# APPENDIX K

# WATER QUALITY MANAGEMENT PLAN

# County of Orange/Santa Ana Region Priority Project Water Quality Management Plan (WQMP)

**Project Name:**

**Los Alamitos High School**

**Multi-Story STEM Classroom Building**

**3591 W CERRITOS AVE., LOS ALAMITOS, CA 90720**

**APN: 242-262-02 & 242-262-07**

**Prepared for:**

**Los Alamitos Unified School District**

**10293 Bloomfield St.**

**Los Alamitos, CA 90720**

**(562) 799-4700**

**Prepared by:**

**Engineer: Farhad Rezai Registration No.: C39868**

**10231 Slater Ave., Suite 201**

**Fountain Valley, California, 92708**

**(714) 593-0337**

**July 15, 2019**

| Project Owner's Certification | | | |
|---|---|---|---|
| Planning Application No. (If applicable) | | Grading Permit No. | |
| Tract/Parcel Map and Lot(s) No. | APN:242-262-02 & 242-262-07 | Building Permit No. | |
| Address of Project Site and APN (If no address, specify Tract/Parcel Map and Lot Numbers) | | | 3591 W Cerritos Ave., Los Alamitos, CA 90720 |

This Water Quality Management Plan (WQMP) has been prepared for Los Alamitos School District by Coast Engineers Designs Inc. The WQMP is intended to comply with the requirements of the County of Orange NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan , including the ongoing operation and maintenance of all best management practices (BMPs), and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

| **Owner:** | | | |
|---|---|---|---|
| Title | | | |
| Company | Los Alamitos Unified School District | | |
| Address | 10293 Bloomfield St., Los Alamitos, CA 90720 | | |
| Email | webmaster@losal.org | | |
| Telephone # | (562) 799-4700 | | |
| I understand my responsibility to implement the provisions of this WQMP including the ongoing operation and maintenance of the best management practices (BMPs) described herein. | | | |
| Owner Signature | | Date | |

| **Preparer (Engineer):** | | | |
|---|---|---|---|
| Title | Farhad Rezai | PE Registration # | C39868 |
| Company | Coast Engineering Designs, INC. | | |
| Address | 10231 Slater Ave., Suite 201, Fountain Valley, CA 92708 | | |
| Email | farhad@coastengr.com | | |
| Telephone # | (714) 593-0337 | | |

I hereby certify that this Water Quality Management Plan is in compliance with, and meets the requirements set forth in, Order No. R8-2009-0030/NPDES No. CAS618030, of the Santa Ana Regional Water Quality Control Board.

| | | | |
|---|---|---|---|
| Preparer Signature | | Date | 07/15/2019 |
| Place Stamp Here | REGISTERED PROFESSIONAL ENGINEER FARHAD REZAI C 39868 CIVIL STATE OF CALIFORNIA | | |

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# Attachments

**Attachment A . ..... Educational Materials**

# Section I Permit(s) and Water Quality Conditions of Approval or Issuance

| **Project Infomation** | | | |
|---|---|---|---|
| Permit/Application No. (If applicable) | | Grading or Building Permit No. (If applicable) | |
| Address of Project Site (or Tract Map and Lot Number if no address) and APN | APN: 242-262-02 & 242-262-07<br>3591 W Cerritos Ave., Los Alamitos, CA 90720 | | |
| | | | |
| **Water Quality Conditions of Approval or Issuance** | | | |
| Water Quality Conditions of Approval or Issuance applied to this project. (Please list verbatim.) | N/A | | |
| | | | |
| **Conceptual WQMP** | | | |
| Was a Conceptual Water Quality Management Plan previously approved for this project? | N/A | | |
| | | | |
| **Watershed-Based Plan Conditions** | | | |

| | |
|---|---|
| Provide applicable conditions from watershed - based plans including WIHMPs and TMDLS. | Wastershed Infiltration and Hydromodification Management Plan (HIHMP) for the Santa Ana area has not been approved at this time. |

# Section II Project Description

## II.1 Project Description

Provide a detailed project description including:

- Project areas;
- Land uses;
- Land cover;
- Design elements;
- A general description not broken down by drainage management areas (DMAs).

Include attributes relevant to determining applicable source controls. *Refer to Section 2.2 in the Technical Guidance Document (TGD) for information that must be included in the project description.*

| **Description of Proposed Project** | | | | |
|---|---|---|---|---|
| Development Category (From Model WQMP, Table 7.11-2; or -3): | All significant redevelopment projects, where significant redevelopment is defined as the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of the facility, or emergency redevelopment activity required to protect public health and safety. If the redevelopment results in the addition or replacement of less than 50 percent of the impervious area on-site and the existing development was not subject to WQMP requirement, the numeric sizing criteria discussed in Section 7.II-2.0 only applies to the addition or replacement area. If the addition or replacement accounts for 50 percent or more of the impervious area, the Project WQMP requirements apply to the entire development. | | | |
| Project Area ($ft^2$): 88,663 | Number of Dwelling Units: N/A | | SIC Code: 8200 | |
| Project Area | Pervious | | Impervious | |
| | Area (acres or sq ft) | Percentage | Area (acres or sq ft) | Percentage |
| Pre-Project Conditions | 14,544 | 16% | 74,119 | 84% |
| Post-Project Conditions | 6,022 | 7% | 82,641 | 93% |
| Drainage Patterns/Connections | The site has two 15" RCP storm drain main lines. The lines are located between buildings E & A1, and Buildings A2 & F. Flow in the lines are from North to South. The two lines tie into an existing 6' wide X 5' tall storm culvert box, along Cerritos Avenue. This line is located approximately 25 feet North of the street center line and flows westerly. The line has only 22" cover in the street. There is a catch basin located in the court yard area at BLDG. A2. The catch basin has a 6 inch cast iron pipe, flowing westerly and ties into 15" RCP. The court yard area North of the building A2 drains into catch basin | | | |

| | |
|---|---|
| | located in the planter beds. The area South of the building A2, sheet flows into the parking and access road, Access road slopes westerly into a concrete ribbon gutter which flows South. And the gutter then turns west into landscaping area with a catch basin. The catch basin drains into Cerritos Ave. via an underside walk drain. |
| Narrative Project Description:<br><br>(Use as much space as necessary.) | <u>Demolishing:</u><br>1. Single Story Concrete Structure, Building A1<br>2. Hardscape between Buildings A1 and A2<br>3. Hardscape between Buildings A1 and E<br>4. Hardscape and Landscape of approximate 84 feet, North of Building A1<br>5. Hardscape and Landscape South of Buildings A1 and E to existing curb and gutter along the parking<br>6. Parking curb and gutter South of Buildings A1, A2 and E<br>7. Asphaltic paving from parking curb and gutter to the center of drive lane<br>8. Removal of all the existing utility lines under building A1 and capping lines at utility lines between building A1and E<br><br><u>Construction:</u><br>1. New CTE/STEM Building 86,528 sq. ft. total consisting of :<br>• 1st floor: 27,910 sq. ft.<br>• 2nd floor: 29,476 sq. ft.<br>• 3rd floor: 29,142 sq. ft.<br>2. New hardscape and landscape between STEM Building and Building A2<br>3. New hardscape and landscape between STEM Building and Building E<br>4. New hardscape and landscape North and South of STEM Building<br>5. New drop-off area and parking South of STEM Building<br>6. New ADA parking South of Building A2<br>7. New Asphaltic paving from center of drive lane to new curb and gutters |
| | |
| | |

## II.2 Potential Stormwater Pollutants

| Pollutants of Concern | | | |
|---|---|---|---|
| Pollutant | Check One for each: E=Expected to be of concern N=Not Expected to be of concern | | Additional Information and Comments |
| Suspended-Solid/ Sediment | E ☒ | N ☐ | Polluant from landscaping and open areas. |
| Nutrients | E ☒ | N ☐ | Polluant from landscaping and open areas. |
| Heavy Metals | E ☒ | N ☐ | Uncovered parking areas |
| Pathogens (Bacteria/Virus) | E ☒ | N ☐ | Polluant from food waste. |
| Pesticides | E ☒ | N ☐ | Polluant from landscaping and open areas. |
| Oil and Grease | E ☒ | N ☐ | polluant from uncovered parking areas |
| Toxic Organic Compounds | E ☐ | N ☒ | |
| Trash and Debris | E ☒ | N ☐ | Polluant from landscaping and open areas. |

## II.3 Hydrologic Conditions of Concern

Determine if streams located downstream from the project area are potentially susceptible to hydromodification impacts. *Refer to Section 2.2.3.1 in the Technical Guidance Document (TGD) for North Orange County or Section 2.2.3.2 for South Orange County.*

☒ No – Show map

☐ Yes –

Post development runoff volume for the 2 year, 24 hr. storm exceeds the pre-development runoff volume for the 2 year, 24 hr storm by more than 5 percent.

## II.4 Post Development Drainage Characteristics

Describe post development drainage characteristics. *Refer to Section 2.2.4 in the Technical Guidance Document (TGD).*

- Existing drainage pattern has been utilized.
- Building roof has been divided into 3 drainage areas.
- The Northerly portion of the building roof has been divided into two equal halves.
- The Easterly half of the roof drains into hardscape between new building & existing building A2 via down spots. This hardscape area has numerous catch basins to collect the roof runoff via sheet flow. The catch basis are connected to a new 8 inch storm drain. This storm drain flows southerly to the parking area. Then turns west and ties into existing 15 inch storm drain.
- The Westerly half of the Northerly portion of the building roof drains into the hardscape between new building & existing building E via down spots. This hardscape area has numerous catch basins to collect the roof runoff via sheet flow. The catch basis are connected to a new 8 inch storm drain. This storm drain flows southerly to the parking area. The storm drain flows southerly and ties into existing 15" RCP storm drain.
- The storm runoff from Southerly area of existing building E and new building has been collected in catch basins. The catch basins are connected to a new 8" storm drain. The storm drain flows easterly and ties into existing 15" RCP storm drain.
- The Southerly portion of the new building roof drains into new hardscape and landscapes in front of the new building. These areas sheet flow into new parking area. The storm runoff from new parking area is collected by a concrete ribbon gutter. The gutter flows westerly along the entire southerly length of new building and ties into existing concrete ribbon gutter. The existing ribbon gutter flows southerly and turns westerly into the existing landscaping. There is a catch basin in the landscaping with an underside walk drain, where runoff is conveyed into Cerritos avenue.
- The area in front of the existing building A2, sheet flows into a new concrete ribbon gutter. The gutter flows easterly and conveys the runoff into an existing catch basin.

## II.5 Property Ownership/Management

The present owner is Los Alamitos Unified School District.

# Section III Site Description

## III.1 Physical Setting

| | |
|---|---|
| Name of Planned Community/Planning Area (if applicable) | |
| Location/Address | Los Alamitos High School |
| | 3591 West CerritosAve., Los Alamitos, CA 90720 |
| General Plan Land Use Designation | Community Facilities |
| Zoning | C-F |
| Acreage of Project Site | 48.36 |
| Predominant Soil Type | Lean clay with varying amounts of silt and sand extending to the maximum depth explored at 61½ feet bgs. Interbedded layers of sand with variable amounts of clay and silt, and sandy silt were encountered between the approximate depths of 35 and 55 feet bgs. |

## III.2 Site Characteristics

| Site Characteristics | |
|---|---|
| Precipitation Zone | 0.85" Per Orange County Rainfall Zones Map, Figure XVI.1 of the Technical Guidance Document. |
| Topography | Presently the area to be redeveloped consists of two single story concrete buildings with a courtyard between the two buildings ( Building A1).<br>There is a 40 feet wide paved area between building A1 & building E. There are existing water, sewer, storm drain, gas line and other utility lines located in this strip. There are four raised brick planters present in this strip.<br>There are hardscape and berm planters on the north side of building A1. Presently the runoff from this area is being collected in catch basins.<br>The area to the south of building A1 is consisting of concrete sidewalks, raised brick planters and lawn. This area sheet flows southerly to the existing parking and drive lane.<br>The parking and drive lane flows westerly to an existing concrete ribbon gutter. The building A1 finish floor is at elevation 30.00 the start of the concrete ribbon gutter is at elevation 27.70. |

| | |
|---|---|
| Drainage Patterns/Connections | The site has two 15" RCP storm drain main lines. The lines are located between buildings E & A1, and Buildings A2 & F. Flow in the lines are from North to South. The two lines tie into an existing 6' wide by 5' tall storm drain culvert box, in Cerritos Avenue. This line is located approximately 25 feet North of street center line and flows westerly. The line has only 22" cover in the street. There is a catch basin located in the court yard area at BLDG. A1. The catch basin has a 6 inch cast iron pipe, flowing westerly and ties to 15" RCR. The court yard area North of the building A2 drains into catch basin located in the planter beds. The area South of the building A1, sheet flows into the parking and access road, Access road slopes westerly into a concrete ribbon gutter which flows South. And the gutter then turns west into landscaping area with a catch basin. The catch basin drains into Cerritos Ave. via an underside walk drain. |
| Soil Type, Geology, and Infiltration Properties | The on-site subsurface materials consisted of predominantly lean clay with varying amounts of silt and sand extending to the maximum depth explored at 61½ feet bgs. Interbedded layers of sand with variable amounts of clay and silt, and sandy silt were encountered between the approximate depths of 35 and 55 feet bgs. The site is situated within the Peninsular Ranges Geomorphic Province in Southern California.<br>Geologic structures within this Province trend mostly northwest, in contrast to the prevailing east-west trend in the neighboring Transverse Ranges Geomorphic Province to the north. The Peninsular Ranges Province extends into Lower California and is bounded by the Colorado Desert to the east, the Pacific Ocean to the west and the San Gabriel and San Bernardino mountains to the north. 1,2 The surficial geologic unit mapped at the site is mapped as young alluvial fan deposits 3 (Exhibit A-2 and A-5) of Holocene to Late Pleistocene age. This unit is described as unconsolidated to slightly consolidated, undissected to slightly dissected boulder, cobble, gravel, sand, and silt deposits issued from a confined valley or canyon. This surficial geologic unit is also mapped as young alluvium, Unit 24, of Holocene to Late Pleistocene age described as poorly consolidated, poor sorted, permeable flood-plain deposits consisting of soft clay, silt and loose to moderately dense sand and silty sand. |
| Hydrogeologic (Groundwater) Conditions | Groundwater was encountered at an approximate depth of 28 feet bags in the borings during the field explorations for this project. These observations represent groundwater conditions at the time of the field exploration and may not be indicative of other times, or at other locations.<br>In clayey soils with low permeability, the accurate determination of groundwater level may not be possible without long-term observation. Long-term observation after drilling could not be performed, as borings were backfilled immediately upon completion due to safety concerns.<br>Groundwater levels can best be determined by implementation of a groundwater monitoring plan. Such a plan would include installation of groundwater monitoring wells, and periodic measurement of groundwater levels over a sufficient period of time.<br>Based on the Seismic Hazard Zone Report, the historical high groundwater in the project area is about 14 feet bags (Exhibit A-6). Based on the nearby groundwater monitoring wells, the highest groundwater in the project area is 7.3 feet bags.<br>Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were |

| | |
|---|---|
| | performed. Therefore, groundwater levels during construction or at other times in the life of the improvements may be higher or lower than the levels indicated on the boring logs. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project. |
| Geotechnical Conditions (relevant to infiltration) | **Percolation Rate = 0.5 to 1.2 in/hr**<br>**Correlated Infiltration Rate = less than 0.1 in/hr**<br>According to the soils report infiltration is not feasible onsite from a geotechnical standpoint. |
| Off-Site Drainage | No off-site drainage was accounted for within this report. |
| Utility and Infrastructure Information | Sewer, storm drain, water, gas, and electrical conduits are present. |

## III.3 Watershed Description

Fill out table with relevant information and include information regarding BMP sizing, suitability, and feasibility, as applicable. *Refer to Section 2.3.3 in the Technical Guidance Document (TGD).*

| | |
|---|---|
| Receiving Waters | Coyote Creek / San Gabriel River |
| 303(d) Listed Impairments | Bacteria Indicator Pathogens, Nutriants, Pesticides, and Toxicity |
| Applicable TMDLs | copper,lead, zinc |
| Pollutants of Concern for the Project | Bacteria Indicator, Pathogens, Pesticides, Toxicity, and Other Organic Compounds |
| Environmentally Sensitive and Special Biological Significant Areas | NONE |

# Section IV Best Management Practices (BMPs)

## IV. 1 Project Performance Criteria

Describe project performance criteria. Several steps must be followed in order to determine what performance criteria will apply to a project. These steps include:

- If the project has an approved WIHMP or equivalent, then any watershed specific criteria must be used and the project can evaluate participation in the approved regional or sub-regional opportunities. (Please ask your assigned planner or plan checker regarding whether your project is part of an approved WIHMP or equivalent.)
- Determine applicable hydromodification control performance criteria. *Refer to Section 7.II-2.4.2.2 of the Model WQMP.*
- Determine applicable LID performance criteria. *Refer to Section 7.II-2.4.3 of the Model WQMP.*
- Determine applicable treatment control BMP performance criteria. *Refer to Section 7.II-*3.2.2 *of the Model WQMP.*
- Calculate the LID design storm capture volume for the project. *Refer to Section 7.II-2.4.3 of the Model WQMP.*

| | | |
|---|---|---|
| (NOC Permit Area only) Is there an approved WIHMP or equivalent for the project area that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis? | YES ☐ | NO ☒ |
| If yes, describe WIHMP feasibility criteria or regional/sub-regional LID opportunities. | | |

| **Project Performance Criteria** | |
|---|---|
| If HCOC exists, list applicable hydromodification control performance criteria (Section 7.II-2.4.2.2 in MWQMP) | 2 YEAR STORM EVENT<br>Pre development<br>$Q_2$ = 2.10 cfs<br>Post development<br>$Q_2$ = 2.51 cfs<br>$\Delta_{Q2}$ = 2.51-2.10 = 0.41 cfs<br>0.41 / 2.10 = 19.5% > 5%<br>Implement on-site hydro modification controls for 110 percent of the predevelopment runoff two year peak flow rate (Model WQMP 7.11-2.4.22)<br>10% Q predevelopment = (10) (2.10) / 100 = 0.21 cfs<br>LID BMP table 7.11-4<br>Design Volume = (CdA)(43560 sq/ac)(1/12 in/f)<br>=(0.21)(0.89)(80696)(1/12) = 1257 cubic feet<br>Provide 30" round Aluminized steel type 2, 16ga. With 2 2/3" x ½"<br>Corrugation pipe, approximately 260ft.<br>Volume = $\Pi r^2 L$ = 1276 cubic feet > 1257 cubic feet |
| List applicable LID performance criteria (Section 7.II-2.4.3 from MWQMP) | The proposed catch basin insert filter, will filter the LID Design Capture ratee |
| List applicable treatment control BMP performance criteria (Section 7.II-3.2.2 from MWQMP) | All new and existing catch basins will have insert filter |

Calculate LID design storm capture volume for Project.

