# PRELIMINARY STORM WATER HYDROMODIFICATION MANAGEMENT REPORT

**FOR**

## PUBLIC STORAGE
## 231 W CAPITOL EXPY
## SAN JOSE, CALIFORNIA

**PREPARED FOR:**

**CITY OF SAN JOSE**
**PLANNING DIVISION**
**200 E Santa Clara St – 3rd Floor Tower**
**San José, CA 95113-1905**

**JULY 2019**


**PREPARED BY:**

*Since 1941 – Serving for over 70 Years*

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# BAHM2013

# PROJECT REPORT

# General Model Information

| | |
|---|---|
| Project Name: | BAHM |
| Site Name: | PS Cap Exp |
| Site Address: | 231 W Capitol Expressway |
| City: | San Jose |
| Report Date: | 7/15/2019 |
| Gage: | San Jose |
| Data Start: | 1959/10/01 |
| Data End: | 2000/09/30 |
| Timestep: | Hourly |
| Precip Scale: | 0.000 (adjusted) |
| Version Date: | 2019/06/06 |

## POC Thresholds

| | |
|---|---|
| Low Flow Threshold for POC1: | 10 Percent of the 2 Year |
| High Flow Threshold for POC1: | 10 Year |

# *Landuse Basin Data*

## *Predeveloped Land Use*

### Basin 1

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |

| Pervious Land Use | acre |
|---|---|
| C D,Urban,Flat(0-5%) | 0.386 |
| Pervious Total | 0.386 |

| Impervious Land Use | acre |
|---|---|
| Roads,Flat(0-5%) | 1.57 |
| Roof Area | 1.65 |
| Sidewalks,Flat(0-5%) | 0.074 |
| Impervious Total | 3.294 |
| Basin Total | 3.68 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|

## *Mitigated Land Use*

### Site

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |

| Pervious Land Use | acre |
|---|---|
| C D,Urban,Very(>20%) | 0.042 |
| C D,Urban,Flat(0-5%) | 0.006 |
| Pervious Total | 0.048 |

| Impervious Land Use | acre |
|---|---|
| Roads,Flat(0-5%) | 0.341 |
| Sidewalks,Flat(0-5%) | 0.058 |
| Impervious Total | 0.399 |
| Basin Total | 0.447 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|
| Surface ention Swale | Surface ention Swale | |

## Rooftop

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |
| Pervious Land Use | acre |
| C D,Urban,Flat(0-5%) | 0.042 |
| Pervious Total | 0.042 |
| Impervious Land Use | acre |
| Roof Area | 1.03 |
| Impervious Total | 1.03 |
| Basin Total | 1.072 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|
| Surface ough Planter | Surface ough Planter | |

## Undisturbed non-treated

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |

| Pervious Land Use | acre |
|---|---|
| C D,Urban,Flat(0-5%) | 0.157 |
| Pervious Total | 0.157 |

| Impervious Land Use | acre |
|---|---|
| Roads,Flat(0-5%) | 0.766 |
| Roof Area | 0.867 |
| Sidewalks,Flat(0-5%) | 0.069 |
| Impervious Total | 1.702 |
| Basin Total | 1.859 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|

## Self-Treating

| | |
|---|---|
| Bypass: | No |
| GroundWater: | No |
| Pervious Land Use | acre |
| C D,Urban,Flat(0-5%) | 0.295 |
| Pervious Total | 0.295 |
| Impervious Land Use | acre |
| Impervious Total | 0 |
| Basin Total | 0.295 |

Element Flows To:

| Surface | Interflow | Groundwater |
|---|---|---|

# Routing Elements
## Predeveloped Routing

## *Mitigated Routing*

### Flow Through Planter

| | |
|---|---|
| Bottom Length: | 402.00 ft. |
| Bottom Width: | 4.60 ft. |
| Material thickness of first layer: | 1.5 |
| Material type for first layer: | BAHM 5 |
| Material thickness of second layer: | 1 |
| Material type for second layer: | GRAVEL |
| Material thickness of third layer: | 0 |
| Material type for third layer: | GRAVEL |
| Underdrain used | |
| Underdrain Diameter (feet): | 0.333 |
| Orifice Diameter (in.): | 3.99 |
| Offset (in.): | 0 |
| Flow Through Underdrain (ac-ft.): | 0 |
| Total Outflow (ac-ft.): | 48.886 |
| Percent Through Underdrain: | 60.6 |
| Discharge Structure | |
| Riser Height: | 1 ft. |
| Riser Diameter: | 0.5 in. |
| Element Flows To: | |
| Outlet 1 | Outlet 2 |

