total Impervious Area) x 100% = 7.12%</td>
<td></td>
</tr>
</tbody>
</table>

3. State Construction General Permit Applicability:
   a. Is #2.b. equal to 1 acre or more?
   ☑ Yes, applicant must obtain coverage under the State Construction General Permit (i.e., file a Notice of Intent and prepare a Stormwater Pollution Prevention Plan) (see www.swrcb.ca.gov/water_issues/programs/stormwater/construction.shtml for details).
   ☐ No, applicant does not need coverage under the State Construction General Permit.

4. MRP Provision C.3 Applicability:
   a. Is #2.d. 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 may apply – check with local agency
   b. Is #2.f. equal to 50% or more?
      ☐ Yes, C.3. requirements (site design and source control, as appropriate, and stormwater treatment) apply to entire site
      ☑ No, C.3. requirements only apply to impervious area created and/or replaced

5. Hydromodification Management (HM) Applicability:
   a. Does project create and/or replace one acre or more of impervious surface AND is the total post-project impervious area greater than the pre-project (existing) impervious area?
☑ Yes (continue)  ☐ No – exempt from HM, go to page 3

b. Is the project located in an area of HM applicability (green area) on the HM Applicability Map? ([www.scvurppp-w2k.com/hmp_maps.htm](http://www.scvurppp-w2k.com/hmp_maps.htm))

☐ Yes, project must implement HM requirements  
☑ No, project is exempt from HM requirements

6. Selection of Specific Stormwater Control Measures:

<table>
<thead>
<tr>
<th>Site Design Measures</th>
<th>Source Control Measures</th>
<th>Treatment Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>☑ Minimize land disturbed</td>
<td>☑ Alternative building materials</td>
<td>☐ None (all impervious surface drains to self-retaining areas)</td>
</tr>
<tr>
<td>☑ Minimize impervious surfaces</td>
<td>☑ Wash area/racks, drain to sanitary sewer&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>☑ Minimum-impact street or parking lot design</td>
<td>☑ Covered dumpster area, drain to sanitary sewer&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>☐ Cluster structures/pavement</td>
<td>☑ Sanitary sewer connection or accessible cleanout for swimming pool/spa/fountain&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>☐ Disconnected downspouts</td>
<td>☑ Beneficial landscaping (minimize irrigation, runoff, pesticides and fertilizers; promotes treatment)</td>
<td></td>
</tr>
<tr>
<td>☑ Pervious pavement</td>
<td>☑ Outdoor material storage protection</td>
<td></td>
</tr>
<tr>
<td>☑ Green roof</td>
<td>☑ Covers, drains for loading docks, maintenance bays, fueling areas</td>
<td></td>
</tr>
<tr>
<td>☑ Microdetention in landscape</td>
<td>☑ Maintenance (pavement sweeping, catch basin cleaning, good housekeeping)</td>
<td></td>
</tr>
<tr>
<td>☐ Other self-treating area</td>
<td>☑ Storm drain labeling</td>
<td></td>
</tr>
<tr>
<td>☑ Self-retaining area</td>
<td>☑ Other ________________</td>
<td></td>
</tr>
<tr>
<td>☐ Rainwater harvesting and use (e.g., rain barrel, cistern connected to roof drains)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>☑ Outdoor material storage protection</td>
<td></td>
</tr>
<tr>
<td>☐ Preserved open space: ________ ac. or sq. ft (circle one)</td>
<td>☑ Covers, drains for loading docks, maintenance bays, fueling areas</td>
<td></td>
</tr>
<tr>
<td>☑ Protected riparian and wetland areas/buffers (Setback from top of bank: ________ ft.)</td>
<td>☑ Maintenance (pavement sweeping, catch basin cleaning, good housekeeping)</td>
<td></td>
</tr>
<tr>
<td>☐ Other ________________</td>
<td>☑ Storm drain labeling</td>
<td></td>
</tr>
<tr>
<td>☐ Other ________________</td>
<td>☑ Other ________________</td>
<td></td>
</tr>
</tbody>
</table>

---

**LID Treatment**

☑ 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 conduit)

**Biotreatment**<sup>3</sup>

☑ Bioretention area

☐ Flow-through planter

☐ Tree box with bioretention soils

☐ Other ________________

---

**Other Treatment Methods**

☐ Proprietary tree box filter<sup>4</sup>

☐ Media filter (sand, compost, or proprietary media)<sup>4</sup>

☐ Vegetated filter strip<sup>5</sup>

☐ Dry detention basin<sup>5</sup>

☐ Other ________________
**Flow Duration Controls for Hydromodification Management (HM)**