(Simple Method)
DCV = (0.75 x % impervious + 0.15)(85th percentile, 24 hr storm depth)(area)/(12inch/ft)

| MARK | Total (ft. sq.) | Pervious area (ft. sq.) | Impervious area (ft. sq.) | % Imperv. | LID Design Storm Capture Volume CF |
|---|---|---|---|---|---|
| DMA 1 | 18,161 | 447 | 17,714 | 0.98 | 1,134 |
| DMA2 | 20,409 | 1,432 | 18,977 | 0.93 | 1,225 |
| DMA3 | 13,498 | 1,229 | 12,269 | 0.91 | 795 |
| DMA4 | 36,595 | 2,914 | 33,681 | 0.92 | 2,178 |
| **Total** | **88,663** | **6,022** | **82,641** | **0.93** | **5,332** |

## IV.2. Site Design and Drainage

Describe site design and drainage including

- A narrative of site design practices utilized or rationale for not using practices;
- A narrative of how site is designed to allow BMPs to be incorporated to the MEP
- A table of DMA characteristics and list of LID BMPs proposed in each DMA.
- Reference to the WQMP "BMP Exhibit."
- Calculation of Design Capture Volume (DCV) for each drainage area.
- A listing of GIS coordinates for LID and Treatment Control BMPs.

*Refer to Section 2.4.2 in the Technical Guidance Document (TGD).*

The site has been divided into four Drainage Management areas (DMA). The hydrologic source control for all the DMA is by proprietary type catch basin insert filters.

DMA 1 covers approximately the easterly half of the proposed building roof and the hardscape between new building and existing Building A2. The LID Design Storm Capture flow will go through catch basin insert filter into a new 8" storm drain pipe, which flows from north to the south, then turns west in the parking lot and eventually ties into on site existing 15" RCP storm drain.

DMA 2 covers approximately the westerly half of the proposed building roof and the hardscape between new building and existing Building E. The LID Design Storm Capture flow will go through catch basin insert filter into a new 8" storm drain pipe, which flows from north to the south and ties into on site existing 15" RCP storm drain.

DMA 3 covers the hardscape and landscaped area north of the proposed building. The LID Design Storm Capture flow will go through catch basin insert filter into existing 6" storm drain lateral pipes. The existing basins flow in two directions. The westerly two basins flow westerly and ties into on site existing 15" RCP storm drain located east of building E. The easterly basin flows westerly and ties into on site existing 15" RCP storm drain located east of building A2.

DMA 4 covers approximately the southerly portion of the proposed building roof which parallels to the road, and the hardscape and landscaped areas south of the proposed building and the existing building A2, all the way to the center line of the existing road. The LID Design Storm Capture flow will go through two catch basin insert filters. One basin is located approximately on the center line of the road, on the south easterly side. The other catch basin is located in the existing landscaping area on the most southwesterly corner of the site along Cerritos Ave. The catch basin drains into Cerritos Ave. via an underside walk drain.

| MARK | Total (ft. sq.) | Pervious area (ft. sq.) | Impervious area (ft. sq.) | % Imperv. | LID Design Storm Capture flow rate cfs |
|---|---|---|---|---|---|
| DMA 1 | 18,161 | 447 | 17,714 | 0.98 | 0.16 |
| DMA2 | 20,409 | 1,432 | 18,977 | 0.93 | 0.15 |
| DMA3 | 13,498 | 1,229 | 12,269 | 0.91 | 0.08 |
| DMA4 | 36,595 | 2,914 | 33,681 | 0.92 | 0.25 |
| **Total** | **88,663** | **6,022** | **82,641** | **0.93** | **0.64** |

## IV.3 LID BMP Selection and Project Conformance Analysis

Each sub-section below documents that the proposed design features conform to the applicable project performance criteria via check boxes, tables, calculations, narratives, and/or references to worksheets. *Refer to Section 2.4.2.3 in the Technical Guidance Document (TGD) for selecting LID BMPs and Section 2.4.3 in the Technical Guidance Document (TGD) for conducting conformance analysis with project performance criteria.*

## IV.3.1 Hydrologic Source Controls (HSCs)

If required HSCs are included, fill out applicable check box forms. If the retention criteria are otherwise met with other LID BMPs, include a statement indicating HSCs not required.

| Name | Included? |
|---|---|
| Localized on-lot infiltration | ☐ |
| Impervious area dispersion (e.g. roof top disconnection) | ☐ |
| Street trees (canopy interception) | ☐ |
| Residential rain barrels (not actively managed) | ☐ |
| Green roofs/Brown roofs | ☐ |
| Blue roofs | ☐ |
| Impervious area reduction (e.g. permeable pavers, site design) | ☐ |
| Other: 100% of the LID Design Strom volume has been captured on site by propriotery filter devises | ☐ |
| Other: | ☐ |
| Other: | ☐ |
| Other: | ☐ |
| Other: | ☐ |
| Other: | ☐ |
| Other: | ☐ |
| Other: | ☐ |

## IV.3.2 Infiltration BMPs

Identify infiltration BMPs to be used in project. If design volume cannot be met, state why.

| Name | Included? |
|---|---|
| Bioretention without underdrains | ☐ |
| Rain gardens | ☐ |
| Porous landscaping | ☐ |
| Infiltration planters | ☐ |
| Retention swales | ☐ |
| Infiltration trenches | ☐ |
| Infiltration basins | ☐ |
| Drywells | ☐ |
| Subsurface infiltration galleries | ☐ |
| French drains | ☐ |
| Permeable asphalt | ☐ |
| Permeable concrete | ☐ |
| Permeable concrete pavers | ☐ |
| Other: 100% of the LID Design Strom volume has been captured via catch basin insert filters | ☒ |
| Other: | ☐ |

Show calculations below to demonstrate if the LID Design Strom Capture Volume can be met with infiltration BMPs. If not, document how much can be met with infiltration and document why it is not feasible to meet the full volume with infiltration BMPs.

Zero soils percolation rate

Not Applicable.

## IV.3.3 Evapotranspiration, Rainwater Harvesting BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, describe any evapotranspiration and/or rainwater harvesting BMPs included.

| Name | Included? |
|---|---|
| All HSCs; *See Section IV.3.1* | ☐ |
| Surface-based infiltration BMPs | ☐ |
| Biotreatment BMPs | ☐ |
| Above-ground cisterns and basins | ☐ |
| Underground detention | ☐ |
| Other: | ☐ |
| Other: | ☐ |
| Other: | ☐ |

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with evapotranspiration and/or rainwater harvesting BMPs in combination with infiltration BMPs. If not, document below how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with these BMP categories.

Not Applicable.

## IV.3.4 Biotreatment BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, and/or evapotranspiration and rainwater harvesting BMPs, describe biotreatment BMPs included. Include sections for selection, suitability, sizing, and infeasibility, as applicable.

| Name | Included? |
|---|---|
| Bioretention with underdrains | ☐ |
| Stormwater planter boxes with underdrains | ☐ |
| Rain gardens with underdrains | ☐ |
| Constructed wetlands | ☐ |
| Vegetated swales | ☐ |
| Vegetated filter strips | ☐ |
| Proprietary vegetated biotreatment systems | ☐ |
| Wet extended detention basin | ☐ |
| Dry extended detention basins | ☐ |
| Other: | ☐ |
| Other: | ☐ |

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with infiltration, evapotranspiration, rainwater harvesting and/or biotreatment BMPs. If not, document how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with these BMP categories.

Not Applicable

## IV.3.5 Hydromodification Control BMPs

Describe hydromodification control BMPs. *See Section 5 of the Technical Guidance Document (TGD).* Include sections for selection, suitability, sizing, and infeasibility, as applicable. Detail compliance with Prior Conditions of Approval (if applicable).

| Hydromodification Control BMPs | |
|---|---|
| **BMP Name** | **BMP Description** |
| N/A | N/A |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

## IV.3.6 Regional/Sub-Regional LID BMPs

Describe regional/sub-regional LID BMPs in which the project will participate. *Refer to Section 7.II-2.4.3.2 of the Model WQMP.*

| Regional/Sub-Regional LID BMPs |
|---|
| Not Applicable |

## IV.3.7 Treatment Control BMPs

Treatment control BMPs can only be considered if the project conformance analysis indicates that it is not feasible to retain the full design capture volume with LID BMPs. Describe treatment control BMPs including sections for selection, sizing, and infeasibility, as applicable.

| Treatment Control BMPs | |
|---|---|
| **BMP Name** | **BMP Description** |
| Impervious Dispersion | N/A |
| Impervious Area Reduction | N/A |
| | |
| | |
| | |
| | |
| | |
| | |
| | |

## IV.3.8 Non-structural Source Control BMPs

Fill out non-structural source control check box forms or provide a brief narrative explaining if non-structural source controls were not used.

| Non-Structural Source Control BMPs | | | | |
|---|---|---|---|---|
| **Identifier** | **Name** | **Check One** | | **If not applicable, state brief reason** |
| | | **Included** | **Not Applicable** | |
| N1 | Education for Property Owners, Tenants and Occupants | ☒ | ☐ | |
| N2 | Activity Restrictions | ☒ | ☐ | |
| N3 | Common Area Landscape Management | ☒ | ☐ | |
| N4 | BMP Maintenance | ☒ | ☐ | |
| N5 | Title 22 CCR Compliance (How development will comply) | ☒ | ☐ | |
| N6 | Local Industrial Permit Compliance | ☐ | ☒ | No Fuel dispensing is allowed |
| N7 | Spill Contingency Plan | ☐ | ☒ | No gas island |
| N8 | Underground Storage Tank Compliance | ☐ | ☒ | No underground storage tank. |
| N9 | Hazardous Materials Disclosure Compliance | ☐ | ☒ | No Hazardous Material is allowed |
| N10 | Uniform Fire Code Implementation | ☒ | ☐ | |
| N11 | Common Area Litter Control | ☒ | ☐ | |
| N12 | Employee Training | ☒ | ☐ | |
| N13 | Housekeeping of Loading Docks | ☐ | ☒ | No proposed loading docks. |
| N14 | Common Area Catch Basin Inspection | ☒ | ☐ | |
| N15 | Street Sweeping Private Streets and Parking Lots | ☒ | ☐ | |
| N16 | Retail Gasoline Outlets | ☐ | ☒ | No Retail Gasoline outlets is permitted for this project |

## IV.3.9 Structural Source Control BMPs

Fill out structural source control check box forms or provide a brief narrative explaining if structural source controls were not used.

| Structural Source Control BMPs | | | | |
|---|---|---|---|---|
| **Identifier** | **Name** | **Check One** | | **If not applicable, state brief reason** |
| | | **Included** | **Not Applicable** | |
| S1 | Provide storm drain system stenciling and signage | ☒ | ☐ | |
| S2 | Design and construct outdoor material storage areas to reduce pollution introduction | ☐ | ☒ | No proposed outdoor storage areas. |
| S3 | Design and construct trash and waste storage areas to reduce pollution introduction | ☐ | ☒ | No waste storage area. |
| S4 | Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control | ☒ | ☐ | |
| S5 | Protect slopes and channels and provide energy dissipation | ☐ | ☒ | No proposed slopes |
| | Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit) | ☒ | ☐ | |
| S6 | Dock areas | ☐ | ☒ | No proposed docks. |
| S7 | Maintenance bays | ☐ | ☒ | No proposed maintenance bays. |
| S8 | Vehicle wash areas | ☐ | ☒ | No proposed vehicles wash areas. |
| S9 | Outdoor processing areas | ☐ | ☒ | No proposed outdoor processing areas. |
| S10 | Equipment wash areas | ☐ | ☒ | No proposed equipment wash areas. |
| S11 | Fueling areas | ☐ | ☒ | No proposed Fueling areas |
| S12 | Hillside landscaping | ☐ | ☒ | Project not located within hillside areas. |
| S13 | Wash water control for food preparation areas | ☐ | ☒ | No proposed food preparation area. |
| S14 | Community car wash racks | ☐ | ☒ | No proposed community car wash racks. |

## IV.4 Alternative Compliance Plan (If Applicable)

Describe an alternative compliance plan (if applicable). Include alternative compliance obligations (i.e., gallons, pounds) and describe proposed alternative compliance measures. *Refer to Section 7.II 3.0 in the WQMP.*

### IV.4.1 Water Quality Credits

Determine if water quality credits are applicable for the project. *Refer to Section 3.1 of the Model WQMP for description of credits and Appendix VI of the Technical Guidance Document (TGD) for calculation methods for applying water quality credits.*

<table>
<tr><th colspan="5">Description of Proposed Project</th></tr>
<tr><td colspan="5">Project Types that Qualify for Water Quality Credits (Select all that apply):</td></tr>
<tr><td>☐Redevelopment projects that reduce the overall impervious footprint of the project site.</td><td colspan="2">☐Brownfield redevelopment, meaning redevelopment, expansion, or reuse of real property which may be complicated by the presence or potential presence of hazardous substances, pollutants or contaminants, and which have the potential to contribute to adverse ground or surface WQ if not redeveloped.</td><td colspan="2">☐ Higher density development projects which include two distinct categories (credits can only be taken for one category): those with more than seven units per acre of development (lower credit allowance); vertical density developments, for example, those with a Floor to Area Ratio (FAR) of 2 or those having more than 18 units per acre (greater credit allowance).</td></tr>
<tr><td colspan="2">☐ Mixed use development, such as a combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that can demonstrate environmental benefits that would not be realized through single use projects (e.g. reduced vehicle trip traffic with the potential to reduce sources of water or air pollution).</td><td colspan="2">☐ Transit-oriented developments, such as a mixed use residential or commercial area designed to maximize access to public transportation; similar to above criterion, but where the development center is within one half mile of a mass transit center (e.g. bus, rail, light rail or commuter train station). Such projects would not be able to take credit for both categories, but may have greater credit assigned</td><td>☐ Redevelopment projects in an established historic district, historic preservation area, or similar significant city area including core City Center areas (to be defined through mapping).</td></tr>
<tr><td>☐Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.</td><td>☐ Developments in a city center area.</td><td>☐ Developments in historic districts or historic preservation areas.</td><td>☐ Live-work developments, a variety of developments designed to support residential and vocational needs together – similar to criteria to mixed use development; would not be able to take credit for both categories.</td><td>☐In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.</td></tr>
</table>

| | |
|---|---|
| Calculation of Water Quality Credits<br>(if applicable) | Not Applicable. |

## IV.4.2 Alternative Compliance Plan Information

Describe an alternative compliance plan (if applicable). Include alternative compliance obligations (i.e., gallons, pounds) and describe proposed alternative compliance measures. *Refer to Section 7.II 3.0 in the Model WQMP.*