Landscape Swale Hydraulic Table

| Stage(feet) | Area(ac.) | Volume(ac-ft.) | Discharge(cfs) | Infilt(cfs) |
|---|---|---|---|---|
| 0.0000 | 0.0425 | 0.0000 | 0.0000 | 0.0000 |
| 0.0407 | 0.0425 | 0.0007 | 0.0000 | 0.0000 |
| 0.0813 | 0.0425 | 0.0013 | 0.0000 | 0.0000 |
| 0.1220 | 0.0425 | 0.0020 | 0.0000 | 0.0000 |
| 0.1626 | 0.0425 | 0.0026 | 0.0000 | 0.0000 |
| 0.2033 | 0.0425 | 0.0033 | 0.0000 | 0.0000 |
| 0.2440 | 0.0425 | 0.0039 | 0.0000 | 0.0000 |
| 0.2846 | 0.0425 | 0.0046 | 0.0000 | 0.0000 |
| 0.3253 | 0.0425 | 0.0052 | 0.0000 | 0.0000 |
| 0.3659 | 0.0425 | 0.0059 | 0.0000 | 0.0000 |
| 0.4066 | 0.0425 | 0.0066 | 0.0088 | 0.0000 |
| 0.4473 | 0.0425 | 0.0072 | 0.0104 | 0.0000 |
| 0.4879 | 0.0425 | 0.0079 | 0.0123 | 0.0000 |
| 0.5286 | 0.0425 | 0.0085 | 0.0145 | 0.0000 |
| 0.5692 | 0.0425 | 0.0092 | 0.0171 | 0.0000 |
| 0.6099 | 0.0425 | 0.0098 | 0.0199 | 0.0000 |
| 0.6505 | 0.0425 | 0.0105 | 0.0231 | 0.0000 |
| 0.6912 | 0.0425 | 0.0112 | 0.0267 | 0.0000 |
| 0.7319 | 0.0425 | 0.0118 | 0.0306 | 0.0000 |
| 0.7725 | 0.0425 | 0.0125 | 0.0349 | 0.0000 |
| 0.8132 | 0.0425 | 0.0131 | 0.0396 | 0.0000 |
| 0.8538 | 0.0425 | 0.0138 | 0.0447 | 0.0000 |
| 0.8945 | 0.0425 | 0.0144 | 0.0502 | 0.0000 |
| 0.9352 | 0.0425 | 0.0151 | 0.0561 | 0.0000 |
| 0.9758 | 0.0425 | 0.0157 | 0.0613 | 0.0000 |
| 1.0165 | 0.0425 | 0.0164 | 0.0625 | 0.0000 |
| 1.0571 | 0.0425 | 0.0171 | 0.0693 | 0.0000 |
| 1.0978 | 0.0425 | 0.0177 | 0.0766 | 0.0000 |
| 1.1385 | 0.0425 | 0.0184 | 0.0843 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 1.1791 | 0.0425 | 0.0190 | 0.0925 | 0.0000 |
| 1.2198 | 0.0425 | 0.0197 | 0.1012 | 0.0000 |
| 1.2604 | 0.0425 | 0.0203 | 0.1104 | 0.0000 |
| 1.3011 | 0.0425 | 0.0210 | 0.1201 | 0.0000 |
| 1.3418 | 0.0425 | 0.0216 | 0.1229 | 0.0000 |
| 1.3824 | 0.0425 | 0.0223 | 0.1380 | 0.0000 |
| 1.4231 | 0.0425 | 0.0230 | 0.1465 | 0.0000 |
| 1.4637 | 0.0425 | 0.0236 | 0.1516 | 0.0000 |
| 1.5044 | 0.0425 | 0.0243 | 0.1639 | 0.0000 |
| 1.5451 | 0.0425 | 0.0250 | 0.1700 | 0.0000 |
| 1.5857 | 0.0425 | 0.0258 | 0.1754 | 0.0000 |
| 1.6264 | 0.0425 | 0.0265 | 0.1862 | 0.0000 |
| 1.6670 | 0.0425 | 0.0272 | 0.1955 | 0.0000 |
| 1.7077 | 0.0425 | 0.0279 | 0.1963 | 0.0000 |
| 1.7484 | 0.0425 | 0.0286 | 0.2080 | 0.0000 |
| 1.7890 | 0.0425 | 0.0293 | 0.2258 | 0.0000 |
| 1.8297 | 0.0425 | 0.0301 | 0.2423 | 0.0000 |
| 1.8703 | 0.0425 | 0.0308 | 0.2577 | 0.0000 |
| 1.9110 | 0.0425 | 0.0315 | 0.2722 | 0.0000 |
| 1.9516 | 0.0425 | 0.0322 | 0.2860 | 0.0000 |
| 1.9923 | 0.0425 | 0.0329 | 0.2992 | 0.0000 |
| 2.0330 | 0.0425 | 0.0336 | 0.3118 | 0.0000 |
| 2.0736 | 0.0425 | 0.0344 | 0.3239 | 0.0000 |
| 2.1143 | 0.0425 | 0.0351 | 0.3355 | 0.0000 |
| 2.1549 | 0.0425 | 0.0358 | 0.3468 | 0.0000 |
| 2.1956 | 0.0425 | 0.0365 | 0.3567 | 0.0000 |
| 2.2363 | 0.0425 | 0.0372 | 0.3567 | 0.0000 |
| 2.2769 | 0.0425 | 0.0379 | 0.3567 | 0.0000 |
| 2.3176 | 0.0425 | 0.0387 | 0.3567 | 0.0000 |
| 2.3582 | 0.0425 | 0.0394 | 0.3567 | 0.0000 |
| 2.3989 | 0.0425 | 0.0401 | 0.3567 | 0.0000 |
| 2.4396 | 0.0425 | 0.0408 | 0.3567 | 0.0000 |
| 2.4802 | 0.0425 | 0.0415 | 0.3567 | 0.0000 |
| 2.5000 | 0.0425 | 0.0419 | 0.3567 | 0.0000 |