- ☑ Detention basin
- ☐ Underground tank or vault
- ☑ Bioretention with outlet control
- □ Other

---

1. Optional site design measure; does not have to be sized to comply with Provision C.3.d treatment requirements.
2. Subject to sanitary sewer authority requirements.
3. Biotreatment measures are allowed only with completed feasibility analysis showing that infiltration and rainwater harvest and use are infeasible. Fill out Forms 1, 2 and 3 to determine feasibility, as applicable.
4. These treatment measures are only allowed if the project qualifies as a “Special Project”.
5. These treatment measures are only allowed as part of a multi-step treatment process.
7. Treatment System Sizing for Projects with Treatment Requirements

Indicate the hydraulic sizing criteria used and provide the calculated design flow or volume:

<table>
<thead>
<tr>
<th>Treatment System Component</th>
<th>Hydraulic Sizing Criteria Used&lt;sup&gt;3&lt;/sup&gt;</th>
<th>Design Flow or Volume (cfs or cu.ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bioretention Swale: “ST” 390+99 to “ST” 403+00</td>
<td>2b</td>
<td>0.333 cfs</td>
</tr>
</tbody>
</table>

<sup>3</sup>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

8. Operation & Maintenance Information

A. Property Owner’s Name  
   County of Santa Clara, Roads and Airports Department

B. Responsible Party for Stormwater Treatment/Hydromodification Control O&M:
   a. Name: _________________________________
   b. Address: ________________________________
   c. Phone/E-mail: __________________________

DEPT. OF PLANNING AND DEVELOPMENT, LDE STAFF USE ONLY

Questionnaire reviewed:

LDE: __________________________  
Date

Project Watershed
☐ San Francisco Bay  
☐ Monterey Bay

Project Category (check one):
☐ Regulate project  
☐ Regulated + HMP project  
☐ Exempt

O&M Responsibility Mechanism
☐ O&M Agreement  
☐ Other mechanism that assigns responsibility (describe below): ____________________________

Send copy of Form to: Clean Water Program
Appendix B    LID Feasibility Screening Worksheet
Form 1: Infiltration/Harvesting and Use Feasibility Screening Worksheet

Apply these screening criteria for C.3 Regulated Projects* required to implement Provision C.3 stormwater treatment requirements. See the Glossary (Attachment 1) for definitions of terms marked with an asterisk (*). Contact Land Development Engineering staff to determine whether the project meets Special Project* criteria. If the project meets Special Project criteria, it may receive LID treatment reduction credits.

1. Applicant Info
Site Address: San Tomas Expressway from approximately 750 feet south of Homestead Road to El Camino Real
APN:
Applicant Name: County of Santa Clara, Department of Roads and Airports Phone No.:
Mailing Address:

2. Feasibility Screening 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?
☐ Yes (do not fill out Form 2) ☐ No – complete the Form 2. If infiltration of the C.3.d amount of runoff is found to be feasible, there is no need to complete the rest of this screening worksheet.

3. Recycled Water Use
Check the box if the project is installing and using a recycled water plumbing system for non-potable water use.
☐ The project is installing a recycled water plumbing system, and installation of a second non-potable water system for harvested rainwater is impractical, and considered infeasible due to cost considerations. Skip to Section 6.

4. Calculate the Potential Rainwater Capture Area* for Screening of Harvesting and Use
Complete this section for the entire project area. 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 complete Sections 4 and 5 of this form for each of these buildings.

4.1 Table 1 for (check one):
☐ The whole project ☐ Area of 1 building roof (10,000 sq.ft. min.)

<table>
<thead>
<tr>
<th>Table 1: Calculation of the Potential Rainwater Capture Area*</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Potential Rainwater Capture Area may consist of either the entire project area or one building with a roof area of 10,000 sq. ft. or more.</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>Pre-Project Impervious surface* (sq.ft.), if applicable</td>
</tr>
<tr>
<td>Replaced IS</td>
</tr>
<tr>
<td>a. Enter the totals for the area to be evaluated:</td>
</tr>
<tr>
<td>b. Sum of replaced and created impervious surface:</td>
</tr>
<tr>
<td>c. Area of existing impervious surface that will NOT be replaced by the project.</td>
</tr>
</tbody>
</table>

---

1 Base this response on the site-specific soil report, if available. If this is not available, consult soil hydraulic conductivity maps in Attachment 3.
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 “Created” means the project will install new impervious surface where there is currently no impervious surface.
5 For definitions, see Glossary (Attachment 1).
4.2 Answer this question ONLY if you are completing this section for the entire project area. If existing impervious surface will be replaced by the project, does the area to be replaced equal 50% or more of the existing area of 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. This is known as the 50% rule.
☑ No, C.3. requirements apply only to the impervious area created and/or replaced.