Not Applicable

# Section V Inspection/Maintenance Responsibility for BMPs

Fill out information in table below. Prepare and attach an Operation and Maintenance Plan. Identify the funding mechanism through which BMPs will be maintained. Inspection and maintenance records must be kept for a minimum of five years for inspection by the regulatory agencies. *Refer to Section 7.II 4.0 in the Model WQMP.*

| BMP Inspection/Maintenance | | | |
|---|---|---|---|
| **BMP** | **Reponsible Party(s)** | **Inspection/ Maintenance Activities Required** | **Minimum Frequency of Activities** |
| N1 Education for Property Owner, Tenant, & Occupants | Los Alamitos School District | Informational and educational materials will be provided by the owner to the tenants and /or occupants on general good housekeeping practices related to preventing water quality impacts. | Upon change of ownership and upon new lease of space to new tenants |
| N2<br><br>Activity Restriction | Los Alamitos School District | Los Alamitos School District shall restrict the activities of all employees, future Owners /tenants, and Patrons so that they do not discharge washwater, rinsewater, waste solids, cleaners, vehicle fluids, or any other pollutants into the on-site drains and / or public right of way. Prohibit discharges of fertilizer, pesticides, or animal wastes to streets or storm drains. The following activities are prohibited on this site.Blowing or sweeping of debris (leaf litter, grass clippings, litter, etc.) into streets or storm drains, automotive or machinery repair, car washing, outdoor storage, washing down driveway and walkways.<br><br>Car additives are not allowed to be | Monthly |

| | | | |
|---|---|---|---|
| | | opened onsite to add to car transmissions, coolants, gas treatment, etc. | |
| N3<br><br>Common Area Landscape Management | Los Alamitos School District | The clearing and grading of native vegetation will be at the minimum amount needed to develop this project, allow access, and provide fire protection. Plants will be grouped with similar water requirements in-order to reduce excess irrigation runoff and promote surface filtration. Natural vegetation will be promoted through the use of drought tolerant plants.<br><br>To reduce excess irrigation water from being conveyed into the storm water drainage system, several devices will be installed. These devices include but are not limited to:<br><br>1. Rain-triggered shutoff valves<br><br>2. Shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.<br><br>3.Programmable irrigation timers<br><br>Maintenance of irrigation system and landscaping shall be at a minimum correct excessive overspray, poorly directed sprinkler heads, broken sprinkler heads, biweekly inspection of turf and planters for dead or dying vegetation or for areas that are eroding. All deficiencies shall be correctly in a timely manner not to exceed one week. The use of | N3<br><br>Common Area Landscape Management |

| | | | |
|---|---|---|---|
| | | pesticides and fertilizers shall be to a minimum. Do not apply pesticides and fertilizers when it is windy and before rain and dispose leftovers at a hazardous materials collection center. Use broom rather than hose or blower to clean up garden clippings. Put leaves and clippings in a trash can. | |
| N4.<br><br>BMP Maintenance | Los Alamitos School District | Maintenance activities should include periodic mowing, weed control, watering during drought conditions, reseeding of bare areas, and clearing of debris and blockages. Cuttings should be removed from the planter strips and disposed in a local composting facility. Accumulated sediment should also be removed manually to avoid concentrated flows in the swale. The application of fertilizers and pesticides should be minimal. Inspect after each storm event for blockages and proper drainage free of standing water<br><br>Inspections and maintenance to ensure that water infiltrates into the subsurface completely (recommended infiltration rate of 48 hours or less) and that vegetation is carefully managed to prevent creating mosquito and other vector habitats.<br>Observe drain time for the design storm after completion or modification of the facility to confirm that the desired drain time has been obtained.<br><br>Remove accumulated sediment and regrade when the accumulated sediment volume exceeds 10% of | Semiannual/ annual and post-storm inspections; Vegetation upkeep; Periodic surface scarification and sediment removal<br><br>Permeable Pavers;<br><br>Remove accumulated dust, sediment, and debris, preventive regular parking sweeping |

| | | | |
|---|---|---|---|
| | | the basin.<br><br>when erosion is occurring within the basin, revegetate immediately and stabilize with an erosion control mulch or mat until vegetation cover is established.<br><br>To avoid reversing soil development, scarification or other disturbance should only be performed when there are actual signs of clogging, rather than on a routine basis. Always remove deposited sediments before scarification, and use a hand-guided rotary tiller, if possible, or a disc harrow pulled by a very light tractor.<br><br>Maintenance to be done at the box at the right of way that serves as a splitter and access point to the under the sidewalk and outlet through the curb. Use water pressure or any other appropriate method to clear any clogging of the outlet.<br><br>Permeable pavement inspection and maintenance tasks are: (1) verifying that clogging has not occurred, construction increases the likelihood of sediment accumulation in permeable pavements. (2) preventive street sweeping, (3) weeding, and (4) stain removal.<br><br>Trash storage must be covered to protect containers from rainfall and connected to the sanitary sewer to prevent leaks from leaving the | |

| | | | |
|---|---|---|---|
| | | designated trash storage area enclosure | |
| N7.<br><br>Spill Contingency Plan | Los Alamitos School District | A Spill Contingency Plan is prepared by building operator or occupants for use by specified types of building or suite occupancies. The Spill Contingency Plan describes how the occupants will prepare for and respond to spills of hazardous materials. Plans typically describe stockpiling of cleanup materials, notification of responsible agencies, disposal of cleanup materials, documentation, etc. | Yearly |
| N8<br>Underground Storage Tank Compliance | Los Alamitos School District | Compliance with State regulations dealing with underground storage tanks, enforced by County Environmental Health on behalf of State. | Yearly |
| N10<br><br>Uniform Fire Code Implementation | Los Alamitos School District | Compliance with arcticle 80 of the Unfirom Fire Code enforced by fire Protection agency | Yearly |
| N12. Employee Training | Los Alamitos School District | information provided for training all new employees | Within one week of hire and annually thereafter. |

| | | | |
|---|---|---|---|
| N14 (SC-74) Common Area Catch Basin Inspection | Los Alamitos School District | Los Alamitos School District is required to have at least 80 percent of drainage facilities inspected, cleaned and maintained on an annual basis with 100 percent of the facilities included in a two-year period. Cleaning should take place in the late summer/early fall prior to the start of the rainy season. Drainage facilities include catch basins (storm drain inlets). Records should be kept to document the annual maintenance. | Annual basis and late summer/early fall prior to the start of the rainy season. |
| N15. Street Sweeping Private Streets and Parking Lots | Los Alamitos School District | Drive lane and parking spaces will be swept, to prevent sediment, garden waste, and trash from entering the public streets. | at least once per month or more often as necessary |
| SD-12 Provide Storm Drain System Stencilling and Signage | Los Alamitos School District | Maintain the legibility of the sign | Yearly |
| SD-13 Use Efficient Irrigation Systems & Landscape Design | Los Alamitos School District | The timing and application methods of irrigation water to be designed to minimize the runoff of excess irrigation water into the municipal storm drain system. The following methods to reduce excessive irrigation runoff shall be considered, and incorporated on common areas of development:<br>1. Use rain shutoff devices to | |

| | | | |
|---|---|---|---|
| | | prevent irrigation after precipitation.<br>2. Irrigation systems to be designed to each landscape area's specific water requirements.<br>3. Use flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.<br>4. Implement landscape plan consistent with the City / County Water Efficient Landscape Requirements Municipal Code, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.<br>5. The timing and application methods of irrigation water shall be designed to minimize the runoff of excess irrigation water into the municipal storm drain system.<br>6. Reduce irrigation water runoff.<br>7. Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species).<br>Consider other design features, such as:<br>A. Use mulches (such as wood chips or shredded wood products) in planter areas without ground cover to minimize sediment in runoff.<br>B. Install appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant material where possible and/or as recommended by the landscape architect.<br>C. Choose plants that minimize or | |

| | | | |
|---|---|---|---|
| | | eliminate the use of fertilizer or pesticides to sustain growth. | |

# Section VI BMP Exhibit (Site Plan)

## VI.1 BMP Exhibit (Site Plan)

Include a BMP Exhibit (Site Plan), at a size no less than 24" by 36," which includes the following minimum information:

- Insert in the title block (lower right hand corner) of BMP Exhibit: the WQMP Number (assigned by staff) and the grading/building or Planning Application permit numbers
- Project location (address, tract/lot number(s), etc.)
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural BMP locations
- Drainage delineations and flow information
- Delineate the area being treated by each structural BMP
- GIS coordinates for LID and Treatment Control BMPs
- Drainage connections
- BMP details
- Preparer name and stamp

Please do not include any areas outside of the project area or any information not related to drainage or water quality. The approved BMP Exhibit (Site Plan) shall be submitted as a plan sheet on all grading and building plan sets submitted for plan check review and approval. The BMP Exhibit shall be at the same size as the rest of the plan sheets in the submittal and shall have an approval stamp and signature prior to plan check submittal.

## VI.2 Submittal and Recordation of Water Quality Management Plan

Following approval of the Final Project-Specific WQMP, three copies of the approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be submitted. In addition, these documents shall be submitted in a PDF format.

Each approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be recorded in the Orange County Clerk-Recorder's Office, prior to close-out of grading and/or building permit. Educational Materials are not required to be included.

# Section VII Educational Materials

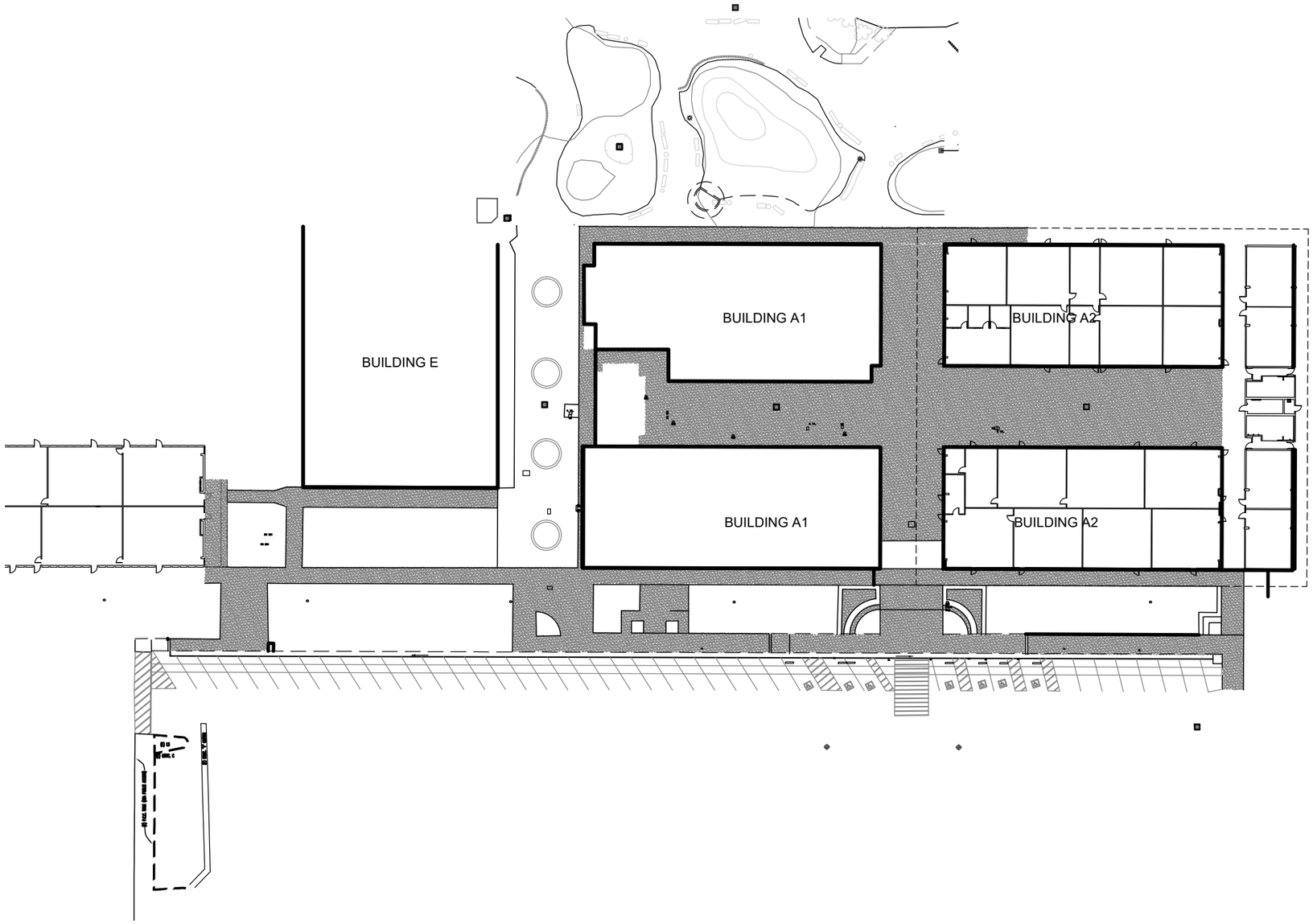
Refer to the Orange County Stormwater Program (ocwatersheds.com) for a library of materials available. Please only attach the educational materials specifically applicable to this project. Other materials specific to the project may be included as well and must be attached.

| Education Materials | | | |
|---|---|---|---|
| **Residential Material (http://www.ocwatersheds.com)** | **Check If Applicable** | **Business Material (http://www.ocwatersheds.com)** | **Check If Applicable** |
| The Ocean Begins at Your Front Door | ☒ | Tips for the Automotive Industry | ☐ |
| Tips for Car Wash Fund-raisers | ☐ | Tips for Using Concrete and Mortar | ☐ |
| Tips for the Home Mechanic | ☐ | Tips for the Food Service Industry | ☒ |
| Homeowners Guide for Sustainable Water Use | ☐ | Proper Maintenance Practices for Your Business | ☒ |
| Household Tips | ☐ | **Other Material** | **Check If Attached** |
| Proper Disposal of Household Hazardous Waste | ☐ | | |
| Recycle at Your Local Used Oil Collection Center (North County) | ☐ | Catch Basin Insert Filter | ☒ |
| Recycle at Your Local Used Oil Collection Center (Central County) | ☐ | | ☐ |
| Recycle at Your Local Used Oil Collection Center (South County) | ☐ | | ☐ |
| Tips for Maintaining a Septic Tank System | ☐ | | ☐ |
| Responsible Pest Control | ☐ | | ☐ |
| Sewer Spill | ☐ | | ☐ |
| Tips for the Home Improvement Projects | ☐ | | ☐ |
| Tips for Horse Care | ☐ | | ☐ |
| Tips for Landscaping and Gardening | ☒ | | ☐ |
| Tips for Pet Care | ☐ | | ☐ |
| Tips for Pool Maintenance | ☐ | | ☐ |
| Tips for Residential Pool, Landscape and Hardscape Drains | ☐ | | ☐ |
| Tips for Projects Using Paint | ☐ | | ☐ |

E BELEN ST
E BENMORE ST
E DIRKDALE ST
E BARBANELL ST
E WILLOW ST
E VERNON ST
E 23RD ST
E STEARNS ST
E BARRIOS ST
E EL PULCRO ST
E DON JULIO ST
E BELICE ST
E CANTEL ST
E EL SALVADOR ST
E LA MARIMBA ST
E EL CARMEN ST
E EL PROGRESO ST
E EL PASEO ST
E BAYARD ST
E MADERA ST
E LOS ARCOS ST
E DAYMAN ST
E DEBORAH ST
E OAKBROOK ST
N OAKBROOK ST
E LOS SANTOS DR
N SAN VICENTE
ALBURY AV
FANWOOD AV
FAUST AV
GONDAR AV
SNOWDEN AV
MCNAB AV
WOODRUFF AV
TEVIS AV
CARFAX AV
CONQUISTA AV
FAROLITO AV
HACKETT AV
IROQUOIS AV
JOSIE AV
KNOXVILLE AV
LADOGA AV
MONOGRAM AV
NIPOMO AV
OSTROM AV
PETALUMA AV
LEES AV
KALLIN AV
ROXANNE AV
HIDDEN AV
VOLK AV
SHIPWAY AV
PATTIZ AV
STEVELY AV
GARFORD AV
SENASAC AV
MARITA AV
FAIRBROOK AV
SAN CATALDO AV
VUELTA GRANDE AV
VUELTA GRANDE
MOORUFF AV
MOORUFF
R A MILLIKAN HS
EL DORADO PARK GOLF COURSE
EL DORADO PARK WEST
EL DORADO NATURE CENTER PARK
EL DORADO PARK GOLF COURSE
CLUBHOUSE
LIB
SR CIT CTR
PARK HQ
SAN GABRIEL RIVER
COYOTE CREEK
LOS CERRITOS CHANNEL
ARROYO SECO
ARROYO SECO STORM CHANNEL
KENSINGTON RD
WEMBLEY RD
SILVERWOOD AV
COLERIDGE RD
CHANNING RD
ARGYLE DR
PIEDMONT AV
MARTHA AV
DR
ACE
INVER
405
605
5900
6199
6600
6900
7600
2100
2200
2300
2400
2599
2700
2800
1900
2000
2199
7299
11400
11600
5800
6200
6400
6500
6900
D
E
F
G

# EXISTING SITE PLAN "SECTION VI"

MULTI–STORY STEM
CLASSROOM BUILDING
LOS ALAMITOS HIGH SCHOOL
3591 W CERRITOS AVE.
LOS ALAMITOS, CA 90720



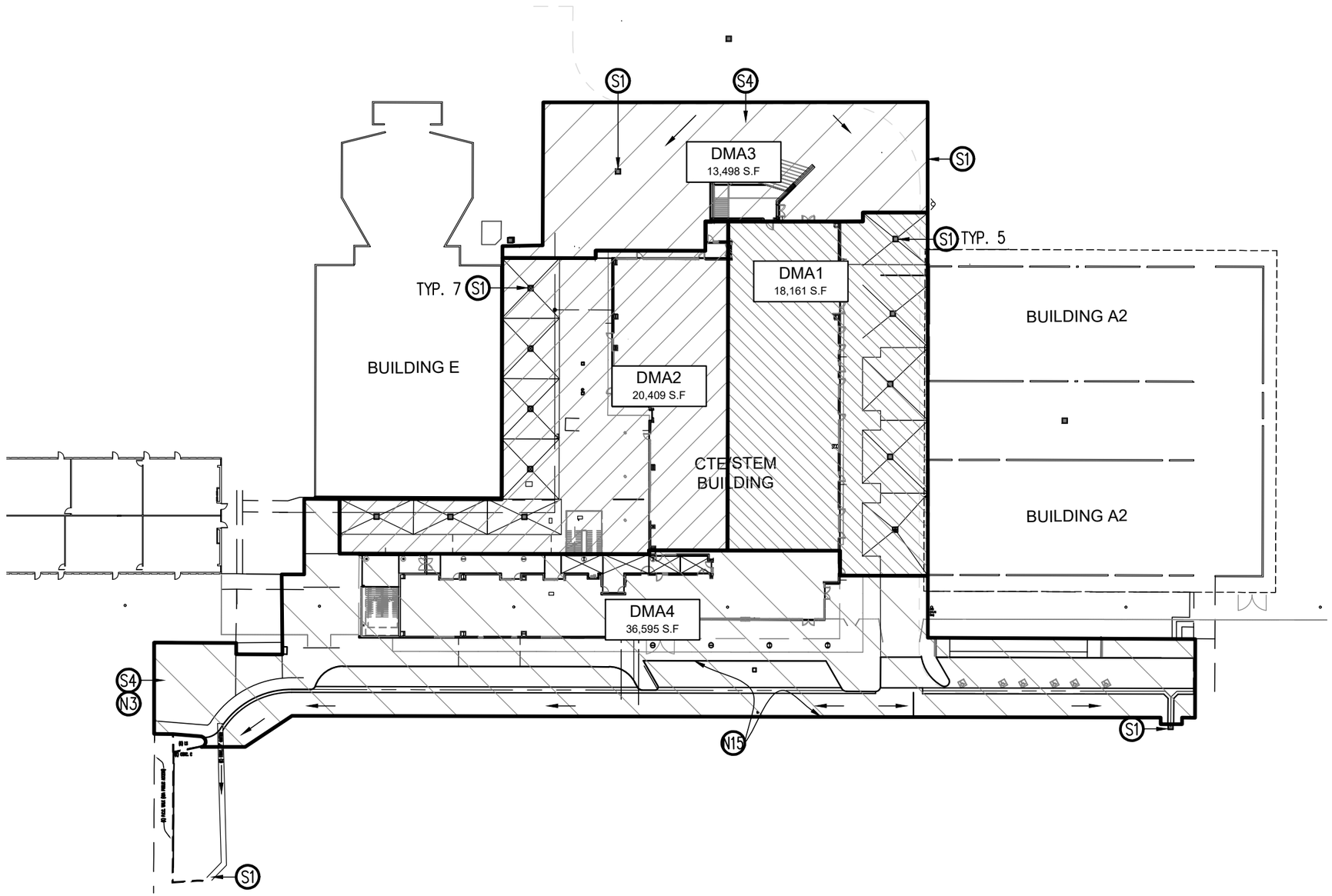

0 30 60

SCALE: 1"=60'