Landscape Swale Hydraulic Table

| Stage(feet) | Area(ac.) | Volume(ac-ft.) | Discharge(cfs) | To Amended(cfs) | Infilt(cfs) |
|---|---|---|---|---|---|
| 2.5000 | 0.0425 | 0.0419 | 0.0000 | 0.2140 | 0.0000 |
| 2.5407 | 0.0425 | 0.0436 | 0.0000 | 0.2140 | 0.0000 |
| 2.5813 | 0.0425 | 0.0453 | 0.0000 | 0.2256 | 0.0000 |
| 2.6220 | 0.0425 | 0.0470 | 0.0000 | 0.2314 | 0.0000 |
| 2.6626 | 0.0425 | 0.0488 | 0.0000 | 0.2372 | 0.0000 |
| 2.7033 | 0.0425 | 0.0505 | 0.0000 | 0.2430 | 0.0000 |
| 2.7440 | 0.0425 | 0.0522 | 0.0000 | 0.2488 | 0.0000 |
| 2.7846 | 0.0425 | 0.0540 | 0.0000 | 0.2546 | 0.0000 |
| 2.8253 | 0.0425 | 0.0557 | 0.0000 | 0.2604 | 0.0000 |
| 2.8659 | 0.0425 | 0.0574 | 0.0000 | 0.2662 | 0.0000 |
| 2.9066 | 0.0425 | 0.0591 | 0.0000 | 0.2720 | 0.0000 |
| 2.9473 | 0.0425 | 0.0609 | 0.0000 | 0.2778 | 0.0000 |
| 2.9879 | 0.0425 | 0.0626 | 0.0000 | 0.2836 | 0.0000 |
| 3.0286 | 0.0425 | 0.0643 | 0.0000 | 0.2894 | 0.0000 |
| 3.0692 | 0.0425 | 0.0660 | 0.0000 | 0.2952 | 0.0000 |
| 3.1099 | 0.0425 | 0.0678 | 0.0000 | 0.3011 | 0.0000 |
| 3.1505 | 0.0425 | 0.0695 | 0.0000 | 0.3069 | 0.0000 |
| 3.1912 | 0.0425 | 0.0712 | 0.0000 | 0.3127 | 0.0000 |
| 3.2319 | 0.0425 | 0.0729 | 0.0000 | 0.3185 | 0.0000 |
| 3.2725 | 0.0425 | 0.0747 | 0.0000 | 0.3243 | 0.0000 |
| 3.3132 | 0.0425 | 0.0764 | 0.0000 | 0.3301 | 0.0000 |

| | | | | | |
|---|---|---|---|---|---|
| 3.3538 | 0.0425 | 0.0781 | 0.0000 | 0.3359 | 0.0000 |
| 3.3945 | 0.0425 | 0.0798 | 0.0000 | 0.3417 | 0.0000 |
| 3.4352 | 0.0425 | 0.0816 | 0.0000 | 0.3475 | 0.0000 |
| 3.4758 | 0.0425 | 0.0833 | 0.0000 | 0.3533 | 0.0000 |
| 3.5165 | 0.0425 | 0.0850 | 0.0007 | 0.3591 | 0.0000 |
| 3.5571 | 0.0425 | 0.0867 | 0.0013 | 0.3649 | 0.0000 |
| 3.5978 | 0.0425 | 0.0885 | 0.0017 | 0.3707 | 0.0000 |
| 3.6385 | 0.0425 | 0.0902 | 0.0020 | 0.3765 | 0.0000 |
| 3.6791 | 0.0425 | 0.0919 | 0.0023 | 0.3823 | 0.0000 |
| 3.7000 | 0.0425 | 0.0928 | 0.0026 | 0.3853 | 0.0000 |

## Surface ough Planter

Element Flows To:

| Outlet 1 | Outlet 2 |
| --- | --- |
| | Flow Through Planter |

## Bioretention Swale

| | |
|---|---|
| Bottom Length: | 56.00 ft. |
| Bottom Width: | 13.41 ft. |
| Material thickness of first layer: | 1.5 |
| Material type for first layer: | BAHM 5 |
| Material thickness of second layer: | 1 |
| Material type for second layer: | GRAVEL |
| Material thickness of third layer: | 0 |
| Material type for third layer: | GRAVEL |
| Underdrain used | |
| Underdrain Diameter (feet): | 0.333 |
| Orifice Diameter (in.): | 3.99 |
| Offset (in.): | 0 |
| Flow Through Underdrain (ac-ft.): | 0 |
| Total Outflow (ac-ft.): | 21.577 |
| Percent Through Underdrain: | 52.14 |
| Discharge Structure | |
| Riser Height: | 1 ft. |
| Riser Diameter: | 0.5 in. |
| Element Flows To: | |
| Outlet 1 | Outlet 2 |