4.3 Enter the square footage of the Potential Rainwater Capture Area*. If you are evaluating only the roof area of a building, or 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:

159,579 square feet.

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):

3.66 acres.

5. Feasibility Screening for Rainwater Harvesting and Use

5.1 Use of harvested rainwater for landscape irrigation:

Is the onsite landscaping LESS than 2.5 times the size of the Potential Rainwater Capture Area* (Item 4.3)? (Note that the landscape area(s) would have to be contiguous and within the same Drainage Management Area to use harvested rainwater for irrigation via gravity flow.)

☑ Yes (do not fill out Form 3)  ☐ No – Direct runoff from impervious areas to self-retaining areas*

OR refer to Table 11 and the curves in Appendix F of the LID Feasibility Report to evaluate feasibility of harvesting and using the C.3.d amount of runoff for irrigation.

5.2 Use of harvested rainwater for toilet flushing or non-potable industrial use:

a. Residential Projects: Proposed number of dwelling units: 0

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. Enter the result here:

0

Is the number of dwelling units per impervious acre LESS than 100 (assuming 2.7 occupants/unit)?

☑ Yes (do not fill out Form 3)  ☐ No – complete Form 3

b. Commercial/Industrial Projects: Proposed interior floor area: 0 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. Enter the result here:

0

Is the square footage of the interior floor space per impervious acre LESS than 70,000 sq. ft.?

☑ Yes (do not fill out Form 3)  ☐ No – complete the Form 3

c. School Projects: Proposed interior floor area: 0 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. Enter the result here:

0

Is the square footage of the interior floor space per impervious acre LESS than 21,000 sq. ft.?

☑ Yes (do not fill out Form 3))  ☐ No – complete Form 3

* 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.a, 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 (gal/day): ____________________________ 0 __________________________
   - Is the non-potable demand LESS than 2,400 gal/day per acre of the Potential Rainwater Capture Area?
     - Yes (do not fill out Form 3))
     - No – refer to the curves in Appendix F of the LID Feasibility Report to evaluate feasibility of harvesting and using the C.3.d amount of runoff for industrial use.

6. Use of Biotreatment
   - If only the “Yes” boxes were checked for all questions in Sections 2 and 5, or the project will have a recycled water system for non-potable use (Section 3), then the applicant may use appropriately designed bioretention facilities for compliance with C.3 treatment requirements. The applicant is encouraged to maximize infiltration of stormwater if site conditions allow.

7. Results of Screening Analysis
   - Based on this screening analysis, the following steps will be taken for the project (check all that apply):
     - Implement biotreatment measures (such as an appropriately designed bioretention area).
     - Conduct further analysis of infiltration feasibility by completing the Infiltration Feasibility Worksheet.
     - Conduct further analysis of rainwater harvesting and use (check one):
       - Complete the Rainwater Harvesting and Use Feasibility Worksheet for:
         - The entire project
         - Individual building(s), if applicable, describe: ________________________________
       - Evaluate the feasibility of harvesting and using the C.3.d amount of runoff for irrigation, based on Table 11 and the curves in Appendix F of the LID Feasibility Report
       - Evaluate 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 LID Feasibility Report.
Appendix C    HMP Applicability Map from Santa Clara Valley
Urban Runoff Pollution Prevention Program
Appendix D  Risk Level Determination
### Watershed Erosion Estimate

The watershed erosion estimate is calculated using the formula $R \times K \times LS$. Given the values:

- $R = 35$
- $K = 0.37$
- $LS = 0.21$

The estimate is $2.7195$ tons/acre.