EXISTING SITE PLAN FIGURE 1

# DRAINAGE PLOT PLAN "SECTION VI"

MULTI–STORY STEM
CLASSROOM BUILDING
LOS ALAMITOS HIGH SCHOOL
3591 W CERRITOS AVE.
LOS ALAMITOS, CA 90720




DMA1 LID DESIGN CAPTURE
FLOW RATE REQUIRED 0.16 CFS
33.8109°N, 118.0701°W

DMA2 LID DESIGN CAPTURE
FLOW RATE REQUIRED 0.15 CFS
33.8109°N, 118.0701°W

DMA3 LID DESIGN CAPTURE
FLOW RATE REQUIRED 0.08 CFS
33.8109°N, 118.0701°W

DMA4 LID DESIGN CAPTURE
FLOW RATE REQUIRED 0.25 CFS
33.8109°N, 118.0701°W

→ SITE DRAINAGE DIRECTION

## STRUCTURAL BMPs LEGEND:

- (S1) STORM DRAIN SYSTEM STENCILING SIGNAGE
- (S4) GRASS FILTRATION AND EFFICIENT IRRIGATION
- (N3) COMMON AREA LANDSCAPE MANAGEMENTS
- (N15) STREET SWEEPING AND PARKING LOTS

0 30 60

SCALE: 1"=60'

SITE PLAN FIGURE 2

# The Ocean Begins at Your Front Door



Follow these simple steps to help reduce water pollution:

## Household Activities

- Do not rinse spills with water. Use dry cleanup methods such as applying cat litter or another absorbent material, sweep and dispose of in the trash. Take items such as used or excess batteries, oven cleaners, automotive fluids, painting products and cathode ray tubes, like TVs and computer monitors, to a Household Hazardous Waste Collection Center (HHWCC).
- For a HHWCC near you call (714) 834-6752 or visit www.oclandfills.com.
- Do not hose down your driveway, sidewalk or patio to the street, gutter or storm drain. Sweep up debris and dispose of it in the trash.

## Automotive

- Take your vehicle to a commercial car wash whenever possible. If you wash your vehicle at home, choose soaps, cleaners, or detergents labeled non-toxic, phosphate- free or biodegradable. Vegetable and citrus-based products are typically safest for the environment.
- Do not allow washwater from vehicle washing to drain into the street, gutter or storm drain. Excess washwater should be disposed of in the sanitary sewer (through a sink or toilet) or onto an absorbent surface like your lawn.
- Monitor your vehicles for leaks and place a pan under leaks. Keep your vehicles well maintained to stop and prevent leaks.
- Never pour oil or antifreeze in the street, gutter or storm drain. Recycle these substances at a service station, a waste oil collection center or used oil recycling center. For the nearest Used Oil Collection Center call 1-800-CLEANUP or visit www.1800cleanup.org.

## Pool Maintenance

- Pool and spa water must be dechlorinated and free of excess acid, alkali or color to be allowed in the street, gutter or storm drain.
- When it is not raining, drain dechlorinated pool and spa water directly into the sanitary sewer.
- Some cities may have ordinances that do not allow pool water to be disposed of in the storm drain. Check with your city.

## Landscape and Gardening

- Do not over-water. Water your lawn and garden by hand to control the amount of water you use or set irrigation systems to reflect seasonal water needs. If water flows off your yard onto your driveway or sidewalk, your system is over-watering. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of waste by composting, hauling it to a permitted landfill, or as green waste through your city's recycling program.
- Follow directions on pesticides and fertilizer, (measure, do not estimate amounts) and do not use if rain is predicted within 48 hours.
- Take unwanted pesticides to a HHWCC to be recycled. For locations and hours of HHWCC, call (714) 834-6752 or visit www.oclandfills.com.

## Trash

- Place trash and litter that cannot be recycled in securely covered trash cans.
- Whenever possible, buy recycled products.
- Remember: Reduce, Reuse, Recycle.

## Pet Care

- Always pick up after your pet. Flush waste down the toilet or dispose of it in the trash. Pet waste, if left outdoors, can wash into the street, gutter or storm drain.
- If possible, bathe your pets indoors. If you must bathe your pet outside, wash it on your lawn or another absorbent/permeable surface to keep the washwater from entering the street, gutter or storm drain.
- Follow directions for use of pet care products and dispose of any unused products at a HHWCC.

## Common Pollutants

### *Home Maintenance*

- Detergents, cleaners and solvents
- Oil and latex paint
- Swimming pool chemicals
- Outdoor trash and litter

### *Lawn and Garden*

- Pet and animal waste
- Pesticides
- Clippings, leaves and soil
- Fertilizer

### *Automobile*

- Oil and grease
- Radiator fluids and antifreeze
- Cleaning chemicals
- Brake pad dust

# The Ocean Begins at Your Front Door




*Never allow pollutants to enter the street, gutter or storm drain!*

## Did You Know?

- Most people believe that the largest source of water pollution in urban areas comes from specific sources such as factories and sewage treatment plants. In fact, the largest source of water pollution comes from city streets, neighborhoods, construction sites and parking lots. This type of pollution is sometimes called “non-point source” pollution.
- There are two types of non-point source pollution: stormwater and urban runoff pollution.
- Stormwater runoff results from rainfall. When rainstorms cause large volumes of water to rinse the urban landscape, picking up pollutants along the way.
- Urban runoff can happen any time of the year when excessive water use from irrigation, vehicle washing and other sources carries trash, lawn clippings and other urban pollutants into storm drains.

## Where Does It Go?

- Anything we use outside homes, vehicles and businesses – like motor oil, paint, pesticides, fertilizers and cleaners – can be blown or washed into storm drains.
- A little water from a garden hose or rain can also send materials into storm drains.
- Storm drains are separate from our sanitary sewer systems; unlike water in sanitary sewers (from sinks or toilets), water in storm drains is not treated before entering our waterways.

## Sources of Non-Point Source Pollution

- Automotive leaks and spills.
- Improper disposal of used oil and other engine fluids.
- Metals found in vehicle exhaust, weathered paint, rust, metal plating and tires.
- Pesticides and fertilizers from lawns, gardens and farms.
- Improper disposal of cleaners, paint and paint removers.
- Soil erosion and dust debris from landscape and construction activities.
- Litter, lawn clippings, animal waste, and other organic matter.
- Oil stains on parking lots and paved surfaces.



## The Effect on the Ocean



Non-point source pollution can have a serious impact on water quality in Orange County. Pollutants from the storm drain system can harm marine life as well as coastal and wetland habitats. They can also degrade recreation areas such as beaches, harbors and bays.

Stormwater quality management programs have been developed throughout Orange County to educate and encourage the public to protect water quality, monitor runoff in the storm drain system, investigate illegal dumping and maintain storm drains.

Support from Orange County residents and businesses is needed to improve water quality and reduce urban runoff pollution. Proper use and disposal of materials will help stop pollution before it reaches the storm drain and the ocean.



# *For More Information*

## Orange County Stormwater Program

**California Environmental Protection Agency**
www.calepa.ca.gov

- **Air Resources Board**
  www.arb.ca.gov
- **Department of Pesticide Regulation**
  www.cdpr.ca.gov
- **Department of Toxic Substances Control**
  www.dtsc.ca.gov
- **Integrated Waste Management Board**
  www.ciwmb.ca.gov
- **Office of Environmental Health Hazard Assessment**
  www.oehha.ca.gov
- **State Water Resources Control Board**
  www.waterboards.ca.gov

**Earth 911 -** Community-Specific Environmental Information 1-800-cleanup or visit www.1800cleanup.org

**Health Care Agency's Ocean and Bay Water Closure and Posting Hotline**
(714) 433-6400 or visit www.ocbeachinfo.com

**Integrated Waste Management Dept. of Orange County** (714) 834-6752 or visit www.oclandfills.com for information on household hazardous waste collection centers, recycling centers and solid waste collection

**O.C. Agriculture Commissioner**
(714) 447-7100 or visit www.ocagcomm.com

**Stormwater Best Management Practice Handbook**
Visit www.cabmphandbooks.com

**UC Master Gardener Hotline**
(714) 708-1646 or visit www.uccemg.com

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The Orange County Stormwater Program has created and moderates an electronic mailing list to facilitate communications, take questions and exchange ideas among its users about issues and topics related to stormwater and urban runoff and the implementation of program elements. To join the list, please send an email to ocstormwaterinfo-join@list.ocwatersheds.com

| | | |
|---|---|---|
| Aliso Viejo | (949) | 425-2535 |
| Anaheim Public Works Operations | (714) | 765-6860 |
| Brea Engineering | (714) | 990-7666 |
| Buena Park Public Works | (714) | 562-3655 |
| Costa Mesa Public Services | (714) | 754-5323 |
| Cypress Public Works | (714) | 229-6740 |
| Dana Point Public Works | (949) | 248-3584 |
| Fountain Valley Public Works | (714) | 593-4441 |
| Fullerton Engineering Dept. | (714) | 738-6853 |
| Garden Grove Public Works | (714) | 741-5956 |
| Huntington Beach Public Works | (714) | 536-5431 |
| Irvine Public Works | (949) | 724-6315 |
| La Habra Public Services | (562) | 905-9792 |
| La Palma Public Works | (714) | 690-3310 |
| Laguna Beach Water Quality | (949) | 497-0378 |
| Laguna Hills Public Services | (949) | 707-2650 |
| Laguna Niguel Public Works | (949) | 362-4337 |
| Laguna Woods Public Works | (949) | 639-0500 |
| Lake Forest Public Works | (949) | 461-3480 |
| Los Alamitos Community Dev. | (562) | 431-3538 |
| Mission Viejo Public Works | (949) | 470-3056 |
| Newport Beach, Code & Water Quality Enforcement | (949) | 644-3215 |
| Orange Public Works | (714) | 532-6480 |
| Placentia Public Works | (714) | 993-8245 |
| Rancho Santa Margarita | (949) | 635-1800 |
| San Clemente Environmental Programs | (949) | 361-6143 |
| San Juan Capistrano Engineering | (949) | 234-4413 |
| Santa Ana Public Works | (714) | 647-3380 |
| Seal Beach Engineering | (562) | 431-2527 x317 |
| Stanton Public Works | (714) | 379-9222 x204 |
| Tustin Public Works/Engineering | (714) | 573-3150 |
| Villa Park Engineering | (714) | 998-1500 |
| Westminster Public Works/Engineering | (714) | 898-3311 x446 |
| Yorba Linda Engineering | (714) | 961-7138 |
| Orange County Stormwater Program | (877) | 897-7455 |

Orange County 24-Hour
Water Pollution Problem Reporting Hotline
1-877-89-SPILL (1-877-897-7455)

On-line Water Pollution Problem Reporting Form
www.ocwatersheds.com

Printed on Recycled Paper



**Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Fertilizers, pesticides and other chemicals that are left on yards or driveways can be blown or washed into storm drains that flow to the ocean. Overwatering lawns can also send materials into storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.**

**You would never pour gardening products into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.**

For more information,
please call the
**Orange County Stormwater Program**
at **1-877-89-SPILL** (1-877-897-7455)
or visit
**www.ocwatersheds.com**

**UCCE Master Gardener Hotline:**
**(714) 708-1646**

To report a spill,
call the
**Orange County 24-Hour**
**Water Pollution Problem**
**Reporting Hotline**
**1-877-89-SPILL** (1-877-897-7455).

**For emergencies, dial 911.**

The tips contained in this brochure provide useful information to help prevent water pollution while landscaping or gardening. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

Printed on Recycled Paper

Help Prevent Ocean Pollution:

# Tips for Landscape & Gardening



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

# Tips for Landscape & Gardening

Never allow gardening products or polluted water to enter the street, gutter or storm drain.

## *General Landscaping Tips*

- Protect stockpiles and materials from wind and rain by storing them under tarps or secured plastic sheeting.
- Prevent erosion of slopes by planting fast-growing, dense ground covering plants. These will shield and bind the soil.
- Plant native vegetation to reduce the amount of water, fertilizers, and pesticide applied to the landscape.



- Never apply pesticides or fertilizers when rain is predicted within the next 48 hours.

## *Garden & Lawn Maintenance*

- Do not overwater. Use irrigation practices such as drip irrigation, soaker hoses or micro spray systems. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of green waste by composting, hauling it to a permitted landfill, or recycling it through your city's program.



- Use slow-release fertilizers to minimize leaching, and use organic fertilizers.
- Read labels and use only as directed. Do not over-apply pesticides or fertilizers. Apply to spots as needed, rather than blanketing an entire area.
- Store pesticides, fertilizers and other chemicals in a dry covered area to prevent exposure that may result in the deterioration of containers and packaging.

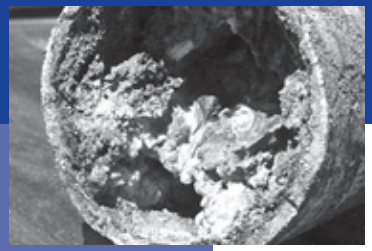


- Rinse empty pesticide containers and re-use rinse water as you would use the product. Do not dump rinse water down storm drains. Dispose of empty containers in the trash.
- When available, use non-toxic alternatives to traditional pesticides, and use pesticides specifically designed to control the pest you are targeting. For more information, visit **www.ipm.ucdavis.edu**.
- If fertilizer is spilled, sweep up the spill before irrigating. If the spill is liquid, apply an absorbent material such as cat litter, and then sweep it up and dispose of it in the trash.
- Take unwanted pesticides to a Household Hazardous Waste Collection Center to be recycled. Locations are provided below.

**Household Hazardous Waste Collection Centers**

| | |
|---|---|
| **Anaheim:** | 1071 N. Blue Gum St. |
| **Huntington Beach:** | 17121 Nichols St. |
| **Irvine:** | 6411 Oak Canyon |
| **San Juan Capistrano:** | 32250 La Pata Ave. |

**For more information, call (714) 834-6752 or visit www.oclandfills.com**



**Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. Fats, oils and grease from restaurants and food service facilities can cause sewer line blockages that may result in sewage overflow into your facility and into storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways and should never contain washwater, trash, grease or other materials.**

**You would never dump oil and trash into the ocean, so don't let it enter the storm drains. Follow these tips to help prevent water pollution.**

For more information,
please call the
**Orange County Stormwater Program**
at **1-877-89-SPILL** (1-877-897-7455)
or visit
**www.ocwatersheds.com**

Report sewage spills and
discharges that are not
contained to your site to the
**Orange County 24-Hour**
**Water Pollution Problem**
**Reporting Hotline**
at **1-877-89-SPILL** (1-877-897-7455)

**For emergencies, dial 911.**

CALIFORNIA Restaurant ASSOCIATION SINCE 1906

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Help Prevent Ocean Pollution:

# Tips for the Food Service Industry




**The Ocean Begins at Your Front Door**

PROJECT Pollution PREVENTION

# Best Kitchen Practices

## *Food Waste Disposal*

- Scrape food waste off of plates, utensils, pots, food preparation and cooking areas and dispose of it in the trash.
- Never put food waste down the drain. Food scraps often contain grease, which can clog sewer pipes and result in sewage backups and overflows.

## *Grease & Oil Disposal*

- Never put oil or grease down the drain. Contain grease and oil by using covered grease storage containers or installing a grease interceptor.
- Never overfill your grease storage container or transport it without a cover.
- Grease control devices must be emptied and cleaned by permitted companies.
- Keep maintenance records on site.



- For a list of oil/grease recycling companies, contact the CIWMB at **www.ciwmb.ca.gov/foodwaste/render.htm** or contact your local sanitation district.