Landscape Swale Hydraulic Table

| Stage(feet) | Area(ac.) | Volume(ac-ft.) | Discharge(cfs) | Infilt(cfs) |
|---|---|---|---|---|
| 0.0000 | 0.0365 | 0.0000 | 0.0000 | 0.0000 |
| 0.0407 | 0.0364 | 0.0003 | 0.0000 | 0.0000 |
| 0.0813 | 0.0361 | 0.0005 | 0.0000 | 0.0000 |
| 0.1220 | 0.0357 | 0.0008 | 0.0000 | 0.0000 |
| 0.1626 | 0.0354 | 0.0011 | 0.0000 | 0.0000 |
| 0.2033 | 0.0351 | 0.0014 | 0.0000 | 0.0000 |
| 0.2440 | 0.0348 | 0.0017 | 0.0000 | 0.0000 |
| 0.2846 | 0.0345 | 0.0020 | 0.0000 | 0.0000 |
| 0.3253 | 0.0342 | 0.0023 | 0.0000 | 0.0000 |
| 0.3659 | 0.0339 | 0.0026 | 0.0000 | 0.0000 |
| 0.4066 | 0.0335 | 0.0029 | 0.0036 | 0.0000 |
| 0.4473 | 0.0332 | 0.0032 | 0.0042 | 0.0000 |
| 0.4879 | 0.0329 | 0.0035 | 0.0050 | 0.0000 |
| 0.5286 | 0.0326 | 0.0039 | 0.0059 | 0.0000 |
| 0.5692 | 0.0323 | 0.0042 | 0.0069 | 0.0000 |
| 0.6099 | 0.0320 | 0.0045 | 0.0081 | 0.0000 |
| 0.6505 | 0.0317 | 0.0049 | 0.0094 | 0.0000 |
| 0.6912 | 0.0314 | 0.0052 | 0.0108 | 0.0000 |
| 0.7319 | 0.0310 | 0.0056 | 0.0124 | 0.0000 |
| 0.7725 | 0.0307 | 0.0059 | 0.0142 | 0.0000 |
| 0.8132 | 0.0304 | 0.0063 | 0.0161 | 0.0000 |
| 0.8538 | 0.0301 | 0.0067 | 0.0181 | 0.0000 |
| 0.8945 | 0.0298 | 0.0070 | 0.0204 | 0.0000 |
| 0.9352 | 0.0295 | 0.0074 | 0.0228 | 0.0000 |
| 0.9758 | 0.0292 | 0.0078 | 0.0249 | 0.0000 |
| 1.0165 | 0.0288 | 0.0082 | 0.0254 | 0.0000 |
| 1.0571 | 0.0285 | 0.0086 | 0.0281 | 0.0000 |
| 1.0978 | 0.0282 | 0.0090 | 0.0311 | 0.0000 |
| 1.1385 | 0.0279 | 0.0094 | 0.0342 | 0.0000 |
| 1.1791 | 0.0276 | 0.0098 | 0.0376 | 0.0000 |
| 1.2198 | 0.0273 | 0.0102 | 0.0411 | 0.0000 |

| | | | | |
|---|---|---|---|---|
| 1.2604 | 0.0270 | 0.0106 | 0.0448 | 0.0000 |
| 1.3011 | 0.0266 | 0.0110 | 0.0488 | 0.0000 |
| 1.3418 | 0.0263 | 0.0114 | 0.0529 | 0.0000 |
| 1.3824 | 0.0260 | 0.0119 | 0.0573 | 0.0000 |
| 1.4231 | 0.0257 | 0.0123 | 0.0599 | 0.0000 |
| 1.4637 | 0.0254 | 0.0127 | 0.0618 | 0.0000 |
| 1.5044 | 0.0251 | 0.0132 | 0.0666 | 0.0000 |
| 1.5451 | 0.0248 | 0.0137 | 0.0716 | 0.0000 |
| 1.5857 | 0.0245 | 0.0142 | 0.0767 | 0.0000 |
| 1.6264 | 0.0241 | 0.0147 | 0.0821 | 0.0000 |
| 1.6670 | 0.0238 | 0.0152 | 0.1449 | 0.0000 |
| 1.7077 | 0.0235 | 0.0157 | 0.1449 | 0.0000 |
| 1.7484 | 0.0232 | 0.0162 | 0.1449 | 0.0000 |
| 1.7890 | 0.0229 | 0.0167 | 0.1449 | 0.0000 |
| 1.8297 | 0.0226 | 0.0173 | 0.1449 | 0.0000 |
| 1.8703 | 0.0223 | 0.0178 | 0.1449 | 0.0000 |
| 1.9110 | 0.0219 | 0.0183 | 0.1449 | 0.0000 |
| 1.9516 | 0.0216 | 0.0189 | 0.1449 | 0.0000 |
| 1.9923 | 0.0213 | 0.0194 | 0.1449 | 0.0000 |
| 2.0330 | 0.0210 | 0.0200 | 0.1449 | 0.0000 |
| 2.0736 | 0.0207 | 0.0205 | 0.1449 | 0.0000 |
| 2.1143 | 0.0204 | 0.0211 | 0.1449 | 0.0000 |
| 2.1549 | 0.0201 | 0.0217 | 0.1449 | 0.0000 |
| 2.1956 | 0.0197 | 0.0223 | 0.1449 | 0.0000 |
| 2.2363 | 0.0194 | 0.0228 | 0.1449 | 0.0000 |
| 2.2769 | 0.0191 | 0.0234 | 0.1449 | 0.0000 |
| 2.3176 | 0.0188 | 0.0240 | 0.1449 | 0.0000 |
| 2.3582 | 0.0185 | 0.0246 | 0.1449 | 0.0000 |
| 2.3989 | 0.0182 | 0.0252 | 0.1449 | 0.0000 |
| 2.4396 | 0.0179 | 0.0258 | 0.1449 | 0.0000 |
| 2.4802 | 0.0176 | 0.0264 | 0.1449 | 0.0000 |
| 2.5000 | 0.0172 | 0.0267 | 0.1449 | 0.0000 |