### Sediment Risk Factor Worksheet

<table>
<thead>
<tr>
<th>Entry</th>
<th>Sediment Risk Factor Worksheet</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A) R Factor</strong></td>
<td>Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy ($E$) times the maximum 30-min intensity ($I_{30}$) (Wischmeier and Smith, 1958). The numerical value of $R$ is the average annual sum of $EI_{30}$ for storm events during a rainfall record of at least 22 years. &quot;Isoerodent&quot; maps were developed based on $R$ values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the $R$ factor for the project site. <a href="http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm">http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm</a></td>
</tr>
<tr>
<td>R Factor Value</td>
<td>35</td>
</tr>
<tr>
<td><strong>B) K Factor (weighted average, by area, for all site soils)</strong></td>
<td>The soil-erodibility factor $K$ represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low $K$ values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low $K$ values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate $K$ values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high $K$ values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.</td>
</tr>
<tr>
<td>K Factor Value</td>
<td>0.37</td>
</tr>
<tr>
<td><strong>C) LS Factor (weighted average, by area, for all slopes)</strong></td>
<td>The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, $L$, and a hillslope-gradient factor, $S$. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.</td>
</tr>
<tr>
<td>LS Factor Value</td>
<td>0.21</td>
</tr>
</tbody>
</table>

**Site Sediment Risk Factor**

- Low Sediment Risk: $<15$ tons/acre
- Medium Sediment Risk: $\geq 15$ and $<75$ tons/acre
- High Sediment Risk: $\geq 75$ tons/acre

**Low**
## Receiving Water (RW) Risk Factor Worksheet

<table>
<thead>
<tr>
<th>A. Watershed Characteristics</th>
<th>yes/no</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1. Does the disturbed area discharge (either directly or indirectly) to a <strong>303(d)-listed waterbody impaired by sediment</strong> (For help with impaired waterbodies please visit the link below) or has a <strong>USEPA approved TMDL implementation plan for sediment</strong>?:</td>
<td>no</td>
<td>Low</td>
</tr>
</tbody>
</table>

**OR**

A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY? (For help please review the appropriate Regional Board Basin Plan)

[http://www.waterboards.ca.gov/waterboards_map.shtml](http://www.waterboards.ca.gov/waterboards_map.shtml)

- Region 1 Basin Plan
- Region 2 Basin Plan
- Region 3 Basin Plan
- Region 4 Basin Plan
- Region 5 Basin Plan
- Region 6 Basin Plan
- Region 7 Basin Plan
- Region 8 Basin Plan
- Region 9 Basin Plan
**Combined Risk Level Matrix**

<table>
<thead>
<tr>
<th>Receiving Water Risk</th>
<th>Sediment Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Level 1</td>
</tr>
<tr>
<td></td>
<td>Level 2</td>
</tr>
<tr>
<td>High</td>
<td>Level 2</td>
</tr>
<tr>
<td></td>
<td>Level 3</td>
</tr>
</tbody>
</table>

- **Project Sediment Risk:** Low
- **Project RW Risk:** Low
- **Project Combined Risk:** Level 1
Appendix E  Bioretention Swale Details and Watershed Map
CONSTRUCTION NOTES
1. SCAFFOLD SUBGRADE BEFORE INSTALLING BIORETENTION AREA AGRICULTURE AND RV.
2. FACILITY DISSIPATION TO ALLOW FOR SPECIFIED SOIL AND MULCH DEPTH TO ACHIEVE FINISHED ELEVATIONS ON FINAL.
3. COMPACT EACH 6' FOOT OF RV WITH LANDSCAPE ROLLER OR BY LIGHTLY ROLLING. IF ROLLING, ALLOW DRY OVERNIGHT BEFORE PLANTING.
4. DO NOT WORK WITHIN BIORETENTION AREA DURING RAIN OR UNDER WET CONDITIONS.
5. KEEP HEAVY MACHINERY OUTSIDE BIORETENTION AREA LIMITS.
Appendix F  Water Pollution Control Plans Showing BMPs
1. The information on these plans is intended to be used as a guideline for the contractor and subcontractors to install water pollution control devices at general locations throughout the site. These drawings are to be used in conjunction with the narrative section of the water pollution control plan (WPCP).

2. Field conditions may necessitate modifications to these drawings.

3. Permanent erosion control will be installed as areas are determined to be substantially complete.

4. See stage construction plans for location and limits of construction.

5. Linear sediment controls (fiber rolls) will be deployed on designated slopes. The contractor shall apply linear sediment controls along the toe of the cut and fill slopes and at the grade breaks of the slope. Additionally, linear sediment controls will be used as a permeable control to contain sediment within the project area.

