# Appendix A
# Water Quality Parameters for the Los Angeles River and Ballona Creek Wet Weather Models

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Prepared for:
USEPA Region 9
Los Angeles Regional Water Quality Control Board

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**Table A-1.** Model Parameters Describing Suspended Sediment Washoff Behavior (SCCWRP, 2004).

| Parameter | Land Use* | | | | | | |
|---|---|---|---|---|---|---|---|
| | **AGR** | **COM** | **HDR** | **IND** | **LDR** | **MIX** | **OPEN** |
| **Pervious** | | | | | | | |
| Splash detachment | | | | | | | |
| *SMPF* | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| *KRER* | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 |
| *JRER* | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *AFFIX* | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 |
| *COVER* | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *NVSI* | 20 | 20 | 20 | 20 | 20 | 20 | 20 |
| Soil matrix scouring | | | | | | | |
| *KSER* | 8 | 8 | 8 | 8 | 8 | 8 | 8 |
| *JSER* | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| *KGER* | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *JGER* | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Impervious** | | | | | | | |
| *KEIM* | 0.05 | 0.05 | 0.1 | 0.35 | 0.15 | 0.05 | 0.2 |
| *JEIM* | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| *ACCSDP* | 0.04 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 |
| *REMSDP* | 0.25 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 | 0.025 |

*Land Use: AGR = Agriculture; COM = Commercial; HDR = High Density Residential; IND = Industrial; LDR = Low Density Residential; MIX = Mixed Urban; OPEN = Open

**Parameter Descriptions:**

*SMPF* is the supporting management practice factor.
*KRER* is the coefficient in the soil detachment equation.
*JRER* is the exponent in the soil detachment equation.
*AFFIX* is the fraction by which detached sediment storage decreases each day as a result of soil compaction.
*COVER* is the fraction of land surface which is shielded from rainfall erosion (not considering snow cover, which is handled by the program).
*NVSI* is the rate at which sediment enters detached storage from the atmosphere.
*KSER* and *JSER* are the coefficient and exponent in the detached sediment washoff equation.
*KGER* and *JGER* are the coefficient and exponent in the matrix soil scour equation, which simulates gully erosion.
*KEIM* is the coefficient in the solids washoff equation.
*JEIM* is the exponent in the solids washoff equation.
*ACCSDP* is the rate at which solids accumulate on the land surface.
*REMSDP* is the fraction of solids storage which is removed each day when there is no runoff.

**Table A-2.** Model Parameters Describing Suspended Sediment In-Stream Behavior (SCCWRP, 2004).

| **Reach GEN** | *BEDWID* | *BEDWRN* | *POR* | | | |
|---|---|---|---|---|---|---|
| | 1 | 1 | 0.3 | | | |
| **Reach Sand** | *D* | *W* | *RHO* | *KSAND* | *EXPSND* | |
| | 0.005 | 0.02 | 2.5 | 0.35 | 3.2 | |
| **Reach Silt** | *D* | *W* | *RHO* | *TAUCD* | *TAUCS* | *M* |
| | 0.0006 | 0.01 | 2.2 | 0.15 | 0.90 | 3 |
| **Reach Clay** | *D* | *W* | *RHO* | *TAUCD* | *TAUCS* | *M* |
| | 0.00006 | 0.0001 | 2 | 0.08 | 0.8 | 5 |

**Parameter Descriptions:**

*BEDWID* is the width of the cross-section over which HSPF will assume bed sediment is deposited.
*BEDWRN* is the bed depth which, if exceeded (e.g., through deposition) will cause a warning message to be printed in the echo file.
*POR* is the porosity of the bed (volume voids/total volume).
*D* is the effective diameter of the transported particles.
*W* is the corresponding fall velocity in still water.
*RHO* is the density of the particles.
*KSAND* and *EXPSND* are the coefficient and exponent in the sandload power function formula.
*TAUCD* is the critical bed shear stress for deposition.
*TAUCS* is the critical bed shear stress for scour.
*M* is the erodibility coefficient of the sediment.

**Table A-3.** Land Use-Specific Washoff Potency Factor (POTFW) Parameter Values for Trace Metals (SCCWRP, 2004).

| | **Trace Metal** | | |
|---|---|---|---|
| **Land Use*** | **Copper** | **Lead** | **Zinc** |
| AGR | 0.30 | 0.10 | 2.50 |
| COM | 1.00 | 1.00 | 10.20 |
| HDR | 0.80 | 0.80 | 7.50 |
| IND | 0.30 | 0.15 | 4.00 |
| LDR | 0.60 | 0.20 | 1.20 |
| MIX | 0.80 | 0.25 | 5.00 |
| OPEN | 0.12 | 0.02 | 0.50 |

*Land Use: AGR = Agriculture; COM = Commercial; HDR = High Density Residential; IND = Industrial; LDR = Low Density Residential; MIX = Mixed Urban; OPEN = Open