Landscape Swale Hydraulic Table

| Stage(feet) | Area(ac.) | Volume(ac-ft.) | Discharge(cfs) | To Amended(cfs) | Infilt(cfs) |
|---|---|---|---|---|---|
| 2.5000 | 0.0365 | 0.0267 | 0.0000 | 0.0869 | 0.0000 |
| 2.5407 | 0.0368 | 0.0282 | 0.0000 | 0.0869 | 0.0000 |
| 2.5813 | 0.0372 | 0.0297 | 0.0000 | 0.0916 | 0.0000 |
| 2.6220 | 0.0375 | 0.0312 | 0.0000 | 0.0940 | 0.0000 |
| 2.6626 | 0.0378 | 0.0328 | 0.0000 | 0.0963 | 0.0000 |
| 2.7033 | 0.0381 | 0.0343 | 0.0000 | 0.0987 | 0.0000 |
| 2.7440 | 0.0384 | 0.0359 | 0.0000 | 0.1011 | 0.0000 |
| 2.7846 | 0.0387 | 0.0374 | 0.0000 | 0.1034 | 0.0000 |
| 2.8253 | 0.0390 | 0.0390 | 0.0000 | 0.1058 | 0.0000 |
| 2.8659 | 0.0393 | 0.0406 | 0.0000 | 0.1081 | 0.0000 |
| 2.9066 | 0.0397 | 0.0422 | 0.0000 | 0.1105 | 0.0000 |
| 2.9473 | 0.0400 | 0.0438 | 0.0000 | 0.1128 | 0.0000 |
| 2.9879 | 0.0403 | 0.0455 | 0.0000 | 0.1152 | 0.0000 |
| 3.0286 | 0.0406 | 0.0471 | 0.0000 | 0.1175 | 0.0000 |
| 3.0692 | 0.0409 | 0.0488 | 0.0000 | 0.1199 | 0.0000 |
| 3.1099 | 0.0412 | 0.0504 | 0.0000 | 0.1223 | 0.0000 |
| 3.1505 | 0.0415 | 0.0521 | 0.0000 | 0.1246 | 0.0000 |
| 3.1912 | 0.0419 | 0.0538 | 0.0000 | 0.1270 | 0.0000 |
| 3.2319 | 0.0422 | 0.0555 | 0.0000 | 0.1293 | 0.0000 |
| 3.2725 | 0.0425 | 0.0572 | 0.0000 | 0.1317 | 0.0000 |
| 3.3132 | 0.0428 | 0.0590 | 0.0000 | 0.1340 | 0.0000 |
| 3.3538 | 0.0431 | 0.0607 | 0.0000 | 0.1364 | 0.0000 |
| 3.3945 | 0.0434 | 0.0625 | 0.0000 | 0.1387 | 0.0000 |

| | | | | | |
|---|---|---|---|---|---|
| 3.4352 | 0.0437 | 0.0642 | 0.0000 | 0.1411 | 0.0000 |
| 3.4758 | 0.0441 | 0.0660 | 0.0000 | 0.1435 | 0.0000 |
| 3.5165 | 0.0444 | 0.0678 | 0.0007 | 0.1458 | 0.0000 |
| 3.5571 | 0.0447 | 0.0696 | 0.0013 | 0.1482 | 0.0000 |
| 3.5978 | 0.0450 | 0.0715 | 0.0017 | 0.1505 | 0.0000 |
| 3.6385 | 0.0453 | 0.0733 | 0.0020 | 0.1529 | 0.0000 |
| 3.6791 | 0.0456 | 0.0751 | 0.0023 | 0.1552 | 0.0000 |
| 3.7000 | 0.0458 | 0.0761 | 0.0026 | 0.1565 | 0.0000 |

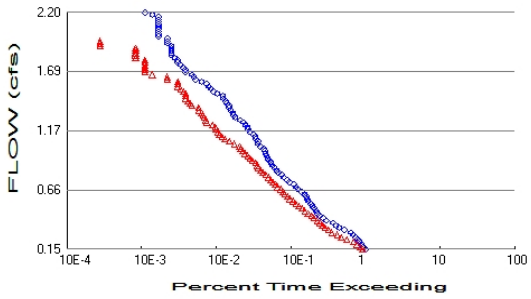
## Surface ention Swale

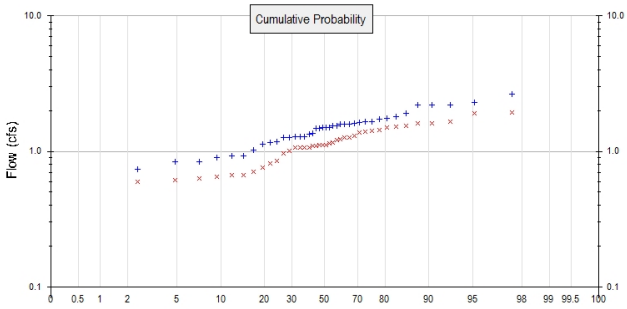
Element Flows To:

| Outlet 1 | Outlet 2 |
| --- | --- |
| | Bioretention Swale |

# Analysis Results

## POC 1




\+ Predeveloped  x Mitigated

Predeveloped Landuse Totals for POC #1
Total Pervious Area: 0.386
Total Impervious Area: 3.294