## *Minor Spill Cleanup*

- Always use dry cleanup methods, such as a rag, damp mop or broom.
- Never hose a spill into the street, gutter or storm drain.



## *Major Spill Cleanup*

- Have spill containment and clean-up kits readily available, and train all employees on how to use them.
- Immediately contain and clean the spill using dry methods.
- If the spill leaves your site, call **(714) 567-6363**.

## *Dumpster Cleanup*

- Pick up all debris around the dumpster.
- Always keep the lid on the dumpster closed.



- Never pour liquids into the dumpster or hose it out.

## *Floor Mat Cleaning*

- Sweep the floor mats regularly, discarding the debris into the trash.
- Hose off the mats in a mop sink, at a floor drain, or in an outdoor area that can contain the water.



- Never hose the mats in an area where the wastewater can flow to the street, gutter or storm drain.

## *Washwater Disposal*

- Dispose of washwater in a mop sink or an area with a floor drain.
- Never dispose of washwater in the street, gutter or storm drain.

PROJECT Pollution PREVENTION

# The Pollution Solution

Several residential activities can result in water pollution. Among these activities are car washing and hosing off driveways and sidewalks. Both activities can waste water and result in excess runoff. Water conservation methods described in this pamphlet can prevent considerable amounts of runoff and conserve water. By taking your car to a commercial car wash and by sweeping driveways and sidewalks, you can further prevent the transport of pollutants to Orange County waterways. Here are some of the common pollutants for which you can be part of the solution:

## 1 Pesticides and Fertilizer



- **Pollution:** The same pesticides that are designed to be toxic to pests can have an equally lethal impact on our marine life. The same fertilizer that promotes plant growth in lawns and gardens can also create nuisance algae blooms, which remove oxygen from the water and clog waterways when it decomposes.

- **Solution:** Never use pesticides or fertilizer within 48 hours of an anticipated rainstorm. Use only as much as is directed on the label and keep it off driveways and sidewalks.

## 2 Dirt and Sediment

- **Pollution:** Dirt or sediment can impede the flow of the stormwater and negatively impact stream habitat as it travels through waterways and deposits downstream. Pollutants can attach to sediment, which can then be transported through our waterways.

- **Solution:** Protect dirt stockpiles by covering them with tarps or secure plastic sheets to prevent wind or rain from allowing dirt or sediment to enter the storm drain system.

## 3 Metals

- **Pollution:** Metals and other toxins present in car wash water can harm important plankton, which forms the base of the aquatic food chain.

- **Solution:** Take your car to a commercial car wash where the wash water is captured and treated at a local wastewater treatment plant.

***DID YOU KNOW?***

***Did you know that most of the pollution found in our waterways is not from a single source, but from a "non-point" source meaning the accumulation of pollution from residents and businesses throughout the community***

## 4 Pet Waste

- **Pollution:** Pet waste carries bacteria through our watersheds and eventually will be washed out to the ocean. This can pose a health risk to swimmers and surfers.

- **Solution:** Pick up after your pets!

## 5 Trash and Debris



- **Pollution:** Trash and debris can enter waterways by wind, littering and careless maintenance of trash receptacles. Street sweeping collects some of this trash; however, much of what isn't captured ends up in our storm drain system where it flows untreated out to the ocean.

- **Solution:** Don't litter and make sure trash containers are properly covered. It is far more expensive to clean up the litter and trash that ends up in our waterways than it is to prevent it in the first place. Come out to one of Orange County's many locations for Coastal and Inner-Coastal Cleanup Day, which is held in September.

## 6 Motor Oil / Vehicle Fluids

- **Pollution:** Oil and petroleum products from our vehicles are toxic to people, wildlife and plants.



- **Solution:** Fix any leaks from your vehicle and keep the maintenance up on your car. Use absorbent material such as cat litter on oil spills, then sweep it up and dispose of it in the trash. Recycle used motor oil at a local Household Hazardous Waste Collection Center.



## A TEAM EFFORT

The Orange County Stormwater Program has teamed with the Municipal Water District of Orange County (MWDOC) and the University of California Cooperative Extension Program (UCCE) to develop this pamphlet.

Low Impact Development (LID) and sustainable water use prevents water pollution and conserves water for drinking and reuse. Reducing your water use and the amount of water flowing from your home protects the environment and saves you money.

## Thank you for making water protection a priority!

For more information, please visit www.ocwatersheds.com/publiced/

www.mwdoc.com

www.uccemg.com




To report a spill, call the Orange County 24-Hour Water Pollution Prevention Reporting Hotline at 1-877-89-SPILL \(1-877-897-7455)

**Special Thanks to**
The City of Los Angeles Stormwater Program for the use of its artwork

The Metropolitan Water District of Southern California for the use of the California-Friendly Plant and Native Habitat photos



# Homeowners Guide for Sustainable Water Use

**Low Impact Development, Water Conservation & Pollution Prevention**



The Ocean Begins at Your Front Door







# RUNOFF, RAINWATER AND REUSE

## Where Does Water Runoff Go?

Stormwater, or water from rainfall events, and runoff from outdoor water use such as sprinklers and hoses flows from homes directly into catch basins and the storm drain system. After entering the storm drain, the water flows untreated into streams, rivers, bays and ultimately the Pacific Ocean. Runoff can come from lawns, gardens, driveways, sidewalks and roofs. As it flows over hard, impervious surfaces, it picks up pollutants. Some pollutants carried by the water runoff include trash, pet waste, pesticides, fertilizer, motor oil and more.

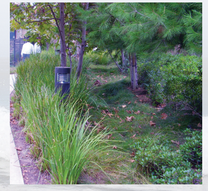




## Water Conservation

Pollution not only impairs the water quality for habitat and recreation, it can also reduce the water available for reuse. Runoff allowed to soak into the ground is cleaned as it percolates through the soil, replenishing depleted groundwater supplies. Groundwater provides at least 50% of the total water for drinking and other indoor household activities in north and central Orange County. When land is covered with roads, parking lots, homes, etc., there is less land to take in the water and more hard surfaces over which the water can flow.

In Orange County, 60-70% of water used by residents and businesses goes to irrigation and other outdoor uses. Reusing rainwater to irrigate our lawn not only reduces the impact of water pollution from runoff, but it also is a great way to conserve our precious water resources and replenish our groundwater basin.



### What is Low Impact Development (LID)?

Low Impact Development (LID) is a method of development that seeks to maintain the natural hydrologic character of an area. LID provides a more sustainable and pollution-preventative approach to water management.

New water quality regulations require implementation of LID in larger new developments and encourage implementation of LID and other sustainable practices in existing residential areas. Implementing modifications to your lawn or garden can reduce pollution in our environment, conserve water and reduce your water bill.



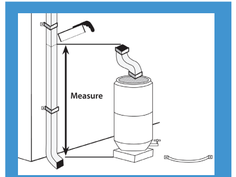
Permeable pavement allows water runoff to infiltrate through the soil and prevents most pollutants from reaching the storm drain system.

# OPTIONS FOR RAINWATER HARVESTING AND REUSE

Rainwater harvesting is a great way to save money, prevent pollution and reduce potable water use. To harvest your rainwater, simply redirect the runoff from roofs and downspouts to rain barrels. Rain gardens are another option; these reduce runoff as well as encourage infiltration.

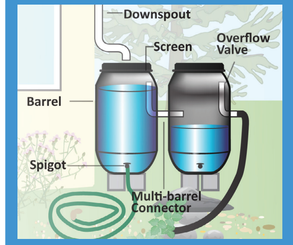
## Downspout Disconnection/Redirection

Disconnecting downspouts from pipes running to the gutter prevents runoff from transporting pollutants to the storm drain. Once disconnected, downspouts can be redirected to rain gardens or other vegetated areas, or be connected to a rain barrel.




## Rain Barrels

Rain barrels capture rainwater flow from roofs for reuse in landscape irrigation. Capacity of rain barrels needed for your home will depend on the amount of roof area and rainfall received. When purchasing your rain barrel, make sure it includes a screen, a spigot to siphon water for use, an overflow tube to allow for excess water to run out and a connector if you wish to connect multiple barrels to add capacity of water storage.




Mosquito growth prevention is very important when installing a rain barrel. The best way to prevent mosquito breeding is to eliminate entry points by ensuring all openings are sealed tightly. If these methods are unsuccessful, products are available to kill mosquito larvae, but that are harmless to animals and humans. Regular application of these products is essential. Please visit the Orange County Vector Control website for more information at www.ocvcd.org/mosquitoes3.php.

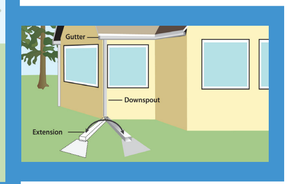




## Rain Gardens

Rain gardens allow runoff to be directed from your roof downspout into a landscaped area. Vegetation and rocks in the garden will slow the flow of water to allow for infiltration into the soil. Plants and soil particles will absorb pollutants from the roof runoff. By utilizing a native plant palate, rain gardens can be maintained all year with minimal additional irrigation. These plants are adapted to the semi-arid climate of Southern California, require less water and can reduce your water bill.

Before modifying your yard to install a rain garden, please consult your local building and/or planning departments to ensure your garden plan follows pertinent building codes and ordinances. Besides codes and ordinances, some home owner associations also have guidelines for yard modifications. If your property is in hill areas or includes engineered slopes, please seek professional advice before proceeding with changes.




For information on how to disconnect a downspout or to install and maintain a rain barrel or rain garden at your home, please see the Los Angeles Rainwater Harvesting Program, A Homeowner's "How-To" Guide, November 2009 at www.larainwaterharvesting.org/

# OTHER WATER CONSERVATION AND POLLUTION PREVENTION TECHNIQUES

## Native Vegetation and Maintenance

"California Friendly" plants or native vegetation can significantly reduce water use. These plants often require far less fertilizers and pesticides, which are two significant pollutants found in Orange County waterways. Replacing water "thirsty" plants and grass types with water efficient natives is a great way to save water and reduce the need for potentially harmful pesticides and fertilizer.

Please see the California Friendly Garden Guide produced by the Metropolitan Water District of Southern California and associated Southern California Water Agencies for a catalog of California friendly plants and other garden resources at www.bewaterwise.com/Gardensoft.

## Weed Free Yards

Weeds are water thieves. They often reproduce quickly and rob your yard of both water and nutrients. Weed your yard by hand if possible. If you use herbicides to control the weeds, use only the amount recommended on the label and never use it if rain is forecast within the next 48 hours.



## Soil Amendments

Soil amendments such as green waste (e.g. grass clippings, compost, etc.) can be a significant source of nutrients and can help keep the soil near the roots of plants moist. However, they can cause algal booms if they get into our waterways, which reduces the amount of oxygen in the water and impacts most aquatic organisms. It is important to apply soil amendments more than 48 hours prior to predicted rainfall.

# IRRIGATE EFFICIENTLY



Water runoff from sprinklers left on too long will carry pollutants into our waterways.

## Smart Irrigation Controllers

Smart Irrigation Controllers have internal clocks as well as sensors that will turn off the sprinklers in response to environmental changes. If it is raining, too windy or too cold, the smart irrigation control sprinklers will automatically shut off.

Check with your local water agency for available rebates on irrigation controllers and smart timers.

- Aim your sprinklers at your lawn, not the sidewalk – By simply adjusting the direction of your sprinklers you can save water, prevent water pollution from runoff, keep your lawn healthy and save money.
- **Set a timer for your sprinklers** – lawns absorb the water they need to stay healthy within a few minutes of turning on the sprinklers. Time your sprinklers; when water begins running off your lawn, you can turn them off. Your timer can be set to water your lawn for this duration every time.
- **Water at Sunrise** – Watering early in the morning will reduce water loss due to evaporation. Additionally, winds tend to die down in the early morning so the water will get to the lawn as intended.
- **Water by hand** – Instead of using sprinklers, consider watering your yard by hand. Hand-watering ensures that all plants get the proper amount of water and you will prevent any water runoff, which wastes water and carries pollutants into our waterways.
- **Fix leaks** - Nationwide, households waste one trillion gallons of water a year to leaks – that is enough water to serve the entire state of Texas for a year. If your garden hose is leaking, replace the nylon or rubber hose washer and ensure a tight connection. Fix broken sprinklers immediately.



## *Preventing water pollution at your commercial/industrial site*

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many landscape and building maintenance activities can lead to water pollution if you're not careful. Paint, chemicals, plant clippings and other materials can be blown or washed into storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour soap or fertilizers into the ocean, so why would you let them enter the storm drains? Follow these easy tips to help prevent water pollution.

Some types of industrial facilities are required to obtain coverage under the State General Industrial Permit. For more information visit: **www.swrcb.ca.gov/stormwater/industrial.html**

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline** at **1-877-89-SPILL** (1-877-897-7455).

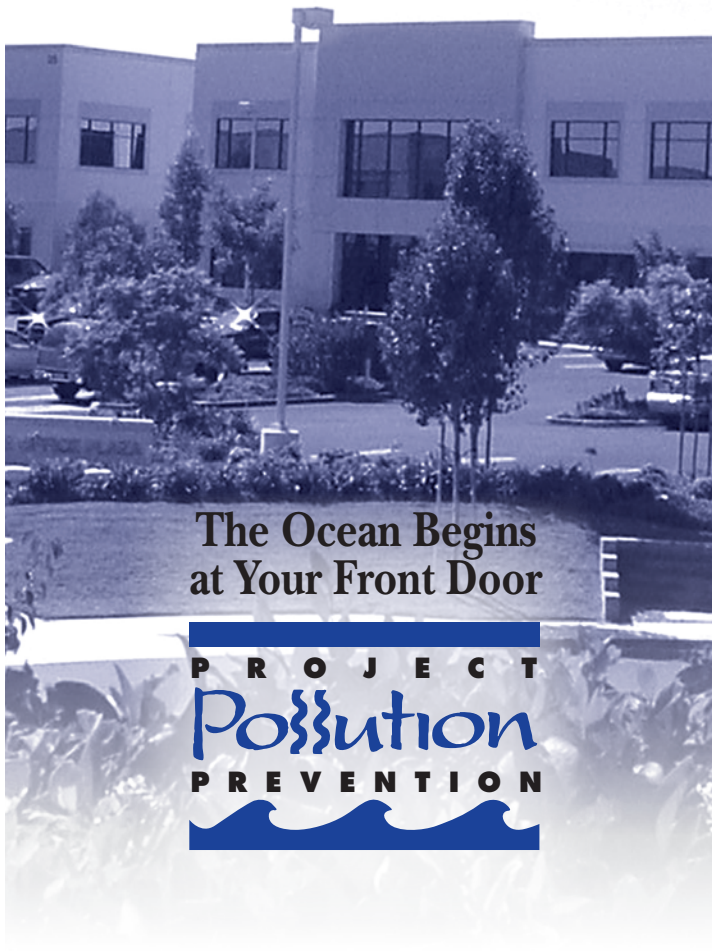
**For emergencies, dial 911.**

RECYCLE USED OIL

Printed on Recycled Paper

Help Prevent Ocean Pollution:

# Proper Maintenance Practices for Your Business



**The Ocean Begins at Your Front Door**

PROJECT Pollution PREVENTION

# Proper Maintenance Practices for your Business

## *Landscape Maintenance*

- Compost grass clippings, leaves, sticks and other vegetation, or dispose of it at a permitted landfill or in green waste containers. Do not dispose of these materials in the street, gutter or storm drain.
- Irrigate slowly and inspect the system for leaks, overspraying and runoff. Adjust automatic timers to avoid overwatering.
- Follow label directions for the use and disposal of fertilizers and pesticides.
- Do not apply pesticides or fertilizers if rain is expected within 48 hours or if wind speeds are above 5 mph.
- Do not spray pesticides within 100 feet of waterways.
- Fertilizers should be worked into the soil rather than dumped onto the surface.
- If fertilizer is spilled on the pavement or sidewalk, sweep it up immediately and place it back in the container.

## *Building Maintenance*

- Never allow washwater, sweepings or sediment to enter the storm drain.
- Sweep up dry spills and use cat litter, towels or similar materials to absorb wet spills. Dispose of it in the trash.
- If you wash your building, sidewalk or parking lot, you **must** contain the water. Use a shop vac to collect the water and contact your city or sanitation agency for proper disposal information. Do not let water enter the street, gutter or storm drain.
- Use drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of materials in the trash.
- Use a ground cloth or oversized tub for mixing paint and cleaning tools.
- Use a damp mop or broom to clean floors.
- Cover dumpsters to keep insects, animals, rainwater and sand from entering. Keep the area around the dumpster clear of trash and debris. Do not overfill the dumpster.
- Call your trash hauler to replace leaking dumpsters.
- Do not dump any toxic substance or liquid waste on the pavement, the ground, or near a storm drain. Even materials that seem harmless such as latex paint or biodegradable cleaners can damage the environment.

**Never Dispose of Anything in the Storm Drain.**

- Recycle paints, solvents and other materials. For more information about recycling and collection centers, visit **www.oclandfills.com**.
- Store materials indoors or under cover and away from storm drains.
- Use a construction and demolition recycling company to recycle lumber, paper, cardboard, metals, masonry, carpet, plastic, pipes, drywall, rocks, dirt, and green waste. For a listing of construction and demolition recycling locations in your area, visit **www.ciwmb.ca.gov/recycle.**
- Properly label materials. Familiarize employees with Material Safety Data Sheets.