6. A staging area will be designated at the project site by the project manager. Impacts selected for the construction site will also be implemented in the staging area. Special attention to the following items will be taken at the staging area: NO. 1, NO. 2, NO. 3, NO. 4, NO. 5, NO. 6, NO. 7, NO. 8, NO. 9, and NO. 10. Staging area shall be located a minimum of 50 feet away from concentrated flows of storm water and drainage courses.

7. All standardized construction entrances/exits and an above grade or mobile concrete washout will be constructed or placed at the staging area. Concrete trucks or concrete equipment shall be washed on-site. The washout will be located a minimum of 50 feet away from concentrated flows of storm water and drainage courses. Additional construction entrances/exits and washouts will be utilized as needed.

8. A licensed service will deliver and maintain portable restrooms to the project area as needed. The restrooms will be located away from drainage facilities on level, non-patched or paved surfaces.

9. Vehicle and equipment cleaning, fueling, and maintenance to be done off-site per the following items: NO. 3, NO. 4, and NO. 10.

WATER POLLUTION CONTROL NOTES

WATER POLLUTION CONTROL NOTES

NAME:

COUNTY OF SANTA CLARA ROADS AND AIRPORTS DEPARTMENT

WATER POLLUTION CONTROL NO. 1

SAN TOMAS EXPRESSWAY WIDENING

WPC-1

SAN TOMAS EXPRESSWAY

HOMESTEAD ROAD
MATCH LINE - "ST" 416+50
SEE SHEET WPC-5

MATCH LINE - "ST" 405+00
SEE SHEET WPC-3

1"=40'

60% SUBMITTAL, NOT FOR CONSTRUCTION
SAN TOMAS EXPRESSWAY PROJECT SHALL CONFORM TO SAN TOMAS/EL CAÑON REAL INTERSECTION PROJECT AT:
(1) MEDIAN ISLAND IMPROVEMENT = "ST" 423+25
(2) NORTHBOUND STRIPING, CURB & Gutter AND SIDEWALK = "ST" 427+60

NOTE:

MATCH LINE - "ST" 416+50
SEE SHEET WPC-4

MATCH LINE - "ST" 427+60
SEE NOTE

MATCH LINE - "ST" 423+25
SEE NOTE
LEGEND:
- SW=1: FIELD FENCE
- WM=8: CONCRETE MASONRY MANAGEMENT
- SD=0: STORM DRAIN INLET PROTECTION
- NS=3: PAINTING AND SPRAYING OPERATION
- SS=4: HYDROSEEDING
- TO=1: STABILIZED CONSTRUCTION ENTRANCE/EXIT

WATER POLLUTION CONTROL NOTES:
1. The information on these plans is intended to be used as a guideline for the contractor and subcontractors to install water pollution control devices at general locations throughout the site. These drawings are to be used in conjunction with the narrative section of the water pollution control plan (WPCC).
2. Field conditions may necessitate modifications to these guidelines.
3. Permanent erosion control will be installed as areas are determined to be substantially complete.
4. See project construction for location and limits of construction.
5. Linear segment controls (per plans) will be delineated on existing structures. The contractor shall apply linear segment controls along the toe of the cut and fill edges and at the grade breaks of the slope. Additionally, linear segment controls will be used on a perimeter control to contain sediment within the project area.
6. A staging area will be designated at the project site by the project manager. Biaps selected for the construction site will also be implemented in the staging area. Special attention to the following Biaps will be taken at the staging area: WM-1, WM-2, WM-3, WM-4, WM-5, WM-6, WM-7, WM-8, NS-9, NS-10, WM-11, WM-12, WM-13, WM-14, WM-15, WM-16, WM-17, WM-18, WM-19.
7. An stabilized construction entrance/exit and an above grade or mobile concrete washout will be constructed or placed at the staging area and as shown on plans. Concrete trucks or concrete equipment shall be washed off-site. The washout will be located a minimum of 50 feet away from concentrated flows of storm water and drainage courses. Additional construction entrances/exit and washouts will be utilized as needed.
8. A licensed service will design and maintain portable restrooms to the project area as needed. The restrooms will be located away from drainage facilities on level, non-slippery or paved surfaces.
9. Vehicle and equipment cleaning, fueling, and maintenance to be done off-site per the following Biaps: NS-8, NS-9 and NS-10.