Mitigated Landuse Totals for POC #1
Total Pervious Area: 0.542
Total Impervious Area: 3.131

Flow Frequency Method: Weibull

Flow Frequency Return Periods for Predeveloped. POC #1

| **Return Period** | **Flow(cfs)** |
|---|---|
| 2 year | 1.48985 |
| 5 year | 1.731619 |
| 10 year | 2.198188 |
| 25 year | 2.370534 |

Flow Frequency Return Periods for Mitigated. POC #1

| **Return Period** | **Flow(cfs)** |
|---|---|
| 2 year | 1.11676 |
| 5 year | 1.469574 |
| 10 year | 1.606386 |
| 25 year | 1.910286 |

## Annual Peaks

Annual Peaks for Predeveloped and Mitigated. POC #1

| **Year** | **Predeveloped** | **Mitigated** |
|---|---|---|
| 1960 | 0.928 | 0.648 |
| 1961 | 0.833 | 0.580 |
| 1962 | 1.478 | 1.300 |
| 1963 | 1.624 | 1.425 |
| 1964 | 2.303 | 1.657 |
| 1965 | 1.348 | 1.013 |
| 1966 | 0.725 | 0.599 |
| 1967 | 1.666 | 1.404 |
| 1968 | 2.186 | 1.949 |
| 1969 | 1.290 | 1.138 |
| 1970 | 1.548 | 1.117 |
| 1971 | 1.661 | 1.271 |
| 1972 | 0.932 | 0.629 |
| 1973 | 1.743 | 1.516 |

| | | |
|---|---|---|
| 1974 | 1.278 | 0.961 |
| 1975 | 1.581 | 1.116 |
| 1976 | 1.128 | 0.760 |
| 1977 | 1.173 | 0.816 |
| 1978 | 1.276 | 1.101 |
| 1979 | 1.596 | 1.166 |
| 1980 | 1.914 | 1.607 |
| 1981 | 0.840 | 0.672 |
| 1982 | 2.209 | 1.606 |
| 1983 | 1.614 | 1.495 |
| 1984 | 1.357 | 1.059 |
| 1985 | 2.202 | 1.551 |
| 1986 | 1.792 | 1.436 |
| 1987 | 0.741 | 0.666 |
| 1988 | 1.157 | 0.849 |
| 1989 | 1.017 | 0.703 |
| 1990 | 1.490 | 1.118 |
| 1991 | 1.503 | 1.073 |
| 1992 | 1.590 | 1.374 |
| 1993 | 1.716 | 1.227 |
| 1994 | 1.501 | 1.067 |
| 1995 | 1.273 | 1.260 |
| 1996 | 2.657 | 1.901 |
| 1997 | 1.262 | 1.217 |
| 1998 | 1.534 | 1.095 |
| 1999 | 0.901 | 0.614 |
| 2000 | 1.485 | 1.068 |

## Ranked Annual Peaks

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

| Rank | Predeveloped | Mitigated |
|---|---|---|
| 1 | 2.6570 | 1.9492 |
| 2 | 2.3031 | 1.9011 |
| 3 | 2.2085 | 1.6568 |
| 4 | 2.2020 | 1.6066 |
| 5 | 2.1860 | 1.6057 |
| 6 | 1.9140 | 1.5511 |
| 7 | 1.7920 | 1.5161 |
| 8 | 1.7434 | 1.4947 |
| 9 | 1.7160 | 1.4360 |
| 10 | 1.6660 | 1.4253 |
| 11 | 1.6614 | 1.4044 |
| 12 | 1.6243 | 1.3745 |
| 13 | 1.6137 | 1.2999 |
| 14 | 1.5956 | 1.2706 |
| 15 | 1.5899 | 1.2603 |
| 16 | 1.5809 | 1.2273 |
| 17 | 1.5483 | 1.2165 |
| 18 | 1.5343 | 1.1656 |
| 19 | 1.5033 | 1.1380 |
| 20 | 1.5014 | 1.1181 |
| 21 | 1.4899 | 1.1168 |
| 22 | 1.4850 | 1.1160 |
| 23 | 1.4782 | 1.1005 |
| 24 | 1.3567 | 1.0951 |
| 25 | 1.3480 | 1.0726 |
| 26 | 1.2896 | 1.0680 |
| 27 | 1.2781 | 1.0671 |

| | | |
|---|---|---|
| 28 | 1.2764 | 1.0595 |
| 29 | 1.2734 | 1.0134 |
| 30 | 1.2617 | 0.9610 |
| 31 | 1.1732 | 0.8485 |
| 32 | 1.1568 | 0.8158 |
| 33 | 1.1282 | 0.7598 |
| 34 | 1.0173 | 0.7031 |
| 35 | 0.9321 | 0.6716 |
| 36 | 0.9280 | 0.6665 |
| 37 | 0.9007 | 0.6476 |
| 38 | 0.8398 | 0.6287 |
| 39 | 0.8332 | 0.6137 |
| 40 | 0.7413 | 0.5990 |
| 41 | 0.7251 | 0.5795 |