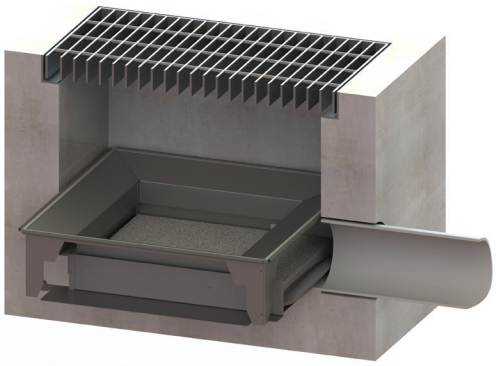
PROJECT Pollution PREVENTION

Oldcastle Infrastructure™
A CRH COMPANY

# FLOGARD® LOPRO™
## Catch Basin Insert Filter

### Matrix-Style Filter Ideal for Shallow Inlets

The FloGard LoPro Catch Basin Insert is a modular matrix-style filter ideal for shallow inlets that collect sediment, debris and petroleum hydrocarbons from stormwater runoff. It includes a UV-resistant woven geo-textile wrapped around a perforated core encapsulating a sorbent material which is easily replaced, providing for flexibility, ease of maintenance and economy.



For urban sites with shallow drainage, particularly at property perimeters or across entrance driveways, the FloGard LoPro Catch Basin Insert provides an effective solution to comply with stormwater runoff issues. The units perform as an effective filtering device at low ("first flush") flows, and because of the built-in high-flow bypass, will not impede the drainage system's maximum design flow.

FloGard LoPro Catch Basin Inserts are available in sizes to fit most common catch basins or are available as complete units including a precast concrete catch basin with traffic-rated grate.

SPECIFICATIONS

| MODEL | CATCH BASIN ID (in) | SOLIDS STORAGE CAPACITY (cu ft) | FILTERED FLOW (cfs) | TOTAL BYPASS CAPACITY (cfs) |
|---|---|---|---|---|
| FG-M12 | 12 x 12 | 0.05 | 0.05 | 0.50 |
| FG-M18 | 18 x 18 | 0.10 | 0.10 | 1.00 |
| FG-M24 | 24 x 24 | 0.30 | 0.30 | 1.70 |
| FG-M2436 | 24 x 36 | 0.40 | 0.50 | 2.30 |
| FG-M30 | 30 x 30 | 0.60 | 0.60 | 2.60 |
| FG-M36 | 36 x 36 | 0.80 | 0.90 | 4.10 |
| FG-M3648 | 36 x 48 | 1.10 | 1.30 | 4.60 |
| FG-M48 | 48 x 48 | 1.60 | 1.80 | 6.60 |

# ATTACHMENT A
# SUPPORTING CALCULATIONS

WinTR-20 Printed Page File  Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10  0  0  0.05
Los Alamitos Stem Bldg
PRE Development

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| | A1+A2 | Outlet | .0008 | 88. | .1 |
| | A3,4,5,7 T | Outlet | .00086 | 97. | .1 |
| | A6+A8 | Outlet | .00127 | 93. | .121 |
| | A9 | Outlet | .00025 | 98. | .1 |

STREAM REACH:

STORM ANALYSIS:

| | | | | |
|---|---|---|---|---|
| | 2-Yr | 2.0 | Type I | 2 |

STRUCTURE RATING:

GLOBAL OUTPUT:

| | | | | |
|---|---|---|---|---|
| | 2 | 0.05 | YYYYN | YYYYNN |

WinTR-20 Printed Page File  End of Input Data List

Los Alamitos Stem Bldg
PRE Development

Name of printed page file:
TR20.out

STORM 2-Yr

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|
| A1+A2 | 0.800E-03 | | 0.330 | | 9.93 | 0.37 | 460.89 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.573 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.617 | 0.06 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.661 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 |
| 9.705 | 0.10 | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.12 |
| 9.750 | 0.12 | 0.13 | 0.14 | 0.14 | 0.15 | 0.16 | 0.16 |
| 9.794 | 0.17 | 0.17 | 0.18 | 0.18 | 0.19 | 0.19 | 0.20 |
| 9.838 | 0.21 | 0.22 | 0.24 | 0.25 | 0.27 | 0.28 | 0.30 |
| 9.882 | 0.31 | 0.32 | 0.33 | 0.34 | 0.35 | 0.36 | 0.36 |
| 9.927 | 0.37 | 0.37 | 0.37 | 0.36 | 0.36 | 0.35 | 0.35 |
| 9.971 | 0.34 | 0.34 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 |
| 10.015 | 0.31 | 0.31 | 0.30 | 0.29 | 0.28 | 0.27 | 0.25 |
| 10.059 | 0.24 | 0.22 | 0.21 | 0.19 | 0.18 | 0.17 | 0.16 |
| 10.103 | 0.15 | 0.14 | 0.14 | 0.13 | 0.13 | 0.12 | 0.12 |
| 10.148 | 0.12 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.10 |
| 10.192 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 10.236 | 0.10 | 0.10 | 0.10 | 0.09 | 0.09 | 0.09 | 0.09 |
| 10.280 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 10.324 | 0.09 | 0.09 | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 |
| 10.369 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 10.413 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.07 | 0.07 |
| 10.457 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.501 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.545 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.590 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.634 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.678 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.722 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.767 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 10.811 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 10.855 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 10.899 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 10.943 | 0.05 | 0.05 | 0.05 | 0.05 | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|
| A3,4,5,7 T0.860E-03 | | | 0.919 | | 9.93 | 0.72 | 831.74 |



Los Alamitos Stem Bldg
PRE Development

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| 8.495 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.539 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.583 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.628 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.672 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.716 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.760 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.804 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.849 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 |
| 8.893 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 8.937 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 8.981 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.025 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.070 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.114 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.158 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.202 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 |
| 9.247 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 9.291 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 9.335 | 0.09 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10 | 0.10 |
| 9.379 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 9.423 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 9.468 | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 |
| 9.512 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 |
| 9.556 | 0.12 | 0.13 | 0.13 | 0.14 | 0.14 | 0.14 | 0.14 |
| 9.600 | 0.15 | 0.15 | 0.15 | 0.15 | 0.16 | 0.16 | 0.17 |
| 9.644 | 0.17 | 0.18 | 0.19 | 0.20 | 0.20 | 0.21 | 0.22 |
| 9.689 | 0.22 | 0.23 | 0.23 | 0.24 | 0.24 | 0.25 | 0.25 |
| 9.733 | 0.26 | 0.27 | 0.28 | 0.30 | 0.31 | 0.32 | 0.34 |
| 9.777 | 0.35 | 0.36 | 0.37 | 0.38 | 0.38 | 0.39 | 0.40 |
| 9.821 | 0.41 | 0.42 | 0.44 | 0.46 | 0.49 | 0.51 | 0.54 |
| 9.865 | 0.57 | 0.59 | 0.62 | 0.64 | 0.66 | 0.68 | 0.69 |
| 9.910 | 0.70 | 0.71 | 0.71 | 0.72 | 0.71 | 0.70 | 0.69 |
| 9.954 | 0.68 | 0.67 | 0.65 | 0.64 | 0.62 | 0.61 | 0.60 |
| 9.998 | 0.59 | 0.58 | 0.57 | 0.56 | 0.55 | 0.54 | 0.52 |
| 10.042 | 0.49 | 0.47 | 0.44 | 0.41 | 0.38 | 0.35 | 0.33 |
| 10.087 | 0.31 | 0.29 | 0.27 | 0.26 | 0.25 | 0.24 | 0.23 |
| 10.131 | 0.22 | 0.21 | 0.21 | 0.20 | 0.19 | 0.19 | 0.19 |
| 10.175 | 0.18 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 |
| 10.219 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| 10.263 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| 10.308 | 0.15 | 0.15 | 0.15 | 0.14 | 0.14 | 0.14 | 0.14 |
| 10.352 | 0.14 | 0.14 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 |
| 10.396 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.12 |
| 10.440 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.11 |
| 10.484 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 10.529 | 0.11 | 0.11 | 0.11 | 0.10 | 0.10 | 0.10 | 0.10 |
| 10.573 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 10.617 | 0.10 | 0.10 | 0.10 | 0.09 | 0.09 | 0.09 | 0.09 |
| 10.661 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 10.705 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| A1+A2 | Outlet | .0008 | 88. | .1 | |
| A3,4,5,7 T | Outlet | .00086 | 97. | .1 | |
| A6+A8 | Outlet | .00127 | 93. | .121 | |

Los Alamitos Stem Bldg
PRE Development

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| 10.750 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 10.794 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.08 |
| 10.838 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 10.882 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 10.927 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 10.971 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.015 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.07 |
| 11.059 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.103 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.148 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.192 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.236 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.280 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.324 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.369 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.413 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.457 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.501 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.545 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 |
| 11.590 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.634 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.678 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.722 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.767 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.811 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.855 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.899 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.943 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.988 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.032 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| A1+A2 | Outlet | .0008 | 88. | .1 | |
| A3,4,5,7 T | Outlet | .00086 | 97. | .1 | |
| A6+A8 | Outlet | .00127 | 93. | .121 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 12.076 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.120 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.164 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.209 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.05 |
| 12.253 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 12.297 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 12.341 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 12.385 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 12.430 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 12.474 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 12.518 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 12.562 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 12.607 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 12.651 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 12.695 | 0.05 | 0.05 | 0.05 | 0.05 | | | |



Los Alamitos Stem Bldg
PRE Development

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|
| A6+A8 | 0.001 | | 0.807 | | 9.94 | 0.81 | 638.85 |

| Line Start Time (hr) | Flow Values @ time increment of 0.008 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 8.669 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A1+A2 | Outlet | | .0008 | 88. | .1 | | |
| A3,4,5,7 T | Outlet | | .00086 | 97. | .1 | | |
| A6+A8 | Outlet | | .00127 | 93. | .121 | | |
| 8.722 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.776 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.829 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.882 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.936 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.989 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.043 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.096 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.150 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.203 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.257 | 0.08 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 9.310 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 9.364 | 0.09 | 0.09 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 9.417 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 9.471 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 9.524 | 0.11 | 0.11 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 |
| 9.578 | 0.13 | 0.14 | 0.14 | 0.15 | 0.15 | 0.15 | 0.16 |
| 9.631 | 0.16 | 0.17 | 0.17 | 0.18 | 0.19 | 0.20 | 0.21 |
| 9.685 | 0.22 | 0.22 | 0.23 | 0.24 | 0.25 | 0.25 | 0.26 |
| 9.738 | 0.27 | 0.29 | 0.30 | 0.32 | 0.33 | 0.35 | 0.36 |
| 9.792 | 0.38 | 0.39 | 0.41 | 0.42 | 0.44 | 0.45 | 0.47 |
| 9.845 | 0.50 | 0.53 | 0.56 | 0.59 | 0.63 | 0.66 | 0.69 |
| 9.899 | 0.72 | 0.75 | 0.77 | 0.79 | 0.80 | 0.81 | 0.81 |
| 9.952 | 0.81 | 0.80 | 0.79 | 0.77 | 0.76 | 0.75 | 0.73 |
| 10.006 | 0.72 | 0.71 | 0.70 | 0.68 | 0.66 | 0.64 | 0.61 |
| 10.059 | 0.57 | 0.54 | 0.50 | 0.47 | 0.44 | 0.41 | 0.38 |
| 10.113 | 0.35 | 0.33 | 0.32 | 0.30 | 0.29 | 0.28 | 0.27 |
| 10.166 | 0.26 | 0.25 | 0.24 | 0.24 | 0.23 | 0.23 | 0.22 |
| 10.220 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 | 0.20 | 0.20 |
| 10.273 | 0.20 | 0.20 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| 10.327 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.17 |
| 10.380 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 |
| 10.434 | 0.16 | 0.16 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 |
| 10.487 | 0.15 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| 10.541 | 0.14 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 10.594 | 0.13 | 0.13 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 10.648 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 10.701 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.11 | 0.11 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| A1+A2 | Outlet | .0008 | 88. | .1 | |
| A3,4,5,7 T | Outlet | .00086 | 97. | .1 | |
| A6+A8 | Outlet | .00127 | 93. | .121 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10.755 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 10.808 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 10.862 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.10 |
| 10.915 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 10.969 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 11.022 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |



Los Alamitos Stem Bldg
PRE Development

| Line Start Time (hr) | Flow Values @ time increment of 0.008 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| 11.076 | 0.10 | 0.10 | 0.10 | 0.10 | 0.09 | 0.09 | 0.09 |
| 11.129 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 11.183 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 11.236 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 11.290 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 11.343 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 11.397 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 11.450 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 11.504 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 11.557 | 0.09 | 0.09 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.611 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.664 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.718 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.771 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.825 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.878 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.932 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.985 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 12.039 | 0.08 | 0.08 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 |
| 12.092 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.146 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.199 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| A1+A2 | Outlet | .0008 | 88. | .1 | |
| A3,4,5,7 T | Outlet | .00086 | 97. | .1 | |
| A6+A8 | Outlet | .00127 | 93. | .121 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 12.253 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.306 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.360 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.413 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.467 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.520 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.574 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.627 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.681 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.734 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.788 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.841 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.895 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.948 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.002 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.055 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.109 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.162 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.216 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.269 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.323 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.376 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.430 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.483 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.537 | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.590 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.644 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.697 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.751 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |



Los Alamitos Stem Bldg
PRE Development

| Line Start Time (hr) | Flow Values @ time increment of 0.008 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |

WinTR-20: Version 1.10  0  0  0.05
lamitos Stem Bldg  (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| A1+A2 | Outlet | .0008 | 88. | .1 | |
| A3,4,5,7 T | Outlet | .00086 | 97. | .1 | |
| A6+A8 | Outlet | .00127 | 93. | .121 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13.804 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.858 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|
| A9 | 0.250E-03 | | 0.437 | | 9.93 | 0.22 | 866.40 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.632 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.676 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.721 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.10 |
| 9.765 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 |
| 9.809 | 0.12 | 0.12 | 0.13 | 0.13 | 0.14 | 0.14 | 0.15 |
| 9.853 | 0.16 | 0.17 | 0.17 | 0.18 | 0.19 | 0.19 | 0.20 |
| 9.897 | 0.21 | 0.21 | 0.21 | 0.22 | 0.22 | 0.22 | 0.22 |
| 9.942 | 0.21 | 0.21 | 0.21 | 0.20 | 0.20 | 0.19 | 0.19 |
| 9.986 | 0.18 | 0.18 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 |
| 10.030 | 0.16 | 0.15 | 0.15 | 0.14 | 0.13 | 0.12 | 0.11 |
| 10.074 | 0.11 | 0.10 | 0.09 | 0.09 | 0.08 | 0.08 | 0.07 |
| 10.119 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.163 | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 10.207 | 0.05 | 0.05 | 0.05 | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|
| OUTLET | 0.003 | | 0.688 | | 9.93 | 2.10 | 661.79 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| A1+A2 | Outlet | .0008 | 88. | .1 | |
| A3,4,5,7 T | Outlet | .00086 | 97. | .1 | |
| A6+A8 | Outlet | .00127 | 93. | .121 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 8.495 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.539 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.583 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.628 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.09 |
| 8.672 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 8.716 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 8.760 | 0.11 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 8.804 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 8.849 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 |
| 8.893 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 8.937 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 8.981 | 0.13 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| 9.025 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |



Los Alamitos Stem Bldg
PRE Development

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 9.070 | 0.14 | 0.14 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| 9.114 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| 9.158 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| 9.202 | 0.16 | 0.16 | 0.16 | 0.17 | 0.17 | 0.17 | 0.17 |
| 9.247 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.18 | 0.18 |
| 9.291 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| 9.335 | 0.18 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| 9.379 | 0.19 | 0.19 | 0.19 | 0.20 | 0.20 | 0.20 | 0.20 |
| 9.423 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.21 | 0.21 |
| 9.468 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| 9.512 | 0.22 | 0.22 | 0.22 | 0.22 | 0.23 | 0.23 | 0.24 |
| 9.556 | 0.25 | 0.25 | 0.28 | 0.32 | 0.33 | 0.34 | 0.34 |
| 9.600 | 0.35 | 0.36 | 0.36 | 0.37 | 0.38 | 0.44 | 0.45 |
| 9.644 | 0.47 | 0.49 | 0.51 | 0.53 | 0.55 | 0.57 | 0.59 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | |
|---|---|---|---|
| A1+A2 | Outlet | .0008 | 88. .1 |
| A3,4,5,7 T | Outlet | .00086 | 97. .1 |
| A6+A8 | Outlet | .00127 | 93. .121 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.689 | 0.60 | 0.62 | 0.63 | 0.65 | 0.66 | 0.68 | 0.70 |
| 9.733 | 0.72 | 0.74 | 0.78 | 0.81 | 0.85 | 0.88 | 0.92 |
| 9.777 | 0.95 | 0.99 | 1.02 | 1.05 | 1.07 | 1.10 | 1.13 |
| 9.821 | 1.16 | 1.20 | 1.24 | 1.30 | 1.37 | 1.44 | 1.52 |
| 9.865 | 1.59 | 1.67 | 1.74 | 1.81 | 1.88 | 1.94 | 1.99 |
| 9.910 | 2.03 | 2.06 | 2.09 | 2.10 | 2.10 | 2.09 | 2.08 |
| 9.954 | 2.05 | 2.02 | 1.98 | 1.95 | 1.91 | 1.88 | 1.85 |
| 9.998 | 1.82 | 1.80 | 1.78 | 1.75 | 1.72 | 1.67 | 1.62 |
| 10.042 | 1.56 | 1.49 | 1.41 | 1.33 | 1.25 | 1.17 | 1.10 |
| 10.087 | 1.03 | 0.96 | 0.91 | 0.86 | 0.82 | 0.78 | 0.75 |
| 10.131 | 0.72 | 0.70 | 0.67 | 0.66 | 0.64 | 0.62 | 0.61 |
| 10.175 | 0.59 | 0.58 | 0.57 | 0.56 | 0.55 | 0.55 | 0.54 |
| 10.219 | 0.54 | 0.53 | 0.48 | 0.47 | 0.47 | 0.46 | 0.46 |
| 10.263 | 0.45 | 0.45 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 |
| 10.308 | 0.42 | 0.42 | 0.42 | 0.42 | 0.41 | 0.41 | 0.41 |
| 10.352 | 0.40 | 0.40 | 0.39 | 0.39 | 0.39 | 0.38 | 0.38 |
| 10.396 | 0.38 | 0.37 | 0.37 | 0.37 | 0.37 | 0.36 | 0.36 |
| 10.440 | 0.36 | 0.35 | 0.35 | 0.35 | 0.34 | 0.34 | 0.33 |
| 10.484 | 0.33 | 0.33 | 0.32 | 0.32 | 0.32 | 0.32 | 0.31 |
| 10.529 | 0.31 | 0.31 | 0.31 | 0.30 | 0.30 | 0.30 | 0.30 |
| 10.573 | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 |
| 10.617 | 0.28 | 0.28 | 0.28 | 0.28 | 0.27 | 0.27 | 0.27 |
| 10.661 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.26 | 0.26 |
| 10.705 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 |
| 10.750 | 0.26 | 0.26 | 0.26 | 0.26 | 0.25 | 0.25 | 0.25 |
| 10.794 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 10.838 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 |
| 10.882 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 |
| 10.927 | 0.24 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| 10.971 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| 11.015 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| 11.059 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| 11.103 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| 11.148 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 |
| 11.192 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| 11.236 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| 11.280 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | | |
|---|---|---|---|---|
| A1+A2 | Outlet | .0008 | 88. | .1 |
| A3,4,5,7 T | Outlet | .00086 | 97. | .1 |
| A6+A8 | Outlet | .00127 | 93. | .121 |