## Duration Flows

The Facility PASSED

| Flow(cfs) | Predev | Mit | Percentage | Pass/Fail |
|---|---|---|---|---|
| 0.1490 | 3581 | 3315 | 92 | Pass |
| 0.1697 | 3401 | 3048 | 89 | Pass |
| 0.1904 | 3191 | 2774 | 86 | Pass |
| 0.2111 | 3002 | 2483 | 82 | Pass |
| 0.2318 | 2848 | 2012 | 70 | Pass |
| 0.2525 | 2663 | 1709 | 64 | Pass |
| 0.2732 | 2475 | 1514 | 61 | Pass |
| 0.2939 | 2298 | 1272 | 55 | Pass |
| 0.3146 | 1891 | 1144 | 60 | Pass |
| 0.3353 | 1607 | 1038 | 64 | Pass |
| 0.3560 | 1448 | 959 | 66 | Pass |
| 0.3767 | 1321 | 892 | 67 | Pass |
| 0.3974 | 1086 | 816 | 75 | Pass |
| 0.4181 | 964 | 738 | 76 | Pass |
| 0.4388 | 885 | 683 | 77 | Pass |
| 0.4595 | 817 | 607 | 74 | Pass |
| 0.4802 | 782 | 555 | 70 | Pass |
| 0.5009 | 741 | 506 | 68 | Pass |
| 0.5216 | 703 | 458 | 65 | Pass |
| 0.5423 | 666 | 421 | 63 | Pass |
| 0.5630 | 627 | 383 | 61 | Pass |
| 0.5837 | 605 | 353 | 58 | Pass |
| 0.6044 | 582 | 325 | 55 | Pass |
| 0.6251 | 551 | 299 | 54 | Pass |
| 0.6458 | 507 | 285 | 56 | Pass |
| 0.6665 | 449 | 262 | 58 | Pass |
| 0.6872 | 420 | 239 | 56 | Pass |
| 0.7079 | 393 | 223 | 56 | Pass |
| 0.7286 | 349 | 206 | 59 | Pass |
| 0.7493 | 319 | 194 | 60 | Pass |
| 0.7700 | 288 | 180 | 62 | Pass |
| 0.7907 | 270 | 166 | 61 | Pass |
| 0.8114 | 246 | 152 | 61 | Pass |
| 0.8321 | 231 | 141 | 61 | Pass |
| 0.8528 | 217 | 133 | 61 | Pass |
| 0.8735 | 206 | 128 | 62 | Pass |
| 0.8941 | 195 | 122 | 62 | Pass |
| 0.9148 | 186 | 110 | 59 | Pass |
| 0.9355 | 177 | 103 | 58 | Pass |
| 0.9562 | 170 | 96 | 56 | Pass |
| 0.9769 | 165 | 87 | 52 | Pass |
| 0.9976 | 160 | 81 | 50 | Pass |
| 1.0183 | 155 | 76 | 49 | Pass |
| 1.0390 | 140 | 74 | 52 | Pass |
| 1.0597 | 132 | 63 | 47 | Pass |
| 1.0804 | 130 | 54 | 41 | Pass |
| 1.1011 | 122 | 47 | 38 | Pass |
| 1.1218 | 120 | 43 | 35 | Pass |
| 1.1425 | 114 | 40 | 35 | Pass |
| 1.1632 | 101 | 38 | 37 | Pass |
| 1.1839 | 97 | 36 | 37 | Pass |
| 1.2046 | 94 | 35 | 37 | Pass |
| 1.2253 | 88 | 32 | 36 | Pass |

| | | | | |
|---|---|---|---|---|
| 1.2460 | 84 | 27 | 32 | Pass |
| 1.2667 | 76 | 26 | 34 | Pass |
| 1.2874 | 65 | 25 | 38 | Pass |
| 1.3081 | 62 | 24 | 38 | Pass |
| 1.3288 | 60 | 23 | 38 | Pass |
| 1.3495 | 56 | 21 | 37 | Pass |
| 1.3702 | 54 | 21 | 38 | Pass |
| 1.3909 | 53 | 17 | 32 | Pass |
| 1.4116 | 50 | 16 | 32 | Pass |
| 1.4323 | 48 | 15 | 31 | Pass |
| 1.4530 | 45 | 14 | 31 | Pass |
| 1.4737 | 44 | 14 | 31 | Pass |
| 1.4944 | 37 | 14 | 37 | Pass |
| 1.5151 | 33 | 13 | 39 | Pass |
| 1.5358 | 31 | 12 | 38 | Pass |
| 1.5565 | 29 | 11 | 37 | Pass |
| 1.5772 | 27 | 11 | 40 | Pass |
| 1.5979 | 23 | 11 | 47 | Pass |
| 1.6186 | 19 | 8 | 42 | Pass |
| 1.6393 | 18 | 8 | 44 | Pass |
| 1.6600 | 17 | 5 | 29 | Pass |
| 1.6807 | 14 | 4 | 28 | Pass |
| 1.7014 | 14 | 4 | 28 | Pass |
| 1.7221 | 13 | 4 | 30 | Pass |
| 1.7428 | 12 | 4 | 33 | Pass |
| 1.7635 | 11 | 4 | 36 | Pass |
| 1.7842 | 11 | 4 | 36 | Pass |
| 1.8049 | 10 | 3 | 30 | Pass |
| 1.8256 | 9 | 3 | 33 | Pass |
| 1.8463 | 9 | 3 | 33 | Pass |
| 1.8670 | 9 | 3 | 33 | Pass |
| 1.8877 | 9 | 3 | 33 | Pass |
| 1.9084 | 9 | 1 | 11 | Pass |
| 1.9291 | 8 | 1 | 12 | Pass |
| 1.9498 | 8 | 1 | 12 | Pass |
| 1.9705 | 8 | 0 | 0 | Pass |
| 1.9912 | 6 | 0 | 0 | Pass |
| 2.0119 | 6 | 0 | 0 | Pass |
| 2.0326 | 6 | 0 | 0 | Pass |
| 2.0533 | 6 | 0 | 0 | Pass |
| 2.0740 | 6 | 0 | 0 | Pass |
| 2.0947 | 6 | 0 | 0 | Pass |
| 2.1154 | 6 | 0 | 0 | Pass |
| 2.1361 | 6 | 0 | 0 | Pass |
| 2.1568 | 6 | 0 | 0 | Pass |
| 2.1775 | 5 | 0 | 0 | Pass |
| 2.1982 | 4 | 0 | 0 | Pass |

# Water Quality

# Model Default Modifications

Total of 0 changes have been made.

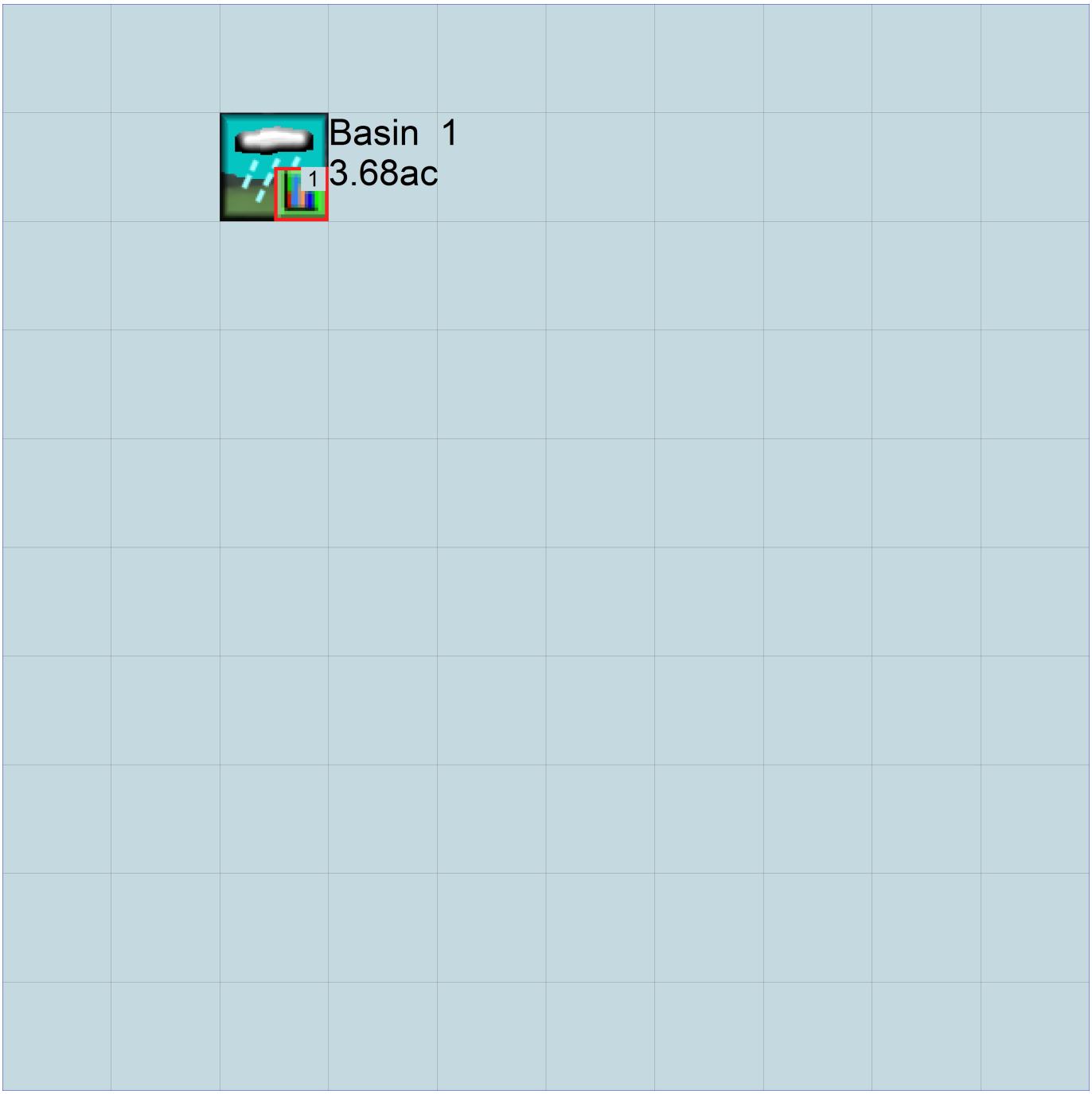
## PERLND Changes

No PERLND changes have been made.

## IMPLND Changes

No IMPLND changes have been made.

# *Appendix*
## *Predeveloped Schematic*



## *Mitigated Schematic*

## *Predeveloped UCI File*

## *Mitigated UCI File*

## *Predeveloped HSPF Message File*

## *Mitigated HSPF Message File*

# Disclaimer

## Legal Notice

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