Los Alamitos Stem Bldg
PRE Development

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| 11.324 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| 11.369 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| 11.413 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.15 | 0.15 |
| 11.457 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| 11.501 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| 11.545 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| 11.590 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| 11.634 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| 11.678 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.14 |
| 11.722 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| 11.767 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| 11.811 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| 11.855 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| 11.899 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 |
| 11.943 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.14 | 0.13 |
| 11.988 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 12.032 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 12.076 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 12.120 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 12.164 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 12.209 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 12.253 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 12.297 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 12.341 | 0.13 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 12.385 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 12.430 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 12.474 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 12.518 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 12.562 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | | |
|---|---|---|---|---|
| A1+A2 | Outlet | .0008 | 88. | .1 |
| A3,4,5,7 T | Outlet | .00086 | 97. | .1 |
| A6+A8 | Outlet | .00127 | 93. | .121 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 12.607 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 12.651 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 12.695 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.07 | 0.07 |
| 12.739 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.783 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.828 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.872 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.916 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.960 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.004 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.049 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.093 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.137 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.181 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.225 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.270 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.314 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.358 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.402 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.447 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.491 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.535 | 0.06 | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 |





| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 13.579 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.623 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.668 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.712 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.756 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.800 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| A1+A2 | Outlet | .0008 | 88. | .1 | | | |
| A3,4,5,7 T | Outlet | .00086 | 97. | .1 | | | |
| A6+A8 | Outlet | .00127 | 93. | .121 | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 13.844 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.889 | 0.05 | 0.05 | 0.05 | | | | |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
PRE Development

STORM 2-Yr

SUB-AREA:

| | | | | |
|---|---|---|---|---|
| A1+A2 | Outlet | .0008 | 88. | .1 |
| A3,4,5,7 T | Outlet | .00086 | 97. | .1 |
| A6+A8 | Outlet | .00127 | 93. | .121 |



Los Alamitos Stem Bldg
PRE Development

| Area or Reach Identifier | Drainage Area (sq mi) | Alternate | Peak Flow by Storm 2-Yr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| A1+A2 | 0.800E-03 | | 0.37 | | | | |
| A3,4,5,7 T | 0.860E-03 | | 0.72 | | | | |
| A6+A8 | 0.001 | | 0.81 | | | | |
| A9 | 0.250E-03 | | 0.22 | | | | |
| OUTLET | 0.003 | | 2.10 | | | | |

WinTR-20 Printed Page File  Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10  0  0  0.05
Los Alamitos Stem Bldg
Post Development

SUB-AREA:

| | | | | |
|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 |
| DMA2 | Outlet | .00073 | 96. | .1 |
| DMA3 | Outlet | .0005 | 95. | .1 |
| DMA4E | Outlet | .00025 | 98. | .1 |
| DMA4w | Outlet | .00106 | 95. | .1 |

STREAM REACH:

STORM ANALYSIS:
2-Yr  2.0  Type I  2

STRUCTURE RATING:

GLOBAL OUTPUT:
2  0.05  YYYYN  YYYYNN

WinTR-20 Printed Page File  End of Input Data List

Los Alamitos Stem Bldg
Post Development

Name of printed page file:
TR20.out

STORM 2-Yr

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|
| DMA1 | 0.660E-03 | | 0.763 | | 9.93 | 0.55 | 831.74 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 8.874 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.918 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.962 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 9.007 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 |
| 9.051 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.095 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.139 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.183 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.228 | 0.06 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.272 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.316 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.360 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 |
| 9.404 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.449 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.493 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 |
| 9.537 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10 | 0.10 | 0.10 |
| 9.581 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 |
| 9.625 | 0.12 | 0.12 | 0.13 | 0.13 | 0.14 | 0.14 | 0.15 |
| 9.670 | 0.16 | 0.16 | 0.17 | 0.17 | 0.18 | 0.18 | 0.18 |
| 9.714 | 0.19 | 0.19 | 0.19 | 0.20 | 0.21 | 0.22 | 0.23 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
Post Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 | |
| DMA2 | Outlet | .00073 | 96. | .1 | |
| DMA3 | Outlet | .0005 | 95. | .1 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.758 | 0.24 | 0.25 | 0.26 | 0.27 | 0.28 | 0.28 | 0.29 |
| 9.802 | 0.30 | 0.30 | 0.31 | 0.32 | 0.33 | 0.34 | 0.35 |
| 9.847 | 0.37 | 0.39 | 0.41 | 0.43 | 0.45 | 0.47 | 0.49 |
| 9.891 | 0.51 | 0.52 | 0.53 | 0.54 | 0.55 | 0.55 | 0.55 |
| 9.935 | 0.55 | 0.54 | 0.53 | 0.52 | 0.51 | 0.50 | 0.49 |
| 9.979 | 0.48 | 0.47 | 0.46 | 0.45 | 0.45 | 0.44 | 0.43 |
| 10.023 | 0.42 | 0.41 | 0.40 | 0.38 | 0.36 | 0.34 | 0.31 |
| 10.068 | 0.29 | 0.27 | 0.25 | 0.24 | 0.22 | 0.21 | 0.20 |
| 10.112 | 0.19 | 0.18 | 0.17 | 0.17 | 0.16 | 0.16 | 0.15 |
| 10.156 | 0.15 | 0.15 | 0.14 | 0.14 | 0.14 | 0.14 | 0.13 |
| 10.200 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.12 |
| 10.244 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 10.289 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 10.333 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.10 | 0.10 |
| 10.377 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 10.421 | 0.10 | 0.10 | 0.10 | 0.09 | 0.09 | 0.09 | 0.09 |
| 10.465 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.08 | 0.08 |
| 10.510 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 10.554 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 10.598 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |





| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 10.642 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.687 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.731 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.775 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.819 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.863 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.908 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.952 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.996 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.040 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.084 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.129 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.173 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.217 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.261 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.305 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.350 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.394 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.438 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.482 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.527 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
Post Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| | DMA1 | Outlet | .00066 | 97. | .1 |
| | DMA2 | Outlet | .00073 | 96. | .1 |
| | DMA3 | Outlet | .0005 | 95. | .1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| DMA2 | 0.730E-03 | 0.756 | 9.93 | 0.58 | 792.00 | |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| 8.879 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.923 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.968 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 9.012 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 |
| 9.056 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.100 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.144 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.189 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 |
| 9.233 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.277 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.321 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.365 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.410 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.454 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.498 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 |
| 9.542 | 0.09 | 0.09 | 0.10 | 0.10 | 0.10 | 0.11 | 0.11 |
| 9.587 | 0.11 | 0.11 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 9.631 | 0.13 | 0.13 | 0.14 | 0.14 | 0.15 | 0.15 | 0.16 |
| 9.675 | 0.17 | 0.17 | 0.18 | 0.18 | 0.18 | 0.19 | 0.19 |





| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| 9.719 | 0.19 | 0.20 | 0.21 | 0.21 | 0.22 | 0.23 | 0.24 |
| 9.763 | 0.25 | 0.26 | 0.27 | 0.28 | 0.29 | 0.30 | 0.31 |
| 9.808 | 0.31 | 0.32 | 0.33 | 0.34 | 0.35 | 0.37 | 0.39 |
| 9.852 | 0.41 | 0.43 | 0.45 | 0.47 | 0.49 | 0.51 | 0.53 |
| 9.896 | 0.54 | 0.56 | 0.57 | 0.57 | 0.58 | 0.58 | 0.58 |
| 9.940 | 0.57 | 0.56 | 0.55 | 0.54 | 0.53 | 0.52 | 0.51 |
| 9.984 | 0.50 | 0.49 | 0.48 | 0.47 | 0.47 | 0.46 | 0.45 |
| 10.029 | 0.44 | 0.42 | 0.41 | 0.38 | 0.36 | 0.34 | 0.32 |
| 10.073 | 0.29 | 0.27 | 0.25 | 0.24 | 0.22 | 0.21 | 0.20 |
| 10.117 | 0.19 | 0.19 | 0.18 | 0.17 | 0.17 | 0.16 | 0.16 |
| 10.161 | 0.16 | 0.15 | 0.15 | 0.15 | 0.14 | 0.14 | 0.14 |
| 10.205 | 0.14 | 0.14 | 0.14 | 0.14 | 0.13 | 0.13 | 0.13 |
| 10.250 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.12 | 0.12 |
| 10.294 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 10.338 | 0.12 | 0.12 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 10.382 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.10 | 0.10 |
| 10.427 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 10.471 | 0.10 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 10.515 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 10.559 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 10.603 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
Post Development

STORM 2-Yr

SUB-AREA:

| | | | | |
|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 |
| DMA2 | Outlet | .00073 | 96. | .1 |
| DMA3 | Outlet | .0005 | 95. | .1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10.648 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 10.692 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.736 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.780 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.824 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.869 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.913 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.957 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.001 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.045 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.090 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.134 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.178 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.222 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.267 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.311 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.355 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.399 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.443 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 11.488 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.532 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.576 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.620 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.664 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.709 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.753 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.797 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 11.841 | 0.05 | 0.05 | 0.05 | | | | |



Los Alamitos Stem Bldg
Post Development

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|
| DMA3 | 0.500E-03 | | 0.502 | | 9.93 | 0.37 | 749.32 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.455 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 9.499 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.06 |
| 9.543 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 |
| 9.587 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 |
| 9.632 | 0.08 | 0.08 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10 |
| 9.676 | 0.11 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 | 0.12 |
| 9.720 | 0.12 | 0.13 | 0.13 | 0.14 | 0.14 | 0.15 | 0.16 |
| 9.764 | 0.16 | 0.17 | 0.18 | 0.18 | 0.19 | 0.19 | 0.20 |
| 9.808 | 0.20 | 0.20 | 0.21 | 0.22 | 0.23 | 0.24 | 0.25 |
| 9.853 | 0.26 | 0.28 | 0.29 | 0.31 | 0.32 | 0.33 | 0.34 |

WinTR-20: Version 1.10  0  0  0.05
lamitos Stem Bldg  (continued)
Post Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 | |
| DMA2 | Outlet | .00073 | 96. | .1 | |
| DMA3 | Outlet | .0005 | 95. | .1 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.897 | 0.35 | 0.36 | 0.37 | 0.37 | 0.37 | 0.37 | 0.37 |
| 9.941 | 0.37 | 0.36 | 0.36 | 0.35 | 0.34 | 0.34 | 0.33 |
| 9.985 | 0.32 | 0.32 | 0.31 | 0.31 | 0.30 | 0.30 | 0.29 |
| 10.029 | 0.29 | 0.28 | 0.26 | 0.25 | 0.23 | 0.22 | 0.20 |
| 10.074 | 0.19 | 0.18 | 0.16 | 0.15 | 0.15 | 0.14 | 0.13 |
| 10.118 | 0.13 | 0.12 | 0.12 | 0.11 | 0.11 | 0.11 | 0.10 |
| 10.162 | 0.10 | 0.10 | 0.10 | 0.10 | 0.09 | 0.09 | 0.09 |
| 10.206 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 10.250 | 0.09 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 10.295 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 10.339 | 0.08 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.383 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.427 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 |
| 10.472 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.516 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.560 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 10.604 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 10.648 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|
| DMA4E | 0.250E-03 | | 0.437 | | 9.93 | 0.22 | 866.40 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.632 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.676 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.721 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.10 |
| 9.765 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.12 | 0.12 |
| 9.809 | 0.12 | 0.12 | 0.13 | 0.13 | 0.14 | 0.14 | 0.15 |
| 9.853 | 0.16 | 0.17 | 0.17 | 0.18 | 0.19 | 0.19 | 0.20 |





| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.897 | 0.21 | 0.21 | 0.21 | 0.22 | 0.22 | 0.22 | 0.22 |
| 9.942 | 0.21 | 0.21 | 0.21 | 0.20 | 0.20 | 0.19 | 0.19 |
| 9.986 | 0.18 | 0.18 | 0.18 | 0.18 | 0.17 | 0.17 | 0.17 |
| 10.030 | 0.16 | 0.15 | 0.15 | 0.14 | 0.13 | 0.12 | 0.11 |
| 10.074 | 0.11 | 0.10 | 0.09 | 0.09 | 0.08 | 0.08 | 0.07 |
| 10.119 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.163 | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 10.207 | 0.05 | 0.05 | 0.05 | | | | |

| Area or Reach | Drainage Area | Rain Gage ID or | Runoff Amount | Peak Flow Elevation | Peak Flow Time | Peak Flow Rate | Peak Flow Rate |
|---|---|---|---|---|---|---|---|

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
Post Development

STORM 2-Yr

SUB-AREA:

| | | | | |
|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 |
| DMA2 | Outlet | .00073 | 96. | .1 |
| DMA3 | Outlet | .0005 | 95. | .1 |

| Identifier | (sq mi) | Location | (in) | (ft) | (hr) | (cfs) | (csm) |
|---|---|---|---|---|---|---|---|
| DMA4w | 0.001 | | 0.880 | | 9.93 | 0.79 | 749.32 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 8.552 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.596 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.640 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.684 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.728 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.773 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.817 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.861 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 |
| 8.905 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 8.949 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 8.994 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.038 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.082 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.126 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.170 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.215 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 9.259 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 9.303 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10 |
| 9.347 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 9.392 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 9.436 | 0.10 | 0.10 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 9.480 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 9.524 | 0.11 | 0.12 | 0.12 | 0.12 | 0.13 | 0.13 | 0.13 |
| 9.568 | 0.14 | 0.14 | 0.15 | 0.15 | 0.15 | 0.15 | 0.16 |
| 9.613 | 0.16 | 0.16 | 0.17 | 0.17 | 0.18 | 0.18 | 0.19 |
| 9.657 | 0.20 | 0.21 | 0.22 | 0.22 | 0.23 | 0.24 | 0.24 |
| 9.701 | 0.25 | 0.25 | 0.26 | 0.26 | 0.27 | 0.28 | 0.29 |
| 9.745 | 0.30 | 0.32 | 0.33 | 0.35 | 0.36 | 0.37 | 0.39 |
| 9.789 | 0.40 | 0.41 | 0.42 | 0.42 | 0.43 | 0.45 | 0.46 |
| 9.834 | 0.48 | 0.50 | 0.53 | 0.56 | 0.59 | 0.62 | 0.65 |
| 9.878 | 0.68 | 0.70 | 0.73 | 0.75 | 0.76 | 0.78 | 0.79 |
| 9.922 | 0.79 | 0.79 | 0.79 | 0.78 | 0.77 | 0.76 | 0.74 |





| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.966 | 0.73 | 0.71 | 0.70 | 0.69 | 0.67 | 0.66 | 0.65 |
| 10.010 | 0.65 | 0.64 | 0.62 | 0.61 | 0.58 | 0.56 | 0.53 |
| 10.055 | 0.50 | 0.47 | 0.43 | 0.40 | 0.38 | 0.35 | 0.33 |
| 10.099 | 0.31 | 0.29 | 0.28 | 0.27 | 0.26 | 0.25 | 0.24 |
| 10.143 | 0.23 | 0.23 | 0.22 | 0.22 | 0.21 | 0.21 | 0.20 |
| 10.187 | 0.20 | 0.20 | 0.20 | 0.19 | 0.19 | 0.19 | 0.19 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
Post Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 | |
| DMA2 | Outlet | .00073 | 96. | .1 | |
| DMA3 | Outlet | .0005 | 95. | .1 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10.232 | 0.19 | 0.19 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| 10.276 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| 10.320 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 |
| 10.364 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 | 0.15 |
| 10.408 | 0.15 | 0.15 | 0.15 | 0.14 | 0.14 | 0.14 | 0.14 |
| 10.453 | 0.14 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 10.497 | 0.13 | 0.13 | 0.13 | 0.12 | 0.12 | 0.12 | 0.12 |
| 10.541 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.11 |
| 10.585 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 10.629 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 | 0.11 |
| 10.674 | 0.11 | 0.11 | 0.11 | 0.10 | 0.10 | 0.10 | 0.10 |
| 10.718 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 10.762 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 10.806 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| 10.850 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.09 | 0.09 |
| 10.895 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 10.939 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 10.983 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 11.027 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 |
| 11.072 | 0.09 | 0.09 | 0.09 | 0.09 | 0.09 | 0.08 | 0.08 |
| 11.116 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.160 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.204 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.248 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.293 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.337 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.381 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.425 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.469 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.514 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.558 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 11.602 | 0.08 | 0.08 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 |
| 11.646 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.690 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.735 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.779 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.823 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.867 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.912 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.956 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.000 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.044 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.088 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.133 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.177 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |



Los Alamitos Stem Bldg
Post Development

| Line Start Time | Flow Values @ time increment of 0.006 hr | | | | | | |
|---|---|---|---|---|---|---|---|
| (hr) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
| 12.221 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
Post Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 | |
| DMA2 | Outlet | .00073 | 96. | .1 | |
| DMA3 | Outlet | .0005 | 95. | .1 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 12.265 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.309 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.354 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.398 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.442 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.486 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.530 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.575 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.619 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.663 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.707 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.752 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.796 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.840 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.884 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.928 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.973 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.017 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.061 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.105 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.149 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.194 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.238 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.282 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.326 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.370 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.415 | 0.05 | 0.05 | 0.05 | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|
| OUTLET | 0.003 | | 0.734 | | 9.93 | 2.51 | 785.06 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 8.557 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.601 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 8.645 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.690 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.734 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.778 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.822 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 8.867 | 0.06 | 0.06 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| 8.911 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 | 0.17 |
| 8.955 | 0.17 | 0.17 | 0.17 | 0.18 | 0.18 | 0.18 | 0.18 |
| 8.999 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| 9.043 | 0.18 | 0.18 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |



Los Alamitos Stem Bldg
Post Development

WinTR-20: Version 1.10  0  0  0.05
lamitos Stem Bldg  (continued)
Post Development

STORM 2-Yr

SUB-AREA:

| | | | | |
|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 |
| DMA2 | Outlet | .00073 | 96. | .1 |
| DMA3 | Outlet | .0005 | 95. | .1 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| 9.088 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.20 | 0.20 |
| 9.132 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.21 |
| 9.176 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| 9.220 | 0.21 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |
| 9.264 | 0.22 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| 9.309 | 0.23 | 0.23 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 |
| 9.353 | 0.24 | 0.24 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 9.397 | 0.25 | 0.25 | 0.26 | 0.26 | 0.26 | 0.26 | 0.26 |
| 9.441 | 0.26 | 0.26 | 0.31 | 0.32 | 0.32 | 0.32 | 0.32 |
| 9.485 | 0.32 | 0.33 | 0.33 | 0.33 | 0.33 | 0.33 | 0.34 |
| 9.530 | 0.34 | 0.35 | 0.36 | 0.37 | 0.38 | 0.39 | 0.41 |
| 9.574 | 0.42 | 0.43 | 0.44 | 0.45 | 0.45 | 0.46 | 0.47 |
| 9.618 | 0.48 | 0.49 | 0.54 | 0.57 | 0.59 | 0.62 | 0.64 |
| 9.662 | 0.67 | 0.69 | 0.72 | 0.74 | 0.76 | 0.78 | 0.80 |
| 9.707 | 0.81 | 0.83 | 0.84 | 0.86 | 0.89 | 0.93 | 0.97 |
| 9.751 | 1.01 | 1.06 | 1.10 | 1.15 | 1.19 | 1.23 | 1.27 |
| 9.795 | 1.30 | 1.33 | 1.35 | 1.38 | 1.42 | 1.47 | 1.52 |
| 9.839 | 1.59 | 1.68 | 1.77 | 1.86 | 1.96 | 2.05 | 2.14 |
| 9.883 | 2.22 | 2.30 | 2.36 | 2.41 | 2.46 | 2.49 | 2.51 |
| 9.928 | 2.51 | 2.50 | 2.48 | 2.45 | 2.40 | 2.36 | 2.31 |
| 9.972 | 2.26 | 2.21 | 2.16 | 2.12 | 2.09 | 2.06 | 2.03 |
| 10.016 | 2.00 | 1.96 | 1.91 | 1.84 | 1.76 | 1.67 | 1.57 |
| 10.060 | 1.47 | 1.37 | 1.28 | 1.19 | 1.11 | 1.03 | 0.97 |
| 10.104 | 0.92 | 0.88 | 0.84 | 0.81 | 0.78 | 0.76 | 0.73 |
| 10.149 | 0.71 | 0.70 | 0.68 | 0.66 | 0.65 | 0.64 | 0.63 |
| 10.193 | 0.62 | 0.61 | 0.61 | 0.60 | 0.60 | 0.59 | 0.54 |
| 10.237 | 0.53 | 0.53 | 0.52 | 0.52 | 0.51 | 0.50 | 0.50 |
| 10.281 | 0.49 | 0.49 | 0.49 | 0.48 | 0.48 | 0.48 | 0.48 |
| 10.325 | 0.47 | 0.47 | 0.47 | 0.46 | 0.46 | 0.45 | 0.45 |
| 10.370 | 0.44 | 0.44 | 0.43 | 0.43 | 0.43 | 0.42 | 0.42 |
| 10.414 | 0.42 | 0.42 | 0.41 | 0.41 | 0.40 | 0.40 | 0.40 |
| 10.458 | 0.39 | 0.38 | 0.38 | 0.38 | 0.37 | 0.37 | 0.36 |
| 10.502 | 0.36 | 0.36 | 0.36 | 0.35 | 0.35 | 0.35 | 0.35 |
| 10.547 | 0.34 | 0.34 | 0.34 | 0.33 | 0.33 | 0.33 | 0.32 |
| 10.591 | 0.32 | 0.32 | 0.32 | 0.32 | 0.32 | 0.31 | 0.31 |
| 10.635 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.30 | 0.30 |
| 10.679 | 0.30 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 | 0.25 |
| 10.723 | 0.25 | 0.25 | 0.25 | 0.24 | 0.24 | 0.24 | 0.24 |
| 10.768 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 | 0.24 |
| 10.812 | 0.24 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 |
| 10.856 | 0.23 | 0.23 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 |
| 10.900 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 | 0.22 |
| 10.944 | 0.22 | 0.22 | 0.22 | 0.22 | 0.21 | 0.21 | 0.21 |
| 10.989 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 |
| 11.033 | 0.21 | 0.21 | 0.21 | 0.21 | 0.21 | 0.20 | 0.20 |
| 11.077 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| 11.121 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| 11.165 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 |
| 11.210 | 0.20 | 0.20 | 0.20 | 0.20 | 0.20 | 0.19 | 0.19 |
| 11.254 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| 11.298 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |

WinTR-20: Version 1.10 0 0 0.05
lamitos Stem Bldg (continued)
Post Development

STORM 2-Yr

SUB-AREA:

| | | | | |
|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 |
| DMA2 | Outlet | .00073 | 96. | .1 |
| DMA3 | Outlet | .0005 | 95. | .1 |



Los Alamitos Stem Bldg
Post Development

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| 11.342 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| 11.387 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 | 0.19 |
| 11.431 | 0.19 | 0.19 | 0.19 | 0.19 | 0.18 | 0.18 | 0.18 |
| 11.475 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| 11.519 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| 11.563 | 0.18 | 0.18 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 11.608 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 11.652 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 11.696 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.12 | 0.12 |
| 11.740 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 11.784 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 |
| 11.829 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.12 | 0.07 |
| 11.873 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.917 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 11.961 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.005 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.050 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.094 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.138 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 12.182 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.227 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.271 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.315 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.359 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.403 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.448 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.492 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.536 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.580 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.624 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.669 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.713 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.757 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.801 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.845 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.890 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.934 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 12.978 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 |
| 13.022 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.067 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.111 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.155 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.199 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.243 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.288 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.332 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |
| 13.376 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 |

WinTR-20 Printed Page File  Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10  0  0  0.05
lamitos Stem Bldg  (continued)
Post Development

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| | DMA1 | Outlet | .00066 | 97. | .1 |
| | DMA2 | Outlet | .00073 | 96. | .1 |
| | DMA3 | Outlet | .0005 | 95. | .1 |
| 13.420 | 0.05 | 0.05 | | | |



Los Alamitos Stem Bldg
Post Development

| Area or Reach Identifier | Drainage Area (sq mi) | Alternate | Peak Flow by Storm 2-Yr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| DMA1 | 0.660E-03 | | 0.55 | | | | |
| DMA2 | 0.730E-03 | | 0.58 | | | | |
| DMA3 | 0.500E-03 | | 0.37 | | | | |
| DMA4E | 0.250E-03 | | 0.22 | | | | |
| DMA4w | 0.001 | | 0.79 | | | | |
| OUTLET | 0.003 | | 2.51 | | | | |

WinTR-20 Printed Page File  Beginning of Input Data List
TR20.inp

```
WinTR-20: Version 1.10                  0         0         0.05
Los Alamitos Stem Bldg
Post Development   3/4' first flush

SUB-AREA:
          DMA1      Outlet              .00066    97.       .1
          DMA2      Outlet              .00073    96.       .1
          DMA3      Outlet              .0005     95.       .1
          DMA4E     Outlet              .00025    98.       .1
          DMA4w     Outlet              .00106    95.       .1

STREAM REACH:

STORM ANALYSIS:
          2-Yr                          .75       Type I    2

STRUCTURE RATING:


GLOBAL OUTPUT:
          2         0.05                YYYYN     YYYYNN
```

WinTR-20 Printed Page File  End of Input Data List

Los Alamitos Stem Bldg
Post Development   3/4' first flush

Name of printed page file:
TR20.out

STORM 2-Yr

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|
| DMA1 | 0.660E-03 | | 0.101 | | 9.93 | 0.16 | 238.24 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.725 | 0.05 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.770 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.814 | 0.08 | 0.08 | 0.09 | 0.09 | 0.10 | 0.10 | 0.11 |
| 9.858 | 0.11 | 0.12 | 0.13 | 0.13 | 0.14 | 0.14 | 0.15 |
| 9.902 | 0.15 | 0.15 | 0.15 | 0.16 | 0.16 | 0.16 | 0.16 |
| 9.946 | 0.15 | 0.15 | 0.15 | 0.15 | 0.14 | 0.14 | 0.14 |
| 9.991 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.12 |
| 10.035 | 0.12 | 0.11 | 0.11 | 0.10 | 0.10 | 0.09 | 0.08 |
| 10.079 | 0.08 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 |
| 10.123 | 0.05 | 0.05 | | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Peak Flow Time (hr) | Peak Flow Rate (cfs) | Peak Flow Rate (csm) |
|---|---|---|---|---|---|---|---|
| DMA2 | 0.730E-03 | | 0.083 | | 9.93 | 0.15 | 201.29 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|

WinTR-20 Printed Page File  Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10  0  0  0.05
lamitos Stem Bldg  (continued)
Post Development  3/4' first flush

STORM 2-Yr

SUB-AREA:

| | | | | |
|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 |
| DMA2 | Outlet | .00073 | 96. | .1 |
| DMA3 | Outlet | .0005 | 95. | .1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.746 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 |
| 9.790 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.08 | 0.08 |
| 9.834 | 0.08 | 0.09 | 0.09 | 0.10 | 0.10 | 0.11 | 0.12 |
| 9.878 | 0.12 | 0.13 | 0.13 | 0.14 | 0.14 | 0.14 | 0.14 |
| 9.922 | 0.15 | 0.15 | 0.15 | 0.15 | 0.14 | 0.14 | 0.14 |
| 9.967 | 0.14 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 | 0.13 |
| 10.011 | 0.12 | 0.12 | 0.12 | 0.12 | 0.11 | 0.11 | 0.10 |
| 10.055 | 0.10 | 0.09 | 0.08 | 0.08 | 0.07 | 0.07 | 0.06 |
| 10.099 | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Time (hr) | Rate (cfs) | Rate (csm) |
|---|---|---|---|---|---|---|---|
| DMA3 | 0.500E-03 | | 0.050 | | 9.94 | 0.08 | 168.48 |



Los Alamitos Stem Bldg
Post Development  3/4' first flush

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| 9.848 | 0.05 | 0.06 | 0.06 | 0.06 | 0.07 | 0.07 | 0.07 |
| 9.892 | 0.07 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.936 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 | 0.08 |
| 9.980 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.024 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.05 |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Time (hr) | Rate (cfs) | Rate (csm) |
|---|---|---|---|---|---|---|---|
| DMA4E | 0.250E-03 | | 0.072 | | 9.93 | 0.07 | 278.39 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| 9.858 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 |
| 9.902 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 | 0.07 |
| 9.946 | 0.07 | 0.07 | 0.07 | 0.06 | 0.06 | 0.06 | 0.06 |
| 9.991 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.05 | 0.05 |
| 10.035 | 0.05 | | | | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Time (hr) | Rate (cfs) | Rate (csm) |
|---|---|---|---|---|---|---|---|

WinTR-20: Version 1.10  0  0  0.05
lamitos Stem Bldg  (continued)
Post Development  3/4' first flush

STORM 2-Yr

SUB-AREA:

| | | | | | |
|---|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 | |
| DMA2 | Outlet | .00073 | 96. | .1 | |
| DMA3 | Outlet | .0005 | 95. | .1 | |
| DMA4w | 0.001 | 0.076 | 9.94 | 0.18 | 168.48 |

| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.728 | 0.05 | 0.05 | 0.06 | 0.06 | 0.06 | 0.06 | 0.07 |
| 9.772 | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 |
| 9.816 | 0.09 | 0.09 | 0.09 | 0.10 | 0.10 | 0.11 | 0.12 |
| 9.860 | 0.13 | 0.13 | 0.14 | 0.15 | 0.15 | 0.16 | 0.16 |
| 9.904 | 0.17 | 0.17 | 0.18 | 0.18 | 0.18 | 0.18 | 0.18 |
| 9.949 | 0.18 | 0.17 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 |
| 9.993 | 0.16 | 0.16 | 0.16 | 0.15 | 0.15 | 0.15 | 0.15 |
| 10.037 | 0.14 | 0.13 | 0.13 | 0.12 | 0.11 | 0.10 | 0.10 |
| 10.081 | 0.09 | 0.08 | 0.08 | 0.07 | 0.07 | 0.07 | 0.07 |
| 10.125 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.06 | 0.05 |
| 10.170 | 0.05 | 0.05 | 0.05 | 0.05 | | | |

| Area or Reach Identifier | Drainage Area (sq mi) | Rain Gage ID or Location | Runoff Amount (in) | Peak Flow Elevation (ft) | Time (hr) | Rate (cfs) | Rate (csm) |
|---|---|---|---|---|---|---|---|
| OUTLET | 0.003 | | 0.078 | | 9.93 | 0.64 | 198.87 |





| Line Start Time (hr) | Flow Values @ time increment of 0.006 hr (cfs) | | | | | | |
|---|---|---|---|---|---|---|---|
| 9.728 | 0.10 | 0.11 | 0.12 | 0.17 | 0.17 | 0.18 | 0.19 |
| 9.772 | 0.20 | 0.21 | 0.22 | 0.22 | 0.23 | 0.23 | 0.24 |
| 9.816 | 0.25 | 0.25 | 0.26 | 0.28 | 0.29 | 0.36 | 0.40 |
| 9.860 | 0.46 | 0.48 | 0.51 | 0.53 | 0.55 | 0.57 | 0.59 |
| 9.904 | 0.61 | 0.62 | 0.63 | 0.63 | 0.64 | 0.64 | 0.63 |
| 9.949 | 0.62 | 0.61 | 0.60 | 0.59 | 0.58 | 0.57 | 0.56 |
| 9.993 | 0.55 | 0.55 | 0.54 | 0.54 | 0.53 | 0.52 | 0.50 |
| 10.037 | 0.49 | 0.42 | 0.39 | 0.37 | 0.35 | 0.32 | 0.26 |
| 10.081 | 0.24 | 0.22 | 0.21 | 0.20 | 0.19 | 0.18 | 0.17 |
| 10.125 | 0.17 | 0.15 | 0.06 | 0.06 | 0.06 | 0.06 | 0.05 |
| 10.170 | 0.05 | 0.05 | 0.05 | 0.05 | | | |

WinTR-20 Printed Page File  Beginning of Input Data List
TR20.inp

WinTR-20: Version 1.10  0  0  0.05
lamitos Stem Bldg  (continued)
Post Development  3/4' first flush

STORM 2-Yr

SUB-AREA:

| | | | | |
|---|---|---|---|---|
| DMA1 | Outlet | .00066 | 97. | .1 |
| DMA2 | Outlet | .00073 | 96. | .1 |
| DMA3 | Outlet | .0005 | 95. | .1 |



Los Alamitos Stem Bldg
Post Development  3/4' first flush

| Area or Reach Identifier | Drainage Area (sq mi) | Alternate | Peak Flow by Storm 2-Yr (cfs) | (cfs) | (cfs) | (cfs) | (cfs) |
|---|---|---|---|---|---|---|---|
| DMA1 | 0.660E-03 | | 0.16 | | | | |
| DMA2 | 0.730E-03 | | 0.15 | | | | |
| DMA3 | 0.500E-03 | | 0.08 | | | | |
| DMA4E | 0.250E-03 | | 0.07 | | | | |
| DMA4w | 0.001 | | 0.18 | | | | |
| OUTLET | 0.003 | | 0.64 | | | | |